School Board Action Report

Elementary School Science Instructional Materials Adoption, April 2019

Seattle Public Schools is committed to making its online information accessible and usable to all people, regardless of ability or technology. Meeting web accessibility guidelines and standards is an ongoing process that we are consistently working to improve.

While Seattle Public Schools endeavors to only post documents optimized for accessibility, due to the nature and complexity of some documents, an accessible version of the document may not be available. In these limited circumstances, the District will provide equally effective alternate access.

For questions and more information about this document, please contact the following:

Brad Shigenaka
Curriculum Specialist – Curriculum, Assessment, and Instruction
bjshigenaka@seattleschools.org

This Board Action will approve the recommendation of the Elementary School Science Instructional Materials Adoption Committee for instructional materials for all elementary school science classrooms in grades K-5. This Report includes a set of supporting documents, some of which, by their nature, are not fully ADA-compliant.

SCHOOL BOARD ACTION REPORT

DATE: April 5, 2019
FROM: Ms. Denise Juneau, Superintendent
LEAD STAFF: MaryMargaret Welch, Science Program Manager (mmwelch@seattleschools.org)
Kyle Kinoshita, Executive Director of Curriculum, Assessment, and Instruction (kdkinoshita@seattleschools.org)
Diane DeBacker, Chief Academic Officer (dmdebacker@seattleschools.org)

For Introduction: ~~May 1,~~ May 15, 2019
For Action: ~~May 15,~~ May 29, 2019

1. TITLE

Elementary School Science Instructional Materials Adoption

2. PURPOSE

This Board Action will approve the recommendation of the Elementary School Science Instructional Materials Adoption Committee for instructional materials for all elementary school science classrooms in grades K-5.

3. RECOMMENDED MOTION

I move that the Seattle School Board approve the Elementary School Science Adoption Committee's recommendation to adopt AmplifyScience for instructional materials for all grade K-5 Seattle Public Schools science classrooms.

I further move that the Seattle School Board authorize the Superintendent to purchase AmplifyScience as the core instructional materials for all grade K-5 Seattle Public Schools classrooms for an amount not to exceed $2,368,870 in a three-year phased-in purchase and implementation plan out of the FY2020 (2019-20), FY2021 (2020-21), and FY2022 (2021-22) budgets, covering licensing through school years 2019-2020 through 2027-28, and an amount not to exceed $5,040,674 for in-house professional development and collaboration.

If the state legislature does not address current funding concerns, the District is authorized to fund a phased-in purchase and implementation plan within funding limitations, beginning with the 2020-21 budget, identifying when expenditures for this adoption can proceed as a part of the 2020-21 school year, and when the purchase and implementation plan can continue in the 2021-22 and 2022-23 school years.

4. BACKGROUND INFORMATION

A. Background

1. Previous Adopted K-5 Science Instructional Materials, 1995-Present

The last elementary school science instructional materials adoption in Seattle Public Schools was in 1995. Three different programs were included in the adoption: FOSS (Full Option Science System), STC (Smithsonian Science and Technology Concepts), and Insights, rather than adopting a comprehensive program from a single vendor. This resulted in a unit scope and sequence that created difficulties due to using formats from different vendors. The printed materials have publication dates that range from 1994-2005. The Curriculum Specialists had to create Teacher Guides for all the units to align to the 2009 State Science Standards and now nearly all vendor materials have been discontinued.

Current, relevant, and important science topics such as space science, engineering design, and inheritance are entirely absent from the current adopted curriculum. Other important topics such as the particulate nature of matter, earth science, and waves and energy are also not included. The lesson activities are primarily observations and “cookbook” investigations, in which students follow an experimental procedure with no embedded opportunities for sense-making. This has resulted in decades of science instruction characterized by “hands-on”, but not “minds-on.”

2. 2013 WA State K-12 Science Learning Standards, 2013-Present & Washington Comprehensive Assessment of Science (WCAS)

In 2013, the Washington State legislature officially adopted the national science standards called the Next Generation Science Standards (NGSS) as the Washington State K-12 Science Learning Standards (WSSLS). The new science and engineering standards call for a significant shift in instruction that will engage more students in science. The shift in science pedagogy called for in the new standards provides all students with 21st century skills not previously embedded within science coursework.

The 2013 Washington State Science Learning Standards are organized into three dimensions: science content, science and engineering practices, and cross-cutting concepts. The pedagogy called for in the new standards focuses on students “figuring out” instead of simply “learning about,” by engaging students in gathering evidence to explain scientific phenomena, discourse and argumentation, data analysis, supporting claims from evidence, and integrating technology into science education and engineering design. The new standards also include an entire strand focused on the engineering design process, both in practice and in the context of science content.

In spring of 2018, the new Washington Comprehensive Assessment of Science (WCAS) was implemented statewide for the first time at grades 5, 8, and 11. This is the first state assessment to assess student proficiency around the 2013 Washington State Science Learning Standards. The new test is an entirely digital assessment, requiring students to engage interactively with technology to manipulate elements on the screen to demonstrate understanding of scientific principles and practices. Each assessment item explicitly integrates at least two or three of the dimensions (Disciplinary Core Ideas, Cross-Cutting Concepts, and Science and Engineering Practices) that comprise the science standards. The test will be administered annually to all grade 5, 8, and 11 students across the state and will be a graduation requirement beginning in 2021.

3. K-5 Adoption Process and Committee Work, May 2018-Present

The School Board instructed the science content area of Curriculum, Assessment, and Instruction to launch an elementary school science instructional materials adoption in April 2018. The adoption process was carried out over a 12-month period and proceeded according to guidelines outlined in School Board Policy 2015. The process occurred in three phases: Stage 1, Field Test, and Stage 2 (see Attachment F).

3a. Stage 1: **Committee Determines Finalists for Field Test, June 2018-December 2018**

An Elementary School Science Adoption Committee comprised of teachers, school leaders, parents, professionals in STEM fields, and other community members was selected through an application process to ensure a committee that represented the diversity of stakeholders diverse in SPS, including geography, race, ethnicity, gender, and age (see Attachment D).

The committee members identified five categories and 74 specific criteria for evaluation, based on the needs, priorities, data, and research that emerged from the following sources:

- 2013 Washington State Science Learning Standards (adopted from the 2013 Next Generation Science Standards)
- Preliminary Family/Community and Teacher/Staff needs assessment and input survey, which identified the priorities around science materials, instruction, and learning in our district
- A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas (National Research Council [NRC] of the National Academy of Sciences)
- The Educators Evaluating the Quality of Instructional Products Rubric (EQuIP) for Science
- Anti-Bias Criteria Screening Tool outlined in Board Policy 2015
- WA OSPI Equity & Civil Rights Task Force
- SPS Formula for Success

The categories were weighted, and a draft of the Science Adoption Review Criteria was presented to the SPS Instructional Materials Committee (IMC) for feedback and the final draft approved for use as the committee's evaluation tool of candidate programs (see Attachment E). The weighted review criteria categories, as voted by the committee included:

- Category 1: Standards Alignment (22%)
- Category 2: Assessments (17%)
- Category 3: Inclusive Educational Practices (20%)
- Category 4: Evaluation of Bias Content (20%)
- Category 5: Instructional Planning and Support (21%)

Eleven curriculum vendors completed and submitted a Request for Proposal (RFP) for consideration in response to the SPS Purchasing Department's Request for Proposals.

Between September and December 2018, committee members worked collaboratively in small review teams, composed of both teachers and community members, to examine each of the eleven vendor instructional programs using the Review Criteria. The review teams assigned each criteria and category a quantitative score along with annotations based on evidence collected directly from the program materials.

Each of the eleven vendor instructional programs were reviewed a minimum of two times. Due to the breadth and depth of the criteria contained within the five categories within the Review Criteria, a protocol was proposed in which a vendor program could be eliminated from consideration if two separate review teams, independent from each other and without knowledge of each other's work, reaching consensus that the candidate materials did not meet the minimum alignment for science standards alignment or anti-bias content.

After each candidate vendor program was reviewed by two independent review teams, the Adoption Committee members eliminated seven of the eleven candidate vendor programs from consideration based on examination using the Review Criteria. The committee members then focused its efforts on the four remaining programs in depth. Using the Review Criteria, committee members were asked to reexamine the four remaining programs using the following guiding question: Would this instructional material ensure the academic success of all students? Additionally, the committee reviewed the materials once again against the Review Criteria.

Based on this reexamination, which included the Review Criteria scores the committee had assigned, as well as evidence the committee collected throughout Stage One, the committee voted unanimously to eliminate one of the remaining four programs and continue to review three of the remaining vendor programs, which were advanced to the Field Test Round of the Elementary School Science Adoption process as finalist candidates:

- Houghton Mifflin Harcourt, *HMH Science Dimensions*
- Amplify Education, Inc., *AmplifyScience*
- Teachers' Curriculum Institute (TCI), *Bring Science Alive!*

3b. Field Test, January – March 2019

All SPS science teachers of 1st and 4th grades were invited to apply to participate in the Elementary School Science Adoption field test, pending principal approval. From the applications, 24 teachers with a diversity of years in the profession, science background, gender, and ethnicity were selected by the Adoption Coordinator to teach the field test unit in their classrooms. The 24 field test classrooms comprised approximately 600 students from 16 SPS elementary school buildings located in multiple regions of the district and represented Seattle Public Schools' diverse racial, ethnic, and socioeconomic groups and student populations, including English Language Learners, Special Education, Highly Capable, Language Immersion, and general education (see Attachment H). The 24 field test teachers were instructed to implement and teach a pre-selected unit from one of the three candidate programs. A unit topic common to all three programs and aligned to the same science standards was selected from each candidate program to allow for a common frame of reference for evaluation. Field test teachers received a full day of training from the vendor including follow-up time to plan and calendar their unit with their field test colleagues.

Field test teachers (see Attachment H) were given the following guidelines and expectations for field test participation in order to ensure the validity of the field test and provide multiple data collection opportunities about each candidate program:

- Implement the unit with as much fidelity as possible
- Submit feedback via a digital survey platform on a weekly basis about the effectiveness of learning activities, standards alignment, and student engagement.
- Work with the Adoption Coordinator and Science Department Specialists to schedule a lesson observation and participate in a post-observation interview
- Select a small student focus group to be interviewed about their experience with the field test unit
- Have all students participating in the field test complete an end-of-unit student survey around the following attributes:
    - Engagement in standards-aligned science practices
    - Using instructional materials that are organized around a conceptual storyline and anchored by a puzzling science phenomena or problem to solve
    - Sharing science ideas through student discourse
    - Relevance and accuracy in science content learning
    - Equity, Identity, and Disposition

- Administer and score the provided pre-unit and post-unit assessments and record student scores to quantify student growth
- Participate in a panel interview session with the Adoption Committee

3c. Stage 2: Analysis, March 2019

Prior to beginning the final review and analysis of all data collected for each candidate program, Adoption Committee members completed a survey in which they provided input about how each category of data collected during Stage 1 and the Field Test Stage of the adoption process should be weighted (see Attachment J). When the committee member input was averaged, the weights were assigned to each data set as follows:

- Science Instructional Materials Review Criteria scores generated from Stage 1 – 46.7%
- Field Test Data - 42.6%
- Public Display and Open House Community Input Forms – 10.7%

The Adoption Committee reconvened on March 22, 2019 at the conclusion of the field test period for a panel interview session with the field test teachers from each candidate program. The field test teachers reported to the Adoption Committee about their experience implementing the candidate program they field tested and their perception of their students' experience, and to provide input and feedback about the instructional materials in that program. In the panel interview, field test teachers were asked a set of 23 questions aligned with Science Instructional Materials Review Criteria categories and criteria by the Adoption Coordinator. Adoption Committee members asked follow-up questions of the field test panels throughout the session. Committee members were instructed to record notes during each panel interview. Following each panel interview session, committee members analyzed their notes for evidence of alignment with the five categories in the Review Criteria and assigned a value between 0 and 4. These documents were collected for the next day's deliberations.

On March 23, 2019, the Adoption Committee worked in small teams to review additional data sources generated from the Field Test stage for evidence of alignment with the Science Instructional Materials Review Criteria, including post-observation teacher interviews, student focus group interviews, end-of-unit student attribute surveys, and student growth data as measured by pre- and post-unit assessments. Combining this new data with their notes from the Field Test teacher panels, the Committee members collaborated in their teams to collectively synthesize and review all the data for each program to reach consensus on a Field Test score between 0 and 4 in each of the five categories detailed in the Science Instructional Materials Review Criteria (see Attachment E). The score for each category was weighted as previously determined on the Review Criteria, then tallied and reported as a consensus score.

Committee members then reviewed Community Input Forms submitted by members of school communities and the public who reviewed instructional materials from each vendor program under consideration for adoption. Twelve Community Input Forms were submitted. Although the amount of data generated for each vendor program was very small, the committee review teams analyzed the input forms for each finalist vendor program and assigned a Public Input score between 0 and 4 in each of the five categories in the Science Instructional Materials Review Criteria (see Attachment E). The score for each category was weighted then tallied and reported as a consensus score.

Each Adoption Committee review team calculated their weighted consensus scores for the Review Criteria scores from Stage 1, the Field Test data, and the Public Input data including annotated evidence collected from the data to support their scores.

Based on the synthesis and summary of all data reviewed by the committee and the reporting of final scores, Amplify Science emerged as the top candidate.

After examining all the procedures and steps in the adoption process and ensuring that all steps in Board Policy 2015 were met, the Instructional Materials Committee approved the sole recommendation of Amplify for adoption on March 23, 2019.

4. Analysis of Data

In addition to the results of the Adoption Committee's evaluation of each of the three finalist candidate programs in Stage 1 using the Science Instructional Materials Review Criteria, the committee also reviewed multiple data sources to inform their selection and recommendation of the most suitable candidate for adoption. These data were collected from the classroom field test of the candidate programs, which included teacher and student feedback, and input collected during the public display of the instructional materials.

4a. Summary of Committee Scoring at end of Stage 1

At the end of Stage 1, the Adoption Committee members completed their evaluation and scoring review of the three finalist programs instructional materials, TCI, Amplify, and HMH, using the Science Instructional Materials Review Criteria described above in Section 3a and Attachment J. At the conclusion of Stage 1, the total average weighted scores as measured by the Science Instructional Materials Review Criteria for each of the finalist vendor programs were as follows:

- Amplify Education, Inc., *AmplifyScience* – 56.0
- Houghton Mifflin Harcourt, *HMH Science Dimensions* – 58.0
- Teachers' Curriculum Institute (TCI), *Bring Science Alive!* – 43.5

The composite score was based on a rubric designed to result in a 75-point score for an instructional program that exhibited strong evidence for alignment to the standards in every criterion. The only categories TCI scored above 50 were Category 1 (Standards) at 61.7, and Category 5 (Instructional Supports) at 52.5. TCI received the lowest score for Category 4 (Anti-Bias) at 26.3 compared to HMH at 48.8 and Amplify at 40.0.

HMH was strongest in Category 2 (Assessments) at 73.4, compared to Amplify at 52.6 and TCI at 40.7.

Amplify ranked highest in both Category 1 (Standards Alignment) at 73.4 and Category 5 (Instructional Supports) at 70.0. For Category 1, Amplify's scores were 9.2 points higher than HMH and 11.7 points higher than TCI. For Category 5, Amplify's scores were 14.6 points higher than HMH and 17.5 points higher than TCI.

4b. Field Test Data Summary

The field test portion of the adoption process provided an opportunity to see the candidate programs enacted in the classroom and to collect data about alignment to the science standards, assessment systems, inclusive educational practices, instructional planning and support, and student and teacher attitudes and dispositions, as well as collect student growth data.

4bi.) Field Test Teacher Panel Interview Data: On March 22, 2019, all teachers participating in the field test of the three candidate vendor programs attended a panel interview session conducted by the Adoption Committee members and responded to a set of questions about their experience with, and attitudes around, the candidate program they field tested in their classroom. The questions addressed the following topics: Standards Alignment, Assessments, Inclusive Educational Practices, Evaluation of Bias Content, and Teacher Supports for Planning and Usability. Following each panel interview, committee review teams reflected on, discussed, and then performed a quantitative analysis of the data they collected from the field test teachers.

Data analysis showed a more positive experience for Amplify and TCI field test teachers when compared with HMH.

4bii.) Field Test Classroom Observation Data and Teacher Interviews: Observations were conducted in each field test classroom and post-observation interviews of the field test teacher were conducted. A qualitative analysis of the data was performed to identify evidence of 10 characteristics: evidence of science practices within the unit, presence of authentic phenomena in the unit storyline, revisiting the phenomena during the unit, evidence of engaging phenomena within the unit, multiple types of evidence gathered during the unit, student engagement around the evidence gathered, opportunities of students to engage in sense-making discourse, self-assessment, quality of student explanations, and usefulness of the materials.

Data analysis of the HMH classroom observation and teacher interview data showed “strong evidence” for only 1 of the 10 characteristics, Usefulness of Materials. The data analysis of the TCI classroom observation and teacher interview data showed “strong evidence” for 1 of the 10 characteristics: Presence of a Phenomenon. Data analysis of the Amplify 1st grade classroom observation and teacher interview data showed “strong evidence” for 5 of the 10 characteristics, and in 4th grade observations 6 of the 10 characteristics.

4biii.) Student Focus Group Interview Data: A student focus group from each field test classroom was selected by the field test teacher to be interviewed by the Adoption Coordinator or Science Department Specialists who conducted the classroom observation responses.

Student data was collected from the student focus group interviews that followed the field test classroom observations for all three programs. A qualitative analysis of the data was performed to identify evidence of 8 characteristics for 1st grade and 9 characteristics that closely aligned with the interview questions: discourse for sense-making, consensus building, phenomenon presence and helpfulness, elicitation of initial models, if evidence collected helped understand the phenomenon, tools to track ideas through the unit, assessments that were fair and helped know if you were learning, the unit helped you learn science, and whether the students would recommend these materials.

Students in the Amplify field test reported strong evidence of a phenomenon and that it was helpful to their learning. TCI students would strongly recommend these materials be used in other 1st grade classes, data which was not captured for HMH or Amplify.

The interviews with the 4th grade Amplify students showed they strongly felt the evidence collected helped them to understand the phenomenon. HMH and TCI students did not report any of the characteristics as strong evidence of their learning and reported there was moderate to minimal evidence collected that helped them to understand the phenomenon. The Amplify students also reported they would strongly recommend using these materials with other 4th grade students, TCI reported strong to moderate, while HMH students reported a moderate recommendation.

4biv.) Student Growth Data: All teachers participating in the field test of the three candidate vendor programs were asked to administer the vendor-provided pre-unit assessment at the beginning of the field test and the vendor-provided end-of unit assessment at the conclusion of the field test in order to collect student growth data for the standards addressed in the field test unit as a result of instruction. The average student growth data for each field test teacher was calculated and compared between candidate vendor programs.

The student growth data consistently showed greater academic growth for students participating in the Amplify program field test compared to those participating in the HMH or the TCI programs, regardless of student demographics or academic background.

The average student growth scores for each vendor were as follows:

Amplify Education, Inc., *AmplifyScience*

- 1st grade: 89.7%
- 4th grade: 73.6%

Houghton Mifflin Harcourt, *HMH Science Dimensions*

- 1st grade: 65.9%
- 4th grade: 31.1%

Teachers’ Curriculum Institute (TCI), *Bring Science Alive!*

- 1st grade: 28.6%
- 4th grade: 24.8%

4v.) Student End-of-Unit Survey: All students who participated in the field test were asked to complete an end-of unit survey that asked them to reflect on their learning and engagement during the field test unit. 448 students completed the survey and responses were tallied and aggregated. The committee identified the following trends in the quantitative data collected from the end-of unit student attribute survey data.

207 1st grade students were asked to choose facial icons that corresponded with strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree, for 10 statements.

- Amplify responses, 1st grade: $n = 75$
- HMH responses, 1st grade: $n = 53$
- TCI responses, 1st grade: $n = 79$

Among students that field tested Amplify:

- 61.3% reported strongly agreeing *they felt confident they could do science,*
- 57.3% strongly agreed that they *collected evidence to help them understand science*
- 56% strongly agreed their *teacher listened to their ideas*

Among students that field tested HMH:

- 50.9% reported strongly agreeing *they felt confident they could do science*,
- 43.3% strongly agreed that they *collected evidence to help them understand science*
- 58.4% strongly agreed their *teacher listened to their ideas*

Among students that field-tested TCI:

- 59.4% reported strongly agreeing *they felt confident they could do science*,
- 36.7% strongly agreed that they *collected evidence to help them understand science*
- 41.7% strongly agreed their *teacher listened to their ideas*

241 4^{th} grade students were asked to complete a survey about their learning, attitudes, and experience with the field test unit. The survey included questions on the topics:

- Learning Opportunities
- Working with science phenomenon
- Sequencing of lessons for sense-making
- Using and revising models
- Their science ideas and attitudes about doing science
- Computational Thinking
- Sharing and listening to peer's ideas
- Learning modalities
- Science Talk
- Connecting to the Science

- Amplify responses, 4th grade: $n = 91$
- HMH responses, 4th grade: $n = 49$
- TCI responses, 4^{th} grade: $n = 101$

The following summary is of the highest ranked prompts from the 4^{th} grade student survey:

81.3% of Amplify students reported they often used data as evidence to support a claim, whereas 71.2% and 30.6% of TCI and HMH students felt the same, respectively.

68.1% of Amplify students said they were often given the opportunity to share their ideas compared to 62.3% of TCI students and 40.8% HMH students.

61.5% of Amplify students strongly agreed it was important to have opportunities to make sense of their science ideas together, whereas 48.9% and 37.6% of HMH and TCI students strongly agreed, respectively.

59.1% of HMH students felt they learn better when they have time to think before talking, whereas 52.5% and 43.5% of Amplify and TCI students agreed, respectively.

5. Input from Instructional Materials Public Displays and Information Sessions

Community and family stakeholders were invited and encouraged via multiple communications and community engagement methods to review the three adoption candidate programs and submit a Community Input Form (see Attachment G).

Textual versions of the three candidate programs were publicly displayed for nine weeks and links to the candidate programs' online materials were available for public review via the District website. In addition, two "open house" public information and materials review sessions were held in the north and south end of the district, respectively, and were open from 9:00am-3:00pm. The Adoption Coordinator, Science Department Staff, members of the Adoption Committee, and Science Adoption Field Test teachers were available to answer questions about the three candidate programs and to provide guidance in reviewing the materials. Over 25 community members attended these "open house" public information sessions.

Community Input Forms were available electronically on the District website, at the five public display locations, and the open house events for community members to review the three candidate programs and provide feedback. The Community Input Form included criteria selected from the five categories in the Science Adoption Review Criteria used by the Adoption Committee to review and assess all the candidate materials, including Standards Alignment, Assessments, Inclusive Educational Practices, Evaluation of Bias Content, and Instructional Planning and Support. Translated versions of the Community Input Form were made available in the District's top five languages: Spanish, Chinese, Somali, Tagalog, and Vietnamese.

In total, 12 Community Input Forms were submitted by community members from public display sites, open house information sessions, and online via the District website. A qualitative analysis of the data collected for the question: *How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?* showed that community members rated the AmplifyScience program as very well to well, compared to HMH, rated mostly well, and TCI, which received a well and a poor rating.

The actual volume of Community Input Forms submitted belies the community engagement efforts made by the Adoption Committee to collect data from community stakeholders. Unfortunately, informal and anecdotal input about the candidate programs could not be analyzed or evaluated because the communication methods could not be compared reliably with data collected legitimately from the Community Input Forms.

6. Synthesis of All Data Collection Results (see Attachment J)

Based on the committee's findings from the field test outcomes and data collected, the Amplify program was the top candidate based on its strong storyline and rigor. Although the HMH program received positive feedback around usability and differentiation, field test data, including teacher input, revealed that it did not have an overarching phenomenon, therefore no storyline, and very little student growth of understanding. Adoption Committee members were concerned that this lack of rigor may result in lost opportunities to include all students in developing their science literacy; therefore, the committee chose not to recommend the second-place candidate, HMH, for board approval.

Additionally, Amplify field test teachers (both 1st and 4th grades) reported that there was strong evidence of phenomena, storylines, gathering multiple types of evidence, and student discourse for sense-making. Student growth data from the field test units showed that 1st graders had 89.7% growth and 4th graders had 73.6% growth. Whereas students for HMH showed that 1st graders had 65.9% growth and 4th graders had 31.1% growth; for TCI, 1st graders had 28.6% and 4th graders had 24.8% growth.

The committee then reached their decision as a result of field test results, clear stakeholder data, and Adoption Committee approval that Amplify would be the final and only recommendation for the Seattle Public Schools Elementary School Science Instructional Materials Adoption. After examining all of the procedures and steps in the adoption process and ensuring that all steps in Board Policy 2015 were met, the Instructional Materials Committee approved the sole recommendation of Amplify for adoption on March 23, 2019.

B. Alternatives

Not approve the motion and instead maintain the current elementary school science kits adopted in 1995.

a. Pros:

- Many teachers are familiar with the current kit systems
- The Science Materials Center has optimized processes for the current rotation of materials

b. Cons:

- Not aligned to the 2013 WA State Science and Engineering Standards (currently aligned only to the 2009 standards)

- The adopted kits were created by four different vendors: STC (Science and Technology Corporation), FOSS (Full Option Science System), Insights, and EDC (Education Development Center), with no consistency in sequence within or across grade levels
- Publication dates range from 1994 to 2005, and most of these titles are out of print
- Inconsistent and inequitable supplementation of outdated curriculum across the district to achieve standards-alignment and/or ongoing completion and approval of instructional materials waivers
- Transportation challenges: The rotation pattern creates a black-out time during which a teacher is without science materials. *Note: The black-out time gives the Science Materials Resource center time to restock the kits*
- Because we rely on a rotation system, teachers are limited in time for each kit, regardless of school closures and delayed shipments
- No embedded formative nor summative assessments, no embedded discourse for sense-making, no differentiated or multilingual reading materials, and no opportunities to use technological tools to deepen the science experience
- No engineering design instruction
- Lack of standards-alignment does not prepare elementary school students for middle school science, nor align with the WA State science assessment (WCAS) in grade 5
- Current science resources are not based on the latest brain-based research about how students learn, do not contain best practices used in literacy and mathematics, nor address cultural relevancy

C. Research

SPS Research and Evaluation Department Curriculum Adoption Teacher Survey, February 2019

A critical part of the district's process for adopting and implementing new curriculum materials is learning how to best support teachers, for example by providing professional development, support, and resources where they are most needed. Accordingly, the SPS Research & Evaluation (R&E), in partnership with the Curriculum, Assessment and Instruction (CAI) department administered a survey in February 2019 to certificated classroom teachers regarding their experiences with new or planned curriculum materials. The survey included a panel of questions related to the K-12 science instructional materials adoption.

In February 2019, the SPS Research and Evaluation Department administered the Curriculum Adoption Teacher Survey for all elementary school teachers, including K-12 science, as well as middle school math and K-5 ELA teachers (see Attachment M). 20% of teachers at grades K-5 responded to the survey. The survey provided important data for the Adoption Committee and SPS Science Department about the need for high-quality instructional science materials at elementary school to support alignment to standards and close the opportunity gap in science learning for students of color in the District. 69% of responding teachers reported that they use the current science materials, with the remainder reporting the use of other materials. 43% of responding teachers said they "moderately" or "extremely" modify the curriculum currently in place. Of all the grade bands, including middle school and high school, elementary teachers felt the least confidence with the NGSS Science and Engineering Practices, having students use technology in the service of gathering scientific evidence, and that their students can engage in scientific discourse with their peers to make sense of complex scientific ideas. The survey also asked teachers to identify the types of systems, structures, and supports needed to transition to a new instructional materials program following adoption. Elementary teachers reported the need for student-centered units, assessments, analyzing data, and deepening their content knowledge.

5. FISCAL IMPACT/REVENUE SOURCE

The nine-year cost to adopt AmplifyScience and provide professional development for Science in Grades K-5 is $7,409,544.

	Year 1	Year 2	Year 3	Years 4-9	Total All Years 1-9
AmplifyScience	$ 739,617	$ 1,241,425	$ 387,828	$ -	**$ 2,368,870**
In-House PD	$ 403,344	$ 1,290,659	$ 1,804,662	$ 1,542,009	**$ 5,040,674**
TOTAL	**$ 1,142,961**	**$ 2,532,084**	**$ 2,192,490**	**$ 1,542,009**	**$ 7,409,544**

D. This nine-year total includes:

1. $2,368,870 – Adoption of new materials from Amplify Education, Inc. to align with the new standards. Includes nine years of unlimited access to, and support for, the program, including annual incremental updates and upgrades to the curriculum.

2. $5,040,674 – In-house professional development and collaboration for 1,400 Elementary teachers.

There is currently no confirmed budget for Elementary Science. When budget is confirmed, the revenue source will be the curriculum budget in the general fund.

Expenditure: ☐ One-time ☐ Annual ☒ Multi-Year ☐ N/A

Revenue: ☐ One-time ☐ Annual ☐ Multi-Year ☒ N/A

6. COMMUNITY ENGAGEMENT

With guidance from the District's Community Engagement tool, this action was determined to merit the following tier of community engagement (See Attachment C):

☐ Not applicable

☐ Tier 1: Inform

☐ Tier 2: Consult/Involve

☒ Tier 3: Collaborate

Throughout the duration of the Adoption Process, community, family, and teacher stakeholders received regular communications and updates, and were informed of all opportunities to provide input or participate in the process, including:

- Applying to serve on the Adoption Committee
- Submitting input via a paper or online survey as part of the Needs Assessment conducted at the outset of the process to inform the development of the Review criteria used to evaluate the vendor programs submitted for consideration
- Reviewing the instructional materials for the three finalists' candidates online or in person at one of the five public display locations across the district and submitting a Community Input Form with their feedback
- Attending an open house Science Adoption information and materials reveiw session
- Following the outcomes of all Adoption Committee meetings on the SPS Science Adoption webpages through publication of meeting notes
- Receiving updates and announcements via SPS Communications on the SPS website and via emails to SPS families and staff
- Note: Communications were translated into Spanish, Chinese, Somali, Tagalog, and Vietnamese

This input and participation was solicited by the Science Department through multiple communication pathways including multiple emails via SPS Communications, announcements on the District website and SPS social media, through a robust website presence providing links to online versions of the finalists candidate materials, communications to SPS elementary school principals and elementary school teachers, and family letters. The Science Department also provided community engagement touch-points to reach stakeholders, including speaking engagements with community organizations and hosting two full-day open house information and materials review sessions in the north and south end of the district, respectively.

Textual and online instructional materials for the three candidate vendor programs were made available for public review and input online on the SPS Science Adoption webpage, as well as at the following physical locations across the district:

- Hazel Wolf K-8
- Salmon Bay K-8
- Pathfinder K-8
- South Shore K-8
- John Stanford Center for Education Excellence

Community and family stakeholders were invited, and encouraged, to review the three candidate vendor programs and provide feedback through the submission of an electronic or paper version of a Community Input Form.

7. <u>EQUITY ANALYSIS</u>

"There is no doubt that science and science education are central to the lives of all Americans. Never before has our world been so complex and science knowledge so critical to making sense of it all. When comprehending current events, choosing and using technology, or making informed decisions about one's health care, understanding science is key. Science is also at the heart of the ability of the United States to continue to innovate, lead, and create the jobs of the future. ALL students no matter what their future education and career path must have a solid K–12 science education in order to be prepared for college, careers, and citizenship." (*Appendix A: Conceptual Shifts in the Next Generation Science Standards.* National Research Council. 2013. *Next Generation Science Standards: For States, By States*)

Seattle Public Schools is committed to eliminating opportunity gaps to ensure access and provide excellence in education for every student. *Board Policy #0030 - Ensuring Racial and Educational Equity* was developed to work toward the district's mission to eliminate opportunity gaps. Goals of this policy that will be supported through the adoption of a standards-aligned K-5 science instructional materials program include equitable access to a high-quality curriculum and educational resources, and professional development to strengthen teachers' knowledge and skills for eliminating opportunity gaps and other disparities in achievement. The last elementary science adoption in Seattle Public Schools was in 1995. In the absence of an updated, standards-aligned science curricula, schools with heavy PTSA involvement, lower teacher turnover, and low free-and-reduced lunch, have used building funds to purchase supplemental materials for their schools. This has resulted in highly varied instructional resources in both quality and quantity across our district and a lack of common scope and sequence in curriculum and assessment. This patchwork of disjointed and supplemental science curricula is not replicable or sustainable at a systems level and, most importantly, is profoundly inequitable for Seattle Public School's underserved populations. As a result of this inequitable access to science instructional materials, low-income students and students of color are far more likely to be inadequately prepared for middle school science, as evidenced by the achievement gaps in SPS between white students and students of color reported for grade 5.

Nationally, there is a crisis in equity in STEM fields, and in Washington state there is great disparity between the concentration of STEM-related jobs and a prepared labor pool. By 2030 in Washington State, 67% of job openings will require a STEM credential or training. Currently, 37% of students in the class of 2021 are expected to lack adequate training, preparation, or credentials for entry into STEM careers or post-secondary opportunities (Washington STEM, *STEM by the Numbers: Equity and Opportunity*, 2019. http://www.washingtonstem.org/STEMbythenumbers). The data below quantifies the manifestation of the opportunity gap for students of color locally and nationally at both K-12 and in the workforce:

- Washington State's 4th grade Black and Latino students, respectively, score 31 and 29 points lower on the National Assessment of Educational Progress in Science. (*2015 National Assessment of Educational Progress (NEAP) Nation's Report Card*, http://nces.ed.gov/nationsreportcard/states/)
- In the first year of the 5th grade WCAS, Washington State's new statewide science assessment, SPS White students in grade 5 had a passing rate of 81.2%, while their Black counterparts had a passing rate of 28.6% and Latino counterparts a passing rate of 44.6% (WA State Report Card, 2017-18).
- Washington's achievement gaps in math and science have not improved in over a decade and are the 12th largest in the nation. If efforts to improve the achievement gap continue at this current rate, it would take 150 years for Black students to realize the same level of achievement as their peers (Center for Education Policy, *The Achievement Gap: Slow and Uneven Progress for Students*, 2010).

Inequitable access to science instruction and materials has been particularly impactful to our underserved populations of students, including English language learners and students with special needs. Historically, K-12 science has focused on direct instruction and an overemphasis on confirmation labs (activities for which the outcome is known and used as an exercise to confirm an idea), devoid of opportunities to engage in authentic science practices or engineering design activities, pedagogically making it difficult for many learners to access and engage meaningfully with the science content. The adoption of new science materials will address the need to provide science learning that will include multiple modalities in both instruction and assessment.

The adoption of new science materials will help prepare K-5 students and prepare them for success in core science courses in high school and college preparatory science courses, which is particularly important as Washington State moves to a 24-credit graduation requirement necessitating the successful completion of 3 years of science coursework for all high school students in 2021. In addition, the class of 2021 will be the first for whom passing the new statewide high stakes science assessment, the WCAS, will be a requirement.

By increasing access of all students to science, particularly students of color, English language learners, and students with special needs to science, Seattle Public Schools will continue to prepare students for STEM fields.

In order to help ameliorate the gender, racial, cultural, religious, and/or sexual orientation bias frequently experienced by students, all programs submitted for review were thoroughly and carefully reviewed for evidence of an anti-bias lens using the Evaluation of Bias Content category of the Review Criteria which includes the criteria from the Board Policy 2015 Anti-Bias Screener tool and the Washington Models for the Evaluation of Bias Content in Instructional Materials (publ. Sept. 2009). Committee members scrutinized the texts for examples of materials containing bias and/or stereotyping based on gender, race, religion and/or sexual orientation. Committee members reviewed texts and recorded all findings, drawing from evidence from the instructional materials. Any instructional materials program that failed to achieve an acceptable score in this category were eliminated from consideration.

8. STUDENT BENEFIT

Based on all the evidence gathered during the course of the 12-month adoption process, the Adoption Committee firmly believes that adopting the Amplify instructional materials program for all elementary school science classrooms will provide a substantial benefit to students, as measured by student academic growth, engagement in standards-aligned practices, availability of teacher instructional scaffolds and supports, and greater equity and consistency in students experience across the district as a result of a common curricular scope and sequence and common assessments. The student data on pages 9-12 of this BAR details the benefit to student learning and student engagement provided by the AmplifyScience program.

A. Common Instructional Materials and Unit Scope and Sequence

Regardless of school assignment, students in all schools across the district will have access to current, high-quality, standards-aligned science instructional materials in a common scope and sequence and will be held to common expectations for learning outcomes for the first time in the history of Seattle Public Schools. Having common science instructional materials and assessments in all grades K-5 will maximize the benefit of Science Department supports and professional development opportunities.

- In addition, students will receive instruction from teachers that have received adequate professional development in implementation and effective use of the instructional materials. The 2019-24 Strategic plan vision is Every Seattle Public Schools' student receives a high-quality, world-class education and graduates prepared for college, career, and community. An excerpt from the Theory of Action is as follows: WHEN WE FOCUS on ensuring racial equity in our educational system, unapologetically address the needs of students of color who are furthest from educational justice, and work to undo the legacies of racism in our educational system...

BY doing the following:

- Allocating resources strategically through a racial equity framework
- Delivering high-quality, standards-aligned instruction across all abilities and a continuum of services for learners

- **Educational Excellence and Equity for Every Student**
Goals of Policy No. 0030 will be supported through the adoption of a standards-aligned middle school science instructional materials program that includes equitable access to a high-quality curriculum and educational resources, and professional development to strengthen teachers' knowledge and skills for eliminating opportunity gaps and other disparities in achievement.

The common instructional materials and scope and sequence will offer assurances that all children will have equitable access to current, engaging, and relevant science experiences.

9. WHY BOARD ACTION IS NECESSARY

☒ Amount of contract initial value or contract amendment exceeds $250,000 (Policy No. 6220)

☐ Amount of grant exceeds $250,000 in a single fiscal year (Policy No. 6114)

☐ Adopting, amending, or repealing a Board policy

☐ Formally accepting the completion of a public works project and closing out the contract

☒ Legal requirement for the School Board to take action on this matter

☒ Board Policy No. 2015, Selection and Adoption of Instructional Materials, provides the Board shall approve this item

☐ Other:

10. POLICY IMPLICATION

The motion is in compliance with Policy No. 2015, Selection and Adoption of Instructional Materials. In addition, Policy No. 6220, requires Board action because the contract exceeds $250,000. This process followed all of the requirements outlined in these policies.

11. BOARD COMMITTEE RECOMMENDATION

This motion was discussed at the Curriculum and Instruction Policy Committee meeting on April 23, 2019 and the Curriculum and Instruction Policy Committee of the Whole on April 30, 2019. The Committee reviewed the motion and moved the item forward for consideration by the full board.

12. TIMELINE FOR IMPLEMENTATION

Upon approval of this motion, Adoption of Amplify as the official science curriculum for all Kindergarten through 5th grade science classrooms, Seattle Public Schools will purchase instructional resources and materials from Amplify Education, Inc. with student use beginning in the 2019-2020 school year.

The following implementation will follow this general timeline:

- May 2019: Communications to families, community, staff, and school and central leaders
- May-June 2019: SPS Science Department will work with the SPS Purchasing department to finalize the contract between Seattle Public Schools and Amplify Education, Inc. and ensure that orders for all schools are accurately placed.
- May 2019: The Science Department and the Department of Curriculum, Assessment, and Instruction will develop a schedule and goals and outcomes for initial and ongoing professional development.
- May 2019: The Science Department will work with the Department of Technology Services to provide devices to elementary school science classrooms not yet equipped with student computers or laptops carts at a 2:1 ratio.
- May-July 2019: Department of Technology Services will work with Amplify Education, Inc. to develop a pathway to compliance for all online components of the adopted program with the Americans with Disabilities Act (ADA).
- July-August 2019: Instructional materials will be delivered to all SPS science classrooms in grades K-5 participating in the Year 1 Rollout.
- July-August 2019: Amplify will work with the SPS Science Department and Department of Technology to establish systems for creating teacher accounts and student logins and responding to ongoing needs for technical support.
- August 2019: Participating Year 1 Rollout SPS teachers who teach grades K-5 will receive 3 days of in-depth professional development in the format, pedagogy, and implementation of the adopted instructional materials.
- September 2019-June 2020: Three additional days of science teacher professional development distributed throughout the school year plus implementation of online professional development opportunities including Schoology-based resources and Skype-based webinars. Buildings will also utilize PLC time to analyze student assessments to determine best pathways to student growth.
- June 2020: The Science Department will conduct an evaluation of the first-year implementation of the adopted instructional materials, including analysis of student growth data and teacher/student/community input and feedback.

- August 2020: Year 1 Rollout SPS teachers who teach grades K-5 will receive 3 days of in-depth professional development in the format, pedagogy, and implementation of the adopted instructional materials and Year 2 Rollout K-5 teachers will participate in district-level collaborative professional growth activities in science instruction and assessment using the Amplify program to continue to increase student academic achievement and narrow the achievement gap.
- September 2020-2028: Provide annual initial use training for new elementary school teachers in Year 1 and Year 2 buildings and ongoing supplemental professional development for all elementary school science teachers to continue to maximize the science teaching and learning using Amplify in grades K-5 in SPS. Continue to implement a robust data collection plan the includes the collection and analysis of student growth data and teacher/student/community input and feedback.
- August 2021 Complete the Year 3 Rollout with all remaining elementary schools, receiving 3 days of in-depth professional development in the format, pedagogy, and implementation of the adopted instructional materials.

13. <u>ATTACHMENTS</u>

- Attachment A: Final Candidate Vendor Proposal (Partial report, full report available upon request)
- Attachment B: K-8 Science Adoption Communications Plan
- Attachment C: K-5 Science Adoption Community Engagement Plan
- Attachment D: Elementary School Science Adoption Committee Membership
- Attachment E: K-8 School Science Adoption Instructional Materials Review Criteria
- Attachment F: K-8 Science Adoption Process Timeline, Summary, and Outcomes
- Attachment G: Summary of Community and Family Input and Feedback
- Attachment H: Field-Test Schools and Participating Teachers w/ distribution map
- Attachment I: Field-Test Data and Analysis: Field Test Teacher Input & Feedback, Student Growth Data, Classroom Observation Data, Student Interview and Survey Data
- Attachment J: Analysis Summary of Feedback & Data Collected
  - Includes all data collected from all sources (community, field test teachers, student surveys and interviews, and student assessment data, etc.)
  - How adoption committee used this to score and determine final candidates for the BAR
- Attachment K: Racial Equity Analysis Tool
- Attachment L: ADA/Consent Decree Compliance Ratings
- Attachment M: SPS Research & Evaluation Teacher Adaptation Survey, February 2019

Attachment A: Amplify Education, Inc. Proposal

Proposal Overview and Revisions

In response to Seattle Public School's Request for Proposal (RFP) Steps 1 and 2, Amplify Education, Inc., the publisher of AmplifyScience, submitted the proposal on the following pages. The proposal included costs for student and teacher access to online content and tools, non-consumable and consumable materials, teacher guides, and applicable student readers, over the course of nine years.

Amplify Education, Inc. submitted several proposals in response to the RFP, including a proposal that included consumable student workbooks. Because of the feedback from the Field Test, as well as budget considerations, these proposals are not included with this Board Action Report.

Following the recommendation to purchase AmplifyScience, Seattle Public Schools' Purchasing Office will request a third round of pricing options from Amplify Education, Inc.

Partial Report - Full Report available upon request.

PRESENTED BY:

Amplify Education, Inc.

55 Washington St., Suite 800

Brooklyn, NY 11201

(212) 213-8177

proposals@amplify.com

Seattle Public School

Step 1 Science Adoption K-8

RFP # 05868

Due December 5, 2018

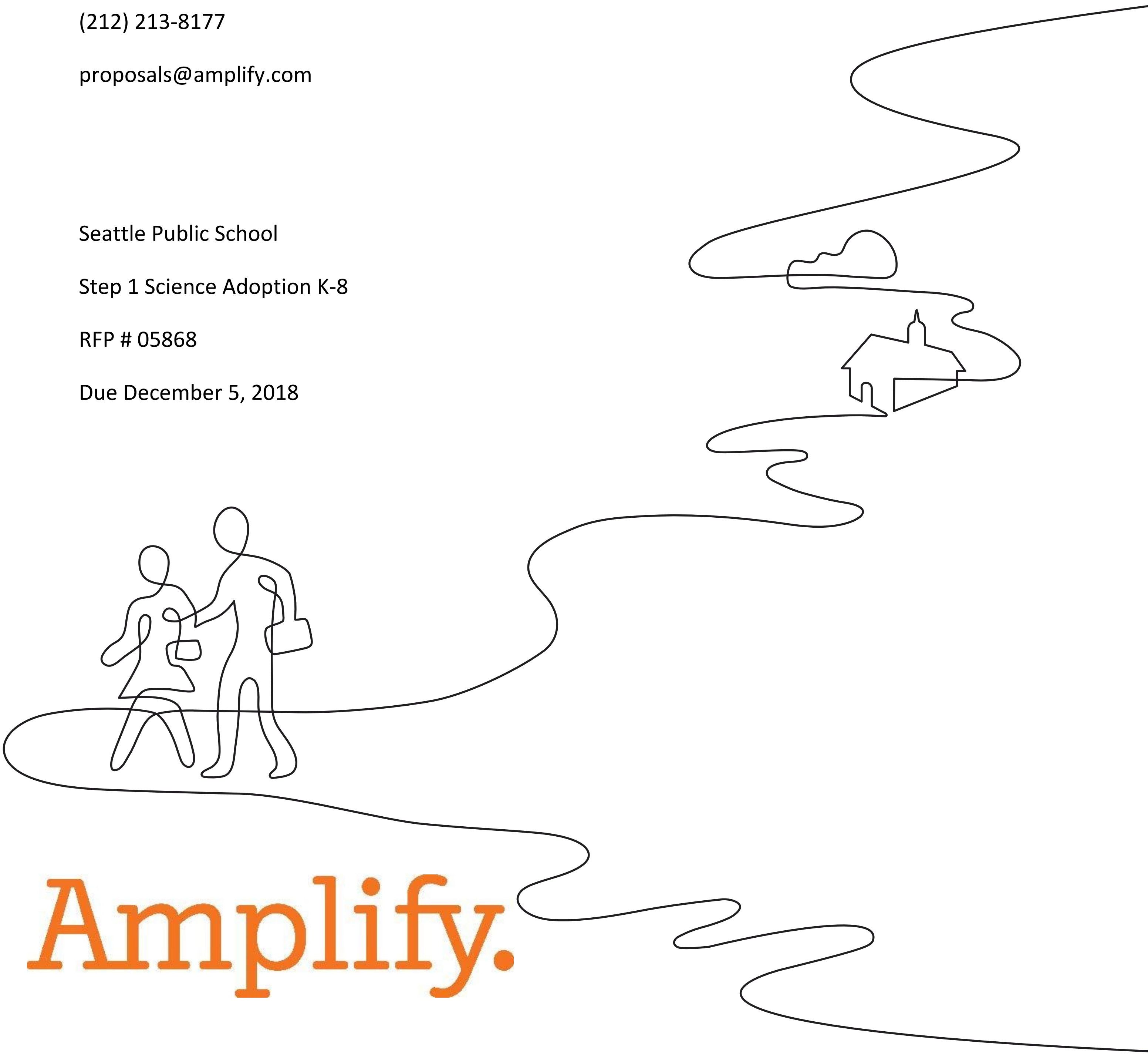


Table of Contents

1. Executive Summary

The goals laid out by Seattle Public Schools in the Step 1, K-8 Science RFP perfectly reflect the vision that inspired Amplify Science. We share the ultimate goal of helping all students become scientifically literate individuals who are knowledgeable of both core disciplinary content and the ways in which scientists and engineers carry out their work. Students using Amplify Science learn to investigate, talk, read, write, think, and argue like real scientists and engineers through investigations of real-world problems and scientific phenomena. In doing so, students gain a better understanding of the natural and designed world, and the skills needed to master the Next Generation Science Standards (NGSS).

Amplify Science includes detailed lesson plans, embedded formative and summative assessments, hands-on activities and materials, scientific texts, robust simulations, engaging media, physical and digital models, structured classroom discussions with scientific argumentation, and a variety of effective teacher supports and professional development options.

A Program Built by Experts for the NGSS and Backed by Research

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

A collaboration between the curriculum experts at the University of California, Berkeley's Lawrence Hall of Science and the instructional technology experts at Amplify– with funding from the Bill & Melinda Gates Foundation, the Carnegie Corporation of New York, and the National Science Foundation– Amplify Science was designed to create the next generation of scientific innovators and knowledgeable citizens who are curious, skeptical, and evidence-based critical thinkers ready to excel on high-stakes assessments and in 21st century life.

The Lawrence Hall of Science has authored some of the most effective programs used in science education for the last 40 years. Their proven track record and commitment to both the letter and spirit of the new standards is what has already made Amplify Science the right choice for so many schools looking to prepare teachers and students to make the NGSS shift.

Making Sense of Phenomena and Designing Solutions to Problems

In each Amplify Science unit, students are asked to inhabit the role of a scientist or engineer in order to investigate a real-world problem. These real-world problems provide relevant, 21st-century contexts through which students will investigate different scientific phenomena. Over the course of the unit, students collect and make sense of evidence from multiple sources and through a variety of modalities, thus ensuring that they have multiple vehicles through which to develop and articulate their understanding of each phenomenon. Towards the end of the unit, students are presented with a brand new problem, giving them an opportunity to apply what they've learned over the course of the unit to a new context. This enables students to demonstrate deep understanding of scientific phenomena, embracing the shift from asking students to *learn about* science to supporting students in *figuring out* the science.

Three Dimensional Learning

The authorship team at the Lawrence Hall of Science used the three-dimensional model of instruction to craft each lesson, chapter, and unit. In designing the curriculum, they repeatedly asked the questions:

- What do we want students to figure out (what DCI or part of a DCI)?
- How do we want them to figure it out? (what scientific and engineering practice will they engage in to figure it out?)
- What crosscutting concept (CCC) can scaffold students' understanding and connect it to other ideas about the natural world that they have learned?

All Standards, All Students

The aim of Amplify Science is for *all* students to develop and access a deep and sophisticated understanding of science concepts, as well as instill the science and engineering practices and crosscutting concepts that are essential to the work of real scientists and engineers. Every classroom is made up of students with a varying array of learning needs and Amplify Science units provide varied learning opportunities, through multiple modalities, as well as timely supports, to ensure that diverse learners can be successful with the language and content demands of the next generation science classroom. Please refer to the section regarding how we address diversity in our previous response to the District's RFI (included in Attachment B).

A History of Success and a Capacity for Scale

We have a long history of implementing assessment and curriculum solutions successfully. Our partners have included Los Angeles Unified School District, the New York City Department of Education, the North Carolina Department of Public Instruction, and Denver Public Schools. Our staff have the expertise and capacity that are necessary to successfully roll out a new curriculum in a large, urban school district. Furthermore, they also have a deep knowledge of how to support students, teachers, and administrators in Seattle Public Schools. We look forward to this new phase of our partnership to improve learning and achievement among the children of Seattle.

Amplify Education, Inc. is located at 55 Washington St. Suite 800, Brooklyn, NY 11201. For more information about our proposal, please contact Patrick Momsen, District Manager, at 541-207-2148 or pmomsen@amplify.com. Please copy proposals@amplify.com on any communication about this proposal.

2. Vendor Questionnaire

2.1. Life/Duration of Adoption

a) The District plans to support the adopted curriculum for approximately nine (9) years. Will prices for tangible, online, e-book, or any other quoted/delivered materials/services be held for nine years through the life of the adoption (Yes/No)?

Yes.

b) If "No", please advise price escalation estimate/strategy.

N/A.

c) In order to not fall behind any future mandated requirements/products/technology advances, please confirm that you will support (by maintaining prices/terms) future product and service deliveries under the same prices/conditions as the originally offered adoption items. Will you provide future/advanced versions of products/services within the initial price offer (Yes/No)?

Yes, we will provide updates to the digital products/edition purchased by the District at no additional cost.

d) In addition to first year adoption materials/services cost, please advise any ongoing/future years costs associated with your offering. (see Attachment 4)

We have completed the pricing form provided with the solicitation with all required costs, including digital licenses for a duration of 9 years. There are consumable elements in the materials kits included as Classroom Supplies on that form. The District may choose to source these materials from Amplify, in which case there would be an additional cost that would vary based on the rate at which the materials are actually consumed. Based on our best projection for the consumption of the consumables, if the District chooses to use our Refill Kits to replace the consumables, we would project the following costs (please note that the prices below do not include the 12% shipping charge or the 10.1% nominal sales tax):

Grades K-5

	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Option A			\$383,039.91	\$383,039.91	\$383,039.91		\$383,039.91	\$383,039.91
Option B	\$383,039.91	\$766,079.82	\$1,149,119.73	\$1,149,119.73	\$1,149,119.73	\$1,149,119.73	\$1,149,119.73	\$1,149,119.73

Grades 6-8

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
$9,811.96	$9,811.96	$9,811.96	$9,811.96	$9,811.96	$9,811.96	$9,811.96

e) Are there "consumables" that should be replaced over the course of the adoption? (see Attachment 4)

Please see our response to the previous question.

f) Are there technology access fees that will apply to future years? (see Attachment 4)

All digital licenses are included in the supplied cost form with a duration of 9 years.

The District wants to get a sense of the life cycle cost of this adoption and desires to know the potential/future costs to support your proposal. Attachment 4 requires vendors/publishers to establish incremental and total costs for the estimated nine (9) year adoption cycle.

We have provided our full pricing in section 3.

2.2. Technology

a) With technology constantly changing, please provide a brief description of current applications and those planned for implementation over the next several years.

Amplify Science blends physical materials with a suite of digital tools, presenting students with the resources they need to investigate real-world problems while empowering teachers to lead instruction effectively and also gain actionable insight into student growth and progress. Interactive and strategic, the components of the Amplify Science program work together to provide multiple, varied opportunities for students to access and engage with key concepts throughout each unit. The digital components of the curriculum for grades K–8 include:

- **Online Instructional Materials** for teachers of K–8, and for students of grades 6–8. The Amplify Science curriculum website hosts all lesson content, media, sims, formative assessment guidance, and more. The curriculum website is intuitively organized and accessible from any of the supported devices (iPad 3+, Chromebook, Windows laptop or PC, and MacBook) from any location, making it user friendly and easy to use.
    - While all teacher-facing instructions and supports are available online, the lesson guides and other instructional support documentation for each unit can also be printed (or purchased) as needed by the teacher. This allows Amplify Science to be used in a wide variety of settings (including those that lack readily available internet or device access), and by a wide variety of

    teachers (those who prefer hard-copy Teacher's Guides, digital ones, or a combination of both).
  - Similarly, while students of grades 6-8 have the ability to interact with lesson content digitally, Investigation Notebooks that contain the same content as the digital curriculum are also available for printing or purchase.
- **Robust, interactive digital simulations** and other digital applications for Grades 2–8. Developed exclusively for the Amplify Science program, these serve as venues of exploration and data collection, allowing students to explore scientific concepts that might otherwise be invisible or impossible to see with the naked eye. Much like real scientists do, students of Amplify Science will use technology to gain insight into processes that occur on the microscopic scale, or alternately, to speed up processes that might otherwise take thousands or millions of years to observe. Student use of these digital tool often serves as formative assessment opportunities, giving teachers actionable information about student understanding and tailoring instruction accordingly.
- **Books (K–5) and Science Articles (6–8)**: Available via the digital library or in print, the texts in Amplify Science were all written by the Lawrence Hall of Science specifically for the Amplify Science program, and they encourage students to read purposefully, look for evidence to support their arguments, and ask thoughtful questions as they read.
- **Engaging media:** Each unit of Amplify Science presents students with a variety of different media, including short videos, detailed maps, vibrant images, sound recordings, and much more.

When teachers access the Teacher's Guide digitally via the curriculum website, they gain the convenience of being able to navigate directly to content they wish to see, flip between units quickly, and access a suite of digital tools. Also, in addition to the unit, lesson, and activity-level resources that also come in the printed version, teachers accessing the Teacher's Guide digitally have access to:

- **Videos**: Videos appear in many units across grades K–8. Whenever a video is present, the teacher projects the video to the students from her own device.
- **Lesson Projections**: Most lessons in Amplify Science K–8 include a variety of images that are projectable by teacher to the students. These images can range from discussion prompts, to images related to the unit content, to completed setups for a particular investigation. All lesson projections are available for download as a PDF file. Images can be projected by the teacher directly from the PDF file, or via a document camera.
- **Digital student books (Grades K–5):** While each unit's kit contains physical copies of the relevant student titles, the teacher also has access to digital versions of each

student book, as well. Teachers can use these digital versions to project the book to the class. Classroom licenses for student access to the digital books are also available.

- **Gradebook (Grades 6–8):** When students submit their work through the curriculum website, all submissions are stored in the teacher's Gradebook. Besides storing all student work, the Gradebook is also a place where teachers can provide a grade and targeted feedback to students for various activities. Students receive these grades and/or feedback instantaneously, facilitating an effective teacher-student feedback loop.
- **Reporting (Grades 6–8)**: Teachers gain insight into the progress and growth of each of their students through their performance on unit assessments. After students take the assessments online, teachers get access to several elegant data visualizations and features in Reporting, including:
    - Automatic assignment of students to differentiated content based on their responses to the mid-unit Critical Juncture Assessment.
    - At-a-glance graphs that show class performance on the Pre-Unit, Critical Juncture, and End-of-Unit assessments.
    - At-a-glance view of individual student performance on each of the assessments, including correct/incorrect responses and how the student selections compare to the rest of the class.
    - Item-level analysis, showing the spread of student responses to each of the multiple choice options for every question on the assessment.
- **Classroom management tools (Grades 6–8)**: Teachers are able to direct student screens to specific lessons in the curriculum through their **Start Class** feature. Furthermore, teachers are able to regain student attention through the **Eyes Up** feature when students are engaging with lesson content online. Each of these tools is meant as a supplemental aid to help teachers in managing a classroom with students on devices.

In addition, through frequent and candid communication with our users, Amplify Science is continuously developing and deploying new technology features to aid in lesson navigation, classroom management, and ease of use. This willingness to receive and act upon user feedback can be seen in the fact that by back-to-school 2019, Amplify Science will also offer the following user-requested enhancements:

By back-to-school 2019, Amplify Science will also offer the following enhancements:

- Additional Spanish supports, including lesson projections, teacher talk, and access to PDF files for print materials.
- K-5 student access to English and Spanish digital versions of the student books.

- Additional hands on activities that teachers can choose to download and use to complement existing unit investigation, as desired.

b) Will staff and students be provided with unlimited access and capability to download and print electronic versions of all offered "hard copy" instruction materials?

Yes. Amplify Science is a comprehensive program that makes all of the unit materials easily available for students and teachers. In addition to user-friendly digital elements described above, each unit of Amplify Science has a neatly packaged unit kit associated with it. Each kit contains consumable and nonconsumable hands-on materials for unit investigations, as well as print items (such as Vocabulary words, Unit Questions, and card sets for sorting and analysis activities) for the classroom. All of those print items, as well as Student Investigation Notebooks, can be downloaded and printed free of cost, as needed, from the digital Teacher’s Guide. Furthermore, the Teacher’s Guide itself can also be downloaded and printed directly from the curriculum website. This gives teachers flexibility to move fluidly between digital and print instructional materials according to their individual preferences.

c) Are there any hard or soft costs associated with unlimited access or printing rights?

No. There are no additional costs associated with printing rights.

d) Please indicate your firm's ability to supply any of the requested menus of titles in audio, e-book, or similar format.

Each Amplify Science unit includes custom-written informational texts. In K–5, there are student books, with five titles (four informational books and one reference book) per unit; in grades 6–8, there are multiple student articles per unit. All student books and science articles are available in a digital format. The science articles in grades 6-8 are also available with read-aloud audio functionality. We hope to expand that capability to the K-5 student books in the future, as well. In the meantime, we are currently building screen-reader compatibility for the digital K-5 student books, and that feature will be available by the start of 2019.

e) Please advise any costs associated with supplying audio, e-book, etc.

For teachers and students of grades 6-8, access to the digital science articles, and the read-aloud capability of them, is included in their respective license. Access to digital versions of the student books is also included in the teacher license for grades K-5. An additional classroom license may be purchased if student access to the digital versions of student books at the K-5 level is desired. Please refer to section 3 for details on pricing.

f) Please advise availability/compatibility with current common educational technology/LMS standards like LMS Common Cartridge, Sharable Courseware Object Reference Model (SCORM), and Learning Tools Interoperability (LTI). Specifically, does your product currently support integration with Schoology without more than basic configuration?

Amplify Science supports Thin Common Cartridge v1.3, including import into Schoology. Amplify Science will support LTI v1.2 by June 2019. Schoology integration is supported via simple configuration and importing. Because use cases for content granularity and metadata can vary, Amplify is committed to working with the District to ensure successful integration that meets the District's goals.

g) The District strongly prefers a site-based license model. Does your firm, as part of this RFP response, offer site-based licensing?

Yes, we are able to offer site-based license pricing. We have completed the pricing sheet provided in Attachment 4, which implies per student / per teacher prices for online access. We are happy to discuss site-based licensing alternatives based on details from the district regarding the number of sites and the average teachers/students per site.

h) The District requires single sign on with ADFS (Active Directory Federated Services). Does your firm offer ADFS as part of this RFP response?

Amplify Science supports single sign on with a variety of methods, including SAML v2.0, Active Directory Federation Services v2.x and v3.x, and LDAP, via our integration partners Google and Clever.

i) The District requires rostering capability as part of this project. The District prefers rostering functionality via the Clever platform, but can also accept verified One Roster support. Does your firm offer, as part of this RFP response, either Clever or verified One Roster support?

Yes. Amplify partners with Clever for rostering integration, and also supports direct OneRoster REST API integration.

2.3. Hardcover vs Softcover Curriculum Materials

a) Our District prefers "hardcover" versions of teacher guides and student books, including books for: interactive read-aloud, guided/shared reading, core materials, and student independent reading materials. Please advise if any textual materials you are quoting are other than hardcover versions. If you desire to offer softcover pricing in addition to hardcover pricing, please clearly indicate on the attached Request for Quotation form.

Amplify Science student books (K-5) and Investigation Notebooks (K-8) are made from durable material meant to withstand normal student use, and are priced appropriately for easy replacement if and when that becomes necessary. In addition, hard-copy versions of the Teacher’s Guides are available for every unit. These too are made of durable material, and are especially useful for schools and classrooms where device availability or internet connectivity are a challenge, or for teachers who simply prefer to review their materials on paper.

2.4. Adoption Materials Delivery Schedule

a) If the District places an order with your firm by the end of May 2019, are there any offered materials (tangible, web-based, or otherwise) that would not arrive at the District the by end of July 2019?

There will be no issue fulfilling product on this timeline.

b) Please list any items that would not be available by the end of July 2019.

Not applicable.

2.5. Training

a) Please provide a brief narrative of your training program.

Amplify Science provides an array of professional support options that empower teachers to implement an NGSS aligned program effectively for all learners. From the initial decision to adopt Amplify Science through all stages of implementation that follow, Amplify Science offers a range of valuable professional learning options, each led by Professional Learning Specialists who have trained with the program developers at UC Berkeley's Lawrence Hall of Science. Intensive onsite and/or remote trainings that cover both technology, strategy, and content are available to ensure every educator feels well equipped and excited to use Amplify Science with their students. We would welcome the opportunity to partner with Seattle Public schools to develop a professional development plan that fully supports every educator and student using Amplify Science.

Professional Learning Offerings

Training & Foundations Workshop

Training & Foundations workshops are designed to familiarize teachers with Amplify Science, including its program features, instructional approach, and technical functionality. The workshops also cover the principles of three-dimensional instruction, as called for in the new science standards, as well as how Amplify Science incorporates those principles into curriculum. Attendees get hands-on experience with program materials and exemplar instructional sequences, preparing them to use the program effectively and begin the planning process for their own units.

Deep Dive & Strengthening Workshop

Deep Dive & Strengthening workshops enhance teacher understanding and application of Amplify Science features, enabling them to take their science instruction (and their students' learning!) to the next level. Going beyond the Training & Foundations offerings, Deep Dive & Strengthening workshops include: deep dives into teaching individual units, analyzing student assessment data to inform instruction, aiding students' ability to access complex texts, and engaging English learners in three-dimensional learning.

Instructional Practice & Job-Embedded Coaching Services

Instructional Practice & Job-Embedded Coaching Services immerse educators in methods and classroom protocols that promote ongoing improvement in teaching and learning. Services include classroom observations, side-by-side modeling in the classroom, and coaching aligned to research-based strategies. By the end of each session, teachers and instructional leaders are equipped to reflect on their own practices and build an understanding that enables them to help students think critically and independently.

Core Training and Professional Learning Plan (Year 1 thru Year 3)

We look forward to continuing to partner with Seattle Public Schools to deliver professional learning and plan services to support a district wide implementation of Amplify Science grades K-8. In response to SPS's request to provide 3 - 5 days of training to each teacher over a three year implementation period, the Professional Learning plan below outlines and briefly describes the proposed training services to be facilitated by a team of Amplify Science Professional Learning Specialists. Note that only new teachers will attend the Two-Day Grade Level Orientation while all participating teachers for that year will be able to attend the Deep Dive & Strengthening Workshop.

Year One

- **Initial two-day professional learning institute:** Participants will explore the Amplify Science approach and pedagogy through hands-on experiences, learn the structure of the Amplify Science Curriculum, gain insight into how the units embody the Next Generation Science Standards (NGSS) and three-dimensional learning and approach planning for day 1 of instruction.
- **Follow-up one-day workshop:** Participants will reconvene at midyear for a Unit Specific workshop, which includes reflecting on implementation of previously taught units and diving deeper into program assessments practices.

Timeline	Professional Learning Sessions (Year 1)	Audience	# of Sessions
Summer August 2019	**Two -Day Grade Level Orientation** **Modality**: Onsite (2 consecutive days) **Duration**: 12 hours Up to 30 participants in each session	**Elementary Grades K-5** Approx. 567 teachers & Administrators	**19 sessions** Approx. 95 teachers per grade level $,4800 per session
Fall / Winter TBD	**Unit Specific : Deep Dive & Strengthening Workshop** **Modality**: Onsite (1 full day) **Duration**: 6 hours Up to 30 participants in each session	**Elementary Grades K-5** Approx. 567teachers & Administrators	**19 sessions** Approx. 95 teachers per grade level $,3200 per session
Summer August 2019	**Two -Day Grade Level Orientation** **Modality**: Onsite (2 consecutive days) **Duration**: 12 hours Up to 30 participants in each session	**Middle Grades 6-8** Approx. 27 teachers & Administrators	**1 sessions** Approx. 9 teachers per grade level $4,800 per session
Fall / Winter TBD	**Unit Specific : Deep Dive & Strengthening Workshop** **Modality**: Onsite (1 full day) **Duration**: 6 hours Up to 30 participants in each session	**Middle Grades 6-8** Approx. 27 teachers & Administrators	**1 sessions** Approx. 9 teachers per grade level $3,200 per session

Year Two

- **Follow-up one-day Deep Dive & Strengthening workshop:** Participants will build upon program knowledge from Year One. They will reflect upon implementation experiences to explore ways to further strengthen implementation practices. Participants will focus on applying embedded resources and tools to guide differentiation and support diverse learners. (assumes 30 participants per session)

Timeline	Professional Learning Sessions (Year 1)	Audience	# of Sessions
Summer August 2020	**Two -Day Grade Level Orientation** **Modality**: Onsite (2 consecutive days) **Duration**: 12 hours Up to 30 participants in each session	**Elementary Grades K-5** Approx. 567 teachers & Administrators	**19 sessions** Approx. 95283 teachers per grade level $,4800 per session
Fall / Winter TBD	**Unit Specific : Deep Dive & Strengthening Workshop** **Modality**: Onsite (1 full day) **Duration**: 6 hours Up to 30 participants in each session	**Elementary Grades K-5** Approx. 1,134 teachers & Administrators	**38 sessions** Approx. 189 teachers per grade level $,3200 per session
Summer August 2020	**Two -Day Grade Level Orientation** **Modality**: Onsite (2 consecutive days) **Duration**: 12 hours Up to 30 participants in each session	**Middle Grades 6-8** Approx. 27 teachers & Administrators	**1 session** Approx. 9 teachers per grade level $4,800 per session
Fall / Winter TBD	**Unit Specific : Deep Dive & Strengthening Workshop** **Modality**: Onsite (1 full day) **Duration**: 6 hours Up to 30 participants in each session	**Middle Grades 6-8** Approx. 54 teachers & Administrators	**2 sessions** Approx.18 teachers per grade level $3,200 per session

Year Three

- **Follow-up one-day Deep Dive & Strengthening workshop:** Participants will continue to deepen content and pedagogical knowledge by demonstrating agency of the implementation practices that lead to positive student performance outcomes. Through a data driven approach the workshops and time frames will be collaboratively determined, at year three of implementation (assumes 30 participants per session)

Timeline	Professional Learning Sessions (Year 1)	Audience	# of Sessions
Summer August 2021	**Two -Day Grade Level Orientation** **Modality**: Onsite (2 consecutive days) **Duration**: 12 hours Up to 30 participants in each session	**Elementary Grades K-5** Approx. 567 teachers & Administrators	**19 sessions** Approx. 95283 teachers per grade level $,4800 per session
Fall / Winter TBD	**Unit Specific : Deep Dive & Strengthening Workshop** **Modality**: Onsite (1 full day) **Duration**: 6 hours Up to 30 participants in each session	**Elementary Grades K-5** Approx. 1,700 teachers & Administrators	**57 sessions** Approx. 283 teachers per grade level $,3200 per session
Summer August 2021	**Two -Day Grade Level Orientation** **Modality**: Onsite (2 consecutive days) **Duration**: 12 hours Up to 30 participants in each session	**Middle Grades 6-8** Approx. 27 teachers & Administrators	**1 session** Approx. 9 teachers per grade level $4,800 per session
Fall / Winter TBD	**Unit Specific : Deep Dive & Strengthening Workshop** **Modality**: Onsite (1 full day) **Duration**: 6 hours Up to 30 participants in each session	**Middle Grades 6-8** Approx. 80 teachers & Administrators	**2 sessions** Approx.27 teachers per grade level $3,200 per session

NOTE: Amplify Science has the capacity to facilitate large scale training events. In order to deploy the appropriate resources for a training event, exceeding 20 sessions per day, Amplify Science requests an advance notice of at least 60 days.

Additional Professional Learning Offerings

In addition to the core 3-5 day training plan above, Amplify would welcome the opportunity to expand our core training partnership to work shoulder-to-shoulder with SPS educators provide professional learning services tailored to your implementation needs. See additional offerings below.

Workshop Category and Title	Duration	Modality	Price
Training & Foundations			
Teaching with Technology	3 hour session	Onsite & Remote	**$1450** - ½ day remote **$2500** - ½ day onsite **$2900** - 1 day remote **$3200** - 1 day onsite
Navigating Shifts to NGSS & 3D Learning	3 hour session	Onsite & Remote	**$1450** - ½ day remote **$2500** - ½ day onsite **$2900** - 1 day remote **$3200** - 1 day onsite
Leading the Shifts of NGSS	3 hour session	Onsite & Remote	**$1450** - ½ day remote **$2500** - ½ day onsite **$2900** - 1 day remote **$3200** - 1 day onsite
Deep Dive & Strengthening			
Unit-Specific Workshops	6 hour session	Onsite	**$3200**
Analyzing Assessment Data	6 hour session	Onsite	**$3200**
Accessing Complex Texts	6 hour session	Onsite	**$3200**
Engaging ELs in 3D Learning	6 hour session	Onsite	**$3200**
Instructional Practice Workshops & Job-Embedded Coaching Services			
Job-Embedded Coaching (JEC) Services: Teachers	6 hour session	Onsite	**$3500**

Workshop Category and Title	Duration	Modality	Price
Guided Planning and Support	3 hour session	Onsite & Remote	**$1450** - ½ day remote **$2500** - ½ day onsite **$2900** - 1 day remote **$3200** - 1 day onsite
Looking at Student Work	3 hour session	Onsite & Remote	**$1450** - ½ day remote **$2500** - ½ day onsite **$2900** - 1 day remote **$3200** - 1 day onsite
Job-Embedded Coaching (JEC) Services: Administrators	6 hour session	Onsite	**$3500**
Using Meaningful Data to Enhance 3D Learning	3 hour session	Onsite & Remote	**$1450** - ½ day remote **$2500** - ½ day onsite **$2900** - 1 day remote **$3200** - 1 day onsite
Understanding Accessible Program Data	3 hour session	Onsite & Remote	**$1450** - ½ day remote **$2500** - ½ day onsite **$2900** - 1 day remote **$3200** - 1 day onsite
Packages & Customized Services			
Job-Embedded Coaching (JEC) Services: Teachers package	4 full days + 1 remote session	Onsite & Remote	**$12,000**
Job-Embedded Coaching (JEC) Services: Administrators	4 full days + 1 remote session	Onsite & Remote	**$12,000**
Grade Band Orientation Middle School Package Teachers package	6 full days	Onsite	**$19,200**
Master Teacher Institute at the Lawrence Hall of Science Teachers and Administrators Package *Please refer to description below.*	3 full days @ LHS Year 2	Onsite	**$6,400**

b) Please advise if any training will not occur by the deadline/time specified on the Narrative, Attachment 1, page 2.

To enable a successful implementation launch, Amplify understands the importance of providing timely, coherent professional learning. All of the initial Science professional learning will meet the deadline /time specified. Our project management will include working with the District to anticipate any scheduling/timeline issues and, in such cases, collaborating to mitigate the risk and/or modify the training plan and deadlines in a way that is mutually agreed upon. Amplify Science requests an advance notice of at least 60 days, for large scale training events.

2.6. Order Processing, Shipment Preparation and Logistics

a) Our District requires special packaging, labeling, palletizing, and documentation on a per school basis. Can publisher/vendor provide this level of service?

Amplify has the capacity to provide custom labeling and palletization of Amplify Science at the point of fulfillment. Our core kits are prepackaged. Any material reconfiguration of those preassembled cartons would require discussion to understand the full scope of the District's packaging requirements.

b) Please advise if there are any additional costs for the above special per-school packaging beyond prices quoted for adoption/implementation materials.

Organization of materials for delivery to multiple school sites is covered in our standard shipping and handling cost. Further separation and palletization of materials by classroom would result in an additional handling cost. We are happy to discuss this cost based on further definition of the District's needs.

c) Referring to Attachment 7, Barcode Information, please confirm that you can deliver barcoded materials according to District specifications.

We can provide barcoding per the specifications in Attachment 7.

2.7. Warranty/Guarantee

The District requires that the vendor for this project warrant/guarantee the performance of the product/books/services for the life of the adoption (beginning in school year 2019-2020 and continuing for nine years). Information should include a toll-free phone number and website/email address to contact for Warrantee/guarantee administration. This administration shall be performed directly by our end user programs/sites communicating directly with the vendor's warranty administration staff. Product/book replacement under warranty/guarantee shall be done on an FOB Seattle Schools basis. The District believes the staff/shipping/administrative cost to return single/small quantities of products/books that are

of such low initial purchase price would cost more in human and administrative resources than the products are actually worth; therefore, no products/books claimed by the District under warranty/guarantee shall be returned to the vendor. District sites making claims of product failure shall provide digital images of failed products to vendor warranty administrators and shall also hold/make those failed products available (at District sites) to vendor sales reps/warranty administrators for physical inspection. Any District site warranty claims that are not resolved at the site level shall be brought to the attention of the District Purchasing Department. Replacement warrantee/guarantee products/books will be provided in the same specification/configuration as the originally supplied product. The District will not claim for any warranty/guarantee replacement products/books that have been obviously abused/misused. Please advise if there is any additional cost for the District-described warranty/guarantee.

Please refer to Attachment A for clarification of our warranty.

2.8. Please advise any extra costs for providing goods/services according to District standard terms and conditions.

Not applicable.

2.9. Purchase Terms/Payments

a) District standard payment terms are net 30 days. Please advise if you offer a prompt payment discount for faster payments (Yes/No and amount).

We accept payment terms of net 30 days. We do not offer a prompt payment discount.

2.10. Purchase/Sale of Adoption Materials

a) Does your sales approach work on a publisher direct-to-District basis or through a book depository?

We provide Amplify Science on a direct-to-district basis.

b) Please advise pros and cons of your approach.

By offering our products on a direct-to-district basis we are able to avoid the additional cost of a third party distributor.

c) If your sales approach is through a depository, who takes contractual responsibility that deliverables (offered prices and delivery commitments) are met and on time?

Not applicable.

d) With frequent sales and mergers of publishing companies being a concern for the District, please confirm that any commercial arrangements your firm may agree to with the District for this adoption will pass on to any future management/ownership of your current company.

Any transfer of this agreement in a sale or merger transaction will include Amplify's obligations to the District thereunder, and Amplify will make reasonable best efforts to avoid any disruptions to existing processes in place with the District.

2.11. Estimated "Per Student" Costs for Adoption

a) Please advise your "per student" estimated first year cost for all combined student, teacher, technology access, consumables, freight, and handling.

Please review our pricing included in section 3.

b) Please estimate those same costs on a "per student" basis for years 2 through 9 of the adoption period as well as separated by grade band (K-5 and 6-8).

Please review our pricing included in section 3.

2.12. Risks

a) If there are any areas of commercial/educational risk to the District that you are aware of and the District has not mentioned in our communications thus far, please share a brief explanation and identify any financial, or other, risks to the District.

Amplify is not aware of any additional commercial/educational risks to the District that have not yet been considered.

2.13. Right to Reproduce

a) The District requires that "rights to reproduce for instructional purposes" be permitted at no additional cost to the District. This shall include as a minimum, pdf files and blackline masters. Are these rights to reproduce included in your firm's year 1-9 pricing? Yes/No?

Yes. The District has the right to reproduce the pdf files and blackline masters without an additional cost.

In addition, the District reserves the right to reject any firm that is not willing to accept the District 's Terms and Conditions as noted in the standard form of contract.

Please refer to Attachment A for our clarifications to the terms and conditions.

REQUEST FOR PRICING

COMPANY NAME Amplify Education, Inc.

NAME OF REPRESENTATIVE (INCLUDE CONTACT INFORMATION)

Patrick Momsen – District Manager
Phone: 541-207-2148
Email: pmomsen@amplify.com

PRICING SHOULD INCLUDE STUDENT AND TEACHER MATERIALS.
ACTUAL POTENTIAL QUANTITIES MAY BE 75%-125% OF CURRENT ENROLLMENT ESTIMATES.

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1,650	GRADE K STUDENT PRODUCTS AND SERVICES			
		ONLINE ACCESS	$ 0.00	$ 0.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 0.00	$ 0.00*
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 0.00**
82	GRADE K TEACHER PRODUCTS AND SERVICES			
~~245~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 567.00	$ 46,494.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 150.00	Included
		ASSESSMENTS	$ 0.00	$ 0.00
		PROFESSIONAL DEVELOPMENT	-	$ 25,333.33†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 567.00	$ 71,827.33**
82	GRADE K CLASSROOM PRODUCTS AND SERVICES			
~~245~~		SUPPLIES AND EQUIPMENT	$ 2,615.00	$ 71,476.67
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 1,480.13	$ 12,137.03*
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 4,095.13	$ 83,613.69**

RFP05868 STEP 1 K-8 SCIENCE
REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1,650	GRADE 1 STUDENT PRODUCTS AND SERVICES			
		ONLINE ACCESS	$ 0.00	$ 0.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 0.00	$ 0.00*
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 0.00**
82	GRADE 1 TEACHER PRODUCTS AND SERVICES			
~~245~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 567.00	$ 46,494.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 150.00	Included
		ASSESSMENTS	$ 0.00	$ 0.00
		PROFESSIONAL DEVELOPMENT	-	$ 25,333.33†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 567.00	$ 71,827.33**
82	GRADE 1 CLASSROOM PRODUCTS AND SERVICES			
~~245~~		SUPPLIES AND EQUIPMENT	$ 2,515.00	$ 68,743.33
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 1,450.13	$ 11,891.03
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 3,965.13	$ 80,634.36**

RFP05868 STEP 1 K-8 SCIENCE

REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1,650	GRADE 2 STUDENT PRODUCTS AND SERVICES			
		ONLINE ACCESS	$ 0.00	$ 0.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 0.00	$ 0.00*
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 0.00**

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
82	GRADE 2 TEACHER PRODUCTS AND SERVICES			
~~245~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 567.00	$ 46,494.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 150.00	Included
		ASSESSMENTS	$ 0.00	$ 0.00
		PROFESSIONAL DEVELOPMENT	-	$ 25,333.33†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 567.00	$ 71,827.33**

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
82	GRADE 2 CLASSROOM PRODUCTS AND SERVICES			
~~245~~		SUPPLIES AND EQUIPMENT	$ 2,555.00	$ 69,836.67
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 1,360.13	$ 11,153.03
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 3,915.13	$ 80,989.69**

RFP05868 STEP 1 K-8 SCIENCE
REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1,475	GRADE 3 STUDENT PRODUCTS AND SERVICES			
		ONLINE ACCESS	$ 0.00	$ 0.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 0.00	$ 0.00
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 0.00**
74	GRADE 3 TEACHER PRODUCTS AND SERVICES			
~~220~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 756.00	$ 55,944.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 200.00	Included
		ASSESSMENTS	$ 99.00	Included
		PROFESSIONAL DEVELOPMENT	-	$ 25,333.33†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 756.00	$ 81,277.33**
74	GRADE 3 CLASSROOM PRODUCTS AND SERVICES			
~~220~~		SUPPLIES AND EQUIPMENT	$ 4,175.00	$ 102,983.33
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$1,938.50	$ 14,344.90
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 6,113.50	$ 117,328.23**

RFP05868 STEP 1 K-8 SCIENCE
REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1,475	GRADE 4 STUDENT PRODUCTS AND SERVICES			
		ONLINE ACCESS	$ 0.00	$ 0.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 0.00	$ 0.00
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 0.00**
74	GRADE 4 TEACHER PRODUCTS AND SERVICES			
~~220~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 756.00	$ 55,944.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 200.00	Included
		ASSESSMENTS	$ 99.00	Included
		PROFESSIONAL DEVELOPMENT	-	$ 25,333.33†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 756.00	$ 81,277.33**
74	GRADE 4 CLASSROOM PRODUCTS AND SERVICES			
~~220~~		SUPPLIES AND EQUIPMENT	$ 3,440.00	$ 84,853.33
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 1,813.50	$ 13,419.90
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 5,253.50	$ 98,273.23**

RFP05868 STEP 1 K-8 SCIENCE

REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1,475	GRADE 5 STUDENT PRODUCTS AND SERVICES			
		ONLINE ACCESS	$ 0.00	$ 0.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 0.00	$ 0.00
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 0.00**
74	GRADE 5 TEACHER PRODUCTS AND SERVICES			
~~220~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 756.00	$ 55,944.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 200.00	Included
		ASSESSMENTS	$ 99.00	Included
		PROFESSIONAL DEVELOPMENT	-	$ 25,333.33†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 756.00	$ 81,277.33**
74	GRADE 5 CLASSROOM PRODUCTS AND SERVICES			
~~220~~		SUPPLIES AND EQUIPMENT	$ 3,115.00	$ 76,836.67
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 1,873.50	$ 13,863.90
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 4,988.50	$ 90,700.57**

RFP05868 STEP 1 K-8 SCIENCE
REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1400	**GRADE 6 STUDENT PRODUCTS AND SERVICES**			
~~4,200~~		ONLINE ACCESS	$ 90.00	$ 126,000.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 25.03	$ 3,504.38
		OTHER (SPECIFY) – Benchmark Assessments	$ 5.00	Included
		TOTAL	$ 92.50	$ 129,504.38**
14	**GRADE 6 TEACHER PRODUCTS AND SERVICES**			
~~40~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 0.00	$ 0.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 450.00	Included
		ASSESSMENTS	$ 0.00	$ 0.00
		PROFESSIONAL DEVELOPMENT	-	$ 2,666.67†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 2,666.67**
14	**GRADE 6 CLASSROOM PRODUCTS AND SERVICES**			
~~40~~		SUPPLIES AND EQUIPMENT	$ 2,914.00	$ 40,796.00
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 770.00	$ 1,078.00
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 3,684.00	$ 41,874.00**

RFP05868 STEP 1 K-8 SCIENCE
REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1400	**GRADE 7 STUDENT PRODUCTS AND SERVICES**			
~~4,200~~		ONLINE ACCESS	$ 90.00	$ 126,000.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 25.03	$ 3,504.38
		OTHER (SPECIFY) – Benchmark Assessments	$ 5.00	Included
		TOTAL	$ 92.50	$ 129,504.38**
14	**GRADE 7 TEACHER PRODUCTS AND SERVICES**			
~~40~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 0.00	$ 0.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 450.00	Included
		ASSESSMENTS	$ 0.00	$ 0.00
		PROFESSIONAL DEVELOPMENT	-	$ 2,666.67†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 2,666.67**
14	**GRADE 7 CLASSROOM PRODUCTS AND SERVICES**			
~~40~~		SUPPLIES AND EQUIPMENT	$ 3,265.00	$ 45,710.00
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 655.00	$ 917.00
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 3,920.00	$ 46,627.00**

RFP05868 STEP 1 K-8 SCIENCE
REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
1400	GRADE 8 STUDENT PRODUCTS AND SERVICES			
~~4,200~~		ONLINE ACCESS	$ 90.00	$ 126,000.00
		STUDENT WORKBOOKS	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 25.03	$ 3,504.38
		OTHER (SPECIFY) – Benchmark Assessments	$ 5.00	Included
		TOTAL	$ 92.50	$ 129,504.38**

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
14	GRADE 8 TEACHER PRODUCTS AND SERVICES			
~~40~~		SUPPLIES AND EQUIPMENT	$ 0.00	$ 0.00
		ONLINE ACCESS	$ 0.00	$ 0.00
		PRINTED MATERIALS (I.E. TEACHER GUIDES)	$ 450.00	Included
		ASSESSMENTS	$ 0.00	$ 0.00
		PROFESSIONAL DEVELOPMENT	-	$ 2,666.67†
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 0.00	$ 2,666.67**

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
14	GRADE 8 CLASSROOM PRODUCTS AND SERVICES			
~~40~~		SUPPLIES AND EQUIPMENT	$ 3,525.00	$ 49,350.00
		PRINTED MATERIALS (I.E. READERS)	$ 0.00	$ 0.00
		MATERIALS IN MULTIPLE LANGUAGES (LIST)	$ 475.00	$ 665.00
		OTHER (SPECIFY)	$ 0.00	$ 0.00
		TOTAL	$ 4,000.00	$ 50,015.00**

RFP05868 STEP 1 K-8 SCIENCE
REQUEST FOR ESTIMATED PRICING - ATTACHMENT 4

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
	1ST GRADE FIELD TEST PRODUCTS AND SERVICES			
	JANUARY-FEBRUARY 2019	MATERIALS (ALL)		$ 3,585.00
	FOR ONE SELECTED UNIT OF INSTRUCTION	ONLINE ACCESS		Included
	3 TEACHERS	PROFESSIONAL DEVELOPMENT (12/17-18)		Included
	80 STUDENTS	OTHER (SPECIFY)		$ 200.00
		TOTAL		$ 3,785.00
	3RD GRADE FIELD TEST PRODUCTS AND SERVICES ***			
	JANUARY-FEBRUARY 2019	MATERIALS (ALL)		$ 4,485.00
	FOR ONE SELECTED UNIT OF INSTRUCTION	ONLINE ACCESS		Included
	3 TEACHERS	PROFESSIONAL DEVELOPMENT (12/17-18)		Included
	80 STUDENTS	OTHER (SPECIFY)		$ 319.20
		TOTAL		$ 4,804.20
	7TH GRADE FIELD TEST PRODUCTS AND SERVICES ***			
	JANUARY-FEBRUARY 2019	MATERIALS (ALL)		$ 1,515.00
	FOR ONE SELECTED UNIT OF INSTRUCTION	ONLINE ACCESS		Included
	3 TEACHERS	PROFESSIONAL DEVELOPMENT (12/17-18)		Included
	400 STUDENTS	OTHER (SPECIFY)		$ 1,196.00
		TOTAL		$ 2,711.00

BARCODING OF TEACHER AND STUDENT MATERIALS FOR MAIN ADOPTION	$ 0.00
ESTIMATED PROCESSING/HANDLING CHARGES IF ANY TO MEET DISTRICT "PER SCHOOL" PACKAGING, LABELING, PALLETIZING REQUIREMENTS	$ 0.00
ESTIMATED FREIGHT CHARGES, IF ANY	$ 83,075.30‡
SALES TAX: 10.1% NOMINAL	$ 157,275.49
TOTAL FOB SSD#1 SEATTLE WAREHOUSE FOR YEAR 1 OF ADOPTION	**$ 1,797,533.90**

		K-5	6-8
TOTAL COST FOR YEAR 1 OF ADOPTION	$ 1,797,471.59	$ 1,188,616.00	$ 608,855.60
TOTAL COST FOR YEAR 2 OF ADOPTION	$ 1,891,497.00	$ 1,288,195.12	$ 603,301.88
TOTAL COST FOR YEAR 3 OF ADOPTION	$ 1,964,077.94	$ 1,338,961.91	$ 625,116.02
TOTAL COST FOR YEAR 4 OF ADOPTION	$ 0.00	$ 0.00	$ 0.00
TOTAL COST FOR YEAR 5 OF ADOPTION	$ 0.00	$ 0.00	$ 0.00
TOTAL COST FOR YEAR 6 OF ADOPTION	$ 0.00	$ 0.00	$ 0.00
TOTAL COST FOR YEAR 7 OF ADOPTION	$ 0.00	$ 0.00	$ 0.00
TOTAL COST FOR YEAR 8 OF ADOPTION	$ 0.00	$ 0.00	$ 0.00
TOTAL COST FOR YEAR 9 OF ADOPTION	$ 0.00	$ 0.00	$ 0.00
TOTAL YEARS 1-9	**$ 5,653,046.53**	**$ 3,815,773.03**	**$ 1,837,273.50**

Please note the following:

*We have assumed that 10% of students will also require Spanish Language supports. Spanish Language student costs include Student Investigation Notebooks with Articles in Spanish and Digital Spanish Support Add On for students (Middle School only). Spanish Language classroom costs include Spanish Print-Only Add-On Kit and Digital Spanish Support Add On for teachers (Elementary School only). 90% of students receive English language Student Investigation Notebooks.

**Per Student, Teacher, and Classroom Totals are based on the total for that grade divided by the quantity indicated for students, teachers, or classrooms.

*** Field Test costs may be lower based on the unit chosen.

‡ Freight/shipping is 12% on all physical materials.

† The professional development indicated for each grade is only the Year 1 cost and is an effective cost that reflects the overall cost of Professional Development for the grade band (K-5 or 6-8) allocated to each individual grade. We are happy to discuss the cost of a professional learning package at smaller or greater scale. The cost of training in Years 2 and 3 is included in the Total Cost line at the bottom of the form for each year.

4. Amplify Response to Section & Adoption Guidelines

Seattle Public Schools Instructional Materials Adoption Guideline	Amplify Response
After a thorough process that solicits input from the community on their opinions and values, and after looking at a range of instructional materials including Open Educational Resources when appropriate, adoption committees are directed to recommend for adoption books and / or other instructional materials that are selected to:	
• Enable teachers to implement the district's curriculum	Amplify Science was designed to meet 100% of the Next Generation Science Standards. Please see attachment B for information on alignment.
• Provide an effective basic education, including providing materials and/ or support to help students outside of the instructional day, as appropriate	Every unit of Amplify Science includes one or more activities designed to be completed at home with a family member. Home investigations (in K–5) and family homework experiences (6–8) are designed to encourage interaction and discussion between students and their families about science concepts, which has been found to be beneficial for student learning. In addition, homework activities are included for many lessons in grades 6–8. These activities are designed to extend and reinforce classroom learning.
• Provide a format that is accessible to all students	Please see Attachment B for information on accessibility within Amplify Science.
• Insure flexibility and clarity sufficient to meet the special needs of individuals and groups	Amplify Science units provide many varied learning opportunities as well as timely supports to ensure that diverse learners can be successful with the language and content demands of science. Please see Attachment B for more information about how Amplify Science fully embraces access and equity.
• Meet applicable standards as a minimum level of rigor	Amplify Science was designed to be appropriately challenging for most students most of the time. See Attachment B for more information on the approach used in Amplify Science to effectively guide students in meeting or exceeding the NGSS.

Seattle Public Schools Instructional Materials Adoption Guideline	Amplify Response
• Provide a coherent instructional sequence and stimulate student growth in conceptual thinking and factual knowledge	Each individual unit of Amplify Science “bundles” a variety of performance expectations together. Students explore these standards meaningfully, coherently, and seamlessly through participation in the investigation of the unit’s real world problem and overarching scientific phenomenon. See Attachment B for more information on the structure of Amplify Science.
• Be easily understood by students, taking into consideration the varied instructional needs, abilities , interests, and maturity levels of the students served	Every unit of Amplify Science has students inhabiting the role of a scientist or engineer in order to investigate a real-world problem. These real-world problems provide relevant, grade-level appropriate contexts through which students will investigate different scientific phenomena. See Attachment B for more information about the role phenomena plays in the Amplify Science curriculum. In addition, the learning goals for each unit were developed to be age appropriate for the grade level in which they are taught, and align fully to the NGSS. A complete list of the standards addressed in a given unit is provided in the “Standards and Goals” resource in the Teacher’s Unit Guide.
• Be based on best practices and research including benchmarking from similar districts and other sources	Amplify Science is a research-backed program. It incorporates the latest research in student learning, and was extensively field tested. See Attachment B for more information about the rigorous development process of the curriculum.

Seattle Public Schools Instructional Materials Adoption Guideline	Amplify Response
• Have a common baseline while ensuring that different learning and teaching styles are represented	Universal Design is at the heart of Amplify Science. Universal Design is integrated in two ways: 1) The structure of the curriculum establishes habits and routines that make it possible for the teacher to teach students at varying skill levels during the same activity, to acquire data from formative assessments, and to adjust instruction accordingly without always having to provide different activities for different students. 2) The multi-modal approach of Do, Talk, Read, Write, Visualize, which is the primary pedagogical model of Amplify Science, was designed, as UDL suggests, to provide students with multiple means of acquiring skills and knowledge, multiple means of expressing their understandings, and multiple means of engaging with the content.
• Provide sufficient variety so as to present opposing views of controversial issues in order that students may develop the skills of critical analysis and informed decision making	Amplify Science was designed to create the next generation of scientific innovators and knowledgeable citizens who are curious, skeptical, and evidence-based critical thinkers capable of making decisions that improve themselves and the well-being of their communities. The real-world problem contexts used throughout Amplify Science serve to empower students to believe in their own ability to affect change using science, while the rich content gives them the experience with the STEM skills they will need to do so. Program features like open-ended written response items that allow students to make any claim that they can effectively justify with the evidence they have, collaborative discussions that ask students to contribute prior knowledge or experience with specific phenomena, and flexible design challenges that can look any which way as long as they meet some design criteria, work together to authentically teach students the important lesson that there is often no one “right” answer in the real world, and that their ideas matter.

Seattle Public Schools Instructional Materials Adoption Guideline	Amplify Response
• Be culturally relevant to represent the diversity of students and contribute to the development of understanding issues of gender, ethnic, cultural, occupational and religious groups	The Amplify Science program has been carefully and thoughtfully designed to ensure that students encounter fair and accurate representations of scientists, engineers, and other people. For example: • **Sunlight and Weather** unit (Kindergarten): Students consult a reference book called Handbook of Models, which shows a diverse collection of real scientists who use models, including an African-American man, Asian-American men, a European-American woman, and an Arab-American woman. • **Inheritance and Traits** unit (Grade 3): Students read Scorpion Scientist, a nonfiction book that follows the arachnologist Dr. Lauren Esposito, a Latina woman, as she discovers a new species of scorpion. • **Force and Motion** unit: Students read an article, “Designing Wheelchairs”, which profiles engineer Rory Cooper, who uses his knowledge of force and motion to design wheelchairs for athletes to use in different situations, including sports like racing and rugby. Cooper uses a wheelchair himself.

Seattle Public Schools Instructional Materials Adoption Guideline	Amplify Response
• Reflect community expectations and values	Just as Seattle Public Schools has the ultimate goal of ensuring all students receive a high-quality, 21st century education and graduate prepared for college, career and life, Amplify Science aims to create the next generation of scientific innovators and knowledgeable citizens who are curious, skeptical, and evidence-based critical thinkers capable of making decisions that improve themselves and the well-being of their communities. For more information on how the program was designed to realize this goal, see Attachment B.
• Eliminate in all textbooks and instructional materials, including reference materials and audio-visual materials , bias pertaining to those protected by the district's non-discrimination policy.	As described above, the Amplify Science program has been carefully and thoughtfully designed to ensure that students encounter fair and accurate representations of scientists, engineers, and other people. See Attachment B for a larger discussion on how equity was taken into account in Amplify Science's creation.

5. Voluntary Product Accessibility Form

Amplify Education, Inc. Accessibility Conformance Report

Revised Section 508 Edition

VPAT® Version 2.2 – July 2018

Name of Product/Version: Amplify Science

Product Description:

Amplify Science is a brand new K-8 science curriculum in which students learn to investigate, talk, read, write, think, and argue like real scientists and engineers through investigations of real-world problems and scientific phenomena. The curriculum is made up of both digital and print components that span three main product categories: curriculum delivery, books and articles, and apps, which includes simulations and practice tools.

Curriculum delivery includes a digital curriculum app experience for students in grades 6-8, which can be used in conjunction with print-based investigation notebooks and classroom materials that are available across K-8. Books and articles are available in both digital (served through an eReader) and print formats across grades K-8. Finally, the apps, which include simulations and practice tools, are typically available in every unit across grades 2-8 and are designed to offer interactive spaces for students to investigate scientific phenomena and visually model their ideas.

This report summarizes conformance of the program's digital components to the standards included herein. In cases where there are print alternatives, they have been noted.

Date: December 5, 2018

Contact information:

Contact Name: Patrick Momsen
Email: pmomsen@amplify.com
Phone: 541-207-2148

Notes:

This evaluation covers the primary platforms from which content is delivered to students and teachers. It does not account for several digital tools used for analysis (specifically, the gradebook, reporting, and "MyWork" applications). We are committed to conforming to accessibility standards across these platforms but have prioritized the principle student-facing and teacher-facing products in this endeavor.

Evaluation Methods Used:

Amplify is committed to building products that address the needs of all learners, including those with disabilities. We do so by methodically integrating accessibility considerations into our product development lifecycle, as well as implementing training and vendor management programs that support compliance with accessibility guidelines and best practices. The evaluation methods used to craft this report derived from two main sources. First, an audit conducted in early 2018 by an external accessibility expert surfaced violations across the digital components of the platform. Many of these violations have been resolved through an internal remediation effort. Hence, the second source of evaluation is sourced from our own internal testing. We expect toward the end of our remediation plan to request a new audit to validate our findings.

Applicable Standards/Guidelines

This report covers the degree of conformance for the following accessibility standard/guidelines:

Standard/Guideline	Included In Report
Web Content Accessibility Guidelines 2.0, at *http://www.w3.org/TR/2008/REC-WCAG20-20081211/*	Level A (Yes) Level AA (Yes) Level AAA (No)
Revised Section 508 standards as published by the U.S. Access Board in the Federal Register on January 18, 2017 Corrections to the ICT Final Rule as published by the US Access Board in the Federal Register on January 22, 2018	(Yes)

Terms

The terms used in the Conformance Level information are defined as follows:

- **Supports**: The functionality of the product has at least one method that meets the criterion without known defects or meets with equivalent facilitation.
- **Partially Supports**: Some functionality of the product does not meet the criterion.
- **Does Not Support**: The majority of product functionality does not meet the criterion.
- **Not Applicable**: The criterion is not relevant to the product.
- **Not Evaluated**: The product has not been evaluated against the criterion. This can be used only in WCAG 2.0 Level AAA.

WCAG 2.0 Report

Tables 1 and 2 also document conformance with:

- Chapter 5 – 501.1 Scope, 504.2 Content Creation or Editing
- Chapter 6 – 602.3 Electronic Support Documentation

Note: When reporting on conformance with the WCAG 2.0 Success Criteria, they are scoped for full pages, complete processes, and accessibility-supported ways of using technology as documented in the WCAG 2.0 Conformance Requirements.

Table 1: Success Criteria, Level A

Notes:

Criteria	Conformance Level	Remarks and Explanations
1.1.1 Non-text Content (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: All images embedded in the content have alt text. All videos have captions, as well as a transcript available for download. Books and articles: Books and articles for grades 6-8 are all text accessible in digital and/or print form. While the books for grades K-5 are currently image-based in their digital form, there are alternatives in print and NIMAS format, and we have committed to making the digital image files accessible to text readers before the start of the 2019-20 academic year. Apps: The apps have aspects that are highly visual in nature without a comprehensive text equivalent. Until this platform fully supports non-text content, we suggest partner use in cases where this product does not meet student needs.
1.2.1 Audio-only and Video-only (Prerecorded) (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.

Criteria	Conformance Level	Remarks and Explanations
1.2.2 Captions (Prerecorded) (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.
1.2.3 Audio Description or Media Alternative (Prerecorded) (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: Videos in grades 6-8 have captions and transcripts. The combination of these mediums provide complete access to the content. Videos in grades K-5, however, are visual in nature (there is sound but not talking) and currently do not include audio description. Books and articles: Books and articles for grades 6-8 have audio recordings. The combination of the text and audio recordings provide complete access to the content. Apps: Several of the apps have a synchronized media presentation based on how the user has configured the app's options. In these cases, the apps currently lack audio description to describe the interaction at play.
1.3.1 Info and Relationships (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: The majority of the informational hierarchy in this platform can be programmatically gleaned

Criteria	Conformance Level	Remarks and Explanations
		and/or differentiated with a screen reader. We continue to make improvements to ensure that all content-based relationships (e.g. headers) are programmatically distinguishable. Books and articles: These materials are available in print and digital format. The majority of the informational hierarchy in the digital format for grades 6-8 book and article content can be programmatically gleaned and/or differentiated with a screen reader. The majority of the informational hierarchy in the digital format for book content in grades K-5 cannot yet be programmatically gleaned, but we have committed to supporting this functionality before the start of the 2019-20 academic year. Apps: Much of the informational hierarchy and content structures in these applications cannot yet be programmatically determined.
1.3.2 Meaningful Sequence (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: In a majority of cases, the correct reading sequence of content can be programmatically determined. Books and articles: These materials are available in print and digital format. The majority of the reading sequence in the

Criteria	Conformance Level	Remarks and Explanations
		digital format for book and article content in grades 6-8 can be programmatically gleaned and is read in a meaningful sequence. The majority of the reading sequence in the digital format for book content in grades K-5 cannot yet be programmatically gleaned, but we have committed to supporting this functionality before the start of the 2019-20 academic year. Apps: Much of the content in these applications cannot yet be programmatically read in a meaningful way.
1.3.3 Sensory Characteristics (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: In most if not all cases where this platform presents content through visual or audio means, we have complemented that with programmatically distinguishable sensory alternatives. Books and articles: These materials are available in print and digital format. The only case where visual instructional content does not have an alternative is in the case of the digital books of grades K-5, which we have committed to making programmatically distinguishable before the start of the 2019-20 academic year. Apps: Much of the instructional content in these applications is highly visual in

Criteria	Conformance Level	Remarks and Explanations
		nature without equivalent alternatives. Until the platform offers sufficient alternatives for the visual elements of the product, we suggest partner use in cases where the current product does not meet student needs.
1.4.1 Use of Color (Level A) Also applies to: Revised Section 508 • 501 (Web)(Software) • 504.2 (Authoring Tool) • 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: In cases where color is used to relay information in this platform, we have provided other means, primarily in the form of alt text, to deliver this information. Books and articles: Text is always used as the primary delivery mechanism for information, with graphics and other visual treatments as a supporting aid. Apps: Much of the content in these applications is highly visual in nature with color sometimes being the sole means of conveying information in graphical outputs. We suggest partner use in cases where the product does not meet student needs until the platform offers sufficient alternatives for its color-only features.
1.4.2 Audio Control (Level A) Also applies to: Revised Section 508 • 501 (Web)(Software) • 504.2 (Authoring Tool) • 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.

Criteria	Conformance Level	Remarks and Explanations
2.1.1 Keyboard (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: Much of the student experience in this platform is keyboard navigable, but we continue to improve our implementation to ensure that all content is adequately operable. Books and articles: Much of the digital book and article content has limited user input. In cases where keyboard navigation is applicable, we continue to improve our implementation to ensure that all content is adequately operable. Book and article content also exists in print and NIMAS format in cases where the digital version is not sufficient. Apps: Many of the user interface elements in these applications are not yet keyboard navigable. We suggest partner use in cases where the current product does not meet student needs until it offers sufficient keyboard accessibility.
2.1.2 No Keyboard Trap (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: As per our most recent testing, there is no known keyboard trap in this platform. Books and articles: As per our most recent testing, there is no known keyboard trap in this platform.

Criteria	Conformance Level	Remarks and Explanations
		Apps: Many of the user interface elements in these applications are not yet keyboard navigable and hence have no assurance of not having a keyboard trap. We suggest partner use in cases where the current product does not meet student needs until it offers sufficient keyboard accessibility.
2.2.1 Timing Adjustable (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criteria varies across the three main categories of components: Curriculum delivery: The only time limit set in this platform is related to automated logout, a security feature commonly found in web-based products. The platform will automatically log out users have 12 hours of continued activity or 4 hours of idle activity. In this case, there is no warning provided to the user to extend. We hope to support this feature soon. Books and articles: These materials are available in print and digital format. In digital format, the only time limit set in this platform is related to automated logout. The platform will automatically log out users have 12 hours of continued activity or 4 hours of idle activity. In this case, there is no warning provided to the user to extend. We hope to support this feature soon. Apps: There are typically two timed elements associated with these applications. The first relates to

Criteria	Conformance Level	Remarks and Explanations
		automated logout. The platform will automatically log out users who have 12 hours of continued activity or 4 hours of idle activity. In this case, there is no warning provided to the user to extend. We hope to support this feature soon. The second timed element relates to synchronized media that plays on a timer. In this case, the media is controlled with play/stop mechanisms that can be turned off, paused, or restarted at any point.
2.2.2 Pause, Stop, Hide (Level A) Also applies to: ● Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criteria varies across the three main categories of components: Curriculum delivery: The vast majority of content in this platform conforms to this criterion. There are, however, a small number of content elements that feature an automated GIF image. We plan to improve this feature to narrow its repetitive play. Books and articles: Supports this criterion; there is no auto-updating content in these materials Apps: All auto-updating content is controlled with play/stop mechanisms that can be turned off, paused, or restarted at any point.
2.3.1 Three Flashes or Below Threshold (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.

Criteria	Conformance Level	Remarks and Explanations
2.4.1 Bypass Blocks (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) – Does not apply to non-web software ● 504.2 (Authoring Tool) ● 602.3 (Support Docs) – Does not apply to non-web docs	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	We are steadily working to populate a "skip to main content" link across all of the digital properties that comprise the science program.
2.4.2 Page Titled (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	As per our most recent testing, all pages within the digital components of the science program have page titles which are typically visible at the top of the page and/or in the application tab.
2.4.3 Focus Order (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: Much of the student experience in this platform is keyboard navigable. Among the user interface elements that are keyboard navigable, focus is received in a reasonable order, but we continue to improve our implementation to ensure that all appropriate content receives focus. Books and articles: These materials are available in print and digital format. In digital format, much of the digital book and article content has limited user input. Among the user interface elements that are keyboard navigable, focus is received in a reasonable order, but we continue to improve our implementation to ensure that all appropriate content receives focus.

Criteria	Conformance Level	Remarks and Explanations
		Apps: Many of the user interface elements in these applications are not yet keyboard navigable and therefore we cannot assure that focus is received in a reasonable order. We suggest partner use in cases where the current product does not meet student needs until it offers sufficient support for assistive technology.
2.4.4 Link Purpose (In Context) (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.
3.1.1 Language of Page (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	We are steadily working to populate the language of our HTML pages across all of the digital properties in the science program where it is currently missing.
3.2.1 On Focus (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: As per our most recent testing, there are no cases where context changes without user input. In the case where we discover an example in defiance of this criterion, we are committed to resolving it. Books and articles: As per our most recent testing, there are no cases where context changes without user input. In the case where we discover an example

Criteria	Conformance Level	Remarks and Explanations
		in defiance of this criterion, we are committed to resolving it. Apps: Many of the user interface elements in these applications are not yet keyboard navigable or screen readable and therefore we cannot attest to meeting this criterion. We suggest partner use in cases where the current product does not meet student needs until it offers sufficient assistive technology support.
3.2.2 On Input (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.
3.3.1 Error Identification (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.
3.3.2 Labels or Instructions (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criteria varies across the three main categories of components: Curriculum delivery: In the majority of cases where user input is solicited, labels or instructional materials are authored in the platform. We are steadily working toward resolving the cases where we have identified instructional content missing or not programmatically distinguishable.

Criteria	Conformance Level	Remarks and Explanations
		Books and articles: These materials are available in print and digital format. In digital format, all documented cases of user input have instructional labeling. Apps: All documented cases of user input have sufficient labeling; however, we are steadily working toward ensuring that these labels are programmatically distinguishable in their entirety.
4.1.1 Parsing (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The majority of user-facing content across the digital platforms of the program conforms to this criterion. As we uncover new cases where the use of tags and nests on user interface elements impedes assistive technology access, we are committed to resolving it.
4.1.2 Name, Role, Value (Level A) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The majority of user-facing content across the digital platforms of the program conforms to this criterion. As we uncover new cases where we do not articulate the name, role, or value fields on user interface elements, we are committed to resolving it.

Table 2: Success Criteria, Level AA

Notes:

Criteria	Conformance Level	Remarks and Explanations
1.2.4 Captions (Live) (Level AA) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.

Criteria	Conformance Level	Remarks and Explanations
• 602.3 (Support Docs)		
[1.2.5 Audio Description (Prerecorded)] (Level AA) Also applies to: Revised Section 508 • 501 (Web)(Software) • 504.2 (Authoring Tool) • 602.3 (Support Docs)	Web: Does not support Electronic Docs: Does not support Software: Does not support Authoring Tool: Not applicable	All videos offered within the science program have text-based equivalents for the vocalized portions of the media. We currently do not offer audio description for aspects of the media not delivered in spoken word. We hope to support this feature in the future.
[1.4.3 Contrast (Minimum)] (Level AA) Also applies to: Revised Section 508 • 501 (Web)(Software) • 504.2 (Authoring Tool) • 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The majority of user-facing content in the digital platforms that comprise the science project meet the minimum color guidelines. We are actively working to resolve those aspects of the content where our color selection falls short of the minimum contrast values.
[1.4.4 Resize text] (Level AA) Also applies to: Revised Section 508 • 501 (Web)(Software) • 504.2 (Authoring Tool) • 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	Across the digital platforms that comprise the program, users can choose to view the content at actual size or adjust the zoom at varying percentages by using the device's built-in settings and/or the browser settings. We are working to resolve any documented areas where this compromises the layout or readability of the application.
[1.4.5 Images of Text] (Level AA) Also applies to: Revised Section 508 • 501 (Web)(Software) • 504.2 (Authoring Tool) • 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The majority of user-facing content in the digital platforms that comprise the program is rendered in programmatically distinguishable text. We are steadily working to resolve documented cases where we have used images of text or made styling decisions that are indistinguishable to assistive technologies.
[2.4.5 Multiple Ways] (Level AA) Also applies to: Revised Section 508 • 501 (Web)(Software) – Does not apply to non-web software • 504.2 (Authoring Tool) • 602.3 (Support Docs) – Does not apply to non-web docs	Web: Supports Electronic Docs: Supports Authoring Tool: Not applicable	All student-facing digital content within the science program can be accessed directly or via the navigational mechanisms within each platform.

Criteria	Conformance Level	Remarks and Explanations
2.4.6 Headings and Labels (Level AA) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.
2.4.7 Focus Visible (Level AA) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	The program's conformance with this criterion varies across the three main categories of components: Curriculum delivery: The majority of user interface elements are visible on keyboard focus. Books and articles: These materials are available in print and digital format. In digital format, much of the digital book and article content has limited user input. Among the user interface elements that do solicit user input, we are gradually adding support to ensure that these elements are keyboard focus and receive visual indicators on focus. Apps: Many of the user interface elements in these applications are not yet keyboard navigable and therefore are not measurable against this criterion. We suggest partner use in cases where the current product does not meet student needs.
3.1.2 Language of Parts (Level AA) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Partially supports Electronic Docs: Partially supports Software: Partially supports Authoring Tool: Not applicable	In the majority of the student- and teacher-facing content that comprises the science program, the language of individual parts match the language of the whole, except where we have explicitly offered foreign language support. In cases where we have neglected to add the language to the HTML document, as noted in section 3.1.1, we are steadily working to populate the attribute.

Criteria	Conformance Level	Remarks and Explanations
3.2.3 Consistent Navigation (Level AA) Also applies to: Revised Section 508 ● 501 (Web)(Software) – Does not apply to non-web software ● 504.2 (Authoring Tool) ● 602.3 (Support Docs) – Does not apply to non-web docs	Web: Supports Electronic Docs: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.
3.2.4 Consistent Identification (Level AA) Also applies to: Revised Section 508 ● 501 (Web)(Software) – Does not apply to non-web software ● 504.2 (Authoring Tool) ● 602.3 (Support Docs) – Does not apply to non-web docs	Web: Supports Electronic Docs: Supports Authoring Tool: Not applicable	The Amplify Science program is divided into three main product categories: curriculum delivery, books and articles, and apps, which includes simulations and practice tools. While these categories are distinct in function and purpose, we strive to make the experience of common components consistent throughout, where applicable, in look and feel.
3.3.3 Error Suggestion (Level AA) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	The program supports this criterion in all known uses.
3.3.4 Error Prevention (Legal, Financial, Data) (Level AA) Also applies to: Revised Section 508 ● 501 (Web)(Software) ● 504.2 (Authoring Tool) ● 602.3 (Support Docs)	Web: Supports Electronic Docs: Supports Software: Supports Authoring Tool: Not applicable	This criterion is most relevant with regard to submissions of student work on assessments, homework, and other activities. In all cases, the student is provided the ability to resubmit their responses. In some cases, the teacher may "lock" an assessment for grading after a certain point but is encouraged to provide feedback on student responses. In no case is there a significant consequence for making a mistake.

Table 3: Success Criteria, Level AAA

Notes:

Criteria	Conformance Level	Remarks and Explanations
1.2.6 Sign Language (Prerecorded) (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
1.2.7 Extended Audio Description (Prerecorded) (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
1.2.8 Media Alternative (Prerecorded) (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
1.2.9 Audio-only (Live) (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Not applicable	The program has no live audio-only content.
1.4.6 Contrast Enhanced (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
1.4.7 Low or No Background Audio (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
1.4.8 Visual Presentation (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
1.4.9 Images of Text (No Exception) Control (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Partially supports	The majority of student- and teacher-facing content in the digital platforms that comprise the science program is rendered in programmatically distinguishable text. We are steadily working to resolve documented cases where we have used images of text or made styling decisions that are indistinguishable to assistive technologies.
2.1.3 Keyboard (No Exception) (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Partially supports	There are several cases across our digital product where path-dependent inputs are required. Therefore, while we are committed to fully supporting keyboard operability, we do not comply with this success criteria.
2.2.3 No Timing (Level AAA) Also applies to:	Web: Does not support	We do not currently comply with this success criteria.

Criteria	Conformance Level	Remarks and Explanations
Revised Section 508 – Does not apply		
[2.2.4 Interruptions] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Supports	The program supports this criterion in all known uses.
[2.2.5 Re-authenticating] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Supports	The program supports this criterion in all known uses.
[2.3.2 Three Flashes] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Supports	The program supports this criterion in all known uses.
[2.4.8 Location] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Partially supports	In the majority of cases, the user is made aware of their current location via navigational elements, like breadcrumbs, embedded in the platform. We are working to improve cases where the user's digital location is not navigationally evident.
[2.4.9 Link Purpose (Link Only)] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Supports	The program supports this criterion in all known uses.
[2.4.10 Section Headings] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
[3.1.3 Unusual Words] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Supports	Every unit in the science program is equipped with a glossary for new vocabulary. Additionally, the eReader platform provides "reveal words" embedded in the digital experience for novel vocabulary.
[3.1.4 Abbreviations] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Supports	All known uses of abbreviations in the curriculum have been defined in at least their first use.
[3.1.5 Reading Level] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
[3.1.6 Pronunciation] (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.

Criteria	Conformance Level	Remarks and Explanations
3.2.5 Change on Request (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Does not support	We do not currently comply with this success criterion.
3.3.5 Help (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Supports	Amplify places heavy emphasis on providing instructional language, labels, and contextual supports designed to aid students in understanding their task. We recognize that there is ample room to improve these help mechanisms to cater to a wider range of learner needs.
3.3.6 Error Prevention (All) (Level AAA) Also applies to: Revised Section 508 – Does not apply	Web: Supports	This criterion is most relevant with regard to submissions of student work on assessments, homework, and other activities. In all cases, the student is provided the ability to resubmit their responses. In some cases, the teacher may “lock” an assessment for grading after a certain point but is encouraged to provide feedback on student responses. In no case is there a significant consequence for making a mistake.

Revised Section 508 Report

Notes:

Chapter 3: Functional Performance Criteria (FPC)

Notes:

Criteria	Conformance Level	Remarks and Explanations
302.1 Without Vision	Partially supports	The combined support of screen readability, text resizing via browser or device zoom settings, and paper-based alternatives to the digital products seeks to support learners without vision. We are, however, actively working on improving our integration of these features to better support learners of all needs.
302.2 With Limited Vision	Partially supports	The combined support of screen readability, text resizing via browser and device zoom settings, and paper-based alternatives to the digital products seeks to support learners with limited vision. We are, however, actively working on improving our integration of these features to better support learners of all needs.
302.3 Without Perception of Color	Partially supports	In a majority of cases where color is used to provide information, the program offers text alternatives to deliver that information. We are working to improve a minority of cases where graphical outputs rely on color as the sole means of conveying information.

Criteria	Conformance Level	Remarks and Explanations
302.4 Without Hearing	Supports	The program supports this criterion in all known uses.
302.5 With Limited Hearing	Supports	The program supports this criterion in all known uses.
302.6 Without Speech	Supports	The program supports this criterion in all known uses.
302.7 With Limited Manipulation	Partially supports	Much of the digital user experience is keyboard navigable. We continue to refine our implementation to ensure that all content is operable without the use of a mouse or trackpad and requisite fine motor controls.
302.8 With Limited Reach and Strength	Supports	The program supports this criterion in all known uses.
302.9 With Limited Language, Cognitive, and Learning Abilities	Supports	All lessons are designed with a range of students in mind, providing multiple points of entry and modalities of learning (e.g. talking to peers, viewing short explanatory videos, reading, writing, conducting investigations, etc.) for students to engage with the content. In addition, to support teachers with the decisions they need to make in order to ensure that all students have access to learning, each lesson contains a Differentiation Brief that outlines specific supports for diverse learners, as well as flexible options for adapting lessons according to students' needs.

Chapter 4: Hardware

Notes:

Criteria	Conformance Level	Remarks and Explanations
402 Closed Functionality	Heading cell – no response required	Heading cell – no response required
402.1 General	Heading cell – no response required	Heading cell – no response required
402.2 Speech-Output Enabled	Heading cell – no response required	Heading cell – no response required
402.2.1 Information Displayed On-Screen	Not applicable	
402.2.2 Transactional Outputs	Not applicable	
402.2.3 Speech Delivery Type and Coordination	Not applicable	
402.2.4 User Control	Not applicable	
402.2.5 Braille Instructions	Not applicable	
402.3 Volume	Heading cell – no response required	Heading cell – no response required
402.3.1 Private Listening	Not applicable	
402.3.2 Non-private Listening	Not applicable	
402.4 Characters on Display Screens	Not applicable	
402.5 Characters on Variable Message Signs	Not applicable	
403 Biometrics	Heading cell – no response required	Heading cell – no response required
403.1 General	Not applicable	
404 Preservation of Information Provided for Accessibility	Heading cell – no response required	Heading cell – no response required
404.1 General	Not applicable	
405 Privacy	Heading cell – no response required	Heading cell – no response required
405.1 General	Not applicable	
406 Standard Connections	Heading cell – no response required	Heading cell – no response required
406.1 General	Not applicable	
407 Operable Parts	Heading cell – no response required	Heading cell – no response required
407.2 Contrast	Not applicable	
407.3 Input Controls	Heading cell – no response required	Heading cell – no response required
407.3.1 Tactilely Discernible	Not applicable	
407.3.2 Alphabetic Keys	Not applicable	

407.3.3 Numeric Keys	Not applicable	
407.4 Key Repeat	Not applicable	
407.5 Timed Response	Not applicable	
407.6 Operation	Not applicable	
407.7 Tickets, Fare Cards, and Keycards	Not applicable	
407.8 Reach Height and Depth	Heading cell – no response required	Heading cell – no response required
407.8.1 Vertical Reference Plane	Not applicable	
407.8.1.1 Vertical Plane for Side Reach	Not applicable	
407.8.1.2 Vertical Plane for Forward Reach	Not applicable	
407.8.2 Side Reach	Not applicable	
407.8.2.1 Unobstructed Side Reach	Not applicable	
407.8.2.2 Obstructed Side Reach	Not applicable	
407.8.3 Forward Reach	Not applicable	
407.8.3.1 Unobstructed Forward Reach	Not applicable	
407.8.3.2 Obstructed Forward Reach	Not applicable	
407.8.3.2.1 Operable Part Height for ICT with Obstructed Forward Reach	Not applicable	
407.8.3.2.2 Knee and Toe Space under ICT with Obstructed Forward Reach	Not applicable	
408 Display Screens	Heading cell – no response required	Heading cell – no response required
408.2 Visibility	Not applicable	
408.3 Flashing	Not applicable	
409 Status Indicators	Heading cell – no response required	Heading cell – no response required
409.1 General	Not applicable	
410 Color Coding	Heading cell – no response required	Heading cell – no response required
410.1 General	Not applicable	
411 Audible Signals	Heading cell – no response required	Heading cell – no response required
411.1 General	Not applicable	
412 ICT with Two-Way Voice Communication	Heading cell – no response required	Heading cell – no response required
412.2 Volume Gain	Heading cell – no response required	Heading cell – no response required
412.2.1 Volume Gain for Wireline Telephones	Not applicable	

412.2.2 Volume Gain for Non-Wireline ICT	Not applicable	
412.3 Interference Reduction and Magnetic Coupling	Heading cell – no response required	Heading cell – no response required
412.3.1 Wireless Handsets	Not applicable	
412.3.2 Wireline Handsets	Not applicable	
412.4 Digital Encoding of Speech	Not applicable	
412.5 Real-Time Text Functionality	Reserved for future	Reserved for future
412.6 Caller ID	Not applicable	
412.7 Video Communication	Not applicable	
412.8 Legacy TTY Support	Heading cell – no response required	Heading cell – no response required
412.8.1 TTY Connectability	Not applicable	
412.8.2 Voice and Hearing Carry Over	Not applicable	
412.8.3 Signal Compatibility	Not applicable	
412.8.4 Voice Mail and Other Messaging Systems	Not applicable	
413 Closed Caption Processing Technologies	Heading cell – no response required	Heading cell – no response required
413.1.1 Decoding and Display of Closed Captions	Not applicable	
413.1.2 Pass-Through of Closed Caption Data	Not applicable	
414 Audio Description Processing Technologies	Heading cell – no response required	Heading cell – no response required
414.1.1 Digital Television Tuners	Not applicable	
414.1.2 Other ICT	Not applicable	
415 User Controls for Captions and Audio Descriptions	Heading cell – no response required	Heading cell – no response required
415.1.1 Caption Controls	Not applicable	
415.1.2 Audio Description Controls	Not applicable	

Chapter 5: Software

Notes:

Criteria	Conformance Level	Remarks and Explanations
501.1 Scope – Incorporation of WCAG 2.0 AA	See WCAG 2.0 section	See information in WCAG section
502 Interoperability with Assistive Technology	Heading cell – no response required	Heading cell – no response required
502.2.1 User Control of Accessibility Features	Supports	The program supports this criterion in all known uses.

502.2.2 No Disruption of Accessibility Features	Supports	The program supports this criterion in all known uses.
502.3 Accessibility Services	Heading cell – no response required	Heading cell – no response required
502.3.1 Object Information	Partially supports	We are actively working to ensure that the content across all digital platforms that comprise the program are distinguishable to assistive technology. The majority of user-facing content conforms to this criterion. As we uncover new cases where we have neglected to articulate the object fields described here, we are committed to resolving them.
502.3.2 Modification of Object Information	Partially supports	The majority of user-facing digital content is manipulable programmatically, including through assistive technology. We are committed to adding support to aspects of the program that lack this operability, especially within the science simulation and practice tool applications.
502.3.3 Row, Column, and Headers	Supports	The program supports this criterion in all known uses.
502.3.4 Values	Supports	The program supports this criterion in all known uses.
502.3.5 Modification of Values	Supports	The program supports this criterion in all known uses.
502.3.6 Label Relationships	Supports	The platform supports this criterion as per our latest testing. In the case where reports of nonconformance with this standard are documented, we are committed to resolving them.
502.3.7 Hierarchical Relationships	Supports	The platform supports this criterion as per our latest testing. In the case

		where reports of nonconformance with this standard are documented, we are committed to resolving them.
502.3.8 Text	Partially supports	The majority of user-facing text in the curriculum delivery platform may be distinguished programmatically, including through assistive technology. We are committed to adding support to aspects of the program that lack this operability, especially within the science simulation and practice tool applications, where some of the text within the user interface is not yet programmatically distinguishable.
502.3.9 Modification of Text	Supports	The program supports this criterion in all known uses.
502.3.10 List of Actions	Partially supports	The majority of user actions in the curriculum delivery platform may be achieved programmatically, including through assistive technology. We are committed to adding support to aspects of the program that lack this operability, especially within the science simulation and practice tool applications, where some of the user interface controls are not yet programmatically determinable.
502.3.11 Actions on Objects	Partially supports	The majority of user actions in the curriculum delivery platform may be achieved programmatically, including through assistive technology. We are committed to adding support to aspects of the program that lack this operability, especially within the science

		simulation and practice tool applications, where some of the user interface controls are not yet programmatically determinable.
502.3.12 Focus Cursor	Partially supports	The majority of user actions in the curriculum delivery platform are keyboard navigable and receive visible focus upon that interaction. We are committed to adding support to aspects of the program that lack this operability, especially within the science simulation and practice tool applications, where some of the user interface controls are not yet keyboard focusable.
502.3.13 Modification of Focus Cursor	Supports	The platform supports this criterion as per our latest testing. In the case where reports of nonconformance with this standard are documented, we are committed to resolving them.
502.3.14 Event Notification	Supports	The platform supports this criterion as per our latest testing. In the case where reports of nonconformance with this standard are documented, we are committed to resolving them.
502.4 Platform Accessibility Features	Partially supports	Several of the features included in this criterion are supported across the platform, including entry of multiple keystrokes and visual alternatives for audio outputs. The others reflect standards we are still working to meet.
503 Applications	Heading cell – no response required	Heading cell – no response required
503.2 User Preferences	Partially supports	Users can choose to view the color, contrast, and font size of the platform at their actual

		configuration setting or make adjustments by using their device's built-in settings and/or the browser settings. Neither font type nor focus cursor is yet user customizable within the platform; however, we have taken care to use Benton Sans (an easy-to-read sans serif body font) set at 16 px to ensure readability.
503.3 Alternative User Interfaces	Not applicable	
503.4 User Controls for Captions and Audio Description	Heading cell – no response required	Heading cell – no response required
503.4.1 Caption Controls	Supports	The program supports this criterion in all known uses.
503.4.2 Audio Description Controls	Does not support	Videos within the program are not yet equipped with audio description.
504 Authoring Tools	Heading cell – no response required	Heading cell – no response required
504.2 Content Creation or Editing (if not authoring tool, enter "not applicable")	See [WCAG 2.0](#) section	See information in WCAG section
504.2.1 Preservation of Information Provided for Accessibility in Format Conversion	Not applicable	
504.2.2 PDF Export	Not applicable	
504.3 Prompts	Not applicable	
504.4 Templates	Not applicable	

Chapter 6: Support Documentation and Services

Notes:

Criteria	Conformance Level	Remarks and Explanations
601.1 Scope	Heading cell – no response required	Heading cell – no response required
602 Support Documentation	Heading cell – no response required	Heading cell – no response required

602.2 Accessibility and Compatibility Features	Supports	The program supports this criterion in all known uses.
602.3 Electronic Support Documentation	See WCAG 2.0 section	See information in WCAG section
602.4 Alternate Formats for Non-Electronic Support Documentation	Supports	The program supports this criterion in all known uses.
603 Support Services	Heading cell – no response required	Heading cell – no response required
603.2 Information on Accessibility and Compatibility Features	Supports	The program supports this criterion in all known uses.
603.3 Accommodation of Communication Needs	Supports	The program supports this criterion in all known uses.

Legal Disclaimer (Company)

Amplify is committed to making its products accessible through constant review and redesign, as necessary, to ensure that they meet or exceed accessibility standards and guidelines. This document is provided for information purposes only and the contents hereof are subject to change without notice. Amplify makes no representation concerning the ability of assistive technologies or other products to interoperate with Amplify products, and Amplify incurs no responsibility for third party customization or manipulation of an application that compromises the intended accessibility of a product. This document addresses the named product(s) or platforms only.

Attachment A: Clarifications to the Terms and Conditions

AMPLIFY EDUCATION, INC.

December 3, 2018

PROPOSAL TO SEATTLE PUBLIC SCHOOLS

RFP05868
Science Adoption Grades K–8

EXCEPTIONS TO RFP

In connection with this Proposal, Amplify Education, Inc. ("Amplify") has reviewed the Terms and Conditions (the "Terms"), the Attachments, and other relevant terms set forth in the above referenced Request for Proposal ("RFP") issued by Seattle Public Schools ("District" or "Customer"). While most of these terms are acceptable, Amplify requests some exceptions and clarifications with respect to certain of the proposed terms.

Amplify trusts that it will have an opportunity to discuss and negotiate the terms with the District in subsequent phases of the procurement process and that the parties will enter into mutually acceptable definitive agreement (the "Definitive Agreement"). Notwithstanding any provisions to the contrary in the RFP, Amplify's proposal assumes that the Definitive Agreement will reflect the exceptions or clarifications below and/or such other terms that are mutually negotiated in good faith and agreed by the parties.

Termination (Terms § 4): The Definitive Agreement may be terminated only by written agreement of Amplify and District, provided that a party shall have the right to terminate this Agreement if the other party materially breaches any term, provision, warranty or representation under this Agreement and fails to correct the breach within 30 days of its receipt of written notice of such breach. Upon termination, District will: (i) cease using Amplify products; (ii) return, purge or destroy (as directed in writing by Amplify) all copies of the product; (iii) pay Amplify any fees due and owing under the Definitive Agreement, including fees for all services rendered through the date of termination based on rates in Amplify's then current rate card; (iv) not be entitled to a refund of any fees previously paid, unless such fees were paid in advance for services not yet rendered at the time of termination, and (v) will not be entitled to cost of replacement or cover.

Acceptance (Terms § 7): While Amplify agrees that District shall have the right to inspect goods delivered to the District, such goods must be inspected, and the District must notify Amplify within 60 calendar days after delivery (the "acceptance period") of any goods that the District finds defective or nonconforming. After such acceptance period, all goods delivered will be deemed accepted by the District and Amplify will not agree to replacement, refunds, or payment of damages on any goods delivered to the District, regardless of whether the defect is apparent on examination. In addition, Contractor shall only bear all risk of loss or damage with respect to returned products during the acceptance period.

Indemnification (Terms § 10): Under the Definitive Agreement, Amplify would indemnify and hold the District harmless from *third party* claims of the nature set forth in this section, provided that the District notifies Amplify of such proceeding promptly after the District receives notice thereof, Amplify has exclusive control over the defense and settlement of the proceeding, the District provides such assistance in the defense and settlement of the proceeding as Amplify may reasonably request, and the District complies with any settlement or court order made in connection with such proceeding.
With respect to infringement, Amplify's obligations under this Section will not apply to any infringement to the extent arising out of (a) any use or combination of Amplify products and services with any other products, goods, services or other items furnished by anyone other than Amplify; (b) any modification or change not

made by Amplify; (c) the use of an infringing version of the products or services when a comparable non-infringing version has been made available to District; or (d) any software developed to specifications which District has supplied or required of Amplify.

In the event that Amplify reasonably believes it will be required to discontinue use of the products and/or services because such products and/or services might infringe intellectual property rights of a third party, Amplify will, at its option, either (a) obtain for District the right to continue use of the products and/or services, or (b) modify the relevant product and/or service to make it non-infringing. If Amplify is not reasonably able to accomplish the foregoing, Amplify may terminate the license of the infringing product and/or service and refund District a pro rata portion of any pre-paid fees District paid for such product and/or service. THIS SECTION STATES THE ENTIRE LIABILITY OF AMPLIFY WITH RESPECT TO INFRINGEMENT BY ANY AMPLIFY PRODUCT OR RESULTING FROM THE PERFORMANCE OF SERVICES BY AMPLIFY.

Warranty (Terms § 14; Attachment 6, § 7): Amplify expressly disclaims any warranty not explicitly set forth in the Definitive Agreement, in particular, as to merchantability, or fitness for a particular purpose or use with respect to its products. Amplify makes no warranty that the product will be error-free or free from interruptions or other failures or that the product will meet customer's requirements. In addition, any warranty would be subject to the limitation of liability described below and would not cover any physical damage to product items beyond reasonable wear and tear.

Limitation of Liability: Amplify wishes to clarify that neither party shall be liable for (a) any indirect or consequential loss, damage, and/or expense, including economic loss or loss of profit, or loss of data or goodwill, (b) any amounts in excess of the fees actually paid to Amplify pursuant to the Definitive Agreement, provided that these limitations do not apply to a breaches of confidentiality obligations or intellectual property representations.

Accessibility (Attachment 3, Question 5): Amplify has included the requested Voluntary Product Accessibility Template (VPAT) in its submission, which it believes addresses the concerns of this answer. While Amplify's WCAG 2.0 audit reports are designed for internal use, and therefore highly confidential, Amplify is willing to provide the District with appropriate documentation in subsequent phases of this procurement to show that its audits are conducted by reputable third-party experts. Amplify's products are designed to work with the built-in accessibility features of the devices and browsers that meet its technical requirements (available at https://www.amplify.com/customer-requirements), but it cannot provide assurances with respect to the compatibility of all assistive technologies (AT) that may be used by District students. In the event an equally effective experience cannot be provided with a given AT, Amplify will support the District's efforts to provide an equally effective experience through alternative means. Amplify is open to negotiating the appropriate scope of indemnification obligations for claims related to inaccessibility as part of the Definitive Agreement.

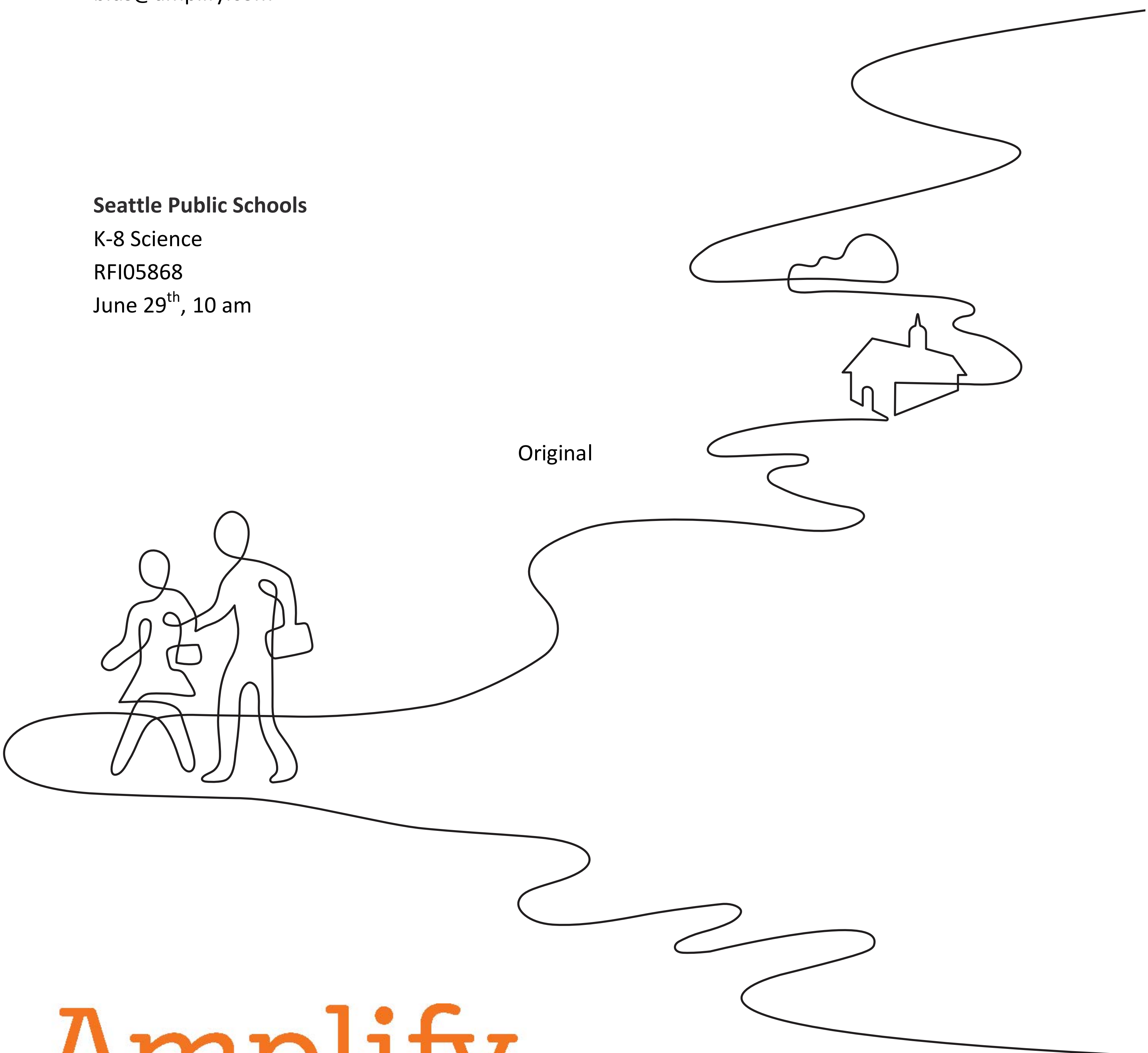
Attachment B: RFI Response Submitted June 29, 2018

Please refer to our attached response to the K-8 Science RFI we submitted in June 2018.

PRESENTED BY:
Amplify Education, Inc.
55 Washington St., Suite 800
Brooklyn, NY 11201
(212) 213-8177
bids@amplify.com

Seattle Public Schools
K-8 Science
RFI05868
June 29th, 10 am

Original



Amplify.

Table of Contents

1. Cover Letter/Reason for Interest

June 27, 2018

Seattle Public Schools
Purchasing Services
2445 Third Ave South
Seattle, WA 98134

To Whom It May Concern,

Seattle Public Schools (SPS) is seeking a science program dedicated to developing scientifically literate individuals who have the content knowledge and problem-solving experience necessary to make a positive impact on the world. In order to meet the needs of 21st century SPS students, we are pleased to submit **Amplify Science,** a new K-8 science program built from the ground up for the Next Generation Science Standards. Benefits of Amplify Science include:

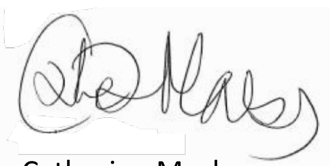
- **Authorship:** Amplify Science was authored by the industry-leading science curriculum team at UC Berkeley's Lawrence Hall of Science, who have more than 40 years of experience in K-12 science education, and who will continue to enhance and update the program for years to come.
- **Next Generation Science Standards:** Amplify Science was designed from the ground up for the NGSS and makes truly three-dimensional learning possible. To ensure that the program meets the vision of the NGSS and that it works in real classrooms, Amplify Science was extensively field-tested nationwide with more than 300 schools, 475 unique teachers and over 34,000 students. Its final form is now currently used by hundreds of school districts across the country.
- **Phenomena-based:** Highly-engaging, phenomena-based units invite students to take on the role of a scientist or engineer in order to figure out 21st century, real-world problems with science texts, hands-on materials, digital simulations, structured discussions, models, and more.
- **Integrated science and literacy:** Resources within Amplify Science facilitate opportunities to practice actively reading texts and writing evidence-based scientific arguments, and supports students in developing the disciplinary literacy skills necessary to read and write like scientists and engineers.

There are thousands of educators and students across the country who will tell you that Amplify Science has changed science instruction for the better, and we believe we can do the same for Seattle Public Schools.

RFI RESPONSE – Submitted 6/29/18

If you have any questions or need additional information please do not hesitate to contact Patrick Momsen, District Manager, at 541-207-2148 or pmomsen@amplify.com. Please also copy bids@amplify.com on any communications regarding this response.

Sincerely,



Catherine Mackay

COO, New Curriculum, Amplify Education

2. Addressing Teaching and Learning Components

Please see the table below to highlight where in our response to Seattle Public Schools Science K-8 we have addressed each component:

Component	Referenced by Amplify within this document
Standards Alignment	Please see our attachments of our Science Standards Alignment for K-5 and 6-8 (Appendix A and Appendix B).
Assessments	Please see our section titled 3.4 Assessment for details on our assessments.
Accessibility for Diverse Learners	Please see our section titled 3.5 Access and Equity for information regarding accessibility for diverse learning.
Evaluation of Bias Content	Please see our section titled 3.5 Access and Equity for details on the evaluation of bias content.
Instructional Planning and Support	Please see our section also titled 3.6 Instructional Planning and Support.

3. Program Summary

Amplify Science is a brand new science curriculum for grades K–8, designed and created for the Next Generation Science Standards. The program empowers students to investigate, talk, read, write, think, and argue like real scientists and engineers through investigations of real-world problems and scientific phenomena.

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

Amplify Science represents a collaboration between the science education experts at the University of California, Berkeley's Lawrence Hall of Science and the instructional technology experts at Amplify, with funding from the Bill & Melinda Gates Foundation, the Carnegie Corporation of New York, the Institute for Education Sciences, and the National Science Foundation.

In each Amplify Science unit, students are asked to inhabit the role of a scientist or engineer in order to investigate a real-world question or problem. These real-world problems provide relevant, 21st-century contexts through which students will investigate different scientific phenomena and develop a deeper understanding of disciplinary core ideas; acquire more experience with science and engineering practices; and deepen their understanding through the use of crosscutting concepts, thereby empowering all students to become proficient in all grade-level performance expectations. Over the course of a unit, students collect and make sense of evidence from multiple sources and through a variety of modalities. As the class progresses through their lessons, students move between first-hand investigations and secondhand analysis and synthesis, developing and revising models, and constructing increasingly complex explanations as they figure out the unit's anchoring scientific phenomena.

Amplify Science is based on the latest research on best practices for teaching and learning science.

The Amplify Science program is grounded in the ambitious vision articulated in the *Framework for K–12 Science Education* (National Research Council, 2012). Furthermore, the program incorporates the latest research in student learning, including but not limited to:

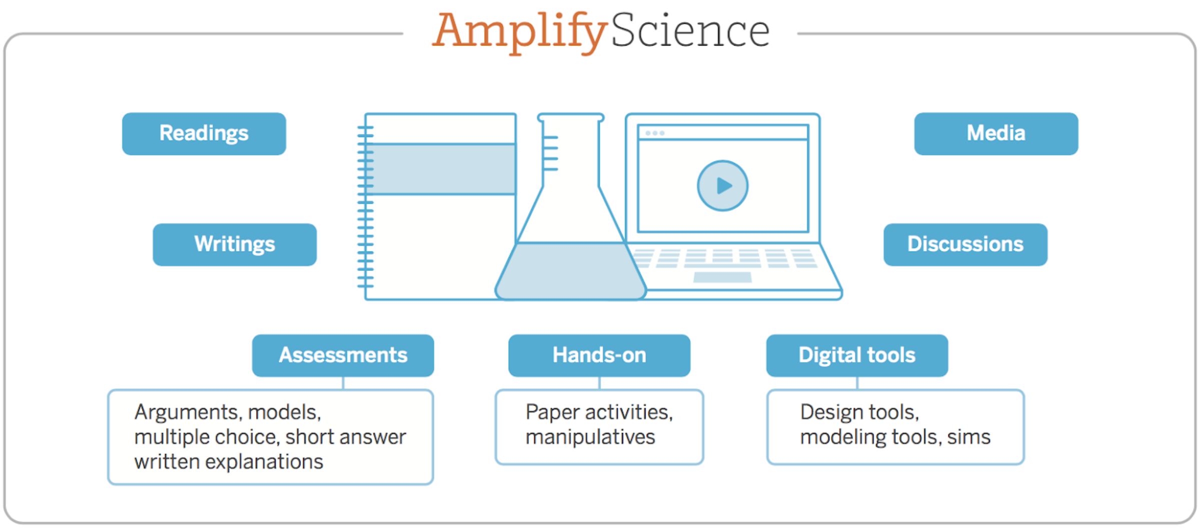
- **Emphasis on coherence.** Each Amplify Science unit is designed around a unit-specific learning progression (called a Progress Build) that describes the increasingly complex explanations of the unit's anchoring scientific phenomena that students should be able to make over the course of the unit. In developing the units, the Progress Builds provided structure for each unit's sequence of lessons, facilitated the productive integration of assessment (National Academies of Sciences, Engineering, and Medicine, 2017), and ensured that students have a clearly articulated path for engaging with each unit's targeted performance expectations.
- **Real-world problems and roles.** Each Amplify Science unit introduces students to a realistic problem that they must solve by developing the ability to explain a surprising or mysterious phenomenon. The focus on "understanding phenomena" rather than on "teaching topics" provides structure and context to student investigations. Students also take on the role of a specific type of science or engineering professional throughout their investigation. Such authentic learning experiences have been widely demonstrated to increase cognitive engagement in science learning (Blumenfeld, Kempler, & Krajcik, 2006; Potvin & Hasni, 2014).
- **Expanding investigation opportunities through digital enhancements.** Amplify Science is a digitally-enhanced curriculum, rather than a digital curriculum. In addition to hands-on materials, scientific texts, and classroom conversations, units in grades 2–8 include digital simulations and age-appropriate digital tools that help students to collect and analyze data, visualize complex phenomena, iteratively develop models, and design optimized engineering solutions. The Amplify Science Simulations are highly interactive and allow multiple levels of investigation and exploration that are carefully aligned with each unit's learning progressions.

3.1 Components

When science instruction is stuck in the textbook — with abstracted content or hands-on materials that lack appropriate, meaningful contexts — students miss an opportunity to discover how fascinating and applicable science is to the world outside the classroom. To *their* world. Amplify Science therefore aims to deliver instructional materials that are exciting and engaging for students, while also providing teachers with the support they need to implement the NGSS with fidelity.

Students of Amplify Science have access to detailed lesson instructions, embedded formative and summative assessments, hands-on materials, scientific texts, engaging media, physical and digital models, robust Simulations, structured classroom discussions, and much more. Each unit of

Amplify Science also has a kit of physical materials associated with it. These kits contain enough consumable materials for two classes of thirty-six students at the K-5 level, and five classes of forty students at the 6-8 level. A full list of the materials included in each unit's unique kit can be found in Appendix C - Materials Lists.



The use of robust digital simulations and other technology is gradually and strategically introduced to students at age appropriate intervals, beginning in grade 2. Teachers also have access to these, and all other student-facing technology and materials, as well as a variety of teacher-specific resources only they see (see "Instructional Planning and Support" below for more information). While Amplify Science is a digital curriculum, teachers and students both have the option of accessing its content in an analog format, too. Print Teacher's Guides and Student Investigation Notebooks can be purchased pre-printed from Amplify, or downloaded and printed independently as needed by the teacher. These Investigation Notebooks mirror the lesson content a middle school student would see if logged into the digital curriculum. The Notebooks can be purchased in Spanish (K-8), and/or with a compilation of all of the unit's full-color science articles included (6-8).

Please note that, while we have not included a sample barcode with our proposal, in accordance with Addendum 1 of the RFI, we confirm that we will be able to comply with the barcode requirements

3.2 Alignment with NGSS Three-Dimensional Learning

The Amplify Science approach to NGSS adheres to the letter and spirit of the *NRC Science Framework for K-12 Science Education*. Students build knowledge across disciplines each year so that past learning is connected to new concepts, applied to new phenomena, and further developed in each successive year.

The three-dimensional design of the Amplify Science curriculum is grounded in the following principles:

- **Learning organized around the explanation of real-world phenomena.** As mentioned above, each Amplify Science unit introduces students to a realistic problem that they must solve by developing the ability to explain a surprising or mysterious phenomenon. This emphasis on phenomena, especially those that foster cross-domain connections, strengthens the three-dimensional integration.
- **Careful bundling and sequencing of performance expectations to support deep understanding.** Amplify Science units bundle and sequence the performance expectations within each grade level to support the development of deep and coherent understanding. There are also opportunities to revisit ideas across grade levels when that provides an opportunity to deepen or extend understanding.
- **Meaningful focus on crosscutting concepts (CCCs).** When used wisely, a CCC will help students use prior experience with the same CCC to make sense of the phenomenon they are currently investigating. That experience can also deepen their understanding of the concept itself, thereby amplifying the explanatory power of that specific CCC as a conceptual tool when encountering a new phenomenon. Every unit of Amplify Science has one or more emphasized CCCs that are clearly developed for students, and units that share the same emphasized CCCs are also explicitly connected by students.
- **Thoughtful inclusion and sequencing of science and engineering practices (SEPs).** While each performance expectation cites just one SEP, students must explore that performance expectation's disciplinary core ideas via multiple SEPs across multiple lessons. In each unit, students engage, investigate, explain, argue and apply via a carefully designed bundle of SEPs that lead to deep understanding of the disciplinary core ideas. By consistently, enjoyably, and successfully using multiple SEPs to understand phenomena across multiple domains, students experience science as a unified, integrated whole.

Please see Appendix A for the Standards Alignment, detailing more information on each unit's overarching, phenomena-based storyline, and the NGSS performance expectations they serve to address.

3.3 Engineering

Each year of Amplify Science K–5 has a unit that is focused on engineering design in which students apply science principles in order to design functional solutions, and iteratively test those solutions to determine how well they meet specific criteria. Students develop their understanding of science ideas from investigation and text, and apply them in designing a solution to an engineering problem. They then evaluate their solutions to see how well they meet a set of criteria for quality.

Amplify Science 6–8 goes a step further and has two engineering internship units per year in which students apply content from a previous unit in order to design inventive solutions for real-world challenges. Each engineering internship requires students to develop, test, and optimize a solution to an engineering problem, balancing a variety of competing design constraints and criteria. Each unit has a custom design tool that allows students to Plan, Build, Test and Analyze their designs. Students learn about the value of iterative tests, how to balance trade-offs, and how to make sense of the results in order to inform their next decisions.

3.4 Assessment

The system of assessment for each Amplify Science unit is designed to provide teachers with credible, actionable, and timely diagnostic information about student progress toward the unit's learning goals, as well as their mastery of the grade-level appropriate disciplinary core ideas, science and engineering practices, and crosscutting concepts. Amplify Science assessments therefore include formal and informal opportunities for students to demonstrate understanding, and for teachers to gather information. These assessment opportunities encompass a range of modalities that, as a system, reflect current research on effective assessment strategies and the *Framework for K–12 Science Education*. This includes activities, such as Discourse Circles (K-8) and Science Seminars (6-8), that provide opportunities for peer-to-peer scientific argumentation and collaborative design. In addition to the unit assessments, the program offers online (QTI or PDF format) Benchmark Assessments beginning in grade 3, an age when digital testing becomes appropriate.

More information regarding benchmark can be found on Seattle's information site https://www.amplify.com/science/seattle.

3.5 Access and Equity

The aim of Amplify Science is for **all** students to develop a deep understanding of science concepts as well as facility with practices that are essential to the work of scientists and engineers. Amplify Science therefore includes rich, thoughtfully designed, and research-based resources for supporting collaborative discourse, the development of ability to engage in science talk, and the development of students' facility with academic vocabulary. Furthermore, to support teachers in providing the best possible daily instruction for all of their students, every lesson includes a robust **differentiation** section that provides guidance on supporting various types of diverse learners.

In addition to instructional design that enables diverse learners to access sophisticated science content, the authorship team at LHS took great care to avoid bias in the curriculum. For instance, as part of the process they undertook to create unbiased assessments, language in assessment items was carefully chosen to be grade-level appropriate and to avoid common pitfalls of assessment design, such as false cognates and complex grammatical structure or tense. Additionally, as an important element of construct validity, contexts used for assessment items and performance tasks were carefully chosen to avoid advantaging or disadvantaging students from different backgrounds—the aim being for student performance to be a function of the understanding and practices being learned and assessed, not the set of experiences they are familiar with. To confront bias outside of assessments, Amplify Science has also been carefully and thoughtfully designed to ensure that the scientists, engineers, and other people students encounter throughout the program represent the demographic diversity of our world.

Source: (l): Aaron Yaazie; (um): Kyle Spradley/ University of Missouri; (lm) Dr. Grace O'Connell; (ur) Jane Rigby; (lr) Tina Shelton/ John A. Burns/ University of Hawaii at Manoa

3.5.1 Accessibility for Website/Technology

Amplify is committed to building products that address the needs of all learners, including those with disabilities. We do so by methodically working to integrate accessibility considerations into our product development lifecycle and implementing training and vendor management programs to support compliance with accessibility guidelines and best practices in our product development.

As part of our submission for this RFI, we are including the statement below, which expands on a statement previously provided to Seattle Public Schools. In connection with a submission to the resulting RFP, Amplify expects to submit a Voluntary Product Accessibility Template (VPAT), along with additional information mentioned on pages 3 and 4 of the RFI, presuming appropriate confidentiality safeguards are in place. Amplify further expects to include obligations to amend nonconforming content and/or support SPS in providing equally effective alternative access, as appropriate, in the definitive purchase agreement if Amplify Science is selected.

Amplify works with external experts in digital accessibility to ensure that we build our products according to the WCAG 2.0 AA guidelines and best practices. This includes engaging accessibility experts in conducting accessibility assessments and committing to a remediation plan for identified deficiencies. We are also implementing WCAG 2.0 training programs to support integration of accessibility concerns into the decision-making across our product design and development teams.

Below are highlights of the current accessibility features in Amplify Science:

Text Alternatives

The following features provide text alternatives to support Amplify Science content:

- Text-to-speech tools
    - Lesson text, science article text, and image alt tags can be read by device-specific text-to-speech screen readers.
    - Science articles include embedded audio recordings of the article text.
- Alt tags
    - All images in Amplify Science lessons have alt tags.
- Closed captions
    - All videos within Amplify Science have closed caption functionality that is enabled by default.
- Braille displays support
    - Using device specific screen readers, content can be sent to refreshable Braille displays that work with HTML.

Distinguishability

Fonts

- Adjustable type and size.
    - Amplify Science provides flexibility and student choices in key components of the product.
    - The font used in the program body copy is Benton Sans (an easy to read sans serif body font) set at 16 px.
    - Users can choose to view the content at actual size or adjust the zoom at varying percentages by using the device's built-in settings and/or the browser settings.
    - Text line length across the page has been set not to exceed 100 characters for best readability.
- Adjustable colors and background colors.
    - Adjustment of contrast and colors can be customized using the settings provided by the device manufacturer and/or using the browser settings.
    - Highlighters are provided in the four standard colors (yellow, rose, green, blue). Highlighted text can be automatically extracted into another document.

Background

- Adjustment of contrast and colors can be customized using the settings provided by the device manufacturer and/or using the browser settings.

Operability

Navigation Features

- Button, icons and other non-text navigational elements have been optimally sized for desktop, laptop and tablet devices. Browser zoom features can be used to increase and decrease the size of the navigational elements.
- Keyboard shortcuts are available for most navigation elements. In addition, the tabbing function on a keyboard can also be used for navigation.
- Lesson text, science article text, and image alt tags can be read by device-specific text-to-speech screen readers and can be sent to refreshable Braille screen displays that work with HTML.

Assistive Technologies

Amplify Science has been tested with browser and device-based accessibility features that allow for magnification, text-to-speech, and on-screen keyboards, on macOS, iOS, Chrome OS, and Windows.

Paper Materials

For students who require paper materials, Amplify Science has student investigation notebooks available. The notebooks contain all lesson instructions and “non-digital essential” activities for a given unit, in a pre-printed and bound book. These materials are currently available in the National Instructional Materials Access Center (NIMAC).

Areas for improvement

Driven by our commitment to support all learners, we have identified improvements we can make to enhance accessibility in Amplify Science.

From a technical perspective, our most recent accessibility testing surfaced areas of the digital platform that are not screen readable and keyboard navigable. This applies to custom controls in the user interface, navigational elements in the platform, and a minority of background images that lack alt-text. We anticipate remediating these issues by the 2019–2020 academic year.

From a design perspective, we have identified areas where informational diagrams use color as the sole means of conveying information. In an effort to provide multiple means of representation across all visual aspects of the product, we continue to add textual descriptions and/or additional textures to these diagrams when we identify the need.

From a product perspective, Amplify Science includes simulations and practice tools, in which we provide students a dynamic digital environment to test theories and demonstrate their understanding of scientific concepts, and we recognize that the highly visual and interactive nature of these tools may present unique access challenges for some students. We are developing ways to provide effective access to these tools through several means: teacher modeling, text-based descriptions, and ultimately, if possible, an accessible version of the tools that allows students with visual and motor impairments to succeed autonomously with them.

We consider accessibility to be an ever-present goal. As we modify and enhance the content of Amplify Science year over year, so too do we improve the accessibility features we currently have in place. Alt-text and video captions, for example, were updated for the 2018–2019 academic year to better support student needs. We look forward to collaborating with SPS to identify and overcome access challenges for all students.

3.6 Instructional Planning and Support

In addition to offering expert professional learning opportunities, Amplify Science includes an array of instructional supports at all levels of the curriculum that empower teachers to lead instruction effectively and gain actionable insight into student growth and progress. From detailed lesson instructions to downloadable rubrics for interpreting student assessments, Amplify Science teachers benefit from constructive and consistent instructional support for every unit, including: lesson summaries, overviews of standards, science background information, 3D statements, overviews of unit apps, and much more. Furthermore, every lesson has clear step-by-step instructions, model language for the teacher to use, targeted differentiation strategies, Teacher Support notes that explain pedagogical rationale and suggest optional extension activities, and more.

Please visit https://www.amplify.com/science/seattle and https://www.amplify.com/science/seattle/books to preview the curriculum and see the full array of instructional support information provided in each unit.

3.7 Professional Services

In order to provide 3-5 days of professional learning to approximately 1700 teachers in grade K-8, we would recommend:

- **Year One**
    - **Initial two-day professional learning institute:** Participants learn the structure of the Amplify Science Curriculum and gain insight into how the units embody the Next Generation Science Standards (NGSS) and three-dimensional learning (assumes 30 participants per session)
    - **Follow-up one-day planning workshop:** Participants will reconvene at midyear review and plan upcoming units through hands-on experiences with the unit's activities (assumes 30 participants per session)
    - Cost: $417,600
- **Year Two**
    - **Follow-up one-day deep dive workshop:** Participants will explore ways to further strengthen their implementation, including focusing on support for ELL students, accessing complex text in the program, integrating technology into classroom practice, among other topics. Multiple sessions may be provided for teachers to

select based on their interest and specific needs of their students (assumes 30 participants per session)
    - Cost: $182,400
- **Year Three**
    - **Follow-up one-day deep dive workshop:** Participants will explore ways to further strengthen their implementation, including focusing on support for ELL students, accessing complex text in the program, integrating technology into classroom practice, among other topics. Multiple sessions may be provided for teachers to select based on their interest and specific needs of their students (assumes 30 participants per session)
    - Cost: $182,400

We look forward to continuing to partner with Seattle Public Schools on further definition of a plan for professional learning to support districtwide implementation of Amplify Science. In addition to the core 3-5 day proposal above, Amplify would welcome the opportunity to work shoulder-to-shoulder with educators through job-embedded coaching, observing and strengthening Science instructional practice.

4. History of Amplify

Amplify Education brings over 15 years of expertise in K-12 education together with world-class technology to help educators provide the instruction it takes to generate student success in the classroom. Our products and services are leading the way in data-driven instruction, breaking new ground in digital learning, and setting the standard for research-based curriculum and assessment.

Our innovative solutions have made individualized instruction a reality in classrooms across the country for over a decade. We revolutionized observational assessment with our mobile technology platform and we continue to pioneer more efficient, effective technology that helps teachers focus on their most important responsibility—teaching. Our middle school ELA and Science programs provide digital curriculum with revolutionary, engaging content and online, cloud--based orchestration and delivery systems.

Amplify was founded in 2000 on the belief that technology needs to learn more about educators, not that educators need to learn more about technology. Today, with a staff of over 400 employees, we work with more than 200,000 educators and 3 million students across the country, including many of the nation's largest school districts. We work exclusively in K-12 education, with our entire staff focused on understanding how educators work and what they need.

Our team includes top education experts from across the country, including former teachers and principals. Our partnerships have included over twenty state-level implementations, thousands of district-wide implementations in large urban school districts, and partnerships with small and/or rural school districts with limited technology infrastructure. Our partners include:

- North Carolina Department of Public Instruction
- Ascension Parish, School Board, Louisiana
- Fort Wayne Community Schools, Indiana
- New York City Department of Education, New York
- Chicago Public Schools, Illinois
- Los Angeles Unified School District, California
- Jefferson County Public Schools, Colorado
- Montgomery County Public Schools, Maryland
- Delaware Department of Education

4.1 Curriculum

Our company's first products were based on the premise that mobile technology could support and improve classroom teaching. After spending time in the classroom with both teacher observations and focus groups, we realized that educators needed a technology solution for conducting observational assessments, collecting and analyzing assessment data, and linking results to appropriate instructional supports and strategies. In response to this need, we developed the mCLASS assessment platform.

Teachers use mCLASS to conduct one-on-one reading and math assessments with administration, scoring, and analysis taking place on a mobile device. Based on our work with formative assessment data through mCLASS, we extended our technology to instructional intervention in early-grades reading. Burst:Reading is a literacy intervention program delivered by teachers, in which sophisticated computer analytics generate groupings of students and group-specific lesson sequences.

In order to create the best solutions to curricular challenges, we've sought out strong partners to help us. In 2012, we acquired the rights to the Lawrence Hall of Science's innovative and proven Seeds of Science/ Roots of Reading program. The program pairs early science learning and literacy, successfully helping students build reading, writing, and language skills, while learning new science concepts. In 2013, we partnered with Core Knowledge to develop the Core Knowledge Language Arts Program, which combines systematic phonics–based instruction in decoding skills with extensive reading passages to build both oral language and background knowledge — word knowledge and world knowledge.

With this foundation, Amplify set out to develop core curricula designed from the ground up to empower teachers to help all students become college- and career-ready in the digital age. We brought together an unprecedented team of lifelong educators and visionaries, including Nobel Prize winners, Academy Award winners, and best-selling authors. Working together in a studio setting with researchers, designers, and technologists, this team brought a radical new idea to life: Rigorous schoolwork can be just as exciting as what students love to do outside of school. The Amplify Curriculum has been developed to support what educators know are the foundations of great teaching and learning: active participation of students who are passionate about doing hard work. Our technology doesn't replace teaching, but rather serves learning by creating new ways to motivate kids, giving students new tools to communicate and expanding opportunities for every learner to participate.

5. Past Experience and Implementations

5.1 Seattle Partnership

Since the 2016-2017 school year, we have partnered with Seattle Public Schools to pilot Amplify Science as a K-8 core curriculum built for the Next Generation Science Standards (NGSS). Together with Seattle Public Schools, Amplify has planned and implemented a pilot program across 69 schools in grades K-8, serving over 1400 teachers and 30,000 students. Key aspects of the implementation included continuous collaboration with Seattle Public School leadership and staff on professional development, educator focus groups, and weekly data distribution across all middle schools at the student level. Amplify and Seattle Public Schools have worked in concert especially during the 17-18 school year by providing 10 days of professional development, training of the trainer, and feedback sessions to build capacity in addition to Seattle Public School leadership providing key insights and feedback on future Amplify product and curriculum redesign planning. Over the past two years Seattle and Amplify have built a strong alignment across teams and continue to provide customized professional services for schools and broad service support to promote adoption and continuity.

5.2 Capacity for Large Implementations

We have a long history of partnering with State departments of education and large districts. These implementations have depended not only on the strength of our solutions but also on the expertise of our Professional Development and Project Management teams. These teams include lifelong educators who have years of experience managing implementations in schools as well as expertise in digital technology and pedagogy.

Our large implementations have included:

- Since the 2009–2010 school year, we have partnered with the North Carolina Department of Public Instruction (NCDPI) to implement mCLASS:Reading 3D as a developmentally appropriate diagnostic assessment for students in elementary grades. Together with the NCDPI, we scoped, planned, and implemented the pilot program in 27 schools across 15 districts. Key aspects of the implementation included continuous collaboration with NCDPI leadership in planning and communications, a series of training-of-trainer sessions to build capacity, webcast sessions, and direct outreach to pilot schools. In the fall of 2010, the mCLASS:Reading 3D program was adopted by the North Carolina Department of Public Instruction's as the state Reading Diagnostic program and is currently implemented in 480 schools with more than 150,000 students across the state. We continue to provide customized professional services for the schools and broad service support and outreach to promote adoption and continuity.

- Los Angeles Unified School District began its relationship with Amplify in 2007 when it began using the mCLASS:DIBELS assessment in 23 of its schools. The following year, the district expanded their implementation of the DIBELS assessments, and additionally adopted Reading 3D for use by Special Education teachers for grades K–6. In 2010–2011, the Special Education implementation expanded to include approximately 500 Resource Program Teachers who added Burst:Reading to the repertoire. The same year, the office of Curriculum and Instruction contracted with Amplify to provide DIBELS Next licenses for all 200,000 K–3 students across 500 schools. At the beginning of its first year of implementation, there was an 82 percent overall completion rate of the DIBELS Next Assessment. During the 2011–2012 school year, the district also provided the Multilingual Education division with mCLASS:IDEL subscriptions for their bilingual program.

Amplify Science has been implemented successfully in schools and districts around the country. Please refer to the following section for more information.

5.3 Successful Amplify Science Implementations

Our Amplify Science curriculum has been proven in the classroom. We have partnered with the following schools and districts for data sharing and efficacy analyses: Radnor Township School District, PA; Pine-Richland School District, PA; Neshaminy School District, PA; Columbus City School District, OH; Knowledge is Power Program (KIPP) network, including KIPP Washington DC, KIPP Los Angeles, KIPP San Francisco, KIPP St. Louis, KIPP Massachusetts, KIPP Chicago, KIPP Denver, KIPP Charlotte, and KIPP Baltimore. Additionally, we partnered with over 300 schools during our 2014–2016 field tests as part of the rigorous development process of the program. We have included a selection of the research data regarding Amplify Science with the Interrogatories.

The Amplify Science team has developed effective and impactful partnerships with many other districts across the country, as well. Every district presents unique challenges and opportunities, but in each instance the Amplify Science team has consistently worked together with administrators and teachers to develop local capacity to not only successfully implement the program, but to also understand the shifts of the NGSS, STEM, and three-dimensional instruction.

5.4 References

Please see details from four of our current science customers below:

Hillsboro School District
3083 NE 49th Pl, Hillsboro, OR 97124
Sandie Grinnell, Science Supervisor
grinnels@hsd.k12.or.us

Neshaminy Public Schools, PA
2250 Langhorne-Yardley Road, Langhorne, PA 19047
Brian Suter, Lead Science Teacher, K-12
bsuter@neshaminy.org
(215) 809-6000

Grand Island Public Schools, NE
123 S. Webb Rd Box 4904, Grand Island, NE 68802
Katie Ramsey, GIPS PK-12 Science Curriculum Coordinator
kramsey@gips.org
(308) 385-5900

KIPP Bay Area, CA
1404 Franklin Street, Suite 500, Oakland, CA 94612
Phil Kim, K-12 STEM and Personalized Learning
phil.kim@kippbayarea.org
(510) 465-5477

6. Cost Range

Please see the following pricing pages (provided in Addendum 1 of the RFI) for our products cost.

We have included two options. The first option includes printed Student Investigation Notebooks. The second option does not include the print version of the notebooks; in both cases PDFs of the notebooks would be available to the District.

We have also included additional lines to indicate the cost of professional services indicated in Section 3.7, as requested in the RFI. Please note that we would be happy to discuss how the scope and model of professional development could be adjusted to meet the District's specific needs and budget.

We have also made assumptions around the kit needs (both initial classroom kits and refill kits) for teachers. Note that, in Middle School, we would propose providing the requested number of licenses (210 per grade) to the District as needed but we estimate that, based on the number of students and the typical number of students per teacher, only 35 classroom kits would be necessary for purchase. We would be happy to adjust any of the assumptions around kits and licenses based on the specific needs of the district and to discuss the possibility of more favorable pricing for the district-wide roll-out.

RFI 015868 K-8 Science Materials Request for Estimated Pricing ATTACHMENT #4 **OPTION 1 - WITH PRINT STUDENT INVESTIGATION NOTEBOOKS**			Please fill in all yellow highlighted spaces below
Company Name	Amplify Education, LLC.	Name of representative, please include email and phone number	Patrick Momsen, pmomsen@amplify.com (541) 207-2148
PRICING SHOULD INCLUDE STUDENT AND TEACHER MATERIALS.			
ACTUAL QUANTITIES MAY BE 75-125% OF CURRENT ENROLLMENT ESTIMATES			
QUANTITY	TITLE	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
	ALL ESSENTIAL ADOPTION YEAR 1 GRADE K-8 STUDENT & TEACHER RELATED ITEMS, INCLUDING BUT NOT LIMITED TO HARD COPY & ELECTRONIC VERSIONS OF TEXTUAL MATERIALS, CONSUMABLE MATERIALS, HANDS ON MANIPULATIVE MATERIALS, TEACHER MATERIALS AND ONLINE ACCESS/RESOURCES AND PROFESSIONAL DEVELOPMENT		
4900	ALL GRADE K STUDENT PRODUCTS & SERVICES	$5.97	$29,253.00
245	ALL GRADE K TEACHER PRODUCTS & SERVICES	$3,182.00	$779,590.00
4900	ALL GRADE 1 STUDENT PRODUCTS & SERVICES	$7.50	$36,750.00
245	ALL GRADE 1 TEACHER PRODUCTS & SERVICES	$3,082.00	$755,090.00
4900	ALL GRADE 2 STUDENT PRODUCTS & SERVICES	$11.97	$58,653.00
245	ALL GRADE 2 TEACHER PRODUCTS & SERVICES	$3,122.00	$764,890.00
4400	ALL GRADE 3 STUDENT PRODUCTS & SERVICES	$15.96	$70,224.00
220	ALL GRADE 3 TEACHER PRODUCTS & SERVICES	$4,931.00	$1,084,820.00
4400	ALL GRADE 4 STUDENT PRODUCTS & SERVICES	$15.96	$70,224.00
220	ALL GRADE 4 TEACHER PRODUCTS & SERVICES	$4,196.00	$923,120.00
4400	ALL GRADE 5 STUDENT PRODUCTS & SERVICES	$15.96	$70,224.00
220	ALL GRADE 5 TEACHER PRODUCTS & SERVICES	$3,871.00	$851,620.00
4200	ALL GRADE 6 STUDENT PRODUCTS & SERVICES	$116.91	$491,022.00
35	ALL GRADE 6 TEACHER PRODUCTS & SERVICES	$2,914.00	$101,990.00
4200	ALL GRADE 7 STUDENT PRODUCTS & SERVICES	$116.91	$491,022.00
35	ALL GRADE 7 TEACHER PRODUCTS & SERVICES	$3,265.00	$114,275.00
4200	ALL GRADE 8 STUDENT PRODUCTS & SERVICES	$116.91	$491,022.00
35	ALL GRADE 8 TEACHER PRODUCTS & SERVICES	$3,525.00	$123,375.00

QUANTITY	TITLE	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
800	SETS OF STUDENT FIELD TESTING MATERIALS/SERVICES (12 WEEK LONG FIELD TEST SESSION). IF THERE IS ANY USUAL/MANDATORY FEE FOR SUPPLYING THESE MATERIALS INDICATE PRICING ON A PER STUDENT BASIS (BASED ON THE MOST EXPENSIVE GRADE TO COVER IN THE K THRU 8 RANGE)	$3.99	$3,192.00
40	SETS OF TEACHER FIELD TETING MATERIALS/SERVICES (12 WEEK LONG FIELD TEST SESSION). IF THERE IS ANY USUAL/MANDATORY FEE FOR SUPPLYING THESE MATERIALS INDICATE PRICING ON A PER STUDENT BASIS (BASED ON THE MOST EXPENSIVE GRADE TO COVER IN THE K THRU 8 RANGE)	$1,495.00	$59,800.00
13,230	BARCODING OF HARD COPIES/STUDENT AND TEACHER MATERIALS FOR MAIN ADOPTION		
Professional Services - Year 1 - Please refer to our proposal for detail about the services outlined. This cost represents what we would typically provide for an implementation of this type. We are happy to discuss the exact needs of Seattle and how alterations to the services plan would affect the cost.			$417,600.00
Professional Services - Year 2 - Please refer to our proposal for detail about the services outlined. This cost represents what we would typically provide for an implementation of this type. We are happy to discuss the exact needs of Seattle and how alterations to the services plan would affect the cost.			$182,400.00
Professional Services - Year 3 - Please refer to our proposal for detail about the services outlined. This cost represents what we would typically provide for an implementation of this type. We are happy to discuss the exact needs of Seattle and how alterations to the services plan would affect the cost.			$182,400.00
ESTIMATED PROCESSING/HANDLING CHARGES IF ANY TO MEET DISTRICT "PER SCHOOL" PACKAGING, LABELING, PALLETIZING REQUIREMENTS			
Estimated Freight Charges If Any			$692,335.95
Sales Tax 10.1% Nominal			$738,023.56
Total FOB SSD#1 Seattle Warehouse FOR YEAR 1 OF ADOPTION			$9,155,123.52
	TOTAL COST YEAR 1 OF ADOPTION		$9,155,123.52
	TOTAL COST YEAR 2		$1,030,364.96
	TOTAL COST YEAR 3		$1,030,364.96
	TOTAL COST YEAR 4		$1,989,538.91
	TOTAL COST YEAR 5		$847,964.96
	TOTAL COST YEAR 6		$847,964.96
	TOTAL COST YEAR 7		$847,964.96
	TOTAL COST YEAR 8		$1,989,538.91
	TOTAL COST YEAR 9		$847,964.96
	TOTAL COST YEARS 1 THRU 9		$18,586,791.13
*Note that the Teacher Price in Gr. K-5 includes the cost of an 9-year Teacher License.			
**Note that the Student Price in Gr. 6-8 includes the cost of an 9-year Student License.			
***Note that existing pilots in Seattle Public Schools may mean that additional purchase of at least some materials may not be required. Also note that these costs are not included in the Year 1 total.			
****Note that we have included the Sales Tax for Year 1 on this line. In the Total Cost lines for Years 2-9, we have included shipping and Sales Tax only in the totals.			

RFI 015868 K-8 Science Materials Request for Estimated Pricing ATTACHMENT #4 **OPTION 2 - WITHOUT PRINT STUDENT INVESTIGATION NOTEBOOKS**			Please fill in all yellow highlighted spaces below
Company Name	Amplify Education, LLC.	Name of representative, please include email and phone number	Patrick Momsen, pmomsen@amplify.com (541) 207-2148
PRICING SHOULD INCLUDE STUDENT AND TEACHER MATERIALS.			
ACTUAL QUANTITIES MAY BE 75-125% OF CURRENT ENROLLMENT ESTIMATES			
QUANTITY	TITLE	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
	ALL ESSENTIAL ADOPTION YEAR 1 GRADE K-8 STUDENT & TEACHER RELATED ITEMS, INCLUDING BUT NOT LIMITED TO HARD COPY & ELECTRONIC VERSIONS OF TEXTUAL MATERIALS, CONSUMABLE MATERIALS, HANDS ON MANIPULATIVE MATERIALS, TEACHER MATERIALS AND ONLINE ACCESS/RESOURCES AND PROFESSIONAL DEVELOPMENT		
4900	ALL GRADE K STUDENT PRODUCTS & SERVICES	$0.00	$0.00
245	ALL GRADE K TEACHER PRODUCTS & SERVICES	$3,182.00	$779,590.00
4900	ALL GRADE 1 STUDENT PRODUCTS & SERVICES	$0.00	$0.00
245	ALL GRADE 1 TEACHER PRODUCTS & SERVICES	$3,082.00	$755,090.00
4900	ALL GRADE 2 STUDENT PRODUCTS & SERVICES	$0.00	$0.00
245	ALL GRADE 2 TEACHER PRODUCTS & SERVICES	$3,122.00	$764,890.00
4400	ALL GRADE 3 STUDENT PRODUCTS & SERVICES	$0.00	$0.00
220	ALL GRADE 3 TEACHER PRODUCTS & SERVICES	$4,931.00	$1,084,820.00
4400	ALL GRADE 4 STUDENT PRODUCTS & SERVICES	$0.00	$0.00
220	ALL GRADE 4 TEACHER PRODUCTS & SERVICES	$4,196.00	$923,120.00
4400	ALL GRADE 5 STUDENT PRODUCTS & SERVICES	$0.00	$0.00
220	ALL GRADE 5 TEACHER PRODUCTS & SERVICES	$3,871.00	$851,620.00
4200	ALL GRADE 6 STUDENT PRODUCTS & SERVICES	$90.00	$378,000.00
35	ALL GRADE 6 TEACHER PRODUCTS & SERVICES	$2,914.00	$101,990.00
4200	ALL GRADE 7 STUDENT PRODUCTS & SERVICES	$90.00	$378,000.00
35	ALL GRADE 7 TEACHER PRODUCTS & SERVICES	$3,265.00	$114,275.00
4200	ALL GRADE 8 STUDENT PRODUCTS & SERVICES	$90.00	$378,000.00
35	ALL GRADE 8 TEACHER PRODUCTS & SERVICES	$3,525.00	$123,375.00

QUANTITY	TITLE	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
800	SETS OF STUDENT FIELD TESTING MATERIALS/SERVICES (12 WEEK LONG FIELD TEST SESSION). IF THERE IS ANY USUAL/MANDATORY FEE FOR SUPPLYING THESE MATERIALS INDICATE PRICING ON A PER STUDENT BASIS (BASED ON THE MOST EXPENSIVE GRADE TO COVER IN THE K THRU 8 RANGE)***	$0.00	$0.00
40	SETS OF TEACHER FIELD TESTING MATERIALS/SERVICES (12 WEEK LONG FIELD TEST SESSION). IF THERE IS ANY USUAL/MANDATORY FEE FOR SUPPLYING THESE MATERIALS INDICATE PRICING ON A PER STUDENT BASIS (BASED ON THE MOST EXPENSIVE GRADE TO COVER IN THE K THRU 8 RANGE)***	$1,495.00	$59,800.00
13,230	BARCODING OF HARD COPIES/STUDENT AND TEACHER MATERIALS FOR MAIN ADOPTION		
Professional Services - Year 1 - Please refer to our proposal for detail about the services outlined. This cost represents what we would typically provide for an implementation of this type. We are happy to discuss the exact needs of Seattle and how alterations to the services plan would affect the cost.			$417,600.00
Professional Services - Year 2 - Please refer to our proposal for detail about the services outlined. This cost represents what we would typically provide for an implementation of this type. We are happy to discuss the exact needs of Seattle and how alterations to the services plan would affect the cost.			$182,400.00
Professional Services - Year 3 - Please refer to our proposal for detail about the services outlined. This cost represents what we would typically provide for an implementation of this type. We are happy to discuss the exact needs of Seattle and how alterations to the services plan would affect the cost.			$182,400.00
ESTIMATED PROCESSING/HANDLING CHARGES IF ANY TO MEET DISTRICT "PER SCHOOL" PACKAGING, LABELING, PALLETIZING REQUIREMENTS			
Estimated Freight Charges If Any			$692,335.95
Sales Tax 10.1% Nominal****			$669,909.77
Total FOB SSD#1 Seattle Warehouse FOR YEAR 1 OF ADOPTION			$8,412,615.72
	TOTAL COST YEAR 1 OF ADOPTION		$8,412,615.72
	TOTAL COST YEAR 2		$206,929.89
	TOTAL COST YEAR 3		$206,929.89
	TOTAL COST YEAR 4		$1,166,103.84
	TOTAL COST YEAR 5		$24,529.89
	TOTAL COST YEAR 6		$24,529.89
	TOTAL COST YEAR 7		$24,529.89
	TOTAL COST YEAR 8		$1,166,103.84
	TOTAL COST YEAR 9		$24,529.89
	TOTAL COST YEARS 1 THRU 9		$11,256,802.74
*Note that the Teacher Price in Gr. K-5 includes the cost of an 9-year Teacher License.			
**Note that the Student Price in Gr. 6-8 includes the cost of an 9-year Student License.			
***Note that existing pilots in Seattle Public Schools may mean that additional purchase of at least some materials may not be required. Also note that these costs are not included in the Year 1 total.			
****Note that we have included the Sales Tax for Year 1 on this line. In the Total Cost lines for Years 2-9, we have included shipping and Sales Tax only in the totals.			

Amplify.

7. Materials for Consideration

Please see the Teacher Materials included in Amplify's submission for your consideration of science curriculum (K-8).

Box 1

Grade	Unit	Materials
K	Pushes and Pulls (Physical Science)	Teacher's Guide Student Investigation Notebook Spanish Student Investigation Notebook Student book (Talking About Forces) Spanish student book (Talking About Forces)
1	Animal and Plant Defenses (Life Science)	Teacher's Guide Student Investigation Notebook Spanish Student Investigation Notebook Student book (Whose Lunch Is This?) Spanish student book (Whose Lunch Is This?)
2	Changing Landforms (Earth Science)	Teacher's Guide – Sampler Student Investigation Notebook Spanish Student Investigation Notebook Student book (Landform Postcards) Spanish student book (Landform Postcards)

Box 2

Grade	Unit	Materials
3	Balancing Forces (Physical Science)	Teacher's Guide Student Investigation Notebook Spanish Student Investigation Notebook Student book (Hoverboard) Spanish student book (Hoverboard)
5	Ecosystem Restoration (Life Science)	Teacher's Guide Student Investigation Notebook Spanish Student Investigation Notebook Student book (Matter Makes It All Up)
5	The Earth System (Earth Science)	Teacher's Guide – Sampler Student Investigation Notebook Spanish Student Investigation Notebook Student book (Engineering Clean Water) Spanish student book (Engineering Clean Water)

Amplify.

Box 3 (also contains proposal copies)

Grade	Unit	Materials
6	Metabolism (Life Science)	Teacher's Guide Student Investigation Notebook Spanish Student Investigation Notebook
7	Plate Motion (Earth Science)	Teacher's Guide – Sampler Student Investigation Notebook Spanish Student Investigation Notebook
8	Force and Motion (Physical Science)	Teacher's Guide Student Investigation Notebook Spanish Student Investigation Notebook

Please visit https://www.amplify.com/science/seattle and https://www.amplify.com/science/seattle/books to preview the curriculum and see the full array of instructional support information provided in each unit. Information about digital access has also been included with the samples. The 50 reviewers indicated in the RFI can use the same information to access.

8. Acknowledgement of Addendum

Amplify Education, LLC. confirms receipt of Addendum 1, posted on June 21st, 2018.

Attachment B
Seattle Public Schools K-8 Science Adoption Communications Plan
May 2018-April 2019

Date	Message	Audience	Channels	Procedures/Notes
May 1, 2018	Announcement of adoption process; request for input and support from administrators and staff; anticipate future communications to families	Families, staff	Principal LLD	Principals were asked to inform their school communities about the adoption and encourage applications for adoption committee membership
May 11, 2018	Announcement of adoption and requests for applications for committee membership. Web page created to outline process and post meeting notes	Families, community members, staff	Direct emails, homepage post, social media, principals, School Beat newsletter	Website was created and linked to Academics page. Request for committee application and participation, emails will be sent to families and teachers through School Messenger and also to media, requests will be posted on the district newsletter, homepage and social media, and program specialists did community outreach.
May 18, 2018	Announcement of adoption and requests for applications for committee membership. Web page created to outline process and post meeting notes	School board, staff	Friday memo	Documents posted on an ongoing basis: meeting minutes, survey data, application forms, meeting outcomes, process updates etc.

Date	Message	Audience	Channels	Procedures/Notes
May, 2018 and ongoing	Adoption Committee progress	Committee, families, community, staff	Adoption webpage, C&I Policy Committee monthly updates	Documents posted on an ongoing basis: meeting minutes, survey data, adoption candidate information, etc.
May 29, 2018	Deadline to apply for Adoption Committee	Families, community members, staff	Direct emails, homepage post, social media, principals, School Beat newsletter	Applications accepted via district website, email, and post
May to September, 2018	Needs Assessment survey available	Families, community members, staff	Survey/email/webpage	Committee-designed survey on materials priorities to be linked through emails to families and staff. Surveys translated into top 5 languages.
June 5, 2018	Announcement of adoption process; request for input and support from administrators and staff; anticipate future communications to families	Families, staff	Principal LLD	Principals were asked to inform their school communities about the adoption
June 9 & 13, 2018	Adoption Committee meetings, minutes posted to website	Families, community members, staff, school board	Homepage, social media, newsletter, principals, Fri Memo	Adoption Committee meeting to orient to standards and develop and revise instructional materials Review Criteria –
June 15, 2018	Updates on Adoption Committee meeting outcomes	School board, staff	Fri Memo	Updates on Adoption Committee meeting outcomes

Date	Message	Audience	Channels	Procedures/Notes
June 18, 2018	Adoption Committee requests RFP to selected instructional materials	Vendors	Homepage	List of all instructional materials vendors approved by Purchasing will be listed on the webpage.
September 8, 2018	Adoption Committee Meeting	Committee, families, community, staff	Adoption webpage	Adoption Committee Meeting: Finalize Selection Criteria
September 12, 2018	Publish Review Criteria Tool	Community members, families, staff	Adoption webpage	Digital version of the Review Criteria Tool posted for public viewing
September to November, 2018	Materials on display in JSCEE library, School Board office, and selected schools in all five regions	Families, community members, staff, school board	Homepage, social media, newsletter, Principals, Friday Memo	When materials are ready, announcement posted to homepage, in newsletter and on social media. Principals provided with an invitation to share with school communities. Feedback forms will be available.
January 2019	Field Test conducted of 3 narrowed materials	Families, community members, staff, school board, students	Homepage, social media, newsletter, principals, Fri Memo	Community will be informed of strategy for field test after those details are determined.

Date	Message	Audience	Channels	Procedures/Notes
February 2, 2019	Instructional Materials Open House	Families, community members, staff, school board	Nathan Hale High School	The three program finalists' materials were on display; the Adoption Coordinator, Science Curriculum Specialists, Field Test teachers, and Adoption Committee members were available to interface with the public to guide them through the materials and answer questions
February 9, 2019	Instructional Materials Open House (rescheduled)	Families, community members, staff, school board	Rainier Beach Community Center	This Open House was unfortunately canceled due to adverse weather conditions throughout the Seattle area, and rescheduled for March 2, 2019 at Rainier Beach High School
March 2, 2019	Instructional Materials Open House	Families, community members, staff, school board	Rainier Beach High School	The three program finalists' materials were on display; the Adoption Coordinator, Science Curriculum Specialists, Field Test teachers, and Adoption Committee members were available to interface with the public to guide them through the materials and answer questions

Date	Message	Audience	Channels	Procedures/Notes
March 2019	Panel Discussion with Field Test Teacher Participants K-2, 3-5 and 6-8	Open to public	Homepage, social media, newsletter	Audiences will be invited to panel discussion
April 2019	Committee has made recommendation	Families, community members, staff, school board	Homepage, press release, social media, newsletter, Principals, Friday Memo	Documents will be provided directly to the school board. An announcement will be posted to the homepage, in the family newsletter and on social media. A press release will be shared

Attachment C
K-5 Science Adoption Community Engagement

	Internal Engagement (SPS Staff)			External Engagement (Families/Community)		
	Tier 1 Inform	Tier 2 Consult/ Involve	Tier 3 Collab.	Tier 1 Inform	Tier 2 Consult/ Involve	Tier 3 Collab.
Stage 1						
Adoption Committee Application Process			X		X	
SPS Staff and Community/Family Input Survey *(translations of forms available)*		X			X	
Instructional Materials Public Display and Community Input *(translations of forms available)*		X			X	
SPS Staff and Community Information Session Open House		X			X	
Adoption Committee Review/Evaluation of Instructional Materials			X			X
SPS Science Adoption website updates	X			X		
SPS Communication updates (email, SPS website)	X			X		
Field Test						
Field Test Teacher Application Process			X	X		
SPS Science Adoption website updates	X			X		
SPS Communications updates (email, SPS website)	X			X		
Stage 2						
Field Test Teacher Panel Interview			X			
Adoption Committee Review/Evaluation of Instructional Materials Finalists		X			X	
SPS Science Adoption website updates	X			X		
SPS Communication updates (email, SPS website)	X			X		

Attachment D
K-5 Science Adoption Committee Membership Roster
Staff Membership

Name	Title	School	Years in Education	Professional Experience	Children attending SPS
Cynthia Adams	Teacher (4/5)	Lafayette ES	29		
Danielle Alon	Teacher (5th)	TOPS K-8	4		
Julie Breidenbach	Principal	Fairmount Park ES	34		
Karin Britt	Teacher (K/1st)	Fairmount Park ES	26		Madison (7th)
Rebecca Christl	Teacher (5th)	Fairmount Park ES	10		Fairmount Pk (1st)
Heather Christothoulou	Teacher (3rd)	McGilvra ES	19		McGilvra (5th)
Trent Comer	Teacher (4th)	Roxhill ES	5		
Catherine Comings	Teacher (3rd)	Lowell ES	3		
Emma Cornwell	Teacher (3rd)	Arbor Heights ES	1		
Paula Eisenrich	Teacher (3rd)	Montlake ES	17		
Kelli Elder	Teacher (4th)	MLK, Jr. ES	26		Cleveland (12th)
~~Ellen Garza~~	Teacher (4th)	Coe ES	13		
Ruby Geballe	Teacher (4th)	Dearborn Park ES	3		
Charrie Gibson	Teacher (4th)	Cascadia ES	26		
Chelsea Gilgore	Teacher (1st)	Coe ES	5		
~~Kassandra Griswold~~	Teacher (4th)	Licton Springs	5		
Debbie Nelsen	Principal	Hazel Wolf K-8	25		
Lissa Ongman	Teacher (2nd)	McGilvra ES	3	10 years in sci research	
~~Karmonda Pearson~~	Teacher (4th)	Emerson ES	20		
Hiromi Pingry	Teacher (K)	John Stanford ES	20		
Greg Pittman	Teacher (4th)	Laurelhurst ES	17		Ballard (9th), W Woodland (3rd)
~~Erin Rasmussen~~	Principal	Emerson ES			
Jeannie Revello	Teacher (2nd)	Gatewood ES	19		
Geoffrey Smith	Teacher (5th)	Hazel Wolf K-8	5		
Anna Wallace	Principal	Cascadia ES	12		
Carolyn Whipple	Teacher (2nd)	Lafayette ES	10		

Staff Membership Demographics
23 total staff members (some chose not to provide this optional information):

- 20 identify as female (87.0%); 3 identify as male (13.0%)
- 18 identify as White (78.3%); 6 identify as non-White (26.1%)
- 5 represent Title I schools (21.7%)
- 5 represent HCC schools (21.7%)
- 1 represents a dual-language immersion school (4.3%)
- 3 carry an ELL endorsement (13.0%)
- 2 carry a Special Ed endorsement (8.7%)

Attachment D
K-5 Science Adoption Committee Membership Roster
Community Membership

Name	Professional Affiliations	Children attending SPS
Simone Alin	Oceanographer, NOAA	John Muir (1st)
Nell Baughn	Aerospace Engineering	North Beach (K, 2nd)
~~Charles Bloch~~	UW School of Medicine	West Woodland (K)
Charles Bosse	PSU Physics	Thornton Creek (Pre-K)
Ashley Braun	Librarian, Seattle Public Library	
Lina Castro	Dual Language volunteer translator	Concord (1st, 3rd)
Angie DiLoreto	Science Program Manager, Bellevue School District	McDonald (3rd, 5th)
~~James Dorsey~~	Washington MESA	
Andrea Hildebrandt	past Ed Coordinator, Museum of Flight	Queen Anne (K, 3rd)
~~Robert Femiano~~	Retired Elementary Teacher	
~~Mary Ann Lambert~~		Boren STEM (PK, K)
Lutz Maibaum	Chemistry Professor, UW	Bagley (K)
~~Robert MacDonald~~	Electrical Engineer	Orca (1st), Thurgood Marshall (3rd)
~~Christy McCullough~~		Green Lake (K)
~~Joely Johnson Mork~~	National Assoc. of Science Writers	Lawton (2nd)
~~Jared Ogle~~	Highline School District	Bagley, Eagle Staff (4,7)
Holly Sawyer	Molecular Biology	Olympic View (1st, 2nd)
~~Olivia Usher~~		John Hay (K)

Community Membership Demographics
11 total community members (some chose not to provide this optional information):

- 6 identify as female (66.7%)
- 3 identify as male (33.3%)
- 6 identify as White (66.7%)
- 3 identify as non-White (33.3%)
- 2 represent Title I schools (18.2%)
- 0 represent HCC schools (0.0%)
- 1 represents a dual-language immersion school (9.1%)

Attachment E: SPS Science Instructional Materials Adoption
K-8 Review Criteria v5.1.09.10.18 ADA-Compliant Version

Vendor: ____

Program Name: ____

CATEGORY 1: STANDARDS ALIGNMENT

WHY: "Educational excellence and equity for every student is Goal One of our district's Strategic Plan. Our academic program is grounded in standards-based curriculum, with strong, targeted instruction delivered by highly-qualified teachers to ensure that every student graduates ready for college, career, and life." – SPS Department of Curriculum, Assessment, and Instruction website

WHAT: "Our mission is to provide all SPS science classrooms with a common NGSS-aligned core scope and sequence that is engaging, authentic, culturally responsive, rigorous, and technology-based to be college and/or career ready. Our goal is that all our students will be scientifically literate. This is accomplished through a collaborative, interactive, rigorous science program responsive to the needs of diverse learners." – SPS Science Department Mission Statement

RUBRIC:
4: Superior Evidence; **3:** Strong Evidence; **2:** Moderate Evidence; **1:** Minimal Evidence; **0:** No Evidence

Category 1 Criterium	Current	Scientifically accurate	Grade-level appropriate	Average Score
1. The instructional materials present the SEPs (Science and Engineering Practices) in a way that is:				
2. The instructional materials present the DCIs (Disciplinary Core Ideas) in a way that is:				
3. The instructional materials present the CCCs (Crosscutting Concepts) in a way that is:				

Category 1 Criterium	Evidence Gathered	Rating
4. The instructional program provides phenomena-based science units at each grade level.	Evidence:	Rating:
5. The instructional program engages students in the engineering design process by solving engineering problems at each grade level.	Evidence:	Rating:

Attachment E: SPS Science Instructional Materials Adoption
K-8 Review Criteria v5.1.09.10.18 ADA-Compliant Version

Category 1 Criterium	Evidence Gathered	Rating
6. Units are organized as a storyline, anchored by a phenomenon or engineering problem that allows for students to build knowledge to explain the phenomenon or solve the engineering problem.	Evidence:	Rating:
7. Phenomena and/or engineering problems are presented to students as directly (first hand) as possible.	Evidence:	Rating:
8. Individual learning activities include at least two of the three dimensions: Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs).	Evidence:	Rating:
9. The instructional program provides opportunities for students to collect evidence using computer-based simulations, hands-on investigations, informational texts, and other media.	Evidence:	Rating:
10. Instructional materials draw upon students' prior knowledge and experiences related to the targeted learning of SEPs, DCIs, and CCCs.	Evidence:	Rating:
11. Instructional materials provide students with opportunities to consider the ethical implications of science where appropriate.	Evidence:	Rating:
12. The instructional program lists grade-appropriate connection(s) to the Common Core State Standards.	Evidence:	Rating:
13. The instructional program requires students to use and build their knowledge of each grade's (K-5) or grade-band's (6-8) Disciplinary Core Ideas within the following domains, within and across grade levels: a. Life Science b. Earth and Space Science c. Physical Science d. Engineering, Technology, and Application of Science	Evidence:	Rating:

Category 1 Criterium	Evidence Gathered	Rating
14. The instructional program requires students to use and build their knowledge of the Science and Engineering Practices, within and across grade levels: a. SEP 1: Asking Questions (science) and Defining Problems (engineering) b. SEP 2: Developing and Using Models c. SEP 3: Planning and Carrying Out Investigations d. SEP 4: Analyzing and Interpreting Data e. SEP 5: Using Mathematics and Computational Thinking f. SEP 6: Constructing Explanations (science) and Designing Solutions (engineering) g. SEP 7: Engaging in Argument from Evidence h. SEP 8: Obtaining, Evaluating, and Communicating Information	Evidence:	Rating:
15. The instructional program requires students to use and build their knowledge of the Crosscutting Concepts, within and across grade levels: a. CCC 1: Patterns b. CCC 2: Cause and Effect c. CCC 3: Scale, Proportion, and Quantity d. CCC 4: Systems and System Models e. CCC 5: Energy and Matter f. CCC 6: Structure and Function g. CCC 7: Stability and Change	Evidence:	Rating:
Total Score for Category 1:	**Points Possible: 60**	**% Score:**

Comments: **Personal % Score:**

Attachment E: SPS Science Instructional Materials Adoption
K-8 Review Criteria v5.1.09.10.18 ADA-Compliant Version

CATEGORY 2: ASSESSMENTS

WHY: "The Board of Directors of Seattle Public Schools … believes that assessments are a critical component of our education system used to inform instruction through identification of student strengths, assessment of learning growth, and diagnosis of barriers, and areas of support." – SPS School Board Policy #2080

WHAT: Includes pre-, formative, summative, self-, and peer-assessment measures that assess three-dimensional learning that provides data used to inform instruction.

RUBRIC:
4: Superior Evidence; **3:** Strong Evidence; **2:** Moderate Evidence; **1:** Minimal Evidence; **0:** No Evidence

Category 2 Criterium	Evidence Gathered	Rating
1. Assessments engage students in at least two of the three dimensions of teaching and learning: The Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs).	Evidence:	Rating:
2. Assessments are accessible to all learners regardless of gender identification, language, learning exceptionality, cultural, or socioeconomic status.	Evidence:	Rating:
3. Assessments are designed to yield information teachers may use in planning and modifying instruction.	Evidence:	Rating:
4. Assessment tools include multiple measures of student progress within a unit.	Evidence:	Rating:
5. Pre-assessments for each unit are provided to elicit students' prior knowledge and preconceptions.	Evidence:	Rating:
6. Formative assessments are embedded consistently within the unit of instruction and are designed to elicit understanding to provide evidence of students' progress toward mastering the three-dimensional learning.	Evidence:	Rating:

Attachment E: SPS Science Instructional Materials Adoption
K-8 Review Criteria v5.1.09.10.18 ADA-Compliant Version

Category 2 Criterium	Evidence Gathered	Rating
7. Summative assessments, at the end of a chapter or a unit, require students to provide a complete scientific explanation for the unit phenomenon, supported by evidence.	Evidence:	Rating:
8. Summative assessments involve a variety of modalities, including, but not limited to: hands-on or simulation-based performance tasks, open-ended constructed response problems, and scoring of portfolios of student work collected over the course of instruction.	Evidence:	Rating:
9. Tools are provided for scoring assessment items (e.g., sample student responses, rubrics, scoring guidelines).	Evidence:	Rating:
10. Guidance is provided for interpreting the assessments (e.g., determining what high and low scores mean for students) that allow for interpretation of levels of student understanding.	Evidence:	Rating:
11. Instructional materials provide opportunities and guidance for oral and/or written self-assessment and teacher feedback allowing students to monitor their own learning.	Evidence:	Rating:
12. Instructional materials include opportunities to use digital technology to assess three-dimensional learning.	Evidence:	Rating:
Total Score for Category 2:	**Points Possible: 48**	**% Score:**

Comments: **Personal % Score:**

Attachment E: SPS Science Instructional Materials Adoption
K-8 Review Criteria v5.1.09.10.18 ADA-Compliant Version

CATEGORY 3: INCLUSIVE EDUCATIONAL PRACTICES

WHY: "The district shall provide every student with equitable access to a high-quality curriculum, support, facilities, and other educational resources." – SPS School Board Policy #0030

WHAT: Instructional materials support students with learning variabilities, including, but not limited to, standard English learners, English learners, long term English learners, students living in poverty, foster youth, girls and young women, advanced learners, students with disabilities, students experiencing trauma, students below grade level, and students of Native American, Alaskan, Pacific Islander, African American, and Latinx descent.

RUBRIC:
4: Superior Evidence; **3:** Strong Evidence; **2:** Moderate Evidence; **1:** Minimal Evidence; **0:** No Evidence

Category 3 Criterium	Evidence Gathered	Rating
1. Instructional materials leverage students' knowledge and experiences by eliciting and revisiting ideas throughout the unit.	Evidence:	Rating:
2. Instructional materials are designed to leverage diverse cultural and socioeconomic backgrounds of students, including honoring the ways they come to know science.	Evidence:	Rating:
3. Instructional materials include options for how to connect instruction to students' home, neighborhood, community, and/or culture, with a lens on social justice and on sustainability as appropriate.	Evidence:	Rating:
4. Instructional materials provide an intentional balance of a wide variety of activities within a unit (e.g., simulations, hands-on activities, readings, discourse, kinesthetic activities, etc.) to support students' engagement in content.	Evidence:	Rating:
5. Instructional materials emphasize the importance of science education to all members of society in a way that is culturally and socially authentic.	Evidence:	Rating:

Category 3 Criterium	Evidence Gathered	Rating
6. Teacher resources supply differentiated paths for learners. In particular, resources provide instructional guidance to support students at various skill levels in science.	Evidence:	Rating:
7. Students express their understanding of the phenomena using multiple modalities, including, but not limited to, discussing, writing, and drawing.	Evidence:	Rating:
8. Instructional materials provide appropriate accommodations and modifications to support active participation in the learning of science and engineering by all students.	Evidence:	Rating:
9. Instructional materials are made accessible to students by providing appropriate supports for different reading levels.	Evidence:	Rating:
10. Instructional materials are available in multiple languages.	Evidence:	Rating:
11. Instructional materials provide opportunities for students to explore science and engineering careers connected to their lives through relevance and authenticity.	Evidence:	Rating:
12. Instructional materials integrate technology-based, value-added tools that address issues of equitable access and support the growth of digital literacy skills and engagement for all students.	Evidence:	Rating:
13. Instructional materials approach the content from multiple cultural and socioeconomic perspectives.	Evidence:	Rating:
14. Instructional materials include work and innovations in the fields of science and technology done by people from different global societies.	Evidence:	Rating:

Category 3 Criterium	Evidence Gathered	Rating
15. Instructional materials include how different global communities experience, and are impacted by, science and engineering.	Evidence:	Rating:
16. Instructional materials include examples of science innovations that have exploited groups in history to prevent the perpetuation of present and future exploitation.	Evidence:	Rating:
17. Instructional materials emphasize the importance of using science and engineering to benefit all.	Evidence:	Rating:
Total Score for Category 3:	**Points Possible: 68**	**% Score:**

Comments: **Personal % Score:**

CATEGORY 4: EVALUATION OF BIAS CONTENT

WHY: "As schools work to increase success for all students, it is important to recognize the impact of bias in classrooms, instructional materials, and teaching strategies. Evaluating for bias requires us to learn about others and to respect and appreciate the differences and similarities." – WA OSPI Equity & Civil Rights Task Force

WHAT: Criteria adapted from the Washington Models for the Evaluation of Bias Content in Instructional Materials, WA OSPI Equity & Civil Rights Task Force (Appendix A)

RUBRIC:
4: Superior Evidence; **3:** Strong Evidence; **2:** Moderate Evidence; **1:** Minimal Evidence; **0:** No Evidence

Instructions (Criteria 1-5):
The column categories are umbrella terms meant to encompass all examples to consider while reviewing the instructional materials. For categories represented, evaluate the level of evidence for each of the components: A: Gender; B: Sexual Orientation; C: Ethnicity; D: Culture; E: Physical Disability; F: Physical Characteristics; G: Age; H: Family Structure; I: Socioeconomic Status; J: Geographic Setting.

Category 4 Criterium	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**Average**
1. Reflect qualities such as collaboration, compassion, intelligence, imagination, and courage.											
2. Represented as central characters in narratives and illustrations.											
3. Shown in active decision-making and leadership roles.											
4. Shown performing similar work in related fields.											
5. Referred to by their names and roles, not their characteristics.											

Category 4 Criterium	**Evidence Gathered**	**Rating**
6. Materials include historical and current contributions to science and engineering by members of non-dominant cultures.	Evidence:	Rating:
7. Groups are identified in gender-neutral language (example: 'firefighter' instead of 'fireman').	Evidence:	Rating:

Attachment E: SPS Science Instructional Materials Adoption
K-8 Review Criteria v5.1.09.10.18 ADA-Compliant Version

Category 4 Criterium	Evidence Gathered	Rating
8. People of all genders are depicted in non-traditional as well as traditional roles in the family, at work, in leisure activities, and in attitude.	Evidence:	Rating:
9. Persons with disabilities are shown working and playing as equals with those around them.	Evidence:	Rating:
10. Where appropriate, instructional materials acknowledge when the dominant culture took credit for discoveries and work done by non-dominant cultures.	Evidence:	Rating:
Total Score for Category 4:	**Points Possible: 40**	**% Score:**

Comments:

Personal % Score:

Attachment E: SPS Science Instructional Materials Adoption
K-8 Review Criteria v5.1.09.10.18 ADA-Compliant Version

CATEGORY 5: INSTRUCTIONAL PLANNING AND SUPPORT

WHY: "[The District will] align instruction, mentoring, evaluation, and support to ensure each and every educator develops strong foundational teaching skills." – SPS Formula for Success

WHAT: "Educators must possess a repertoire of evidence-based instructional strategies in delivering the curriculum to develop talent, enhance learning, and provide students with the knowledge and skills to become independent, self-aware learners, and to give students the tools to contribute to a multicultural, diverse society. The curriculum, instructional strategies, and materials and resources must engage a variety of learners using culturally responsive practices." – The National Association for Gifted Children website

RUBRIC:
4: Superior Evidence; **3:** Strong Evidence; **2:** Moderate Evidence; **1:** Minimal Evidence; **0:** No Evidence

Category 5 Criterium	Evidence Gathered	Rating
1. Teacher support materials provide storylines that show how units are intentionally sequenced.	Evidence:	Rating:
2. The instructional program includes features that help teachers understand how the Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs) are integrated throughout the materials.	Evidence:	Rating:
3. Instructional materials contain teacher guidance on the lesson level that explains how the targeted SEPs, DCIs, and CCCs work together to support students in making sense of phenomena or designing solutions to problems.	Evidence:	Rating:
4. The instructional program provides guidance to teachers on how to engage students in a variety of discourse strategies to support their three-dimensional learning.	Evidence:	Rating:
5. Teachers are provided with a wide variety of engaging, student-centered learning activities that help students make sense of phenomena and in designing solutions to related problems.	Evidence:	Rating:

Category 5 Criterium	Evidence Gathered	Rating
6. The instructional program contains teacher guidance, with annotations and suggestions, for how to successfully implement their units and daily lesson plans.	Evidence:	Rating:
7. Instructional materials contain explanations of the instructional approaches of the program and identification of the research-based strategies.	Evidence:	Rating:
8. Teacher support materials provide background knowledge related to the scientific content in each lesson.	Evidence:	Rating:
9. Where appropriate, teacher background knowledge materials include a global and local perspective.	Evidence:	Rating:
10. Teacher support materials identify common student preconceptions and suggestions for how to provide feedback and engage students in meaning-making that addresses these preconceptions.	Evidence:	Rating:
11. Teacher support materials provide guidance with opportunities for checking for understanding and adjusting lessons, if necessary, to ensure three-dimensional learning.	Evidence:	Rating:
12. Instructional materials document how each lesson and unit align to English/Language Arts and Math Common Core State Standards.	Evidence:	Rating:
13. Instructional materials include a comprehensive list of supplies needed, as well as a detailed list of preparation tasks, for each lesson.	Evidence:	Rating:

Category 5 Criterium	Evidence Gathered	Rating
14. Instructional materials embed clear science safety guidelines for teachers and students across all lessons that are consistent with science safety rules and regulations, when appropriate, lab safety sheets are provided, and digital safety concerns and guidelines are addressed.	Evidence:	Rating:
15. Instructional materials designated for each grade level are appropriate for one school year, and teacher support materials contain suggested pacing for the school year.	Evidence:	Rating:
16. Instructional materials contain strategies for informing students, parents, and caregivers about the science program and suggestions for how they can help support student progress and achievement.	Evidence:	Rating:
17. Instructional materials encourage the meaningful use of technologies (such as video clips or computer simulations) to investigate phenomena that cannot be directly experienced in the classroom, as well as tools used to record, display, and analyze data.	Evidence:	Rating:
18. Instructional materials provide guidance to teachers on how the use of embedded technology and how science instruction may be improved by the effective use of technology and multimedia literacy skills.	Evidence:	Rating:
19. Instructional materials include or reference digital technology that provides opportunities for teachers and/or students to collaborate with each other (e.g., websites, discussion groups, webinars, etc.).	Evidence:	Rating:

Category 5 Criterium	Evidence Gathered	Rating
20. Electronic learning resources support instruction by: a. indicating which lessons require technology. b. having a well-designed user interface. c. providing technical support. d. including suggestions for appropriate use. e. including back up analog-based plans.	Evidence:	Rating:
Total Score for Category 5:	**Points Possible: 80**	**% Score:**

Comments:

Personal % Score:

Attachment E: SPS Science Instructional Materials Adoption
K-8 Review Criteria v5.1.09.10.18 ADA-Compliant Version

Category	% Score	X 100 =	Points	X	Weighting	=	Score
Category 1: Standards Alignment		**X 100 =**		**X**	**0.22**	**=**	
Category 2: Assessments		**X 100 =**		**X**	**0.17**	**=**	
Category 3: Inclusive Educational Practices		**X 100 =**		**X**	**0.20**	**=**	
Category 4: Evaluation of Bias Content		**X 100 =**		**X**	**0.20**	**=**	
Category 5: Instructional Planning and Support		**X 100 =**		**X**	**0.21**	**=**	

Program Total:
(attach any additional notes)

Comments:

Attachment F
Elementary Science Adoption Committee
Process, Protocol, and Results of Instructional Materials Review

In keeping with School Board Policy 2015, Selection and Adoption of Instructional Materials, and the commitment to provide all Seattle Public School students and teachers with the best possible elementary science instructional materials and narrow the opportunity gap for historically underserved students, the School Board instructed the science content area of Curriculum, Assessment, and Instruction to launch an elementary science instructional materials adoption in April 2018. The adoption process was carried out over a 12-month period and proceeded according to guidelines outlined in School Board Policy 2015. The process occurred in three phases: Stage 1, Field Test, and Stage 2 (see Attachment F).

In June of 2018, an Elementary Science Adoption Committee, comprised of teachers, school leaders, parents, professionals in STEM fields, and other community members, was selected through an application process to ensure a committee that represented the diversity of stakeholders in the District, including geography, race, ethnicity, gender, and age (see Attachment D).

Review Criteria Tool

The committee members identified five categories and 74 specific criteria for evaluation of program candidates, based on the needs, priorities, data, and research that emerged from the following sources:

- 2013 Washington State Science Learning Standards (adopted from the 2013 Next Generation Science Standards)
- Preliminary Family/Community and Teacher/Staff Needs Assessment and input survey, which identified priorities around science materials, instruction, and learning in the District
- A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas (National Research Council [NRC] of the National Academy of Sciences)
- The Educators Evaluating the Quality of Instructional Products Rubric (EQuIP) for Science
- Primary Evaluation of Essential Criteria (PEEC) for NGSS Instructional Materials Design
- California's Science Instructional Materials Rubric
- Anti-Bias Criteria Screen Tool outlined in Board Policy 2015
- Washington OSPI Equity & Civil Rights Task Force's Models for the Evaluation of Bias Content in Instructional Materials tool
- SPS Formula for Success

The first draft of the tool was created on May 4, 2018. A second version of tool was created after receiving initial Committee input on June 9, 2018 and June 13, 2018. A third version of the tool was created by a subcommittee on June 26, 2018, continuing modifications suggested by the Committee as well as utilizing components of a draft version of a new, comprehensive rubric created by the nonprofit edReports.org. A fourth and final version resulted from a final review by the Adoption Committee in September of 2018. The categories were weighted, and a final draft of the Science Instructional Materials Review Criteria (see Attachment E) was presented to the SPS Instructional Materials Committee (IMC) for feedback and the final draft approved for use as the committee's evaluation tool of candidate programs. The weighted review criteria categories included:

- Category 1: Standards Alignment (22%)
- Category 2: Assessments (17%)
- Category 3: Inclusive Educational Practices (20%)
- Category 4: Evaluation of Bias Content (20%)
- Category 5: Instructional Planning and Support (21%)

Stage 1: RFI

In July of 2018, vendors responded to the District's initial RFI. The following vendors sent formal responses:

Company	Program
Accelerate Learning, Inc.	STEMScopes
Amplify Education, Inc.	AmplifyScience
Carolina Biological Supply Company	Building Blocks of Science 3D
Carolina Biological Supply Company	Smithsonian Science Program
Cengage Learning Inc.	National Geographic Learning
Delta Education	FOSS Program
Discovery Education, Inc.	Discovery Science
Houghton Mifflin Harcourt (HMH)	HMH Science Dimensions
McGraw-Hill Education	Inspire Science
Pearson Education, Inc.	Elevate Science
Teachers' Curriculum Institute (TCI)	Bring Science Alive!
VKidz Holdings Inc., DBA Science4Us	Science4Us.com

The program Science4Us.com was removed from consideration due to not meeting the requirements of the RFI.

Stage 1 Review Protocol

Between September and December of 2018, the Committee worked collaboratively in small review teams to evaluate the program candidates, using the Science Instructional Materials Review Criteria. The Committee was split into 3- to 4-person teams, with the intention of balancing the teams with staff and community members. Each team reviewed a randomly-assigned program using the Review Criteria Tool to record their scoring and supporting evidence. As teams completed their reviews, the data was digitally collected and collated for the record. The results of each review were kept confidential, so that subsequent reviews would not be influenced by the work of previous teams.

When evaluating a program, review teams assigned each criteria a quantitative score between 0 and 4, using the scoring rubric established by the Committee, and included annotations based on evidence collected directly from their review of the materials. The score was calculated for each category and weighted based on the above percentages. A total score was then calculated by the review team for that vendor program.

Due to the breadth and depth of the criteria contained within the five categories within the Review Criteria, a protocol was proposed in which a vendor program could be eliminated from consideration if two separate review teams, independent from each other and without knowledge of each other's work, reached consensus that the candidate program did not meet the minimum alignment to science standards or anti-bias content and should not be eligible for consideration. If this condition was met, the program would be eliminated from the candidate pool. The committee voted unanimously to approve this protocol as an amendment to the Review Criteria scoring protocol. After each candidate vendor program was reviewed by two independent review teams, the total scores for each vendor program were averaged and ranked (see Attachment F).

At the end of the first round of review, spanning seven meetings, the following programs were eliminated from consideration based on the "two strikes" protocol:

Company	**Program**	**Review Score (%)**
Carolina Biological Supply Company	Building Blocks of Science 3D	**9.4**
Cengage Learning Inc.	National Geographic Learning	**29.8**
Discovery Education, Inc.	Discovery Science	**36.9**
Pearson Education, Inc.	Elevate Science	**13.2**

This left the following programs left in consideration for the last stage of Round 1, including their aggregate scores from the reviews:

Company	**Program**	**Review Score (%)**
Amplify Education, Inc.	AmplifyScience	**66.3**
Houghton Mifflin Harcourt (HMH)	HMH Science Dimensions	**58.0**
Teachers' Curriculum Institute (TCI)	Bring Science Alive!	**43.5**
McGraw-Hill Education	Inspire Science	**44.7**
Accelerate Learning, Inc.	STEMScopes	**43.0**
Carolina Biological Supply Company	Smithsonian Science Program	**41.3**
Delta Education	FOSS Program	**38.9**

Stage 1: RFP Step 1

In December of 2018, vendors responded to Step 1 of the District's RFP process. All vendors still in consideration responded; however, McGraw Hill was removed from consideration by Purchasing due to not fully complying with the process. The Committee was informed of this development.

The Committee then focused its efforts on re-examining the remaining programs in depth using the following guiding question: What would it look like from the vantage point of a teacher? Committee members focused their evidence collection on student learning activities and materials including investigations, simulations, worksheets, readings, videos, and formative and summative assessments. The Committee also explored in greater depth the program's online student-facing and teacher-facing platforms and collected evidence around their experience in navigating the programs digital platforms, including ease of use and the quality of the digital resources.

Based on this re-examination, including revisiting the average Review Criteria scores and associated evidence assigned by the committee in Stage 1, the Committee voted unanimously to eliminate one of the remaining four programs and continue to review the remaining three vendor programs, which were advanced to the field test stage of the Elementary Science Adoption process as finalist candidates:

Company	**Program**	**Review Score (%)**
Amplify Education, Inc.	AmplifyScience	**66.3**
Houghton Mifflin Harcourt (HMH)	HMH Science Dimensions	**58.0**
Teachers' Curriculum Institute (TCI)	Bring Science Alive!	**43.5**

Stage 2: RFP Step 2 and Field Test

The three finalist vendors were contacted by the District and asked to respond to RFP Step 2. In addition, the Committee posed a series of questions to the vendors as an addendum to Step 2.

All SPS elementary teachers were invited to apply to participate in the Elementary Science Adoption field test pending principal approval and demonstration of understanding of the 2013 Washington State Science Learning Standards. Thirteen first grade teachers, eleven fourth grade teachers, and their students, representing a diversity of years in the profession, science background, gender, and ethnicity, were selected by the Adoption Coordinator to teach the field test unit in their classrooms. The field test classrooms included over 600 students from 17 SPS elementary school buildings located in multiple regions of the district, and represented Seattle Public Schools' diverse racial, ethnic, and socioeconomic groups and student populations, including English Language Learners, Special Education, HCC, and general education (see Attachment H).

The 24 field test teachers were instructed to implement and instruct a pre-selected unit from one of the three candidate programs. Units were selected along a common content area and set of

Disciplinary Core Ideas (DCIs) to allow for a common frame of reference for evaluation. The units selected are detailed below:

Program	Grade	Unit	# of Classrooms
AmplifyScience	1	Animal and Plant Defenses	5
HMH Science Dimensions	1	Plant and Animal Structures	4
TCI Bring Science Alive!	1	Plant and Animal Parts	4
AmplifyScience	4	Earth's Features	5
HMH Science Dimensions	4	Changes to Earth's Surface	3
TCI Bring Science Alive!	4	Earth's Changing Surface	3

Field test teachers received a full day of training from the vendor including follow-up time to plan and calendar their unit with their field test colleagues.

Field test teachers were given the following guidelines and expectations for field test participation in order to ensure the validity of the field test and provide multiple data collection opportunities (see Attachment I) about each candidate program:

- Implement the unit with as much fidelity as possible
- Submit feedback via digital survey platform on a weekly basis about the effectiveness of learning activities, standards alignment, and student engagement.
- Work with the Adoption Coordinator and Science Curriculum Specialists to schedule a lesson observation and participate in a post-observation interview
- Select a small student focus group to be interviewed about their experience with the field test unit
- Have all students participating in the field test complete an end-of-unit student survey around the following attributes:
    - Engagement in standards-aligned science practices
    - Using instructional materials that are organized around a conceptual storyline and anchored by a puzzling science phenomena problem to solve
    - Sharing science ideas through student discourse
    - Relevance in science learning
    - Equity, Identity, and Disposition
- Administer and score the provided pre-unit and post-unit assessments and record student scores to quantify student growth
- Participate in a panel interview session with the Adoption Committee

The following schools were involved in the Field Test:

School	Field Test(s)
Dearborn Park Elementary	TCI – 4th Grade

Decatur Elementary	HMH – 4th Grade
Emerson Elementary	HMH – 1st Grade (3)
Fairmount Park Elementary	Amplify – 1st Grade (2), 4th Grade
Genesee Hill Elementary	TCI – 1st Grade
John Muir Elementary	Amplify – 4th Grade
Laurelhurst Elementary	Amplify – 4th Grade
Leschi Elementary	Amplify – 4th Grade
Licton Springs K-8	HMH – 4th Grade
McGilvra Elementary	TCI – 1st Grade
Olympic Hills Elementary	HMH – 1st Grade
Olympic View Elementary	TCI – 4th Grade
Queen Anne Elementary	TCI – 4th Grade
Roxhill Elementary	HMH – 4th Grade
Sacajawea Elementary	TCI – 1st Grade
Thurgood Marshall Elementary	TCI – 1st Grade
Viewlands Elementary	Amplify – 1st Grade (3), 4th Grade

Stage 2, March 2019

Prior to beginning the final review and analysis of all data collected for each candidate program, Adoption Committee members completed a survey in which they provided input about how each category of data collected during Stage 1 and the Field Test Stage of the adoption process should be weighted (see Attachment J). When the committee member input was averaged, the weights were assigned to each data set as follows:

- Science Instructional Materials Review Criteria scores generated from Stage 1 – 47.5%
- Field Test Data – 42.3%
- Public Display and Open House Community Input Forms – 10.2%

On March 22, the Adoption Committee participated in a panel interview session with the field test teachers of each candidate program. Each field test reported to the committee about their experience implementing the candidate program they field tested and their perception of their students' experience, and to provide input and feedback about the instructional materials in that program. In the panel interview, field test teachers were asked a set of 23 questions aligned with Science Instructional Materials Review Criteria categories and criteria by the Adoption Coordinator. Adoption Committee members were allowed to ask follow-up questions of the field test panels. Committee members were instructed to record notes during the panel interview for each candidate program as a source of evidence about the outcomes of the field test stage of the adoption.

On March 23, the Adoption Committee worked in small teams to review additional data sources generated from the Field Test stage for evidence of alignment with the Science Instructional Materials Review Criteria, including post-observation teacher interviews, student focus group interviews, end-of-unit student attribute surveys, and student growth data as measured by pre and post-unit assessments. Committee members worked in review teams to collectively synthesize and review all of the data then assign each program a Field Test score between 0 and 4 in each of the five categories in the Science Instructional Materials Review Criteria (see Attachment E). The score for each category was weighted then tallied and reported as a consensus score.

Committee members then reviewed input from the public. Members of school communities and the public were invited to review instructional materials from each vendor program under consideration for adoption and to provide input about these materials. The input forms were collected through the SPS Science Adoption website, at one of the five instructional materials public display site across the district, and at two open house information sessions. Of the Community Input Forms submitted, 3 were completed for AmplifyScience, 7 for HMH, and 2 for TCI. Although the amount of data generated for each vendor program was very small, review teams analyzed the input forms for each finalist vendor program and assigned a Public Input score between 0 and 4 in each of the five categories in the Science Instructional Materials Review Criteria (see Attachment E) based on the comments. The score for each category was weighted then tallied and reported as a consensus score.

Each committee review team calculated their weighted consensus scores for the Review Criteria scores from Stage 1, the Field Test data, and the Public Input data including annotated evidence collected from the data to support their scores. Each review team reported their scores and supporting evidence as to the other committee review teams. The committee identified patterns and trends across all review team reports and each review team tallied their three final scores to report a total score for each candidate finalist program. The Adoption Committee then proceeded to the decision-making phase. Adoption Committee members agreed to an anonymous vote to either identify a single finalist for recommendation for Adoption to the school board or to recommend no Adoption.

Based on the synthesis and summary of all data reviewed by the committee and the final scores reported, AmplifyScience emerged as the top candidate.

Attachment G: Community Input Form Summary Report
n = 3

Amplify K 5

Community members were invited to complete a yes/no survey, containing some of the major criteria within each of the five categories of the Review Criteria. Comments are included below each response.

Vendor:	**Amplify (K-5)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	8	0	0
2: Assessments (6 criteria)	6	0	0
3: Inclusive Educational Practices (6 criteria)	5	1	0
4: Evaluation of Bias Content (7 criteria)	5	2	0
5: Instructional Planning & Support (10 criteria)	10	0	0
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Very Well
What did we not ask that you feel is important in the decision-making process?			N/A

Vendor:	**Amplify (K-5)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	6	0	2
2: Assessments (6 criteria)	4	0	2
3: Inclusive Educational Practices (6 criteria)	5	0	1
4: Evaluation of Bias Content (7 criteria)	3	0	4
5: Instructional Planning & Support (10 criteria)	6	0	4
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Well
What did we not ask that you feel is important in the decision-making process?			

- Which program is most suitable for SPS, taking into consideration its current and future teaching staff? In my experience, newer teaching staff is better equipped to teach science, because they themselves have had better educational experiences.

- Which program provides the best opportunity for using the materials flexibly so that "time constraints" don't interfere with teaching good science?

Comments: HMH doesn't stand out in terms of students using their sense of exploration in contrast to AmplifyScience.

TCI appears "simplistic" in addressing various science topics. I think we need to push students (and teachers) to tackle "difficult" subjects, in order to develop their understanding.

Vendor:	Amplify (K-5)		
	Yes	No	Blank
1: Standards Alignment (8 criteria)	8	0	0
2: Assessments (6 criteria)	6	0	0
3: Inclusive Educational Practices (6 criteria)	6	0	0
4: Evaluation of Bias Content (7 criteria)	7	0	0
5: Instructional Planning & Support (10 criteria)	10	0	0
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Very Well
What did we not ask that you feel is important in the decision-making process?			
I do like how there is guided questions for teachers to elicit scientific thinking in discussions, partner talk, and various assessments. I do worry that in K-5 the technology should not be a distraction from hands-on learning. Also, I worry about technology access, not all rooms are equipped with tech for students. I feel like it is very important to start with 5th grade scholars and work down through the grade levels – as those kids entering the upper grades have had very little NGSS. This program seems good – but the hands-on component is not present – nevertheless, by the material descriptions, if they are provided they sound fabulous.			

The following are included on each report, as they include only general comments (no scores)

Vendor:	[Survey not completed, only comments]
What did we not ask that you feel is important in the decision-making process?	
I think balancing technology use, hands-on experiments, and meaningful (respectful, but challenging) dialogue is at the crux of authentic science education. It is reasonable to assume that every teacher is a bit different; each classroom dynamic/culture is unique – and yet, what are the shared experiences that can connect Seattle Public Schools students the most?... I think a resource's "interface" – whether a book, mobile app, or computer program software is important, but certainly is just a part of the important equation: teacher ←→ student engagement; dialogue addressing different learning styles; taking the time to be bold/courageous to address ethical issues in science... It's like a recipe → if you don't have the ingredients, perhaps it's not the end of the world; adapt, be flexible, use another resource, or create it yourself (??)...	

Vendor:	[Survey not completed, only comments]

What did we not ask that you feel is important in the decision-making process?

Amplify:
I noticed that several of the anchoring phenomena were introduced via video – no other info in books, or PDF, etc. Example: maglev train video. If the technology doesn't work, the lesson is impossible. Two of both examples I looked at. Also, the videos were pretty hokey.

TCI:
The equivalent lesson in TCI has pictures of a maglev train and description in the text: easier to work from.

At K-level of forces:
Amplify and TCI each had errors (more like reinforcing misconceptions) but they were different.

The Amplify website seems to have problems with too many people accessing it at the same time.
Amplify K-5: I notice the teacher guide is extremely scripted, to the point of complete sentences to say within a given slide. Example: Energy conversion, 4th grade Lesson 1.1. Teacher guide even says, "hold up a copy of..." Superscripted!

Vendor:	[Survey not completed, only comments]

What did we not ask that you feel is important in the decision-making process?

K-5: Overall I would recommend HMH as a top choice, with TCI second. I chose HMH because of the topics, layout/organization of materials, and quality of assessments. AmplifyScience seemed too onerous for ease of educator and student use.

6-8: HMH #1, AmplifyScience #2, TCI #3
For same reasons as K-5 – AmplifyScience is still hard/onerous, but better topic selection.

Vendor:	[Survey not completed, only comments]

What did we not ask that you feel is important in the decision-making process?

Thanks for helping me dig through your new science materials yesterday. I'll share some observations below, but the most important conclusion I came away with is that I couldn't possibly tell how well each of these programs works without trying them; if I were to decide between the programs, I would rely almost entirely on the experiences of the teachers who have tested the materials.

All that said, it seems like any of the three programs would provide a reasonable starting point, and would need to be customized over time as you figure out which parts work and which do not. From that standpoint, I thought the Amplify materials looked like a much better starting point because of the depth with which they describe their pedagogical strategy and explain their lesson design rationale. In contrast, the HMH and TCI materials do a good job of walking you through each lesson, but without much guidance should you want to stray from the plan. I also found that Amplify provided much more scientific background information (very clearly written as well); I imagine this would be a great help to non-specialist teachers.

The HMH and TCI materials seemed more similar to each other in their approach, although personally I found myself frequently confused reading through HMHs materials (both the teacher guide and the workbook). Compared to Amplify, TCI seemed to cover topics with less depth and more repetition; I can see this being good or bad depending on the situation, but again it might be easier for teachers to decide on the appropriate depth for their classes if they have the higher-depth material available as a starting point.

My overall ranking: #1 Amplify, #2 TCI, #3 HMH.

Community Input Form Summary Report
n = 7

HMH K 5

Community members were invited to complete a yes/no survey, containing some of the major criteria within each of the five categories of the Review Criteria. Comments are included below each response.

Vendor:	**HMH (K-5) (All scoring left blank)**
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?	Very Well
What did we not ask that you feel is important in the decision-making process?	
After viewing all three curriculums [sp], I would vote for HMH because it is teacher-friendly. Standards are covered. Goals are clearly stated for students, it seems engaging, and I believe students would benefit from this curriculum. Text and content represents [sp] people from a wide range of races, ethnicities, and cultures. – Teacher SPS.	

Vendor: **HMH (K-5)**	**Yes**	**No**	**Blank**
1: Standards Alignment (8 criteria)	8	0	0
2: Assessments (6 criteria)	6	0	0
3: Inclusive Educational Practices (6 criteria)	3	2	1
4: Evaluation of Bias Content (7 criteria)	3	4	0
5: Instructional Planning & Support (10 criteria)	7	1	2
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Well
What did we not ask that you feel is important in the decision-making process?			
What materials will come in each kit? Will teachers be asked to purchase their own materials for some lessons? Will students receive student workbook after initial adoption? Will students have access to the online components?			

Vendor: **HMH (K-5)**	**Yes**	**No**	**Blank**
1: Standards Alignment (8 criteria)	1	0	7
2: Assessments (6 criteria)	0	0	6
3: Inclusive Educational Practices (6 criteria)	0	0	6
4: Evaluation of Bias Content (7 criteria)	0	0	7
5: Instructional Planning & Support (10 criteria)	0	0	10
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Well
What did we not ask that you feel is important in the decision-making process?			
The HMH seems easier to follow along to. Very understandable and I love the vocabulary and illustrations as well as the content. The HMH looks more updated than the others in my opinion. The illustrations and vocabulary is K-5 as well. Easy to follow along as being taught in class. My child loves science and she picked the HMH version as well.			

Vendor:	**HMH (K-5) (All scoring left blank)**
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?	Well
What did we not ask that you feel is important in the decision-making process?	
I like this book because, the questions that they give you because it helps me understand it a lot better than the other ones (written by a student)	

Vendor:	**HMH (K-5) (All scoring left blank)**
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?	Well
What did we not ask that you feel is important in the decision-making process?	
I like HMH because: • It has clear objectives for students • student friendly • teacher friendly • covers standards. -- K-2 interventionist	

Vendor:	**HMH (K-5)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	8	0	0
2: Assessments (6 criteria)	6	0	0
3: Inclusive Educational Practices (6 criteria)	6	0	0
4: Evaluation of Bias Content (7 criteria)	7	0	0
5: Instructional Planning & Support (10 criteria)	0	0	10
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Well
What did we not ask that you feel is important in the decision-making process?			
From a quick overview, there seems to be more reading and images displayed in this curriculum. I like the exposure; but am not sure that there is as deep of science wonder. This seems more “traditional.” Is there the hands-on practice kids need? Happy to see Wagnari Maathai! She was in Seattle planting trees, too! It makes me think that this curriculum may highlight pathways for our kids. I think it is ˆ student interest. I like pictures with vocab.			

Vendor:	HMH (K-5)		
	Yes	No	Blank
1: Standards Alignment (8 criteria)	7	1	0
2: Assessments (6 criteria)	0	0	6
3: Inclusive Educational Practices (6 criteria)	4	1	1
4: Evaluation of Bias Content (7 criteria)	3	3	0
5: Instructional Planning & Support (10 criteria)	1	0	9
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Adequately
What did we not ask that you feel is important in the decision-making process?			
This was hands-down my favorite curriculum after the in-person viewing I attended at Nathan Hale HS. However, viewing the online material, it does seem to have some deficits there, and I'm wondering if I am remembering correctly the info about scientists who are not white males and their historical contributions being in the HMH curriculum (or maybe it's in the 6-8th grade level material). That said, I DO recall pictures of a diverse group of kids at the beginning of both K-5 and 6-8 HMH materials inviting all kids in to join the fun. And I really appreciated the message of inclusion and FUN. Science IS fun! While I still like the science and its presentation and the exercises associated with the HMH K-5 curriculum the best, I did not see a lot of gender or racial diversity in the online material. For instance, the voices were nearly 100% male. I think I heard a female voice in the 1st grade material. Seriously, HMH?! Also, a person could be forgiven for assuming the voices are all WHITE males, as none introduced themselves or had accents/other revealing dialects. So I do not believe that this sends the subliminal messages to ALL students that they can BE scientists. Boo. However, and this is kind of a big however, this was the ONLY curriculum that captioned ALL videos. I would think this would help both English language learners AND those with hearing deficits. Between this and the material, HMH is still probably the best in my view, but my opinion has been significantly modified by the poor representation of human diversity in the online materials. Also, engineering is stand-alone, which I gather is not the ideal of the NGSS, based on some questions. And again, failure here seems inexplicable, as there are thousands of examples of how science uses engineering products or science has informed an engineering project by identifying the environmental (or other) problem in need of an engineered solution. Finally, this was the only curriculum that didn't have maddeningly bad online organization.			

The following are included on each report, as they include only general comments (no scores)

Vendor:	[Survey not completed, only comments]
What did we not ask that you feel is important in the decision-making process?	
Amplify: I noticed that several of the anchoring phenomena were introduced via video – no other info in books, or PDF, etc. Example: maglev train video. If the technology doesn't work, the lesson is impossible. Two of both examples I looked at. Also, the videos were pretty hokey. TCI: The equivalent lesson in TCI has pictures of a maglev train and description in the text: easier to work from. At K-level of forces: Amplify and TCI each had errors (more like reinforcing misconceptions) but they were different. The Amplify website seems to have problems with too many people accessing it at the same time. Amplify K-5: I notice the teacher guide is <u>extremely</u> scripted, to the point of complete sentences to say within a given slide. Example: Energy conversion, 4th grade Lesson 1.1. Teacher guide even says, "hold up a copy of…" Superscripted!	

Vendor:	[Survey not completed, only comments]
What did we not ask that you feel is important in the decision-making process?	
K-5: Overall I would recommend HMH as a top choice, with TCI second. I chose HMH because of the topics, layout/organization of materials, and quality of assessments. AmplifyScience seemed too onerous for ease of educator and student use. 6-8: HMH #1, AmplifyScience #2, TCI #3 For same reasons as K-5 – AmplifyScience is still hard/onerous, but better topic selection.	

Vendor:	[Survey not completed, only comments]
What did we not ask that you feel is important in the decision-making process?	
I think balancing technology use, hands-on experiments, and meaningful (respectful, but challenging) dialogue is at the crux of authentic science education. It is reasonable to assume that every teacher is a bit different; each classroom dynamic/culture is unique – and yet, what are the <u>shared</u> experiences that can <u>connect</u> Seattle Public Schools students the most?... I think a resource's "interface" – whether a <u>book</u>, <u>mobile app,</u> or <u>computer</u> <u>program</u> software is important, but certainly is just a part of the important equation: teacher ←→ student engagement; dialogue addressing different learning styles; <u>taking</u> the <u>time</u> to be bold/courageous to address ethical issues in science… It's like a recipe → if you don't have the ingredients, perhaps it's not the end of the world; adapt, be flexible, use another resource, or create it yourself (??)…	

Vendor:	[Survey not completed, only comments]
What did we not ask that you feel is important in the decision-making process?	
Thanks for helping me dig through your new science materials yesterday. I'll share some observations below, but the most important conclusion I came away with is that I couldn't possibly tell how well each of these programs works without trying them; if I were to decide between the programs, I would rely almost entirely on the experiences of the teachers who have tested the materials. All that said, it seems like any of the three programs would provide a reasonable starting point, and would need to be customized over time as you figure out which parts work and which do not. From that standpoint, I thought the Amplify materials looked like a much better starting point because of the depth with which they describe their pedagogical strategy and explain their lesson design rationale. In contrast, the HMH and TCI materials do a good job of walking you through each lesson, but without much guidance should you want to stray from the plan. I also found that Amplify provided much more scientific background information (very clearly written as well); I imagine this would be a great help to non-specialist teachers. The HMH and TCI materials seemed more similar to each other in their approach, although personally I found myself frequently confused reading through HMHs materials (both the teacher guide and the workbook). Compared to Amplify, TCI seemed to cover topics with less depth and more repetition; I can see this being good or bad depending on the situation, but again it might be easier for teachers to decide on the appropriate depth for their classes if they have the higher-depth material available as a starting point. My overall ranking: #1 Amplify, #2 TCI, #3 HMH.	

Community Input Form Summary Report
n = 2

TCI K 5

Community members were invited to complete a yes/no survey, containing some of the major criteria within each of the five categories of the Review Criteria. Comments are included below each response.

Vendor:	**TCI (K-5)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	3	5	0
2: Assessments (6 criteria)	2	1	3
3: Inclusive Educational Practices (6 criteria)	3	3	0
4: Evaluation of Bias Content (7 criteria)	3	2	2
5: Instructional Planning & Support (10 criteria)	2	8	0
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Poorly
What did we not ask that you feel is important in the decision-making process?			N/A

Vendor:	**TCI (K-5)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	6	2	0
2: Assessments (6 criteria)	0	0	6
3: Inclusive Educational Practices (6 criteria)	4	2	0
4: Evaluation of Bias Content (7 criteria)	4	1	2
5: Instructional Planning & Support (10 criteria)	1	0	9
How well do you feel this program meets the high expectations we have set to provide all our students with an equitable, authentic science experience?			Well
What did we not ask that you feel is important in the decision-making process?			
The TCI curriculum frustrates me. It has a lot of good info in it and hands down, the best representation of diversity through pictures and videos, but the web site was the worst organized and most difficult to navigate in my experience. Also, while science to support society and public decision making is an incredibly important thing to teach students about, I was really uncomfortable with one of the lessons that I spent some time with, which literally had students making signs with slogans and encouraging the kids to chant the slogans they came up with. While "fun," there's a line between "informing" and "advocacy," and I don't really think the lesson I'm referring to fell on the appropriate side of that line for a science lesson. For these reasons (disorganization, inappropriate content of some lessons), I cannot really support this curriculum candidate.			

The following are included on each report, as they include only general comments (no scores)

Vendor:	**[Survey not completed, only comments]**
What did we not ask that you feel is important in the decision-making process?	
I think balancing technology use, hands-on experiments, and meaningful (respectful, but challenging) dialogue is at the crux of authentic science education. It is reasonable to assume that every teacher is a bit different; each classroom dynamic/culture is unique – and yet, what are the shared experiences that can connect Seattle Public Schools students the most?... I think a resource's "interface" – whether a book, mobile app, or computer program software is important, but certainly is just a part of the important equation: teacher ←→ student engagement; dialogue addressing different learning styles; taking the time to be bold/courageous to address ethical issues in science... It's like a recipe → if you don't have the ingredients, perhaps it's not the end of the world; adapt, be flexible, use another resource, or create it yourself (??)...	

Vendor:	**[Survey not completed, only comments]**
What did we not ask that you feel is important in the decision-making process?	
Amplify: I noticed that several of the anchoring phenomena were introduced via video – no other info in books, or PDF, etc. Example: maglev train video. If the technology doesn't work, the lesson is impossible. Two of both examples I looked at. Also, the videos were pretty hokey. TCI: The equivalent lesson in TCI has pictures of a maglev train and description in the text: easier to work from. At K-level of forces: Amplify and TCI each had errors (more like reinforcing misconceptions) but they were different. The Amplify website seems to have problems with too many people accessing it at the same time. Amplify K-5: I notice the teacher guide is extremely scripted, to the point of complete sentences to say within a given slide. Example: Energy conversion, 4th grade Lesson 1.1. Teacher guide even says, "hold up a copy of..." Superscripted!	

Vendor:	**[Survey not completed, only comments]**
What did we not ask that you feel is important in the decision-making process?	
K-5: Overall I would recommend HMH as a top choice, with TCI second. I chose HMH because of the topics, layout/organization of materials, and quality of assessments. AmplifyScience seemed too onerous for ease of educator and student use. 6-8: HMH #1, AmplifyScience #2, TCI #3 For same reasons as K-5 – AmplifyScience is still hard/onerous, but better topic selection.	

Vendor:	[Survey not completed, only comments]
What did we not ask that you feel is important in the decision-making process?	
Thanks for helping me dig through your new science materials yesterday. I'll share some observations below, but the most important conclusion I came away with is that I couldn't possibly tell how well each of these programs works without trying them; if I were to decide between the programs, I would rely almost entirely on the experiences of the teachers who have tested the materials. All that said, it seems like any of the three programs would provide a reasonable starting point, and would need to be customized over time as you figure out which parts work and which do not. From that standpoint, I thought the Amplify materials looked like a much better starting point because of the depth with which they describe their pedagogical strategy and explain their lesson design rationale. In contrast, the HMH and TCI materials do a good job of walking you through each lesson, but without much guidance should you want to stray from the plan. I also found that Amplify provided much more scientific background information (very clearly written as well); I imagine this would be a great help to non-specialist teachers. The HMH and TCI materials seemed more similar to each other in their approach, although personally I found myself frequently confused reading through HMHs materials (both the teacher guide and the workbook). Compared to Amplify, TCI seemed to cover topics with less depth and more repetition; I can see this being good or bad depending on the situation, but again it might be easier for teachers to decide on the appropriate depth for their classes if they have the higher-depth material available as a starting point. My overall ranking: #1 Amplify, #2 TCI, #3 HMH.	

Attachment H
K-5 Science Adoption
Field Test Schools and Teachers

Vendor: AmplifyScience

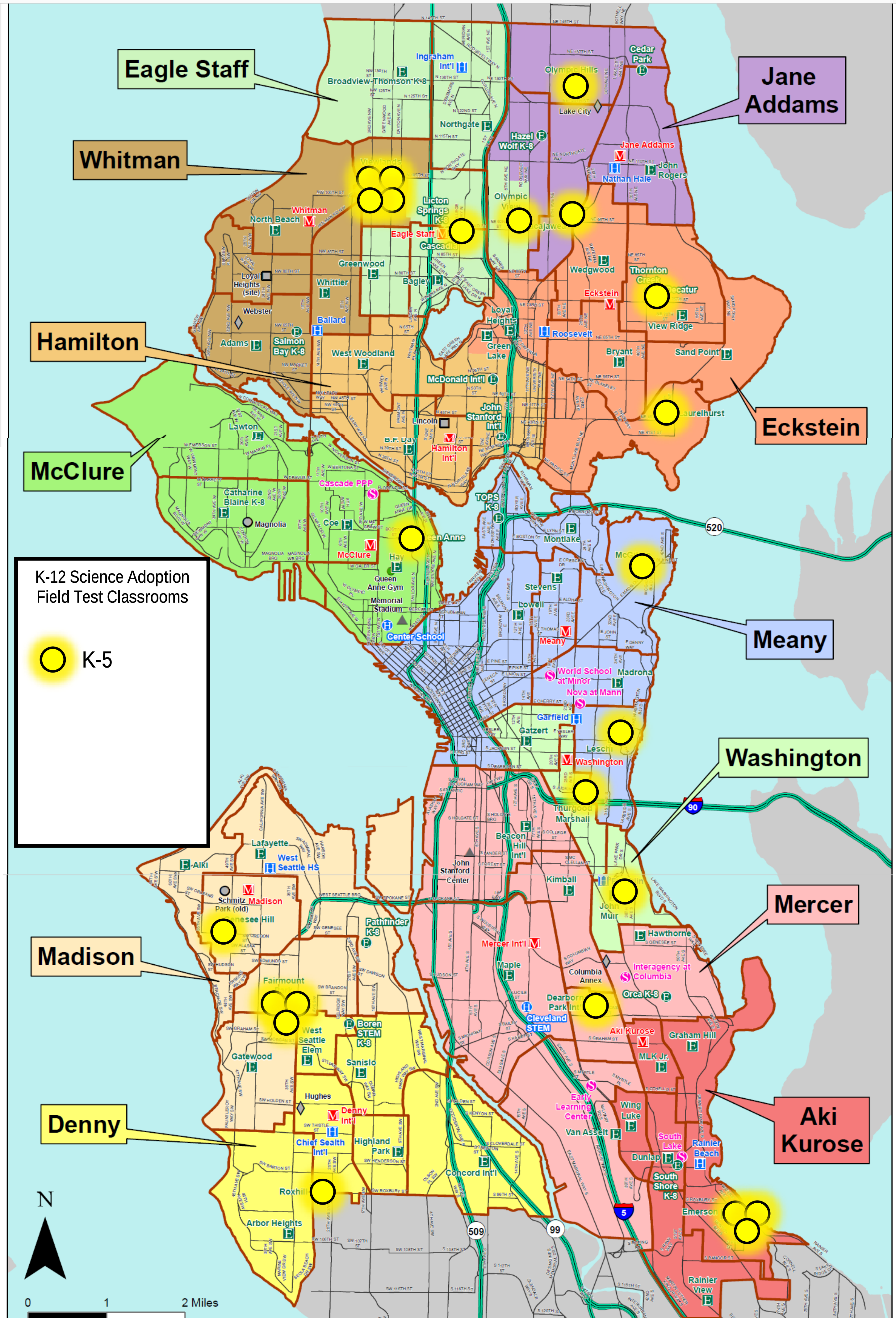
School	Demographics	Grade	# of Students
Fairmount Park ES	60%white, 12.5% low income 6%EL	1	21
Fairmount Park ES	60%white, 12.5%low income 6%EL	1	21
Viewlands ES	49%white 37% low income 21.5%EL	1	22
Viewlands ES	49%white 37% low income 21.5%EL	1	23
Viewlands ES	49%white 37% low income 21.5%EL	1	22
Fairmount Park ES	60%white, 12.5%low income 6%EL	4	29
John Muir ES	18.5%white 66%low income 36%EL	4	24
Laurelhurst ES	64%white 23.3%low income 11.5%EL	4	30
Leschi ES	33%white 44%low income 13%EL	4	38
Viewlands ES	49%white 37% low income 21.5%EL	4	27

Vendor: HMH

School	Demographics	Grade	# of Students
Emerson ES	6.6%white 66% low income 42%%EL	1	18
Emerson ES	6.6%white 66% low income 42%%EL	1	23
Emerson ES	6.6%white 66% low income 42%%EL	1	18
Olympic Hills ES	26%white 69% low income 37%EL	1	21
Decatur ES	56%white 1.7% low income 1%EL	4	51
Licton Springs K-8	40%white 51% low income 7%EL	4	24
Roxhill ES	15%white 75% low income 31%EL	4	41

Vendor: TCI

School	Demographics	Grade	# of Students
Genesee Hill ES	75.5%white 9%low income 2%EL	1	21
McGilvra ES	68%white 8.5%low income 1.2%EL	1	29
Sacajawea ES	54%white 25%low income 10.5%EL	1	18
Thurgood Marshall ES	39%white 33%low income 8.7%EL	1	21
Dearborn Park ES	9%white 69%low income 36%EL	4	24
Olympic View ES	52%white 34.5%low income 17.5%EL	4	84
Queen Anne ES	72.4%white 8%low income 4%EL	4	28


K-12 Science Adoption
Field Test Classrooms
K-5
Eagle Staff
Jane Addams
Whitman
Hamilton
Eckstein
McClure
Meany
Washington
Mercer
Madison
Aki Kurose
Denny
N
0
1
2 Miles

ATTACHMENT I: TABLE OF CONTENTS

Attachment I.1: Field Test Summary Scores

On March 23, 2019, the Adoption Committee worked in small teams to review additional data sources generated from the Field Test stage for evidence of alignment with the Science Instructional Materials Review Criteria, including post-observation teacher interviews, student focus group interviews, end-of-unit student attribute surveys, and student growth data as measured by pre- and post-unit assessments. Combining this new data with their notes from the Field Test teacher panels, the Committee members collaborated in their teams to collectively synthesize and review all the data for each program to reach consensus on a Field Test score between 0 and 4 in each of the five categories detailed in the Science Instructional Materials Review Criteria (see Attachment E). The score for each category was weighted as previously determined on the Review Criteria, then tallied and reported as a consensus score. These scores are provided below.

Results: Amplify Field Test

Team	Consensus Score
Team A	75.0
Team B	57.7
Team C	61.0
Team D	70.0
Team E	42.9
Team F	59.8
Team G	45.5
Average	**58.8**

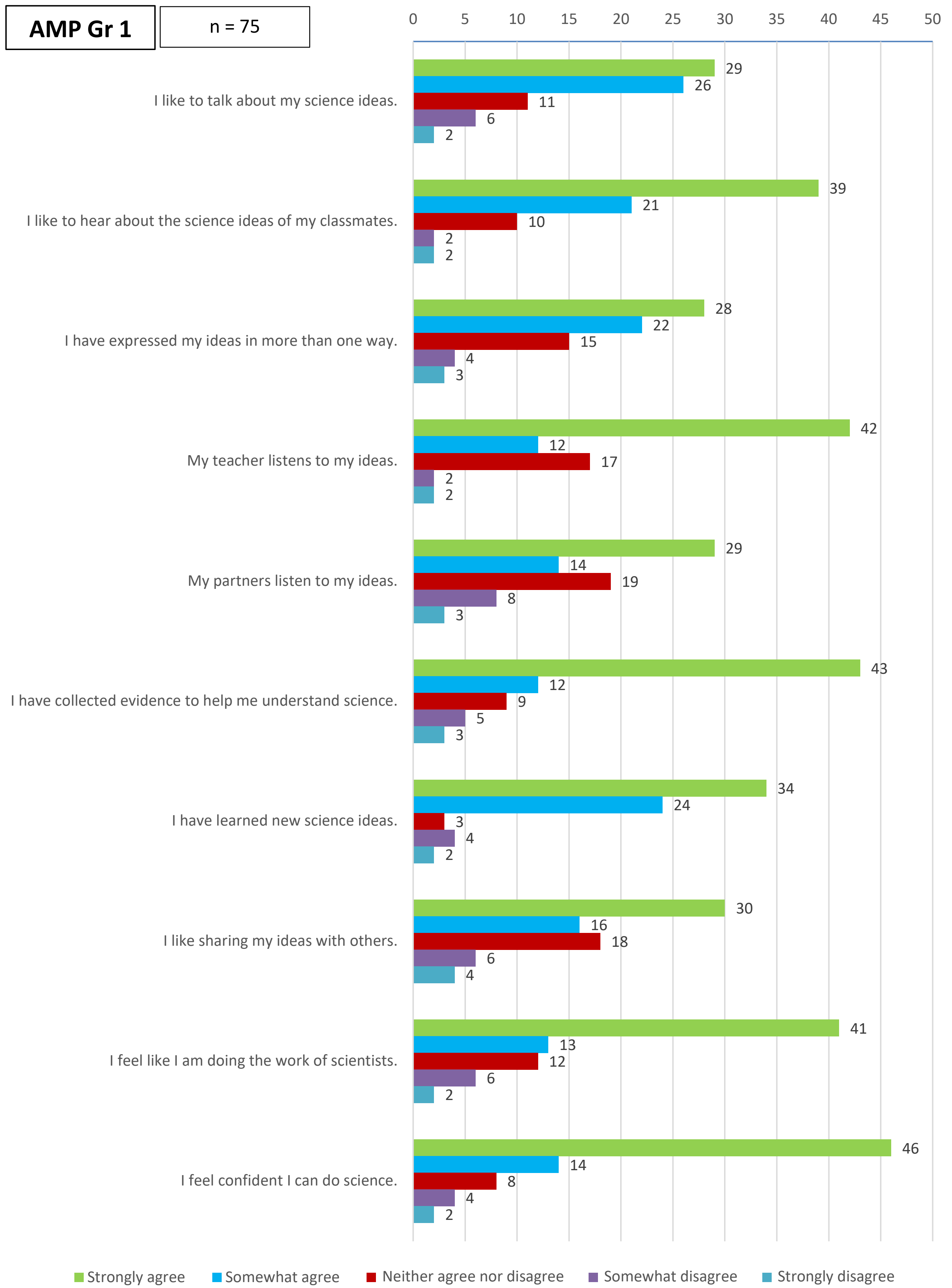
Results: HMH Field Test

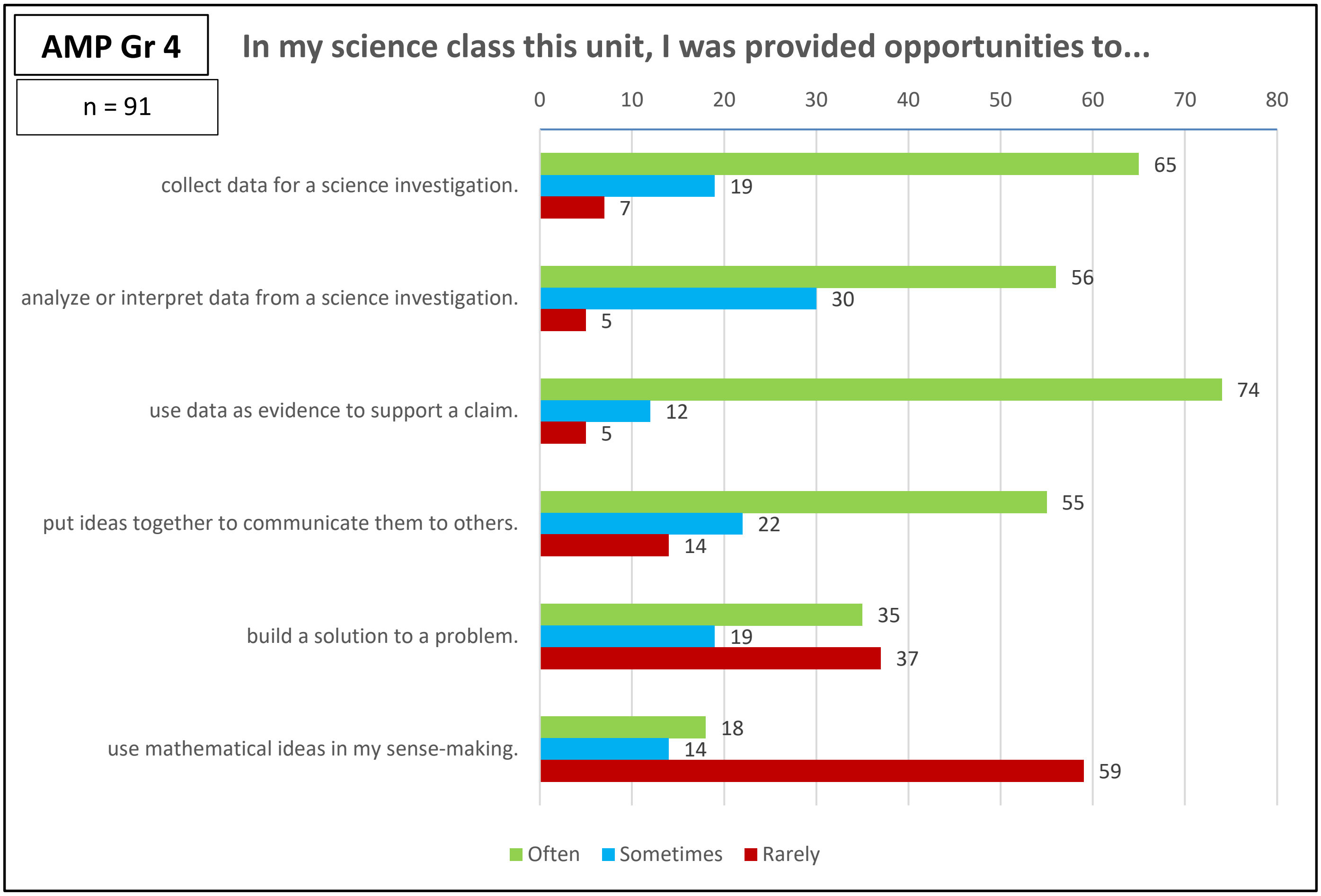
Team	Consensus Score
Team A	60.0
Team B	76.6
Team C	65.0
Team D	69.5
Team E	94.5
Team F	58.6
Team G	72.1
Average	**70.9**

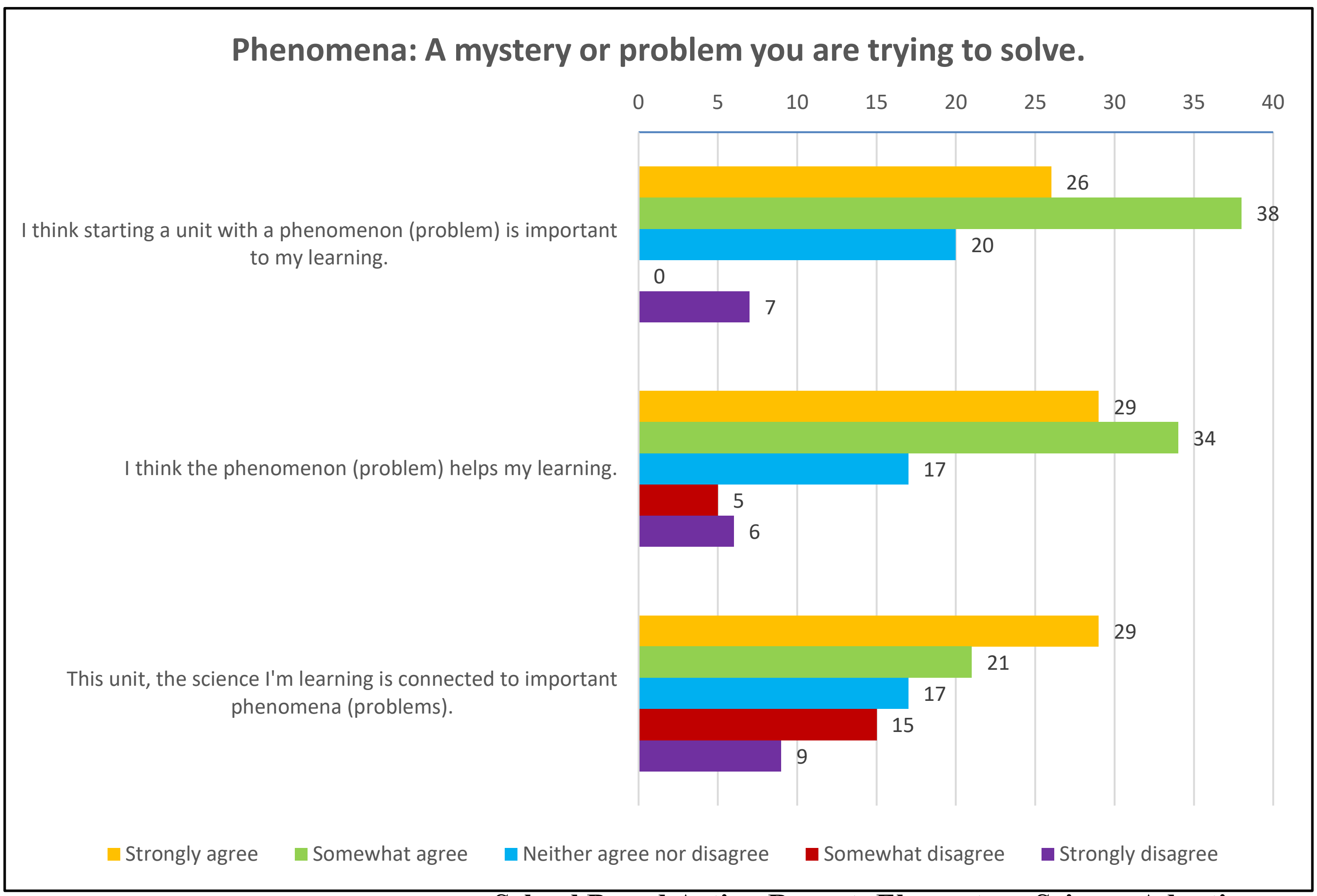
Results: TCI Field Test

Team	**Consensus Score**
Team A	40.0
Team B	52.5
Team C	20.0
Team D	34.8
Team E	40.0
Team F	30.7
Team G	45.0
Average	**37.6**

Attachment I.2: Student End-of-Unit Attribute Surveys

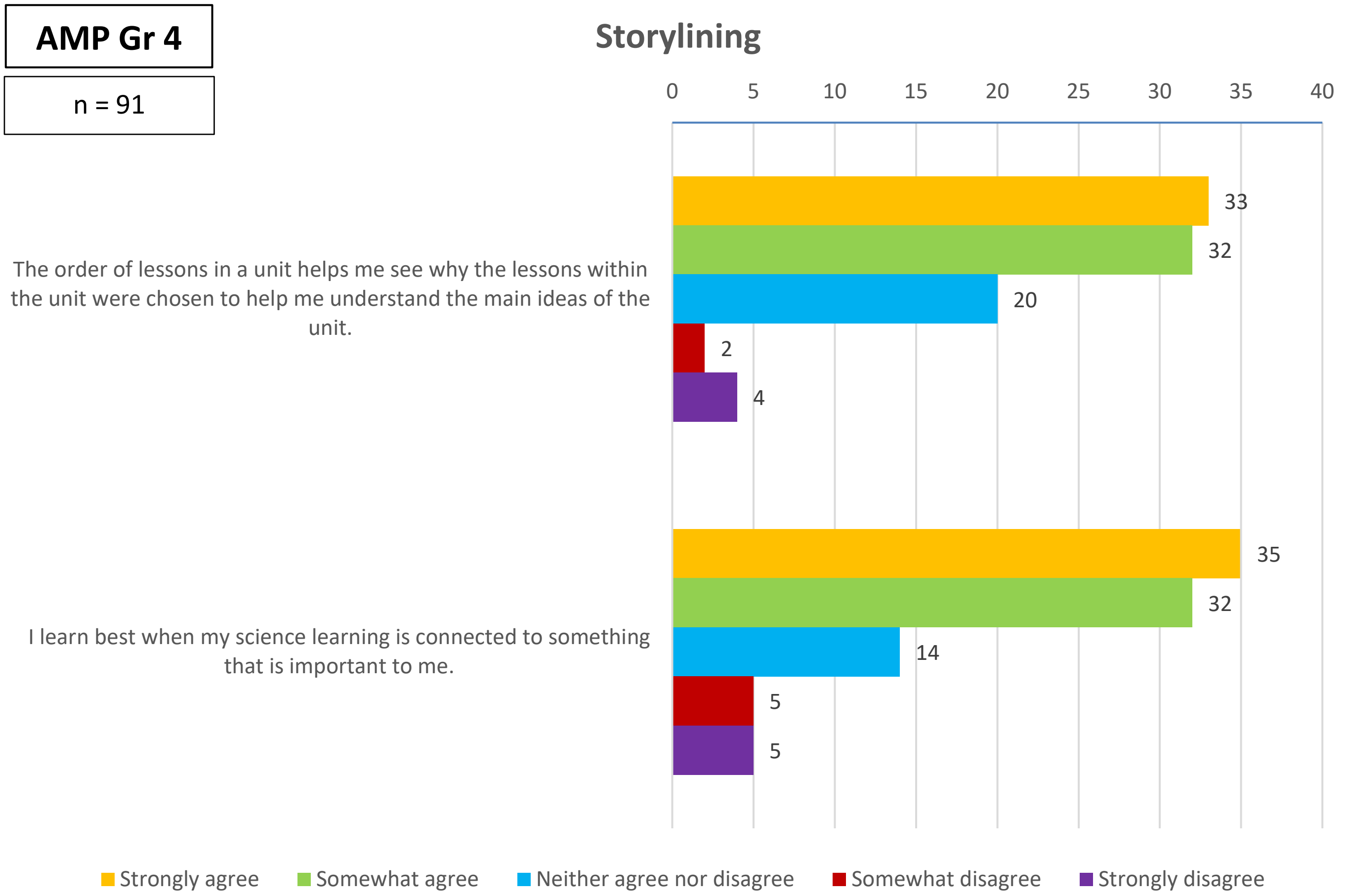



AMP Gr 4
n = 91
In my science class this unit, I was provided opportunities to...
0
10
20
30
40
50
60
70
80
collect data for a science investigation.
65
19
7
analyze or interpret data from a science investigation.
56
30
5
use data as evidence to support a claim.
74
12
5
put ideas together to communicate them to others.
55
22
14
build a solution to a problem.
35
19
37
use mathematical ideas in my sense-making.
18
14
59
Often
Sometimes
Rarely

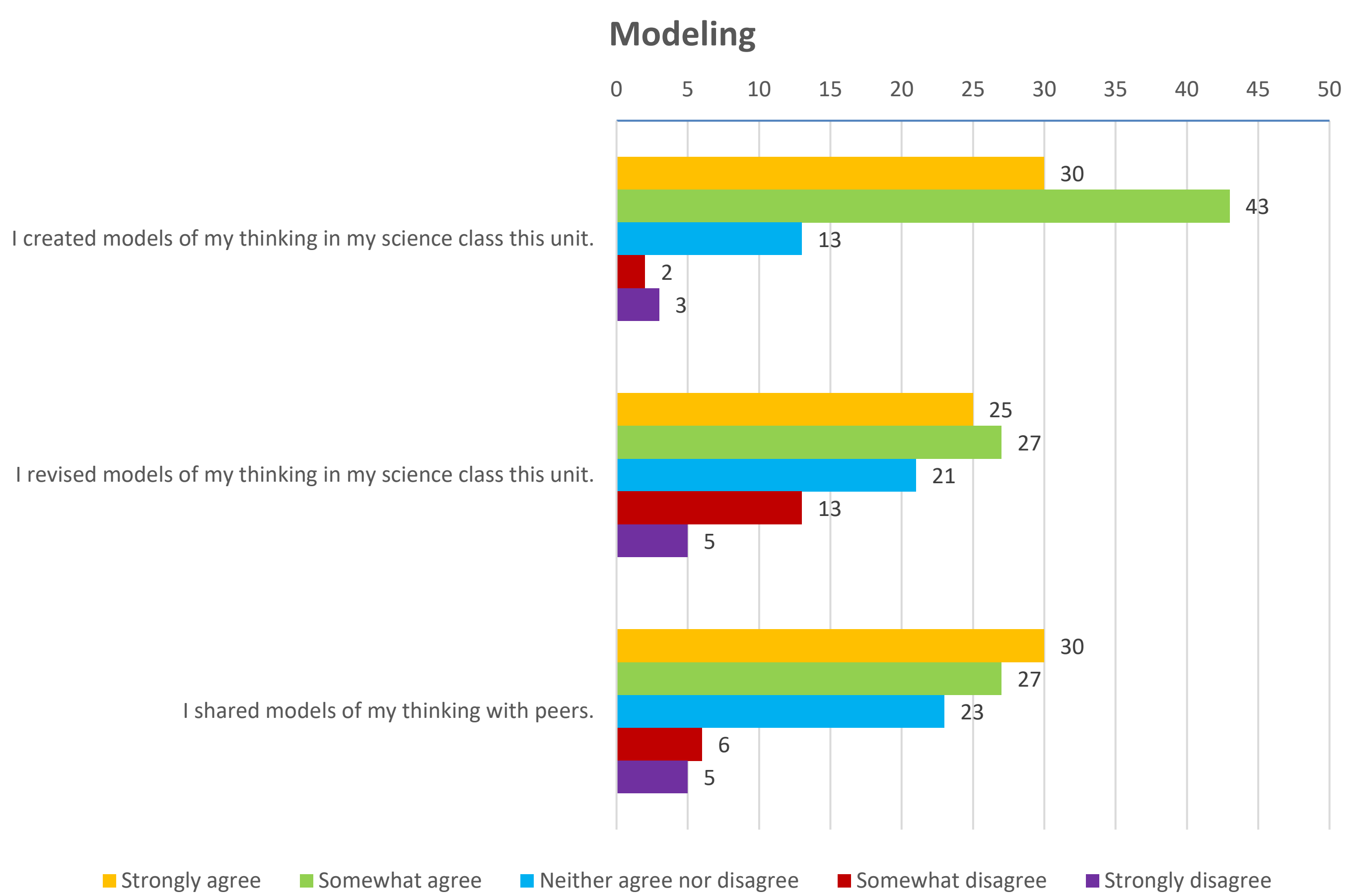

Phenomena: A mystery or problem you are trying to solve.
0
5
10
15
20
25
30
35
40
I think starting a unit with a phenomenon (problem) is important to my learning.
26
38
20
0
7
I think the phenomenon (problem) helps my learning.
29
34
17
5
6
This unit, the science I'm learning is connected to important phenomena (problems).
29
21
17
15
9
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

AMP Gr 4

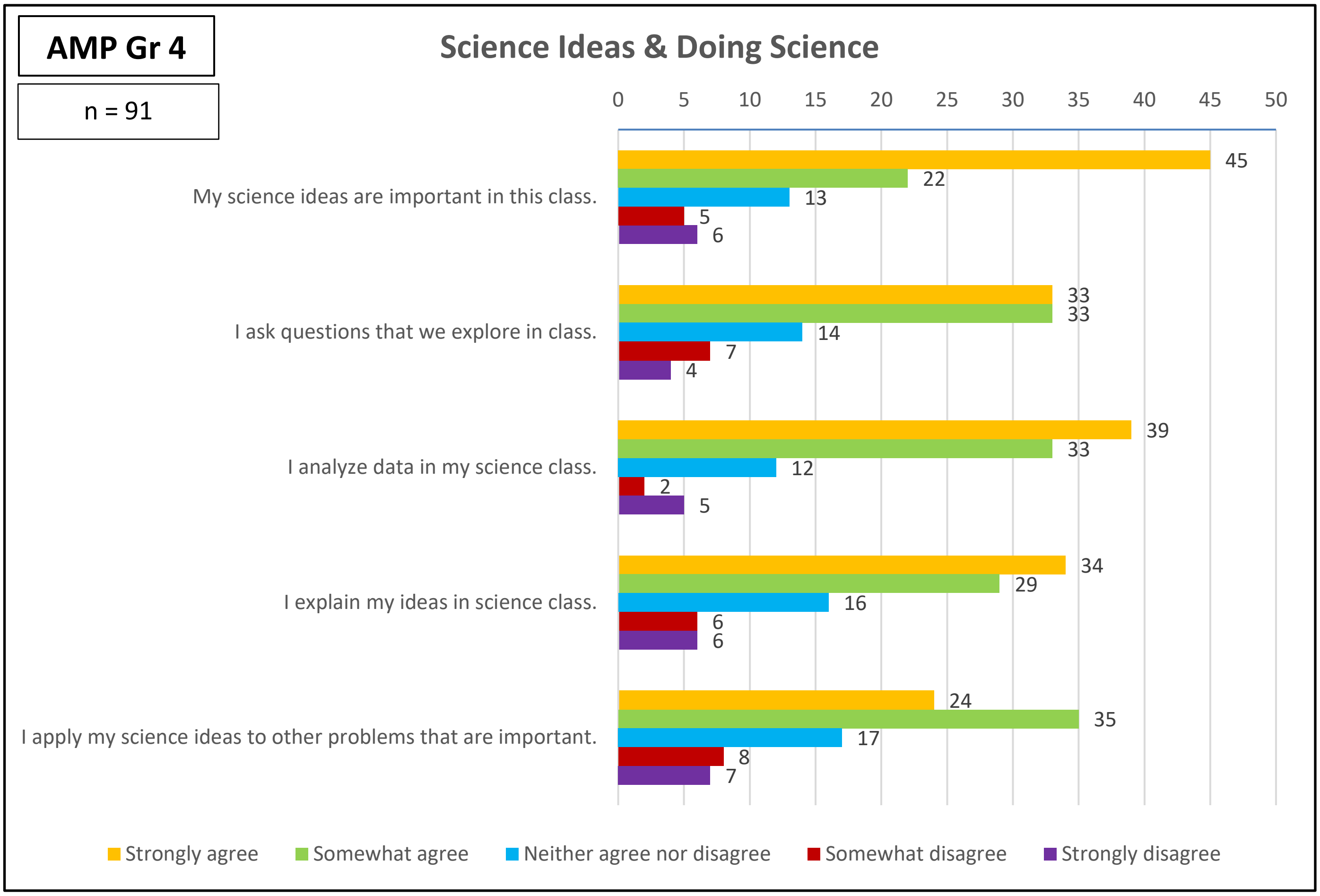
n = 91

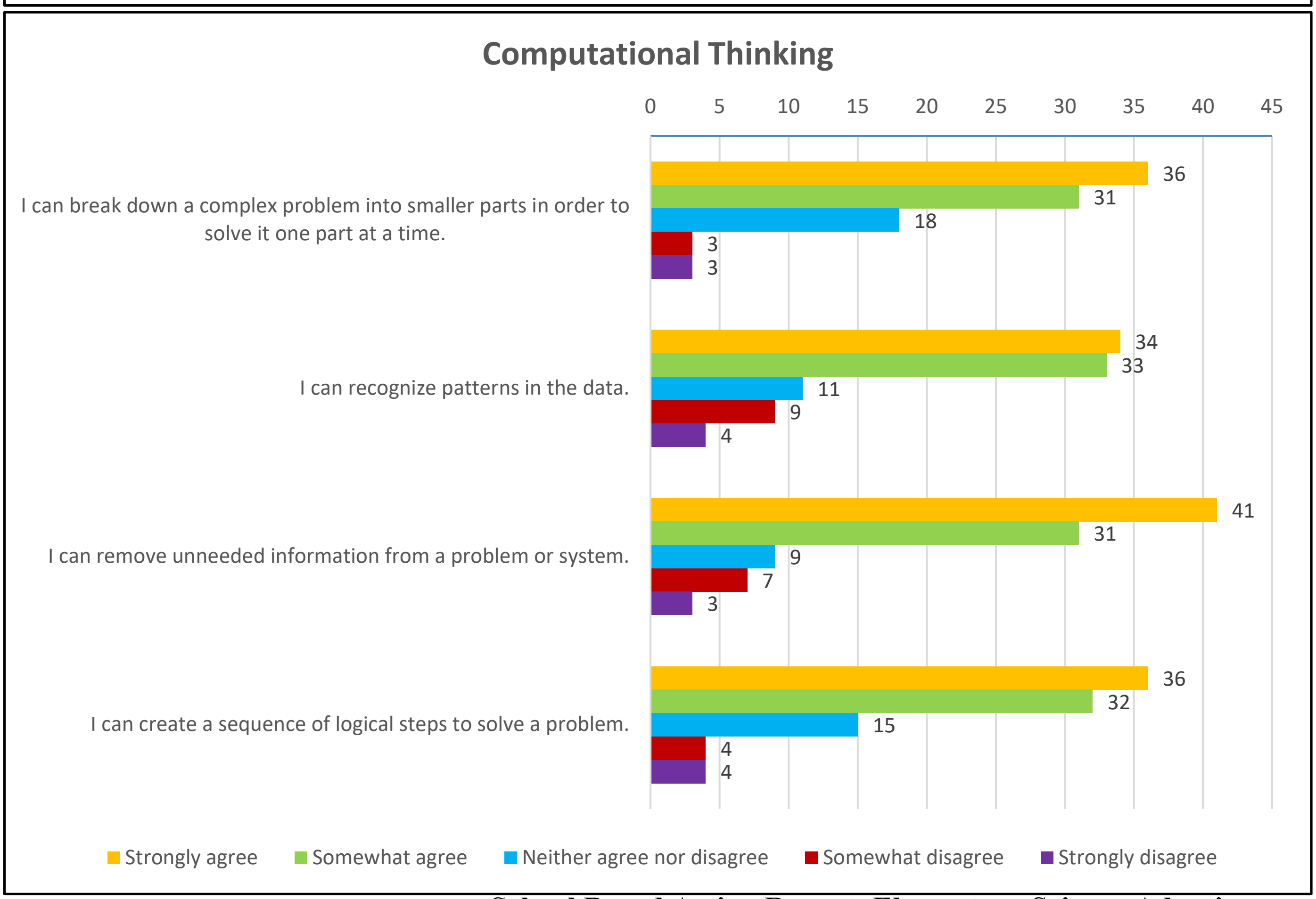


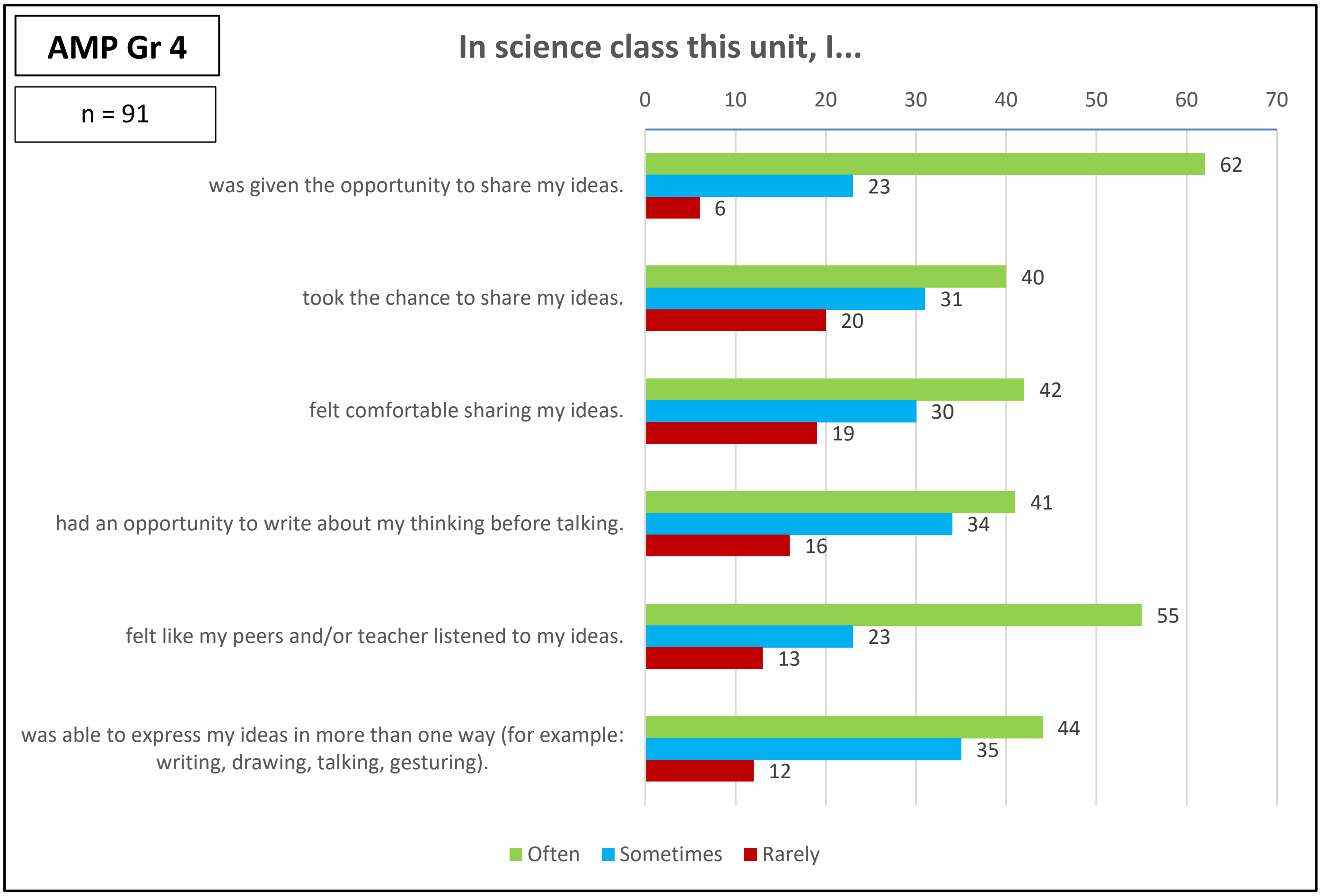
Storylining
0
5
10
15
20
25
30
35
40
The order of lessons in a unit helps me see why the lessons within the unit were chosen to help me understand the main ideas of the unit.
33
32
20
2
4
I learn best when my science learning is connected to something that is important to me.
35
32
14
5
5
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

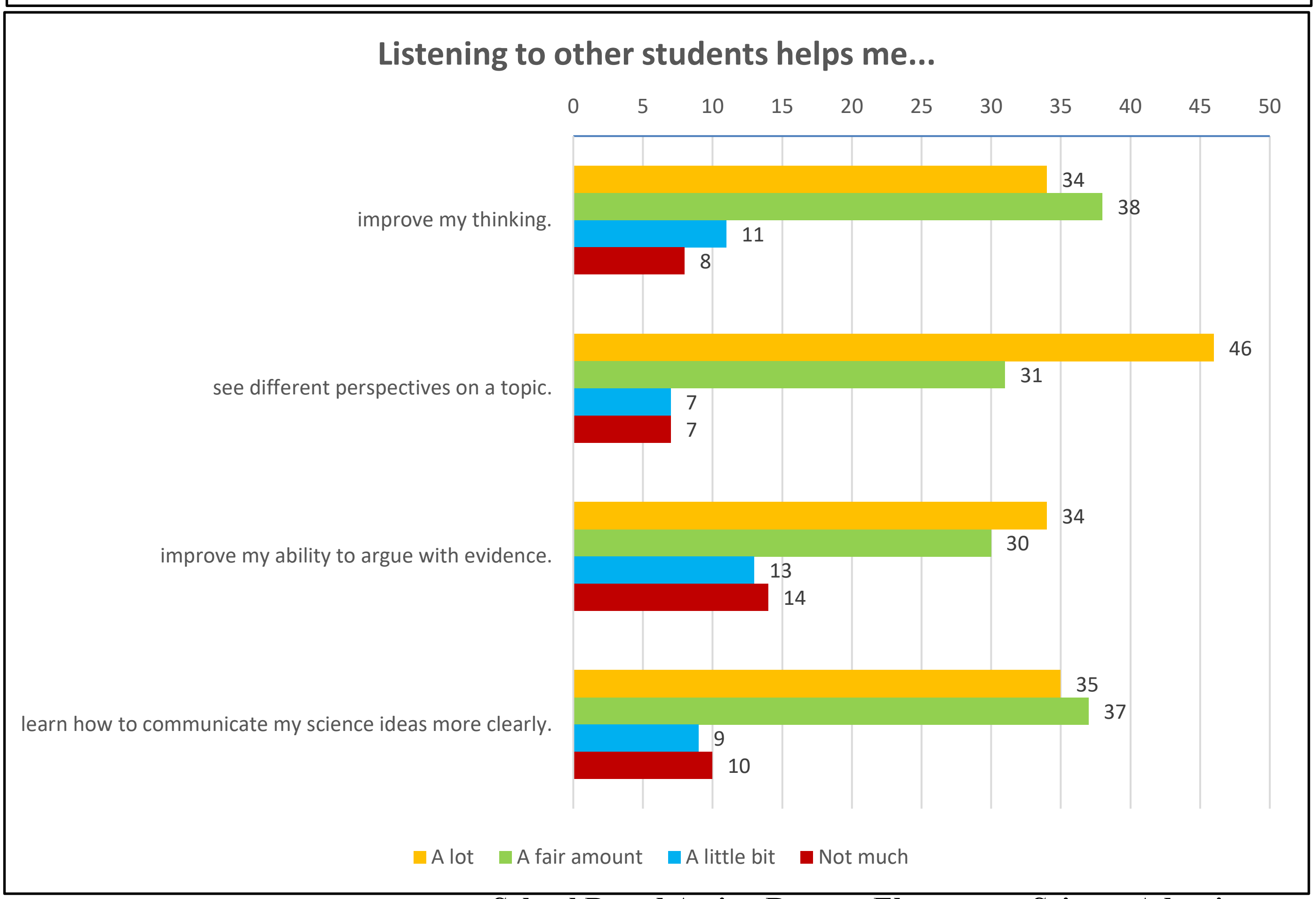


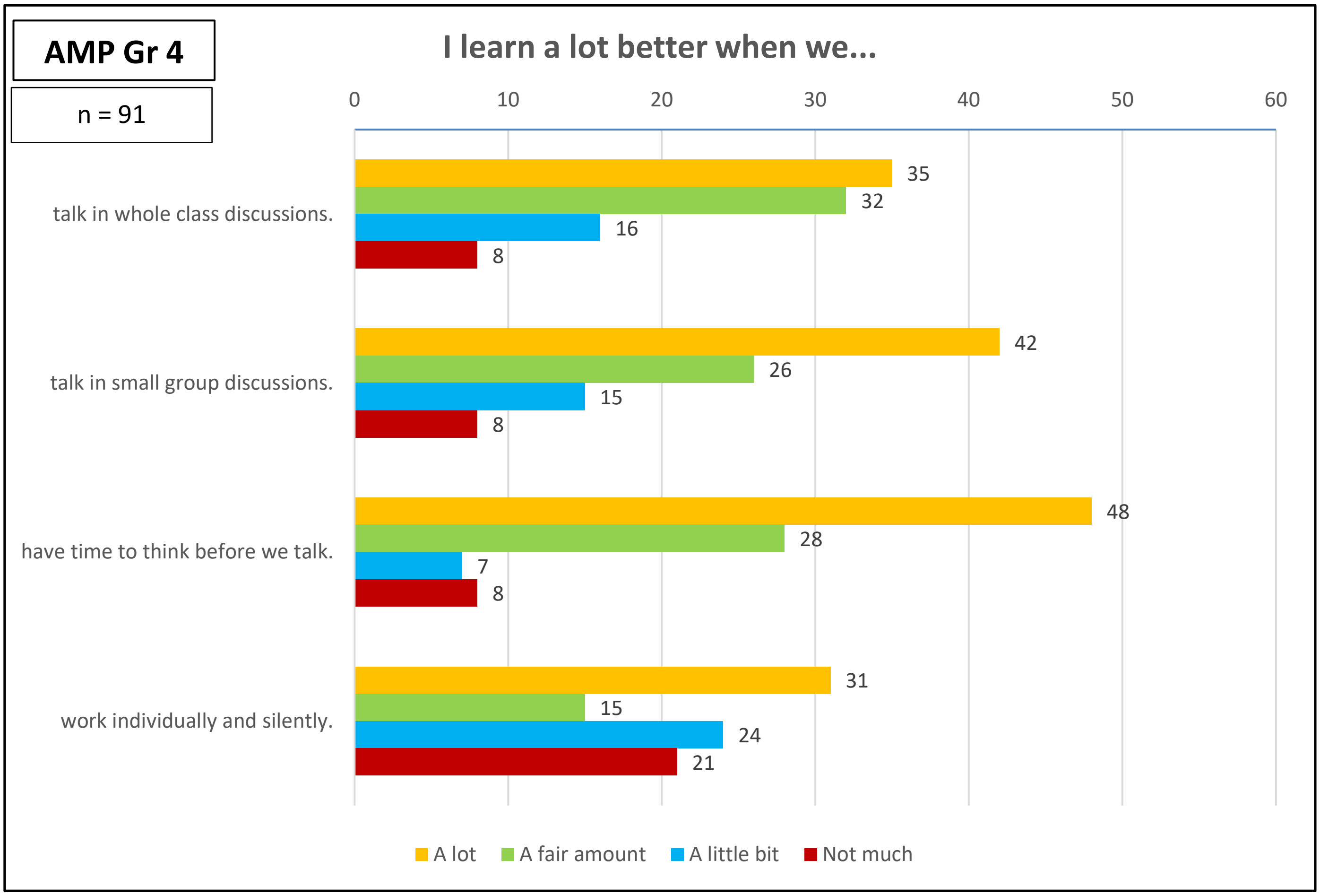
Modeling
0
5
10
15
20
25
30
35
40
45
50
I created models of my thinking in my science class this unit.
30
43
13
2
3
I revised models of my thinking in my science class this unit.
25
27
21
13
5
I shared models of my thinking with peers.
30
27
23
6
5
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

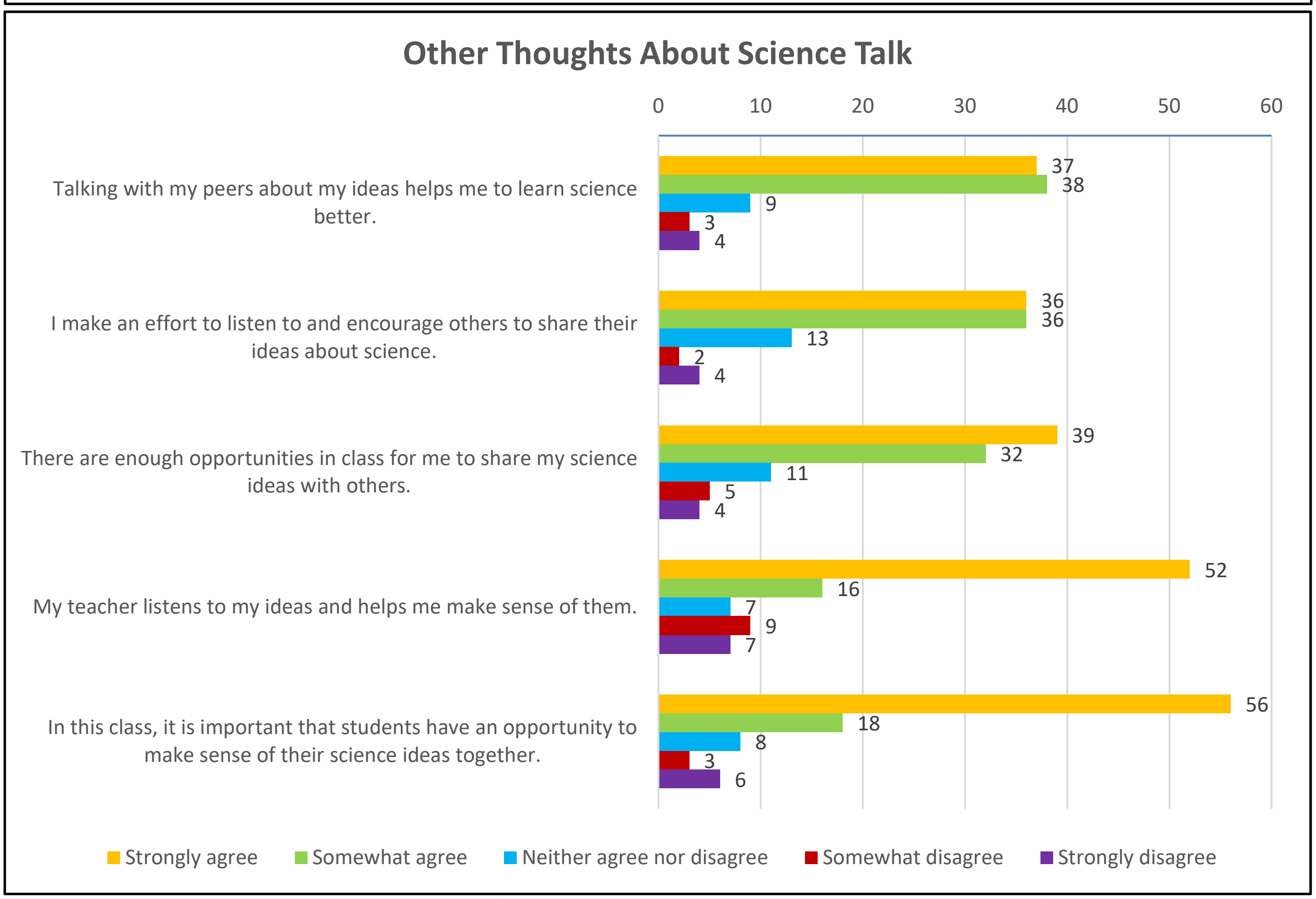

AMP Gr 4
n = 91
Science Ideas & Doing Science
0 5 10 15 20 25 30 35 40 45 50
My science ideas are important in this class.
45
22
13
5
6
I ask questions that we explore in class.
33
33
14
7
4
I analyze data in my science class.
39
33
12
2
5
I explain my ideas in science class.
34
29
16
6
6
I apply my science ideas to other problems that are important.
24
35
17
8
7
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

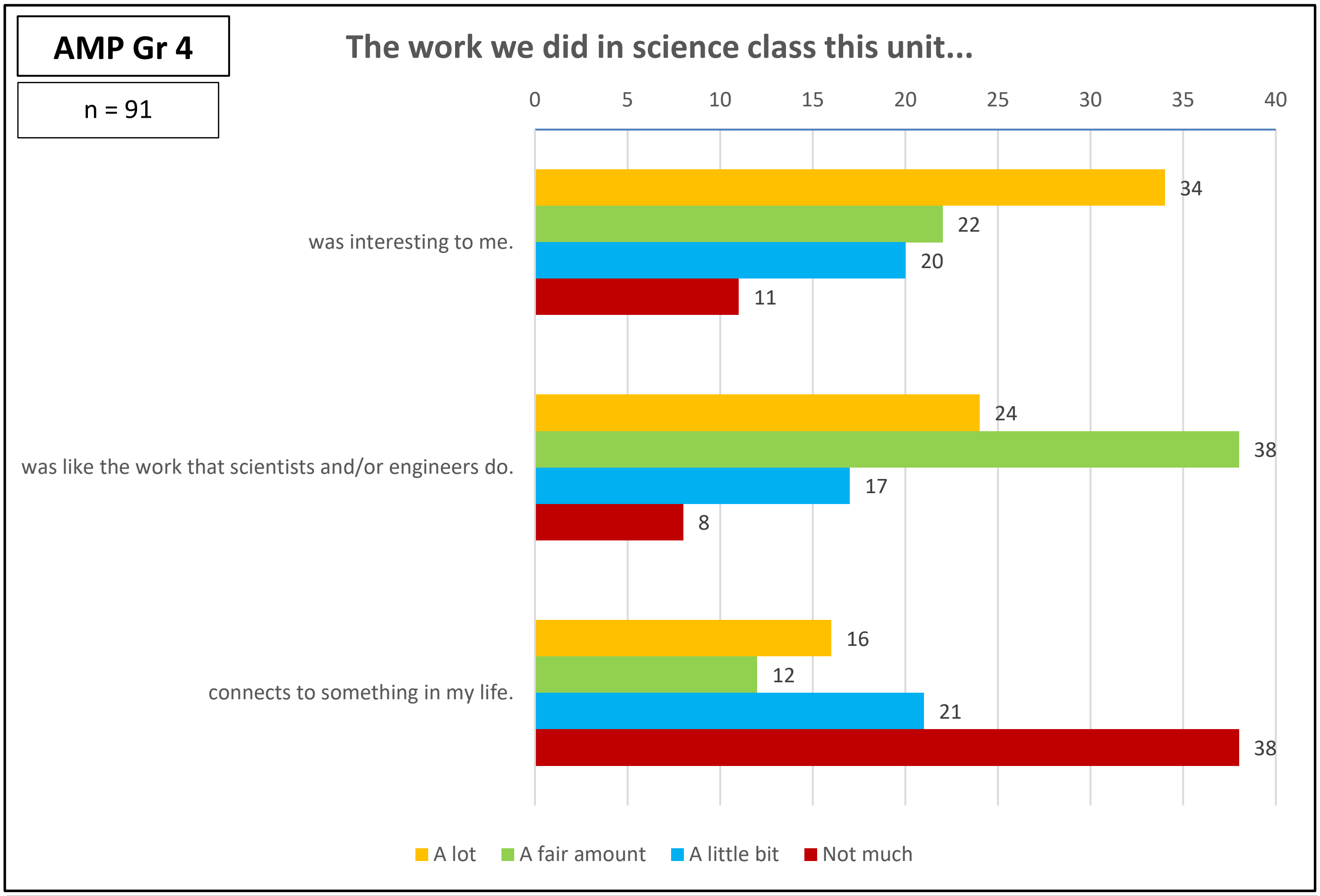

Computational Thinking
0 5 10 15 20 25 30 35 40 45
I can break down a complex problem into smaller parts in order to solve it one part at a time.
36
31
18
3
3
I can recognize patterns in the data.
34
33
11
9
4
I can remove unneeded information from a problem or system.
41
31
9
7
3
I can create a sequence of logical steps to solve a problem.
36
32
15
4
4
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


AMP Gr 4
n = 91
In science class this unit, I...
0
10
20
30
40
50
60
70
was given the opportunity to share my ideas.
62
23
6
took the chance to share my ideas.
40
31
20
felt comfortable sharing my ideas.
42
30
19
had an opportunity to write about my thinking before talking.
41
34
16
felt like my peers and/or teacher listened to my ideas.
55
23
13
was able to express my ideas in more than one way (for example: writing, drawing, talking, gesturing).
44
35
12
Often
Sometimes
Rarely

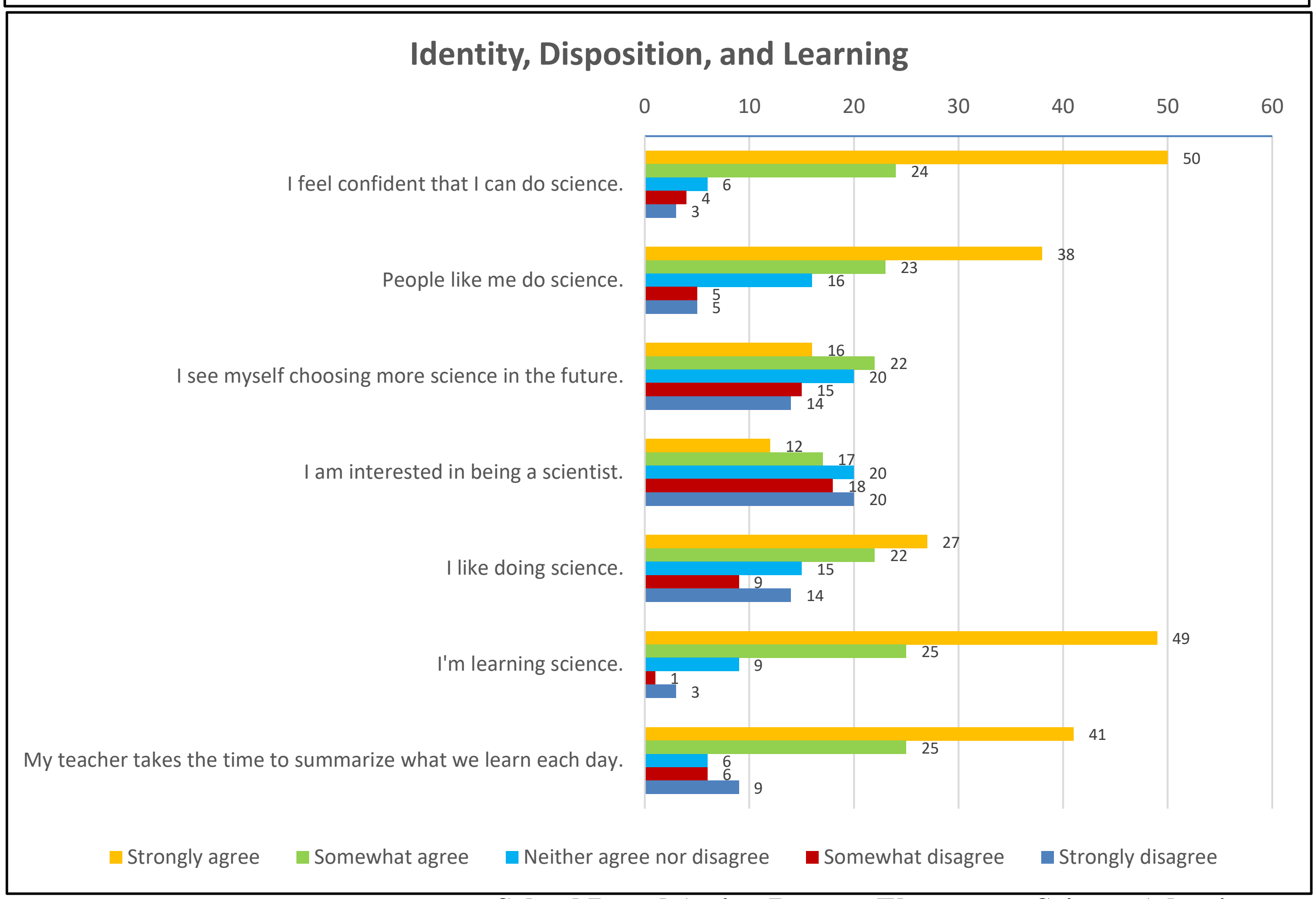

Listening to other students helps me...
0
5
10
15
20
25
30
35
40
45
50
improve my thinking.
34
38
11
8
see different perspectives on a topic.
46
31
7
7
improve my ability to argue with evidence.
34
30
13
14
learn how to communicate my science ideas more clearly.
35
37
9
10
A lot
A fair amount
A little bit
Not much


AMP Gr 4
n = 91
I learn a lot better when we...
talk in whole class discussions.
35
32
16
8
talk in small group discussions.
42
26
15
8
have time to think before we talk.
48
28
7
8
work individually and silently.
31
15
24
21
A lot
A fair amount
A little bit
Not much


Other Thoughts About Science Talk
Talking with my peers about my ideas helps me to learn science better.
37
38
9
3
4
I make an effort to listen to and encourage others to share their ideas about science.
36
36
13
2
4
There are enough opportunities in class for me to share my science ideas with others.
39
32
11
5
4
My teacher listens to my ideas and helps me make sense of them.
52
16
7
9
7
In this class, it is important that students have an opportunity to make sense of their science ideas together.
56
18
8
3
6
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree



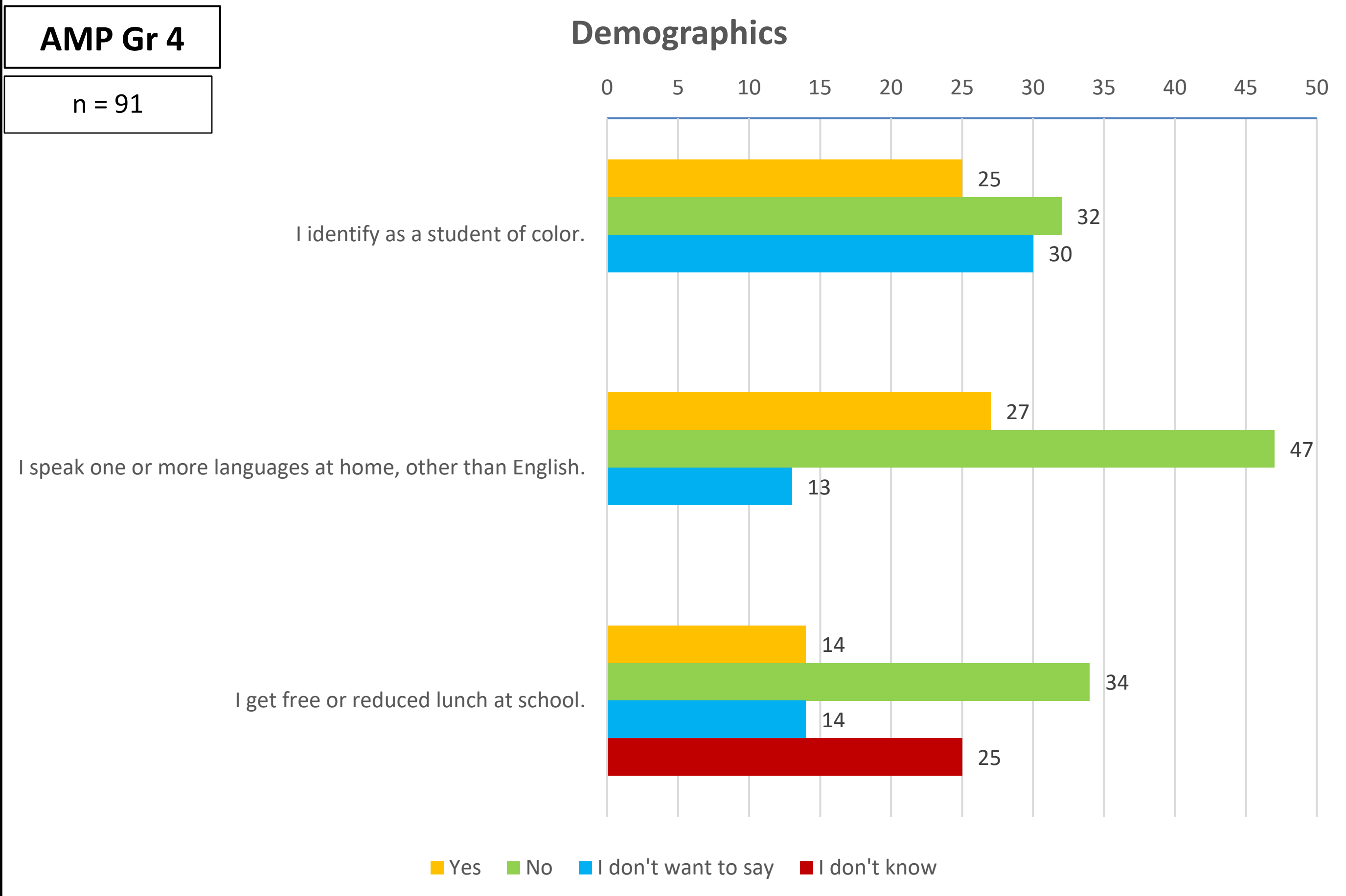
AMP Gr 4
n = 91
The work we did in science class this unit...
0
5
10
15
20
25
30
35
40
was interesting to me.
34
22
20
11
was like the work that scientists and/or engineers do.
24
38
17
8
connects to something in my life.
16
12
21
38
A lot
A fair amount
A little bit
Not much

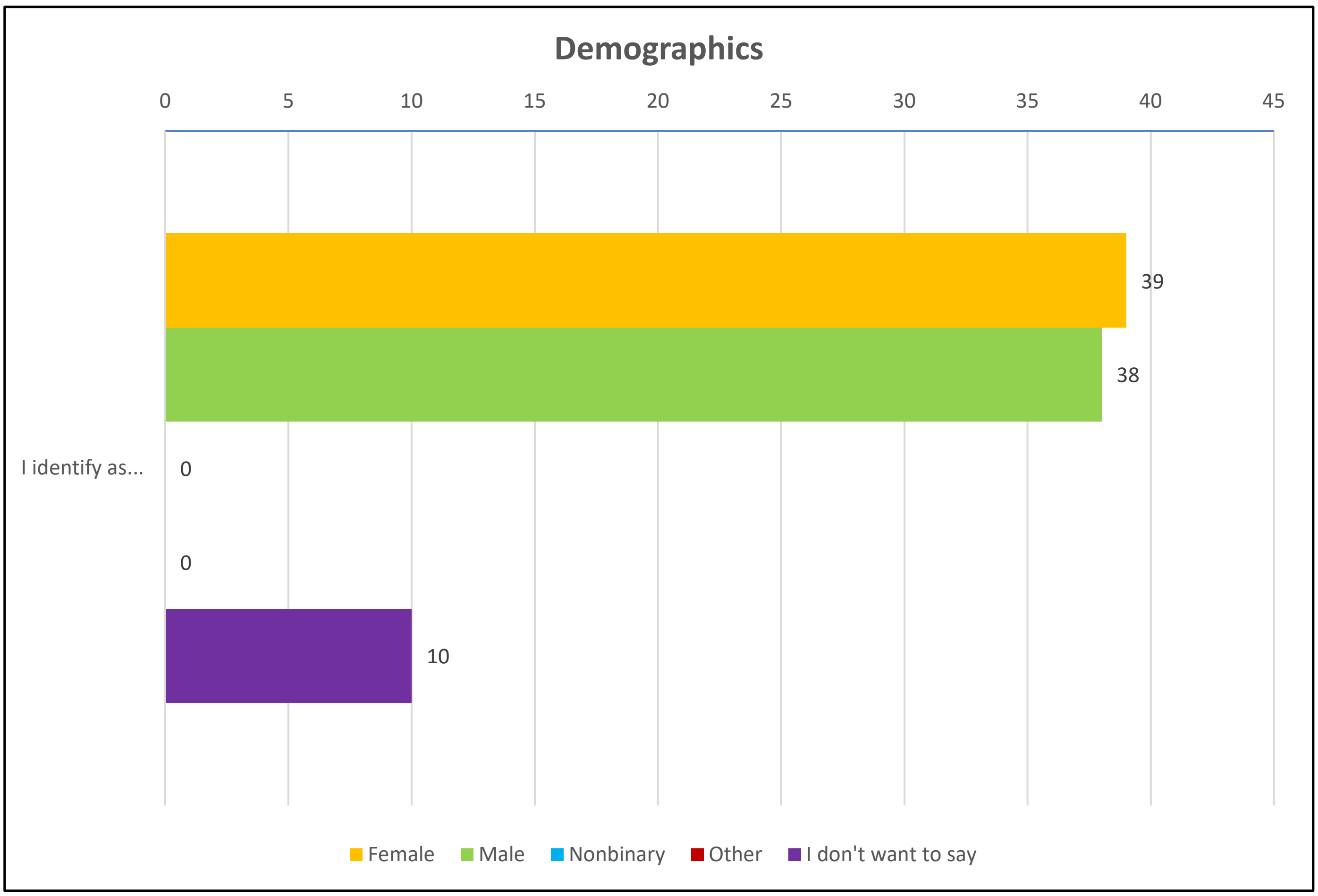


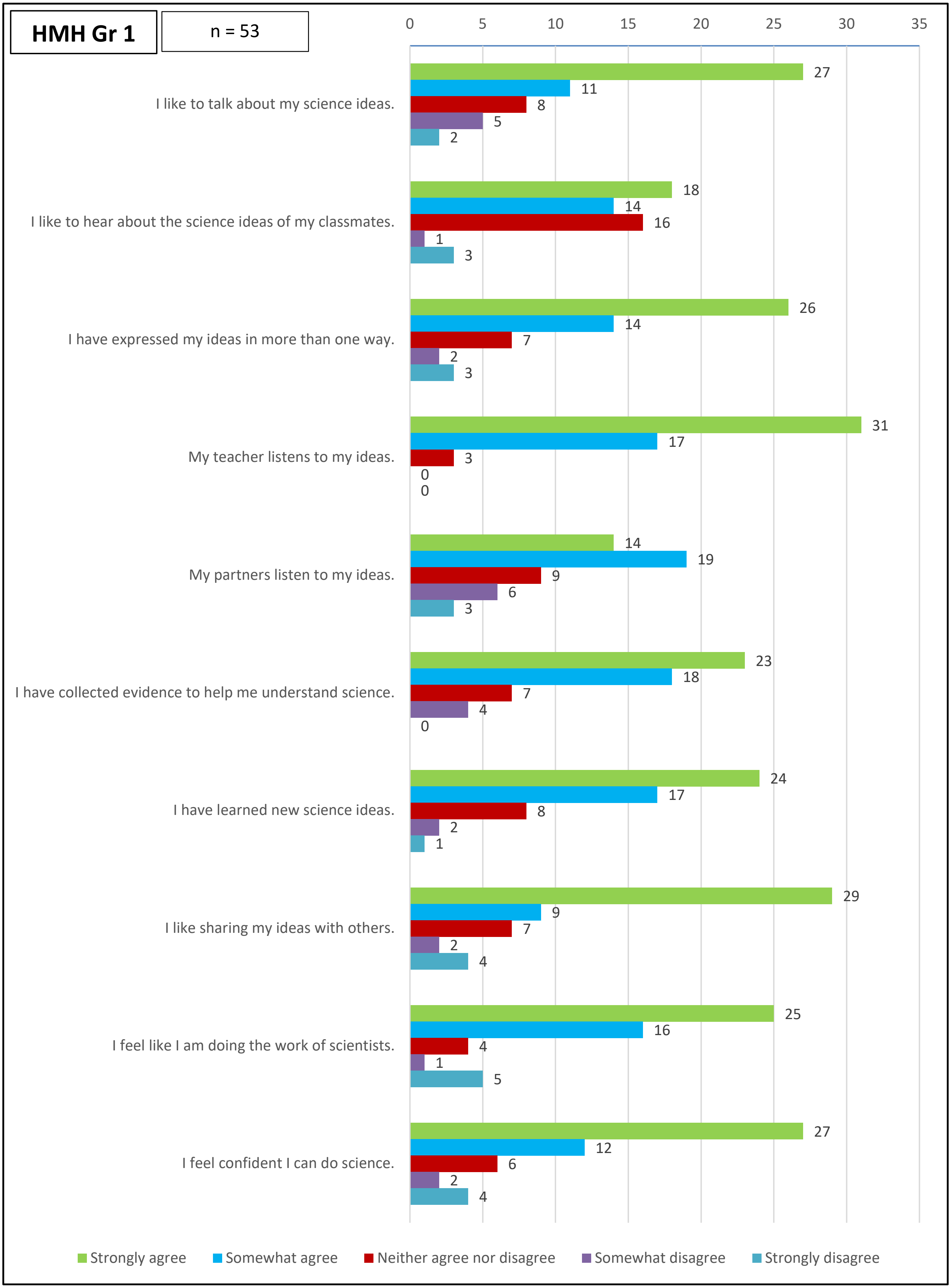
Identity, Disposition, and Learning
0
10
20
30
40
50
60
I feel confident that I can do science.
50
24
6
4
3
People like me do science.
38
23
16
5
5
I see myself choosing more science in the future.
16
22
20
15
14
I am interested in being a scientist.
12
17
20
18
20
I like doing science.
27
22
15
9
14
I'm learning science.
49
25
9
1
3
My teacher takes the time to summarize what we learn each day.
41
25
6
6
9
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

AMP Gr 4

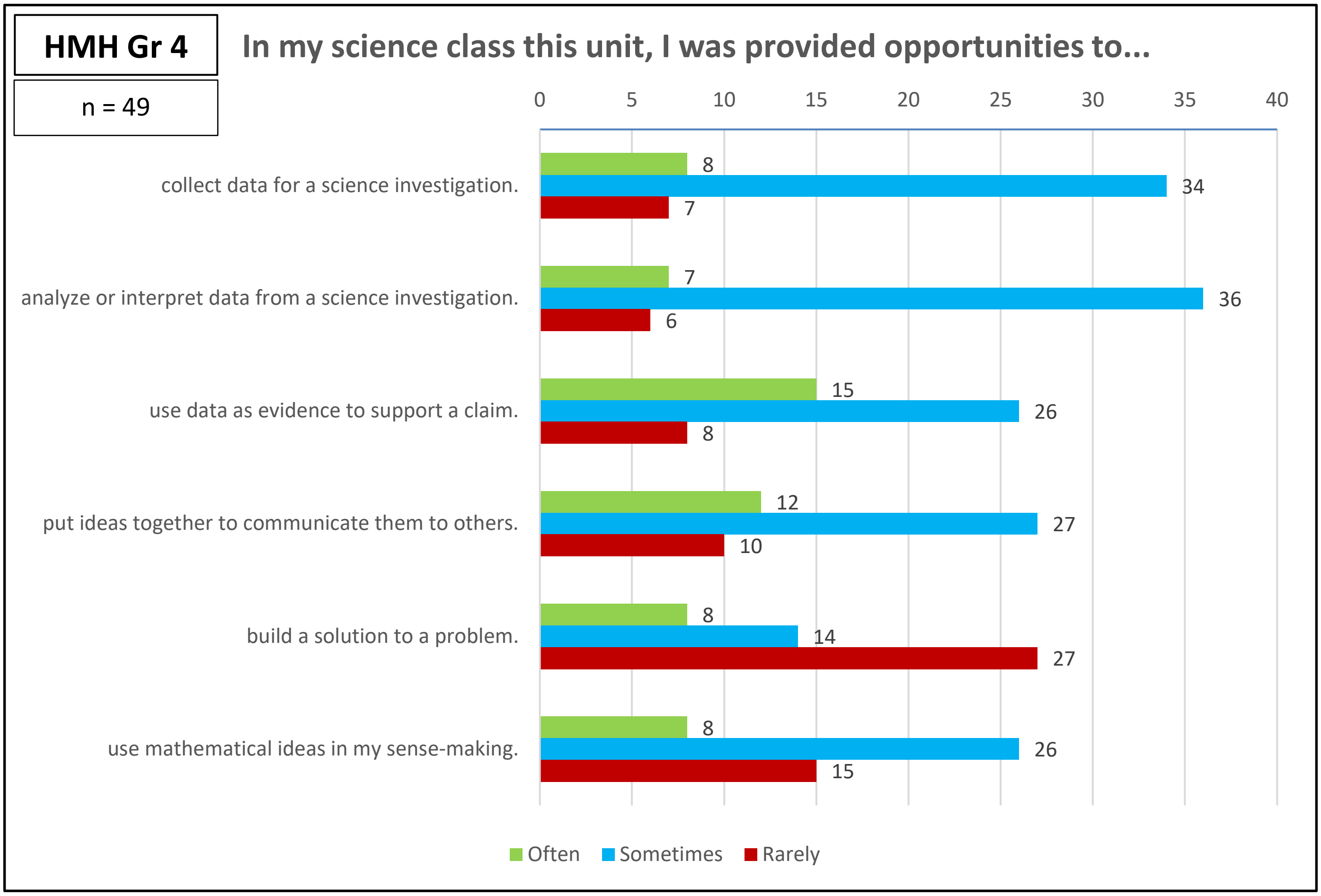
n = 91


Demographics
0
5
10
15
20
25
30
35
40
45
50
I identify as a student of color.
25
32
30
I speak one or more languages at home, other than English.
27
47
13
I get free or reduced lunch at school.
14
34
14
25
Yes
No
I don't want to say
I don't know

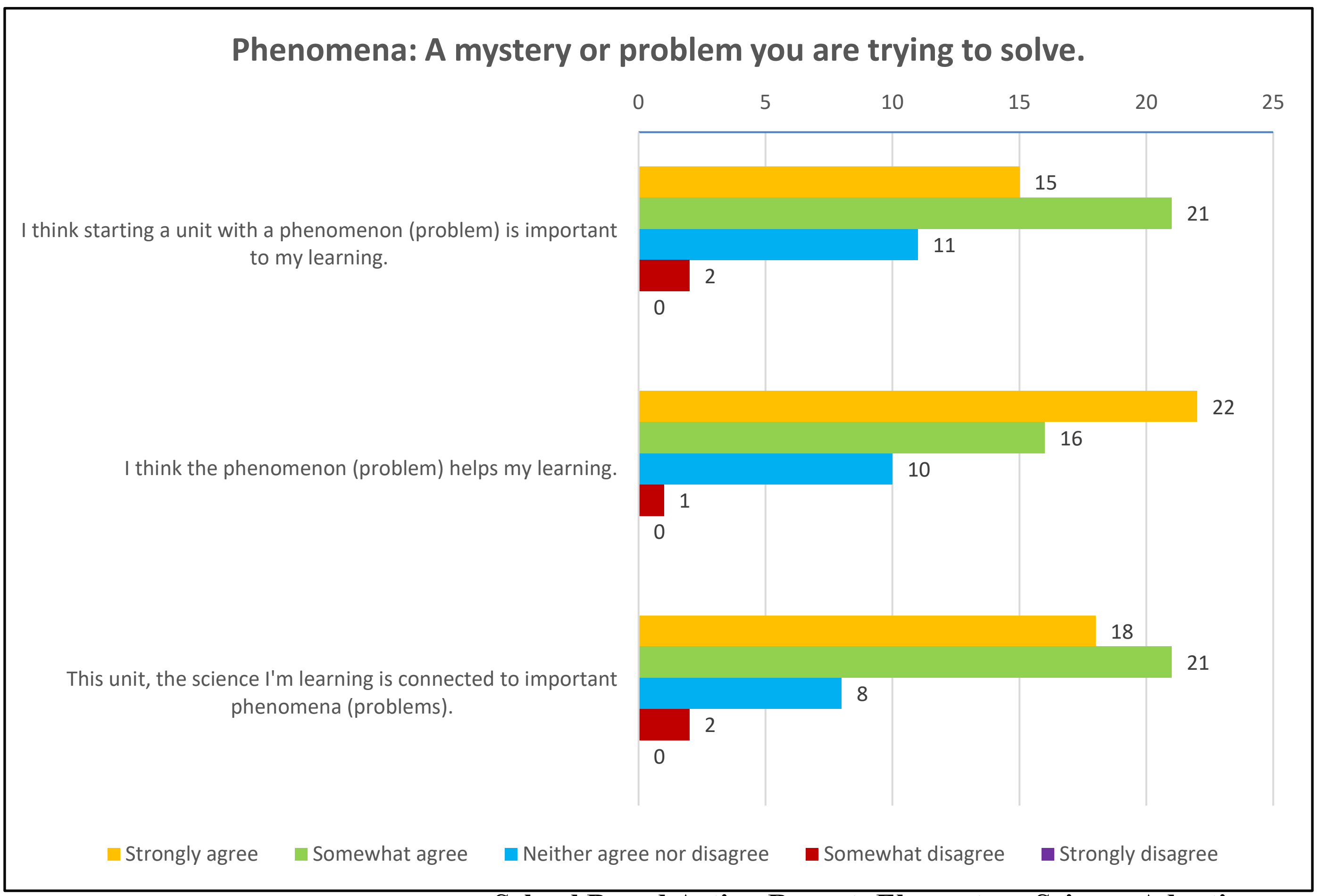

Demographics
0
5
10
15
20
25
30
35
40
45
I identify as...
39
38
0
0
10
Female
Male
Nonbinary
Other
I don't want to say



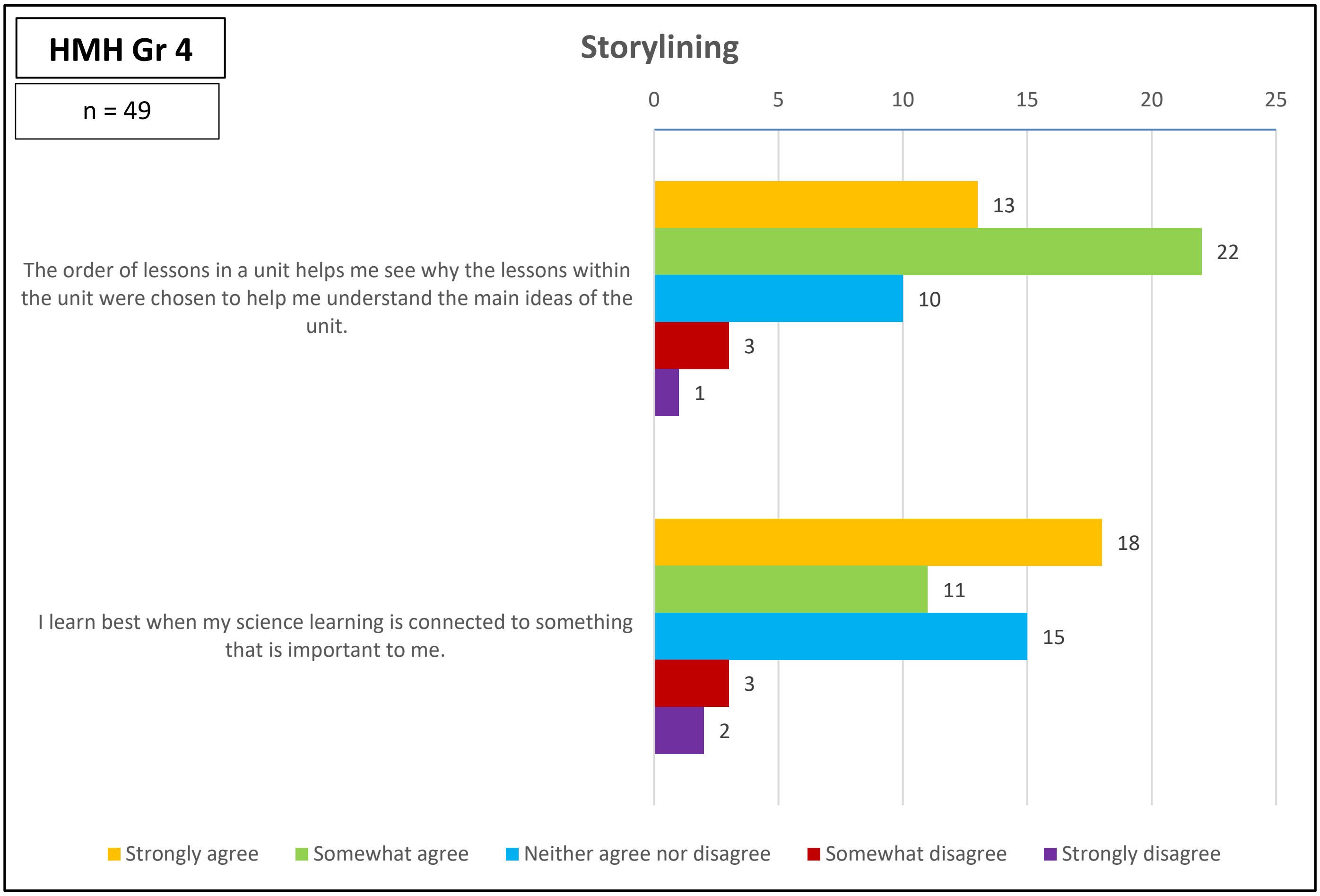
HMH Gr 1
n = 53
0
5
10
15
20
25
30
35
I like to talk about my science ideas.
27
11
8
5
2
I like to hear about the science ideas of my classmates.
18
14
16
1
3
I have expressed my ideas in more than one way.
26
14
7
2
3
My teacher listens to my ideas.
31
17
3
0
0
My partners listen to my ideas.
14
19
9
6
3
I have collected evidence to help me understand science.
23
18
7
4
0
I have learned new science ideas.
24
17
8
2
1
I like sharing my ideas with others.
29
9
7
2
4
I feel like I am doing the work of scientists.
25
16
4
1
5
I feel confident I can do science.
27
12
6
2
4
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

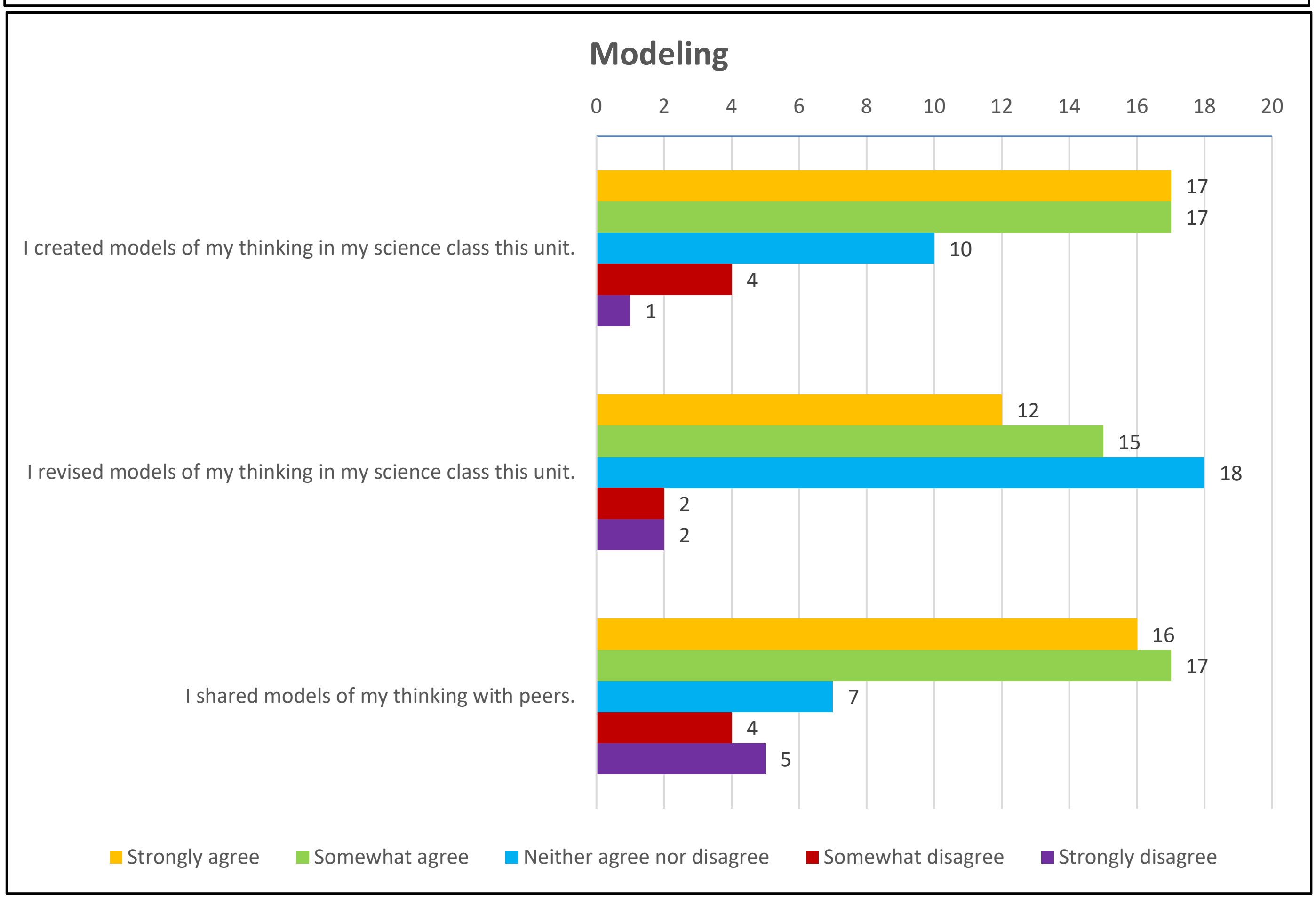


HMH Gr 4
n = 49
In my science class this unit, I was provided opportunities to...
0
5
10
15
20
25
30
35
40
collect data for a science investigation.
8
34
7
analyze or interpret data from a science investigation.
7
36
6
use data as evidence to support a claim.
15
26
8
put ideas together to communicate them to others.
12
27
10
build a solution to a problem.
8
14
27
use mathematical ideas in my sense-making.
8
26
15
Often
Sometimes
Rarely



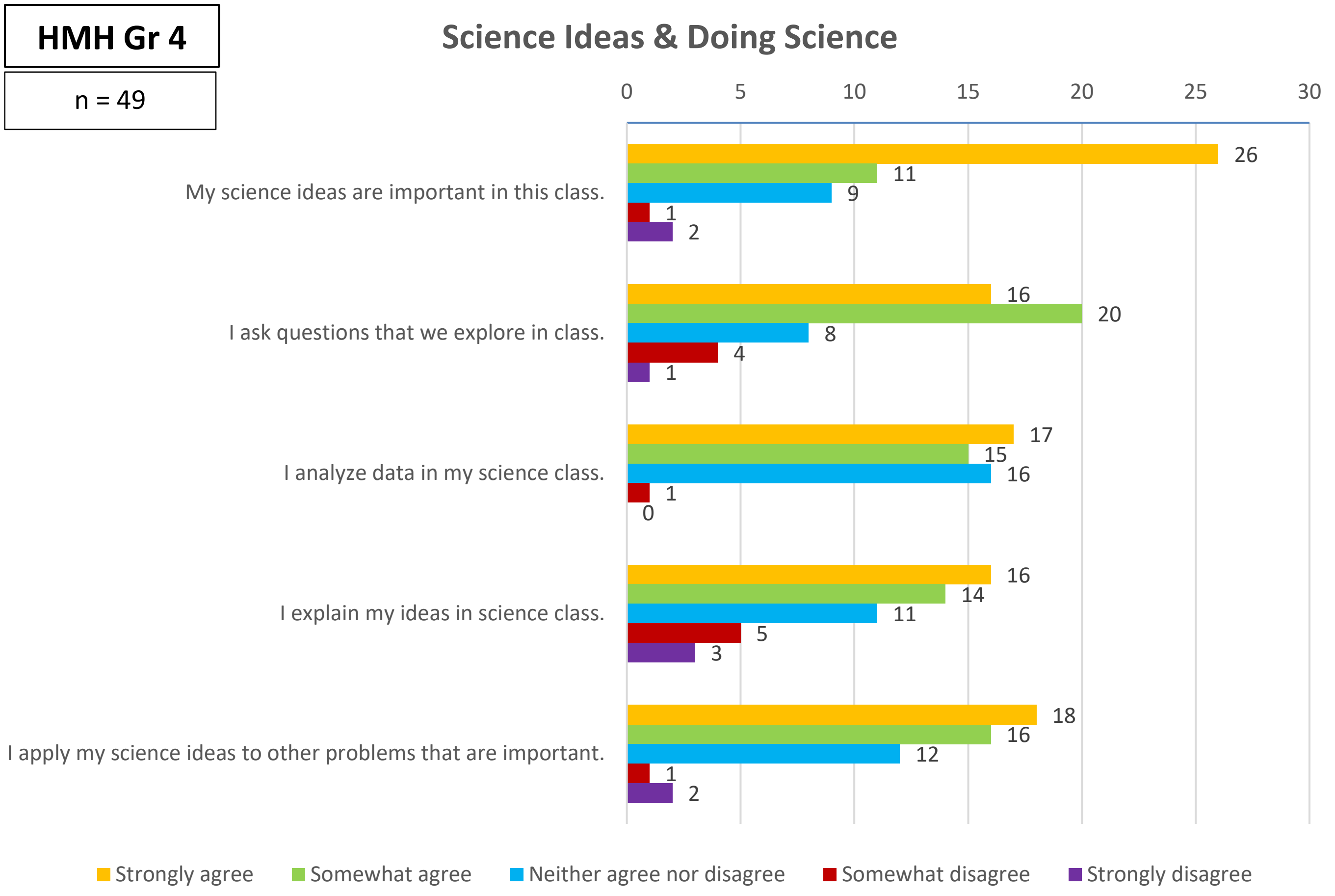
Phenomena: A mystery or problem you are trying to solve.
0
5
10
15
20
25
I think starting a unit with a phenomenon (problem) is important to my learning.
15
21
11
2
0
I think the phenomenon (problem) helps my learning.
22
16
10
1
0
This unit, the science I'm learning is connected to important phenomena (problems).
18
21
8
2
0
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


HMH Gr 4
n = 49
Storylining
0
5
10
15
20
25
The order of lessons in a unit helps me see why the lessons within the unit were chosen to help me understand the main ideas of the unit.
13
22
10
3
1
I learn best when my science learning is connected to something that is important to me.
18
11
15
3
2
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

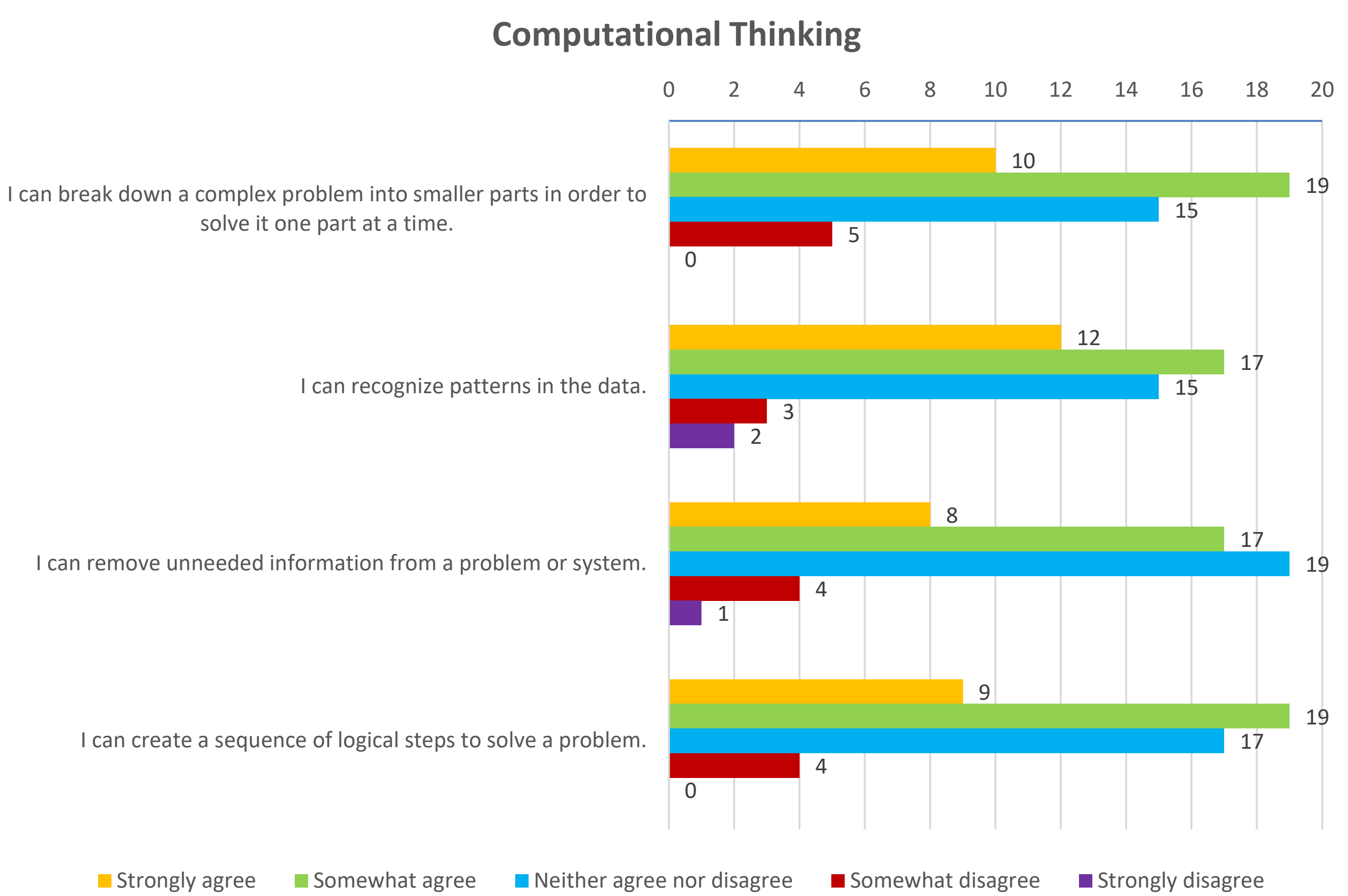

Modeling
0
2
4
6
8
10
12
14
16
18
20
I created models of my thinking in my science class this unit.
17
17
10
4
1
I revised models of my thinking in my science class this unit.
12
15
18
2
2
I shared models of my thinking with peers.
16
17
7
4
5
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

HMH Gr 4

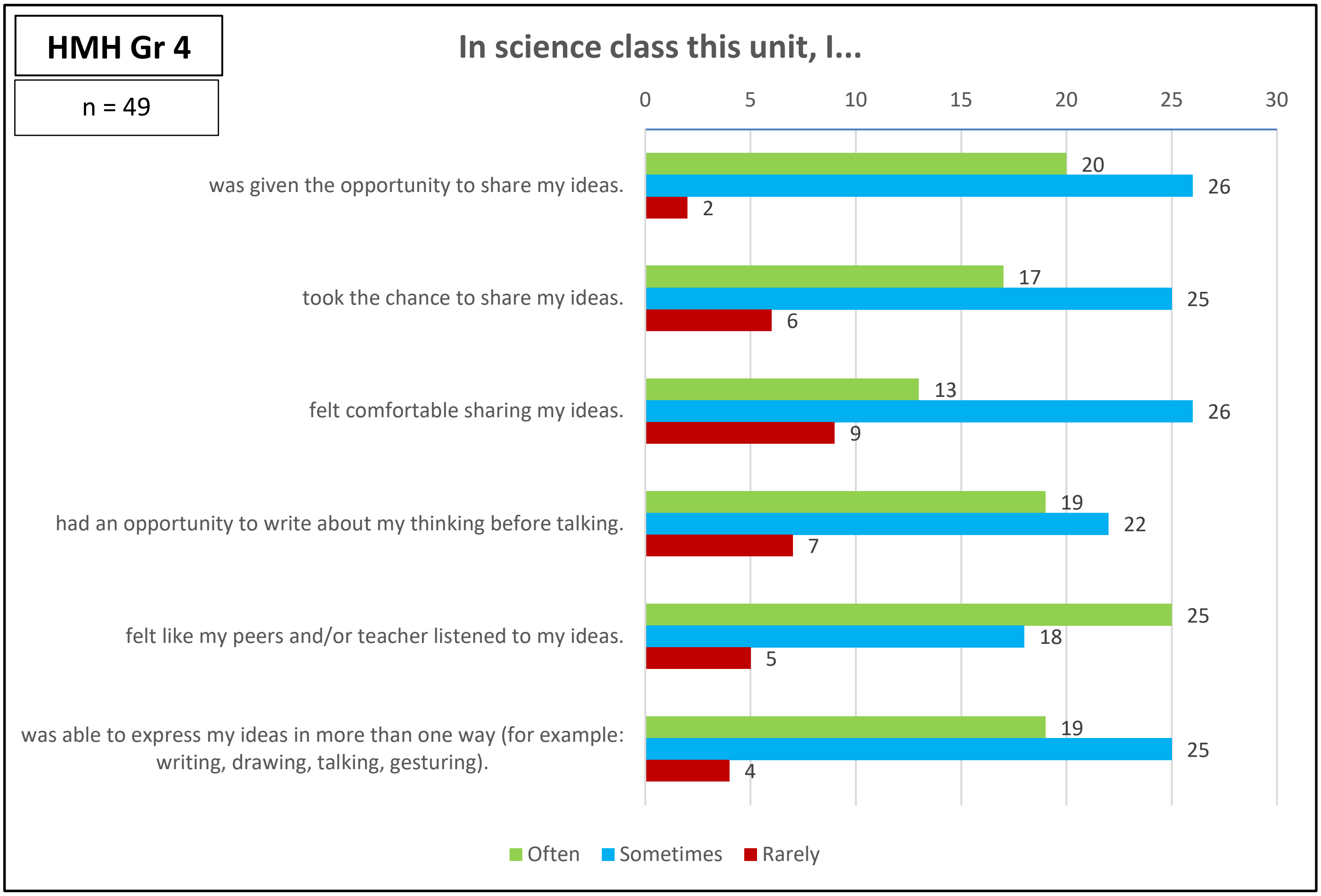
n = 49

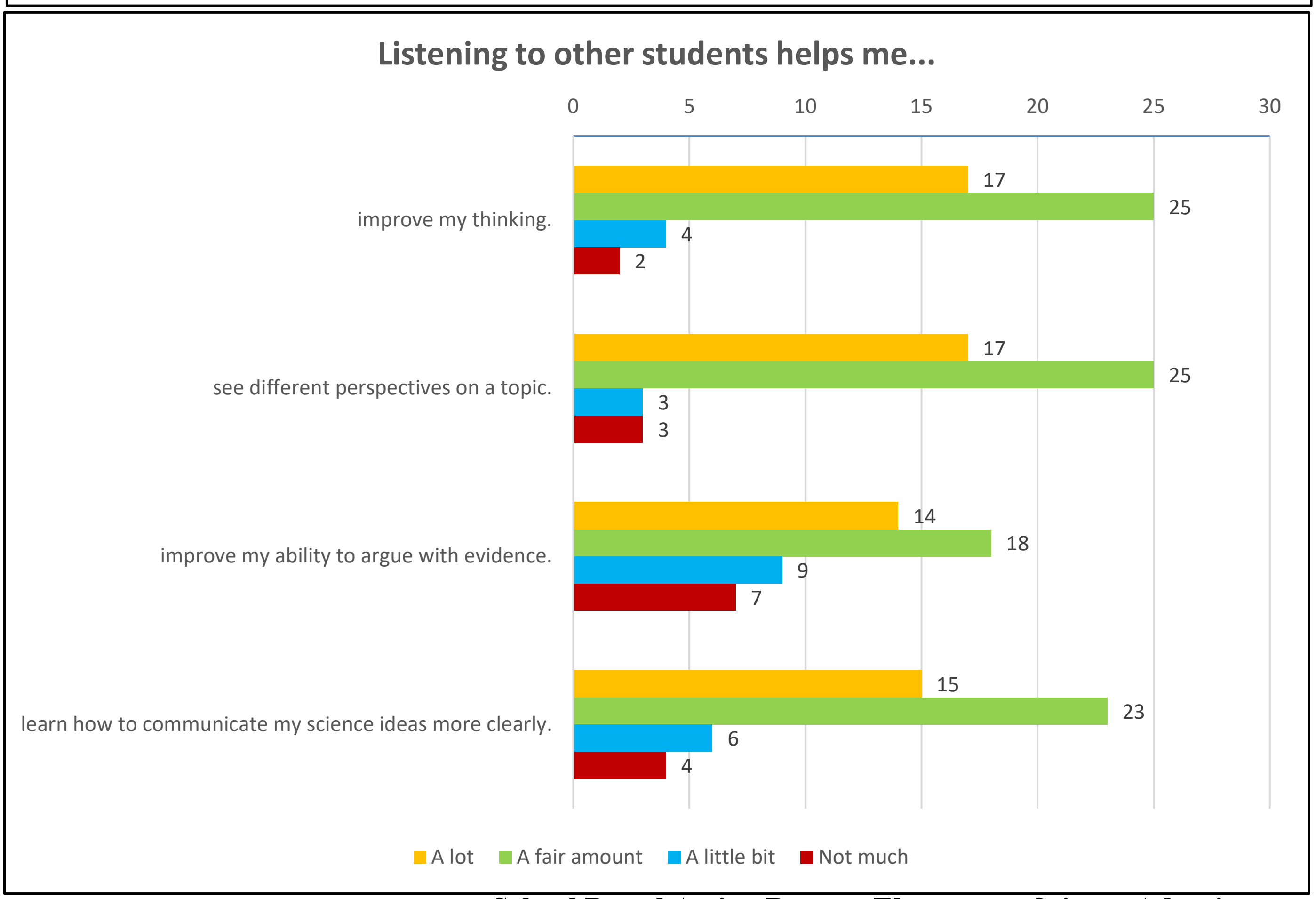


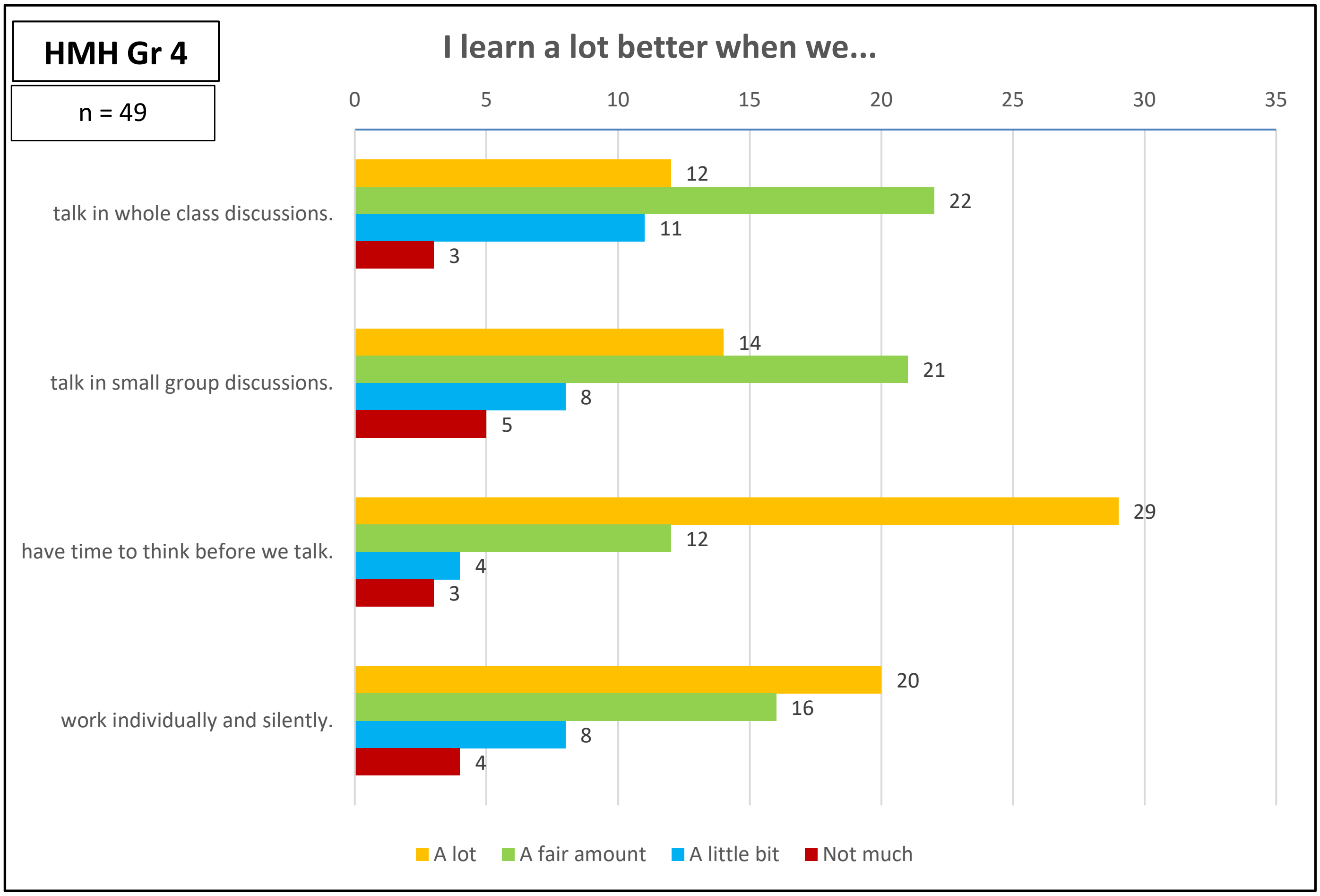
Science Ideas & Doing Science
0
5
10
15
20
25
30
My science ideas are important in this class.
26
11
9
1
2
I ask questions that we explore in class.
16
20
8
4
1
I analyze data in my science class.
17
15
16
1
0
I explain my ideas in science class.
16
14
11
5
3
I apply my science ideas to other problems that are important.
18
16
12
1
2
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

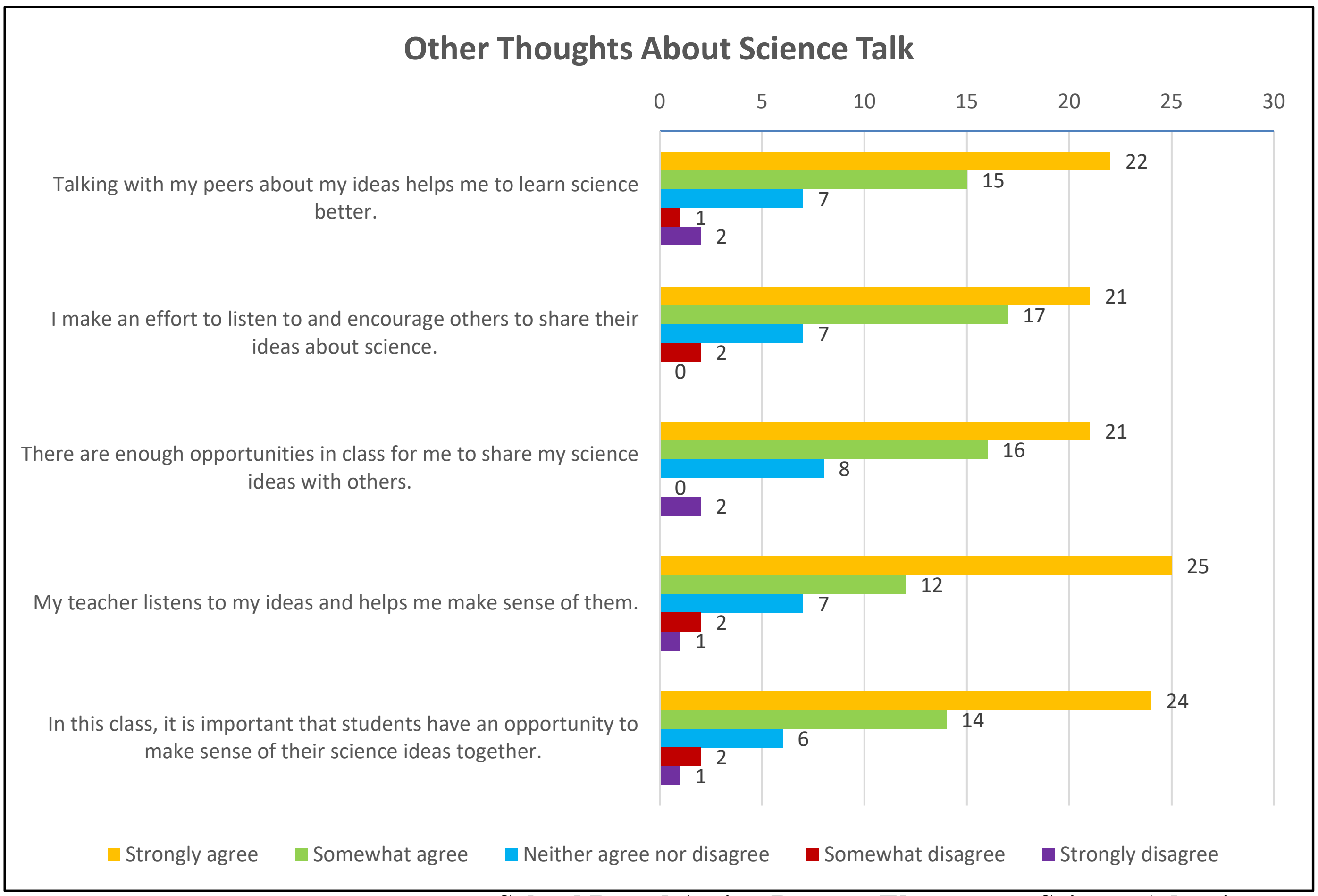


Computational Thinking
0
2
4
6
8
10
12
14
16
18
20
I can break down a complex problem into smaller parts in order to solve it one part at a time.
10
19
15
5
0
I can recognize patterns in the data.
12
17
15
3
2
I can remove unneeded information from a problem or system.
8
17
19
4
1
I can create a sequence of logical steps to solve a problem.
9
19
17
4
0
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


HMH Gr 4
n = 49
In science class this unit, I...
0
5
10
15
20
25
30
was given the opportunity to share my ideas.
20
26
2
took the chance to share my ideas.
17
25
6
felt comfortable sharing my ideas.
13
26
9
had an opportunity to write about my thinking before talking.
19
22
7
felt like my peers and/or teacher listened to my ideas.
25
18
5
was able to express my ideas in more than one way (for example: writing, drawing, talking, gesturing).
19
25
4
Often
Sometimes
Rarely

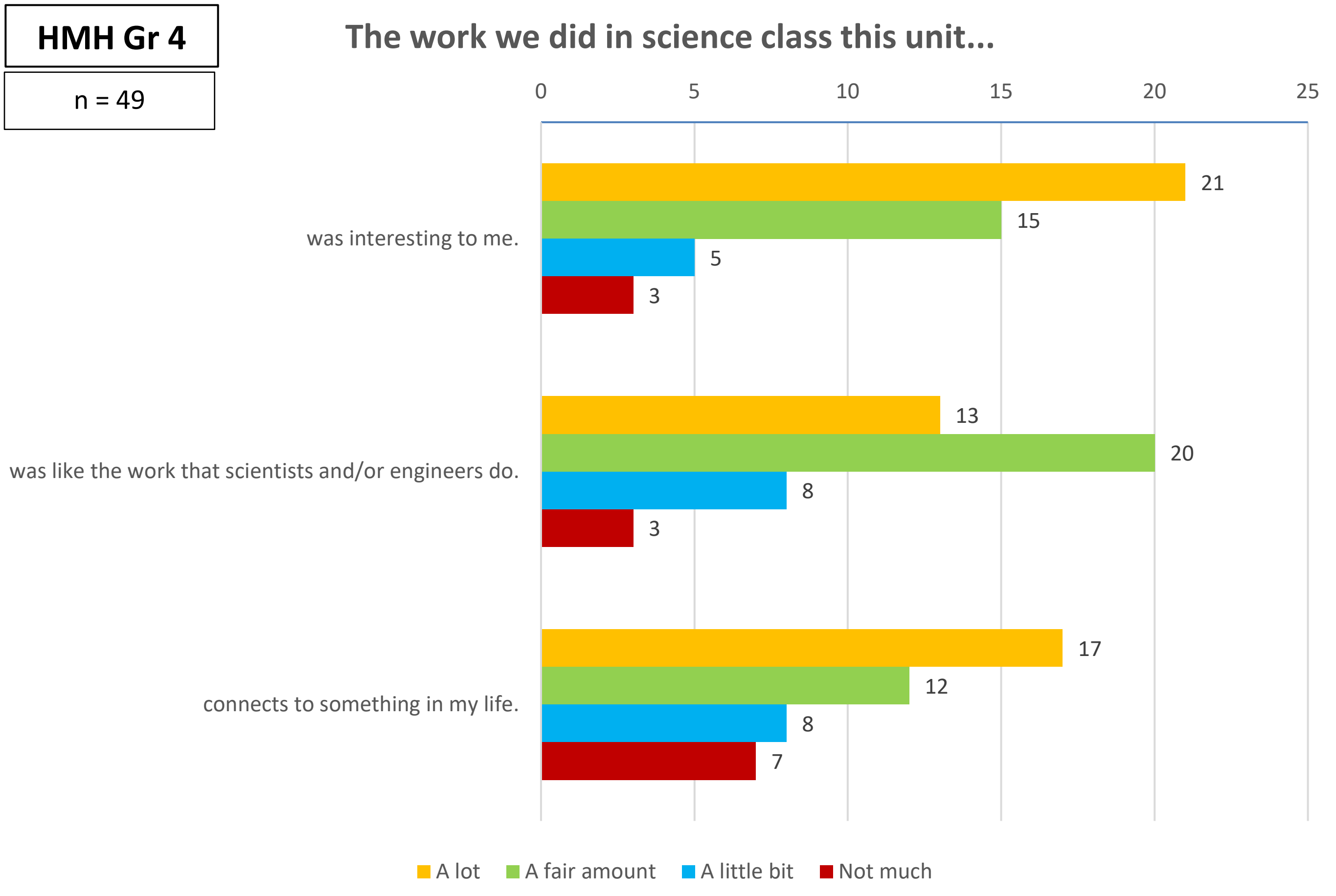

Listening to other students helps me...
0
5
10
15
20
25
30
improve my thinking.
17
25
4
2
see different perspectives on a topic.
17
25
3
3
improve my ability to argue with evidence.
14
18
9
7
learn how to communicate my science ideas more clearly.
15
23
6
4
A lot
A fair amount
A little bit
Not much


HMH Gr 4
n = 49
I learn a lot better when we...
0
5
10
15
20
25
30
35
talk in whole class discussions.
12
22
11
3
talk in small group discussions.
14
21
8
5
have time to think before we talk.
29
12
4
3
work individually and silently.
20
16
8
4
A lot
A fair amount
A little bit
Not much

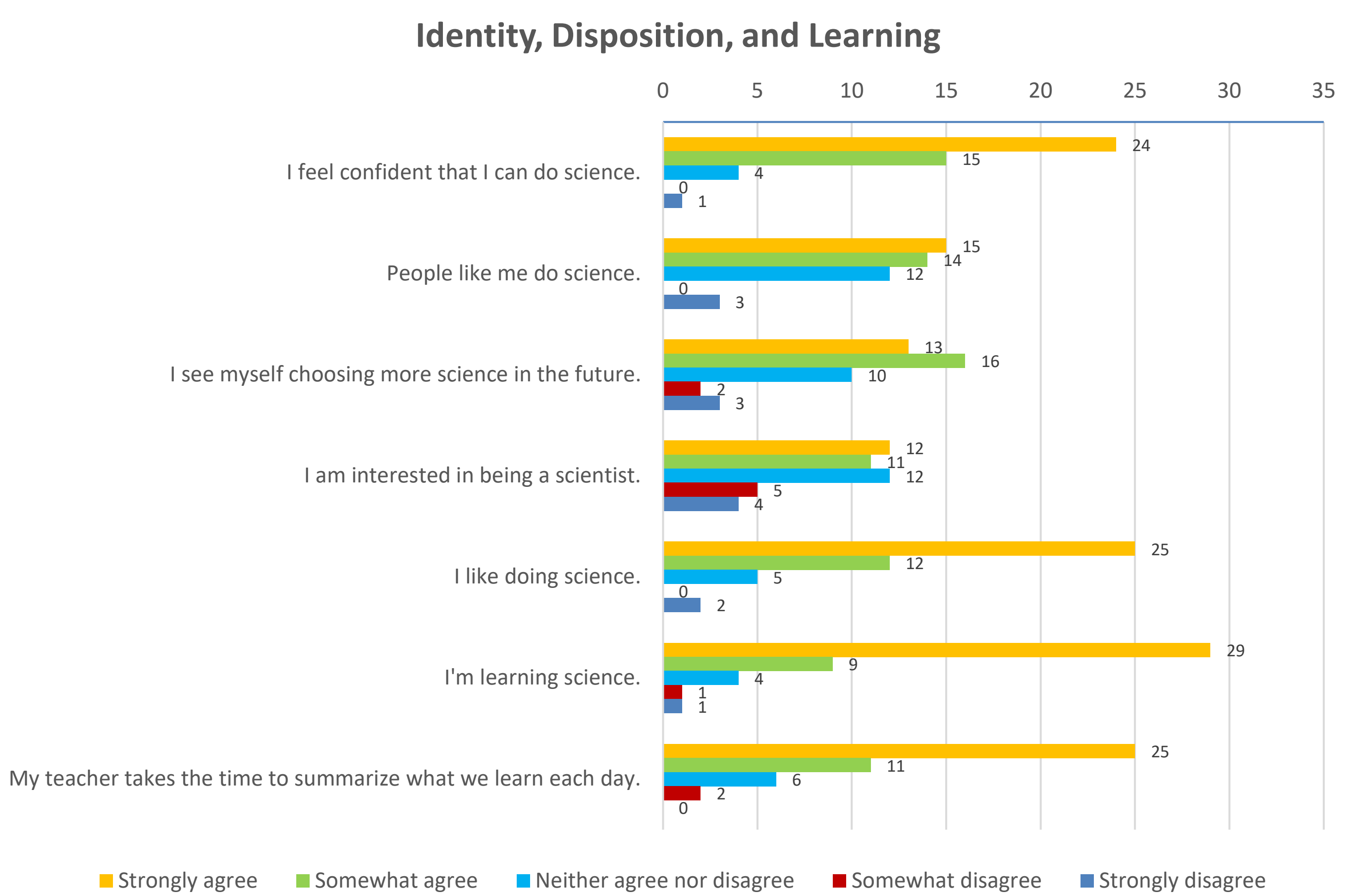

Other Thoughts About Science Talk
0
5
10
15
20
25
30
Talking with my peers about my ideas helps me to learn science better.
22
15
7
1
2
I make an effort to listen to and encourage others to share their ideas about science.
21
17
7
2
0
There are enough opportunities in class for me to share my science ideas with others.
21
16
8
0
2
My teacher listens to my ideas and helps me make sense of them.
25
12
7
2
1
In this class, it is important that students have an opportunity to make sense of their science ideas together.
24
14
6
2
1
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

HMH Gr 4

n = 49



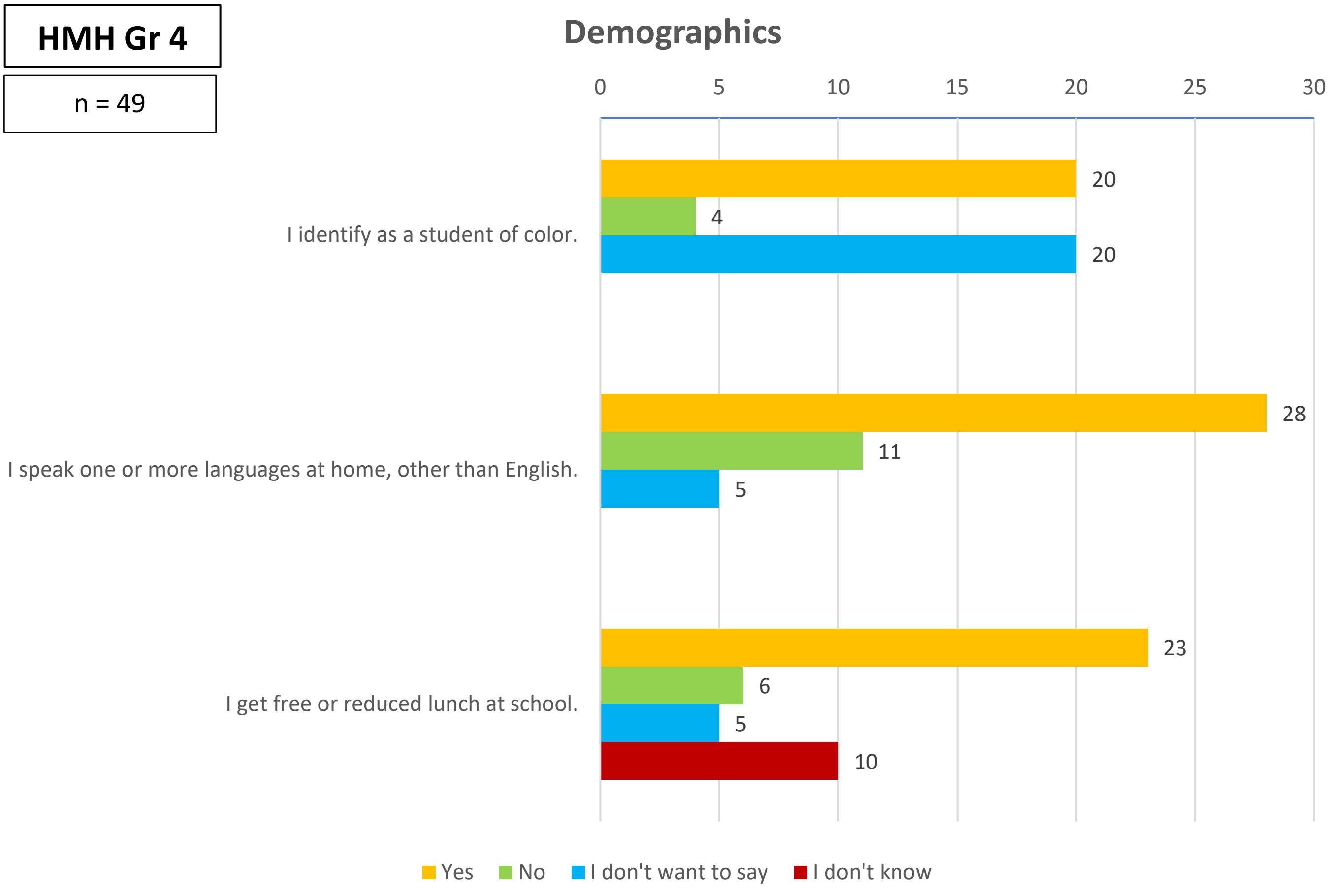
The work we did in science class this unit...
0
5
10
15
20
25
was interesting to me.
21
15
5
3
was like the work that scientists and/or engineers do.
13
20
8
3
connects to something in my life.
17
12
8
7
A lot
A fair amount
A little bit
Not much



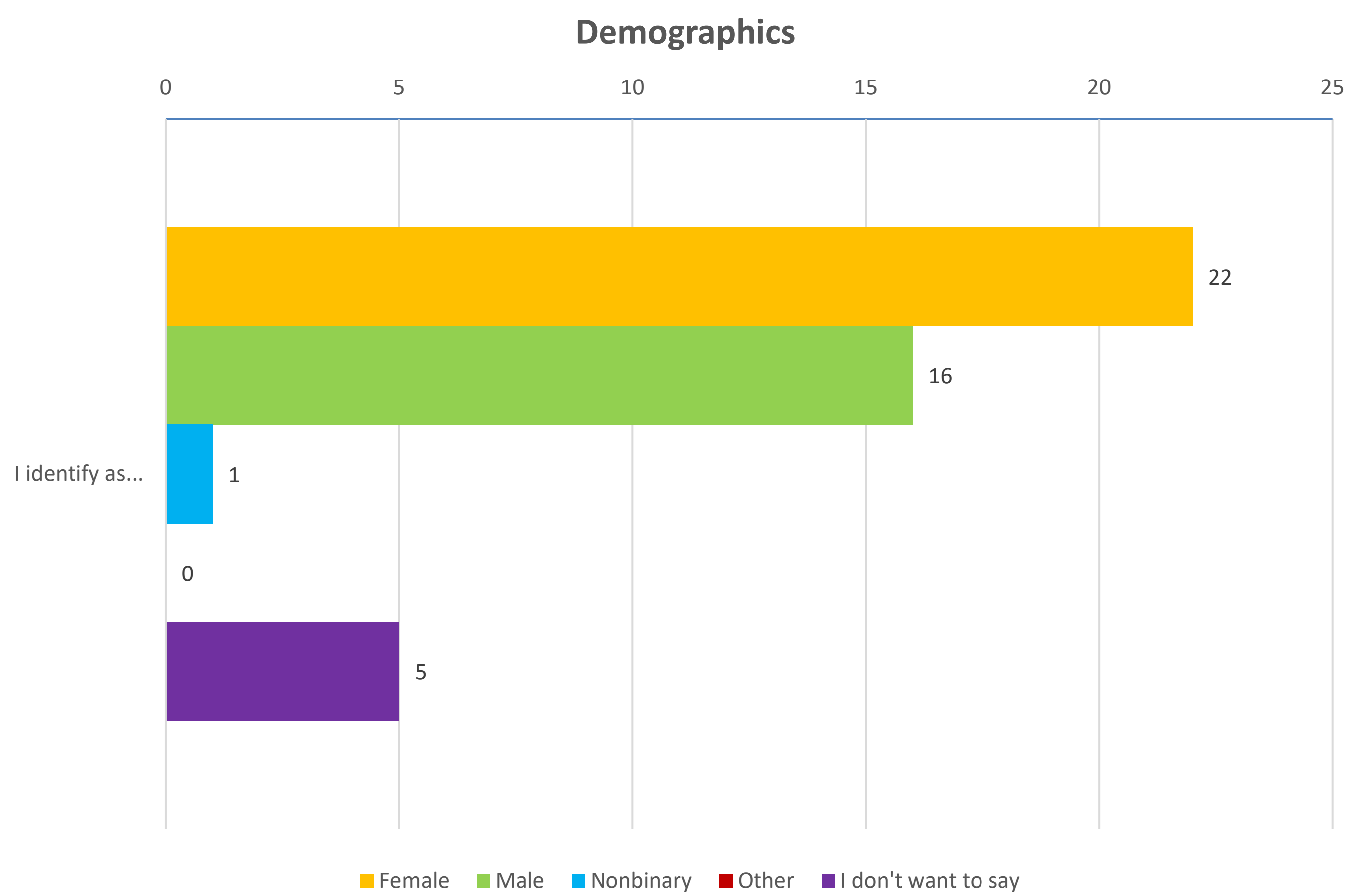
Identity, Disposition, and Learning
0
5
10
15
20
25
30
35
I feel confident that I can do science.
24
15
4
0
1
People like me do science.
15
14
12
0
3
I see myself choosing more science in the future.
13
16
10
2
3
I am interested in being a scientist.
12
11
12
5
4
I like doing science.
25
12
5
0
2
I'm learning science.
29
9
4
1
1
My teacher takes the time to summarize what we learn each day.
25
11
6
2
0
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

HMH Gr 4

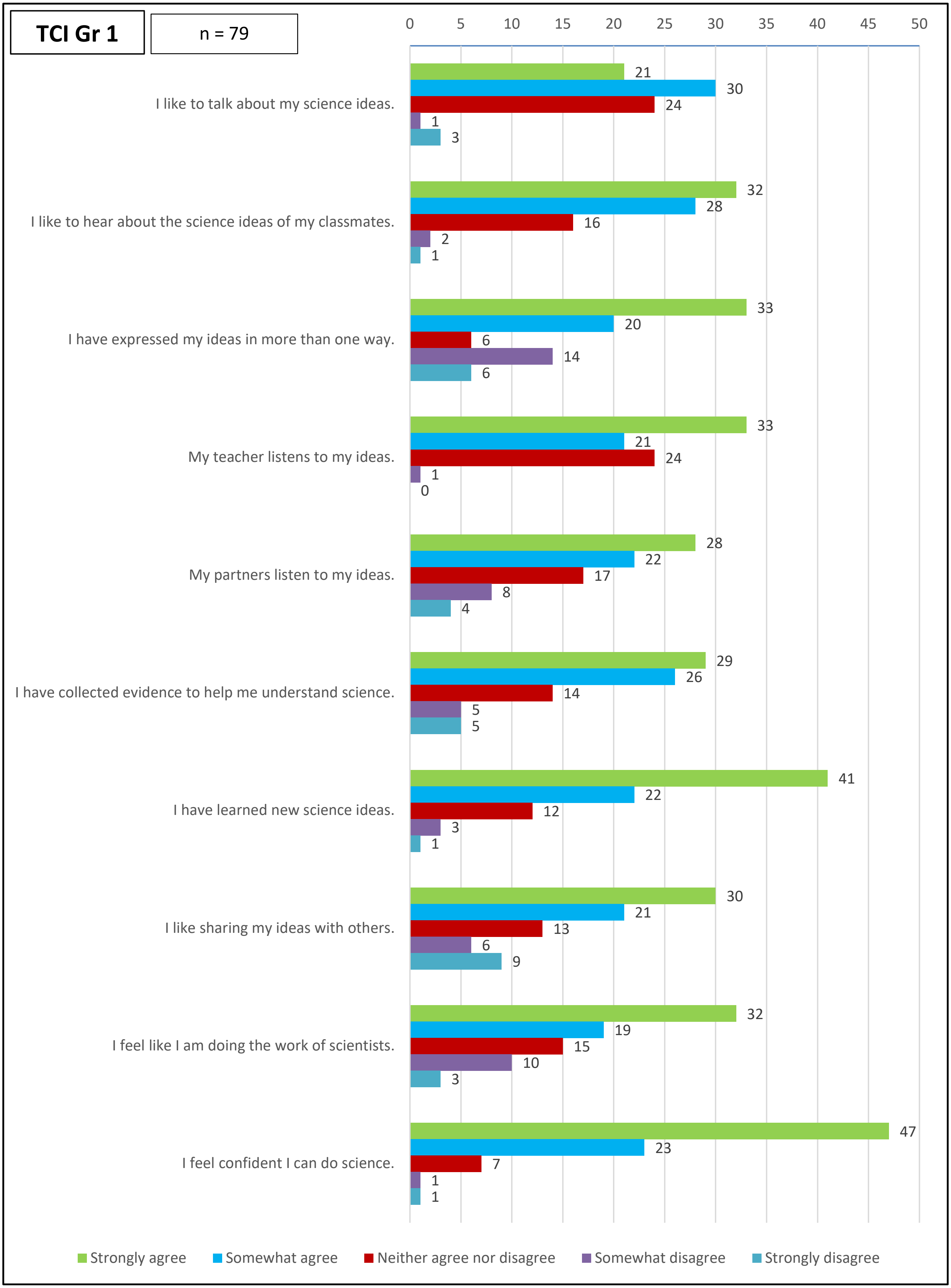
n = 49

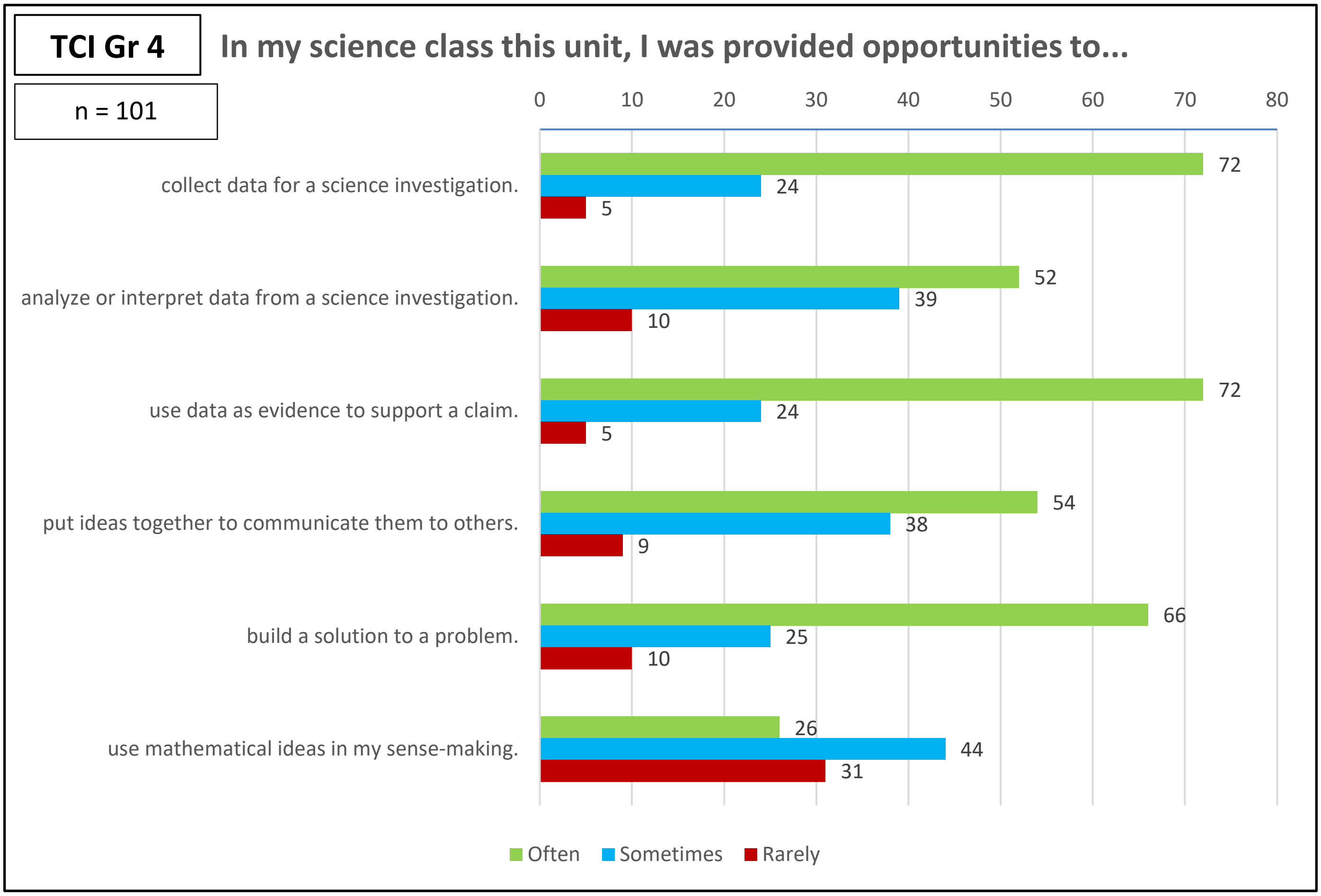


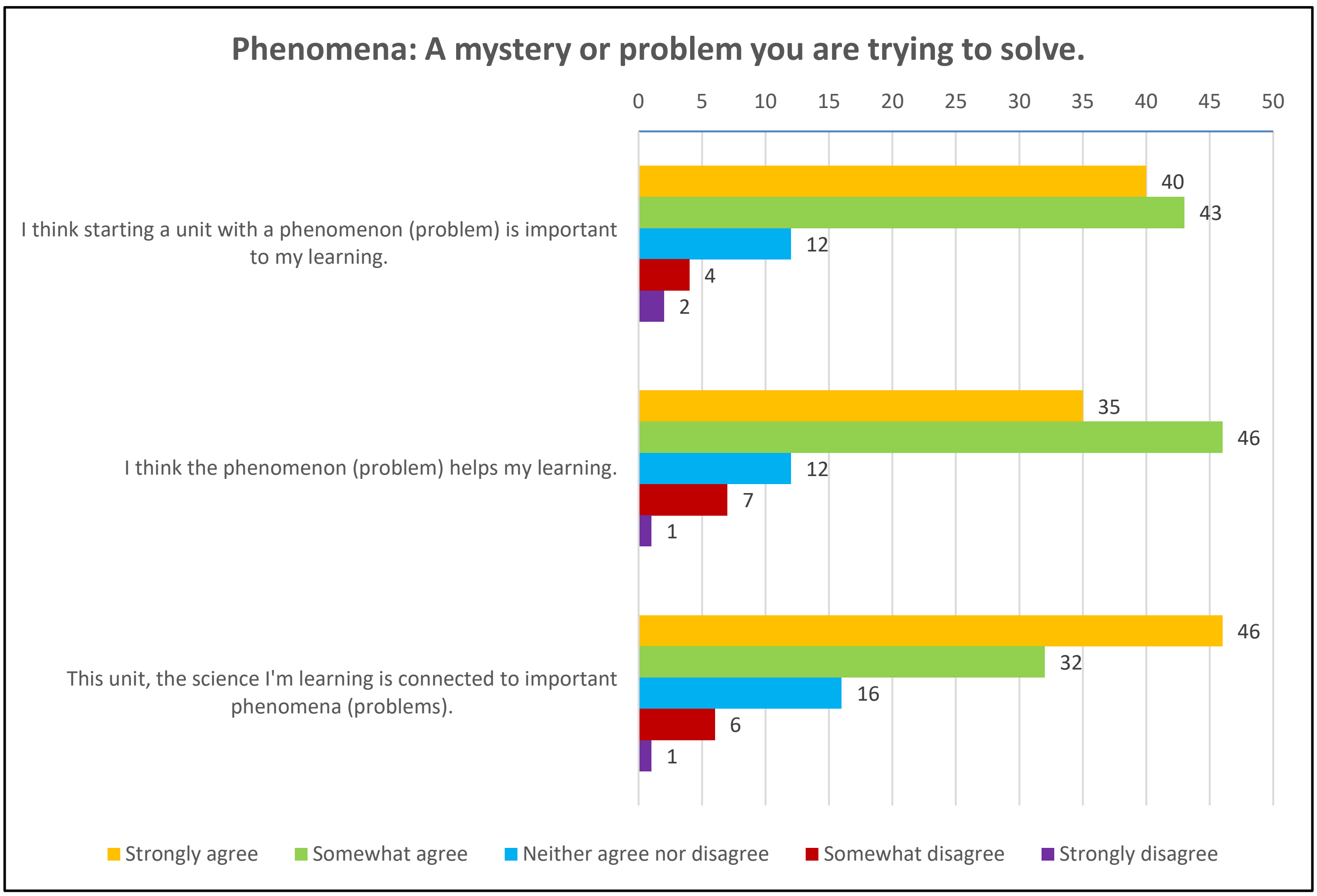
Demographics
0
5
10
15
20
25
30
I identify as a student of color.
20
4
20
I speak one or more languages at home, other than English.
28
11
5
I get free or reduced lunch at school.
23
6
5
10
Yes
No
I don't want to say
I don't know

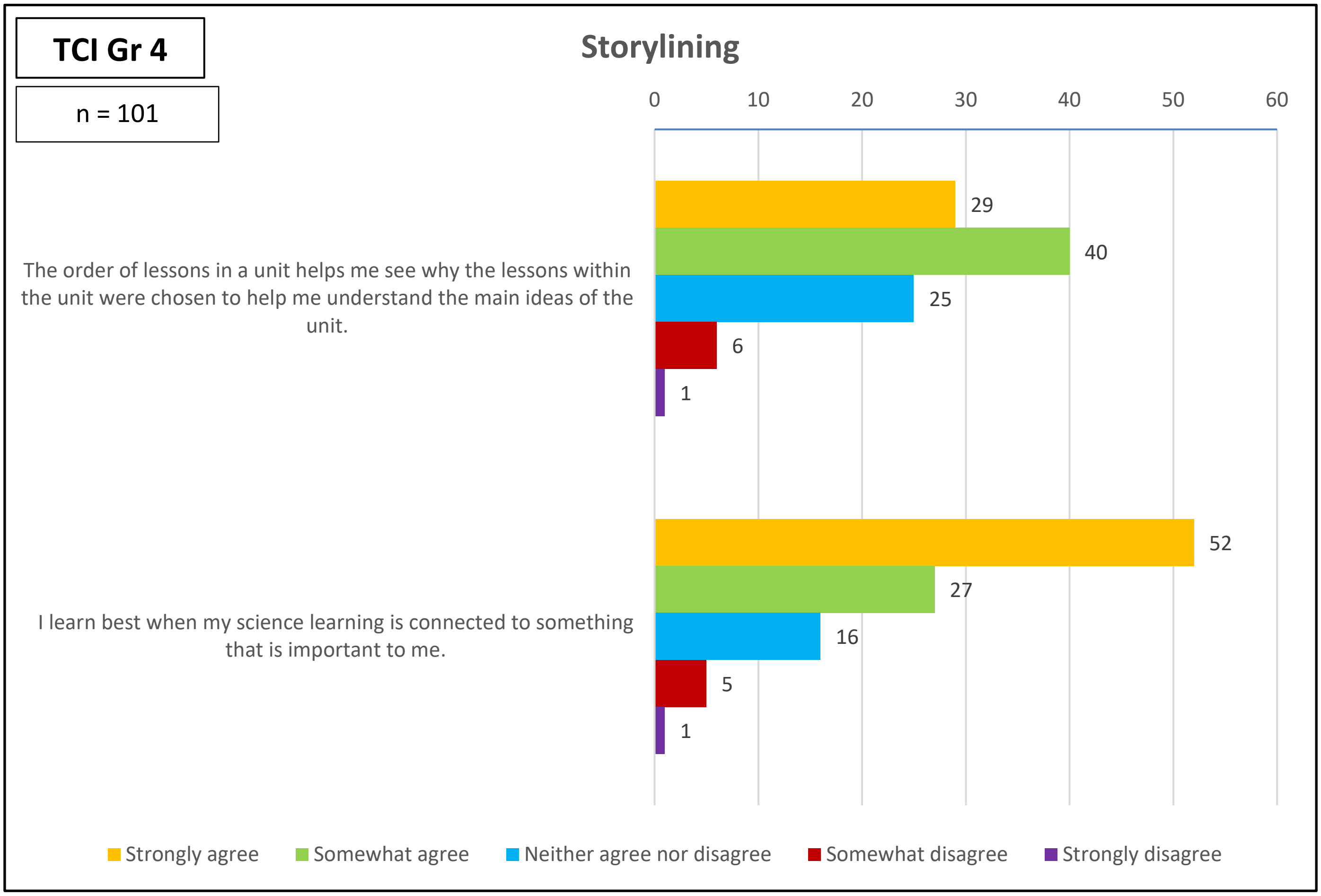


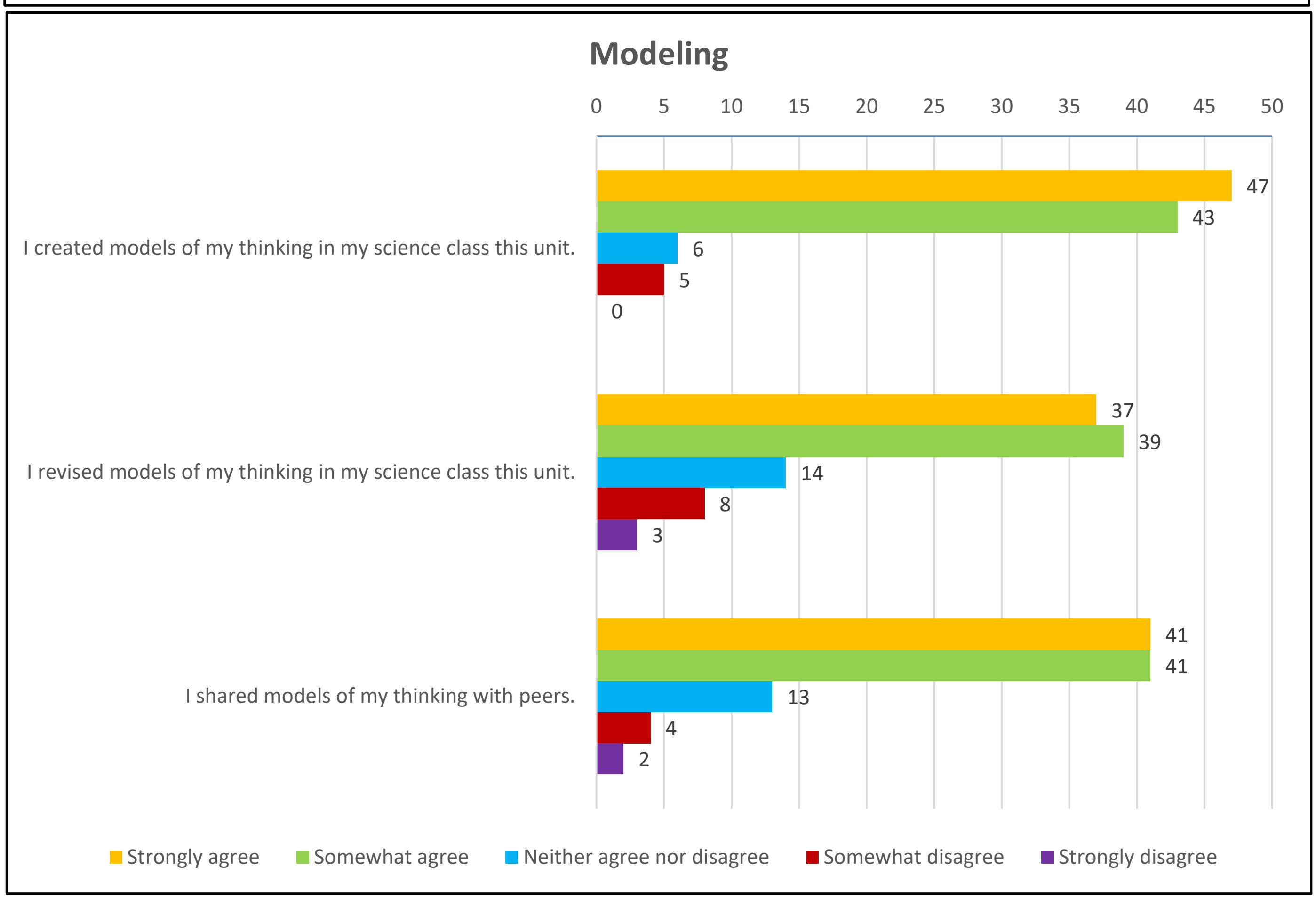
Demographics
0
5
10
15
20
25
I identify as...
22
16
1
0
5
Female
Male
Nonbinary
Other
I don't want to say


TCI Gr 1
n = 79
0
5
10
15
20
25
30
35
40
45
50
I like to talk about my science ideas.
21
30
24
1
3
I like to hear about the science ideas of my classmates.
32
28
16
2
1
I have expressed my ideas in more than one way.
33
20
6
14
6
My teacher listens to my ideas.
33
21
24
1
0
My partners listen to my ideas.
28
22
17
8
4
I have collected evidence to help me understand science.
29
26
14
5
5
I have learned new science ideas.
41
22
12
3
1
I like sharing my ideas with others.
30
21
13
6
9
I feel like I am doing the work of scientists.
32
19
15
10
3
I feel confident I can do science.
47
23
7
1
1
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


TCI Gr 4
In my science class this unit, I was provided opportunities to...
n = 101
0
10
20
30
40
50
60
70
80
collect data for a science investigation.
72
24
5
analyze or interpret data from a science investigation.
52
39
10
use data as evidence to support a claim.
72
24
5
put ideas together to communicate them to others.
54
38
9
build a solution to a problem.
66
25
10
use mathematical ideas in my sense-making.
26
44
31
Often
Sometimes
Rarely

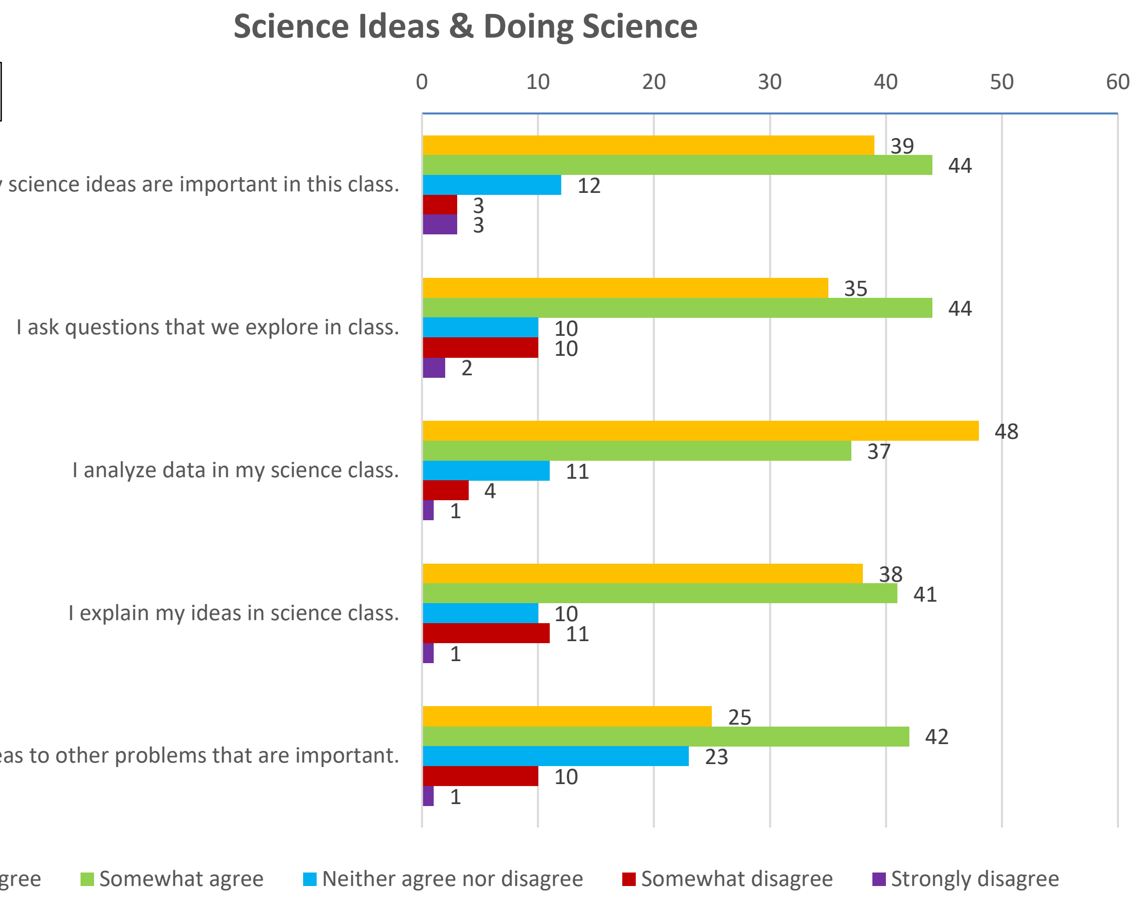

Phenomena: A mystery or problem you are trying to solve.
0
5
10
15
20
25
30
35
40
45
50
I think starting a unit with a phenomenon (problem) is important to my learning.
40
43
12
4
2
I think the phenomenon (problem) helps my learning.
35
46
12
7
1
This unit, the science I'm learning is connected to important phenomena (problems).
46
32
16
6
1
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

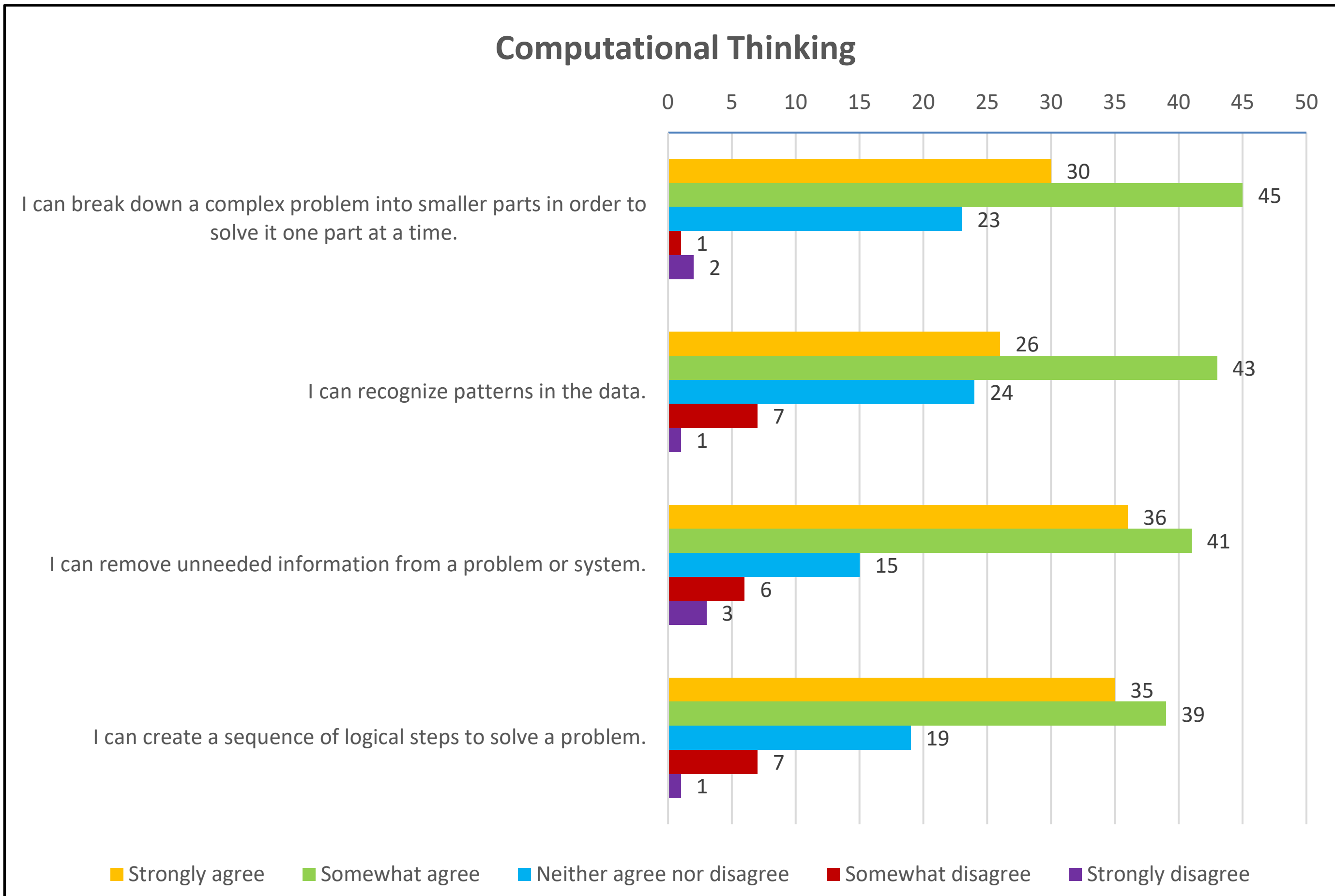

TCI Gr 4
n = 101
Storylining
0 10 20 30 40 50 60
The order of lessons in a unit helps me see why the lessons within the unit were chosen to help me understand the main ideas of the unit.
29
40
25
6
1
I learn best when my science learning is connected to something that is important to me.
52
27
16
5
1
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

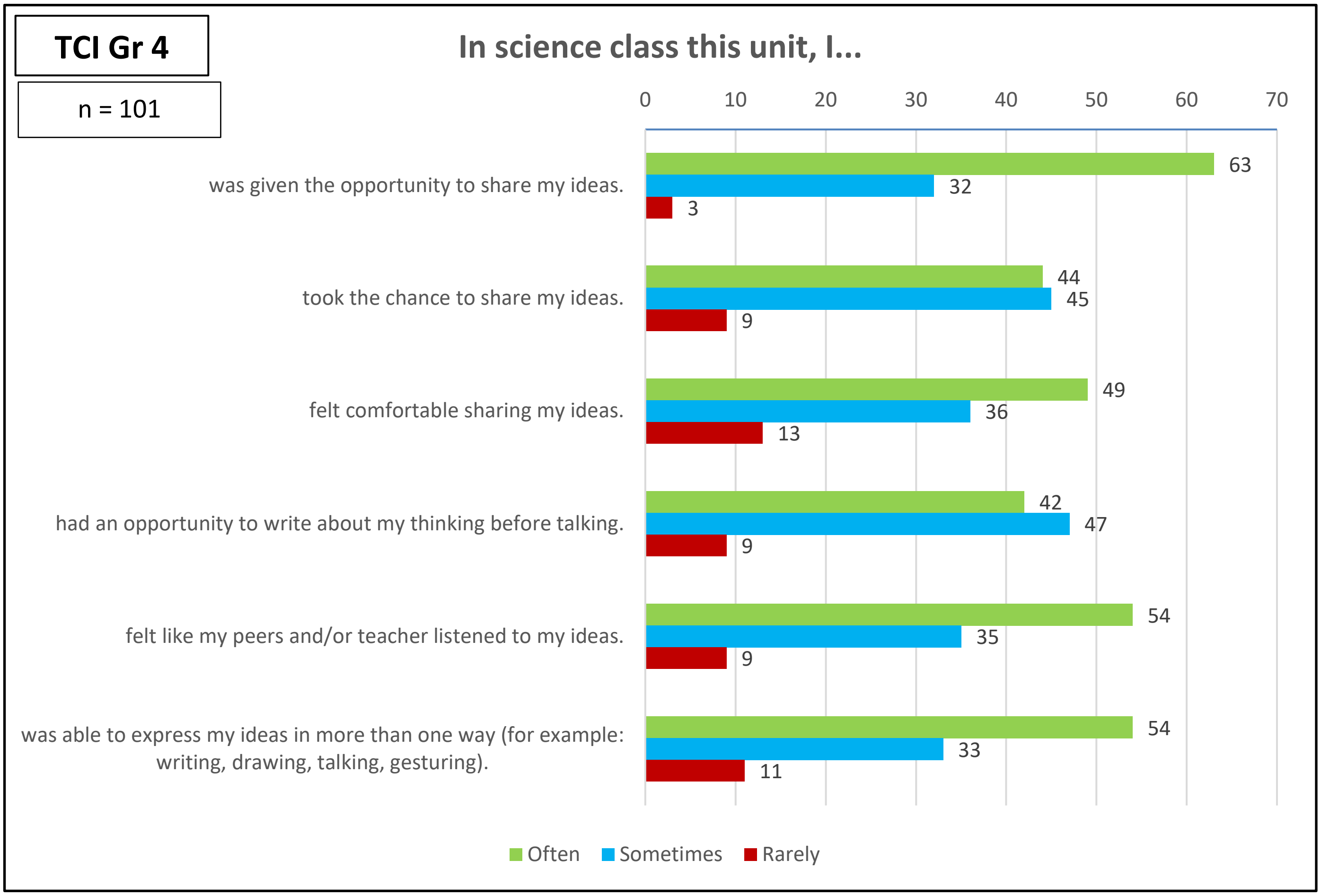

Modeling
0 5 10 15 20 25 30 35 40 45 50
I created models of my thinking in my science class this unit.
47
43
6
5
0
I revised models of my thinking in my science class this unit.
37
39
14
8
3
I shared models of my thinking with peers.
41
41
13
4
2
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

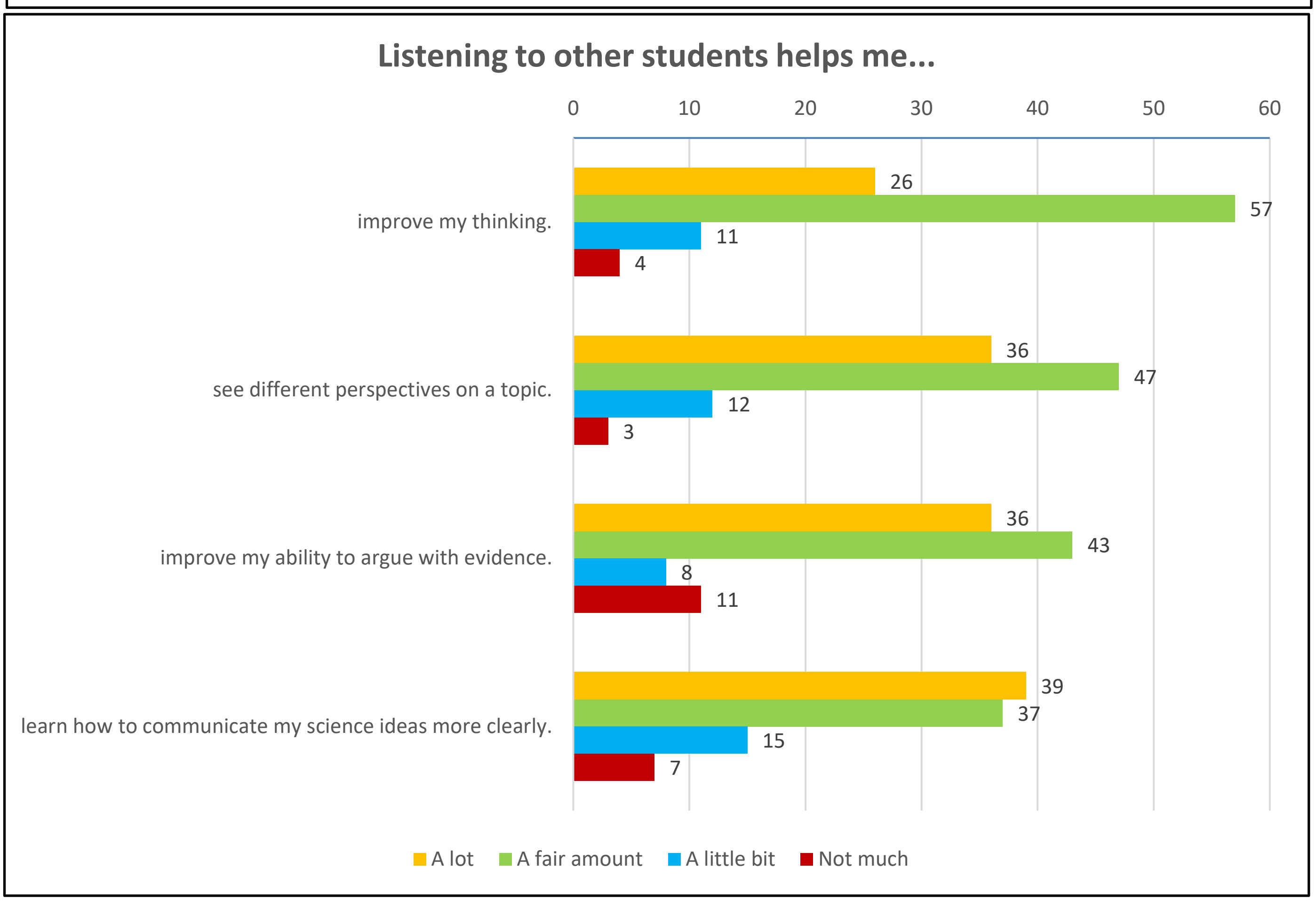
TCI Gr 4

n = 101


Science Ideas & Doing Science
0
10
20
30
40
50
60
My science ideas are important in this class.
39
44
12
3
3
I ask questions that we explore in class.
35
44
10
10
2
I analyze data in my science class.
48
37
11
4
1
I explain my ideas in science class.
38
41
10
11
1
I apply my science ideas to other problems that are important.
25
42
23
10
1
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

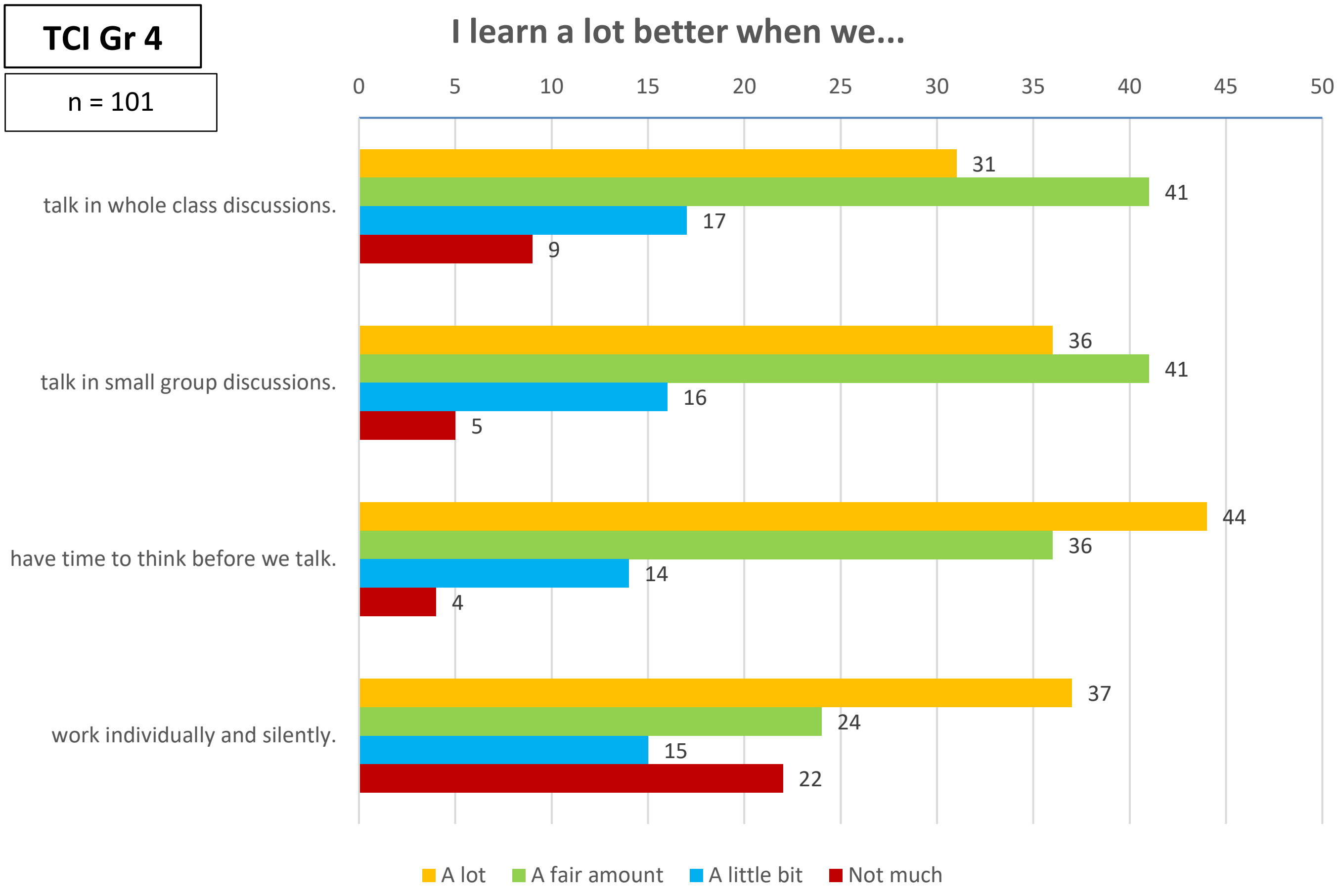

Computational Thinking
0
5
10
15
20
25
30
35
40
45
50
I can break down a complex problem into smaller parts in order to solve it one part at a time.
30
45
23
1
2
I can recognize patterns in the data.
26
43
24
7
1
I can remove unneeded information from a problem or system.
36
41
15
6
3
I can create a sequence of logical steps to solve a problem.
35
39
19
7
1
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


TCI Gr 4
n = 101
In science class this unit, I...
0
10
20
30
40
50
60
70
was given the opportunity to share my ideas.
63
32
3
took the chance to share my ideas.
44
45
9
felt comfortable sharing my ideas.
49
36
13
had an opportunity to write about my thinking before talking.
42
47
9
felt like my peers and/or teacher listened to my ideas.
54
35
9
was able to express my ideas in more than one way (for example: writing, drawing, talking, gesturing).
54
33
11
Often
Sometimes
Rarely

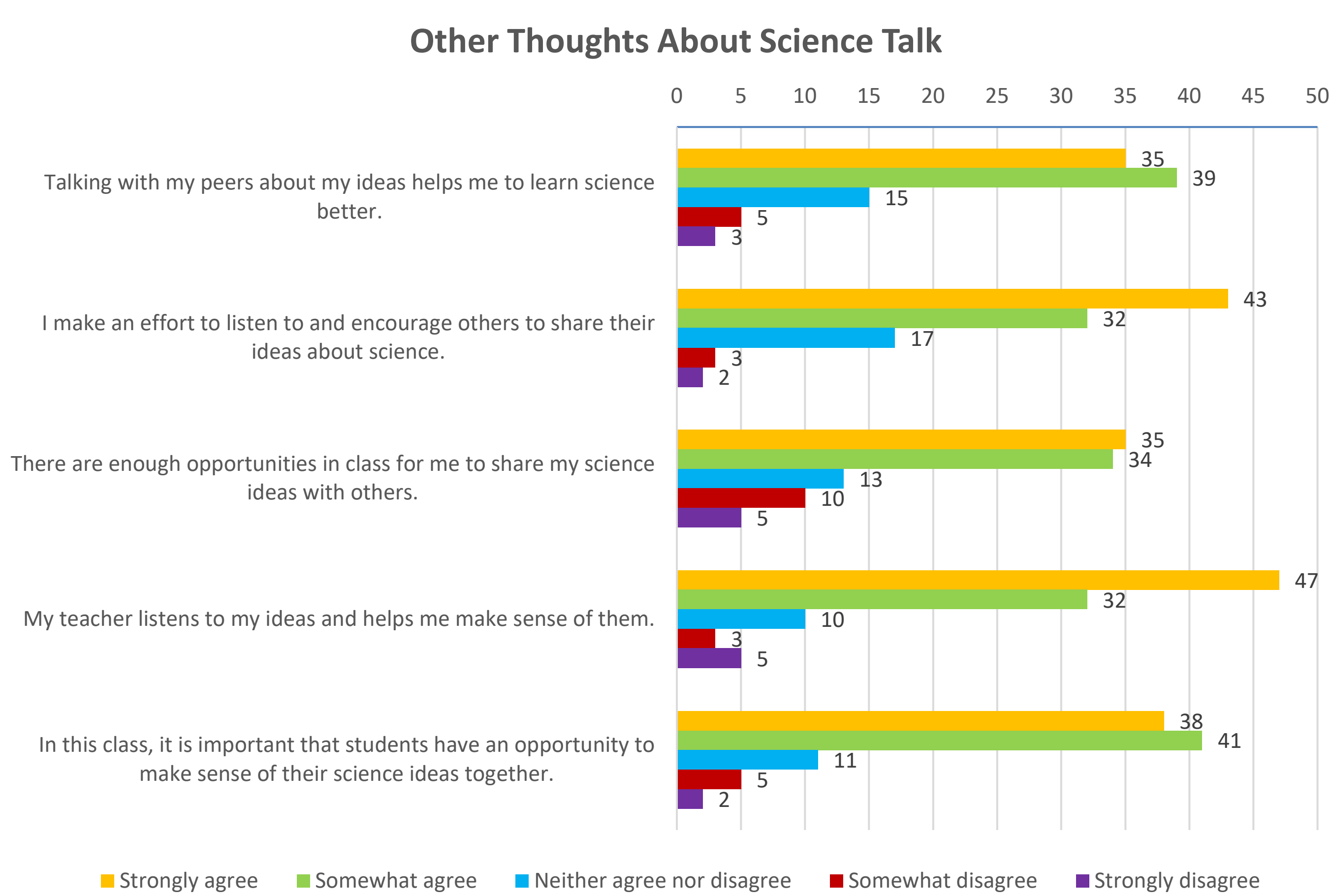

Listening to other students helps me...
0
10
20
30
40
50
60
improve my thinking.
26
57
11
4
see different perspectives on a topic.
36
47
12
3
improve my ability to argue with evidence.
36
43
8
11
learn how to communicate my science ideas more clearly.
39
37
15
7
A lot
A fair amount
A little bit
Not much

TCI Gr 4

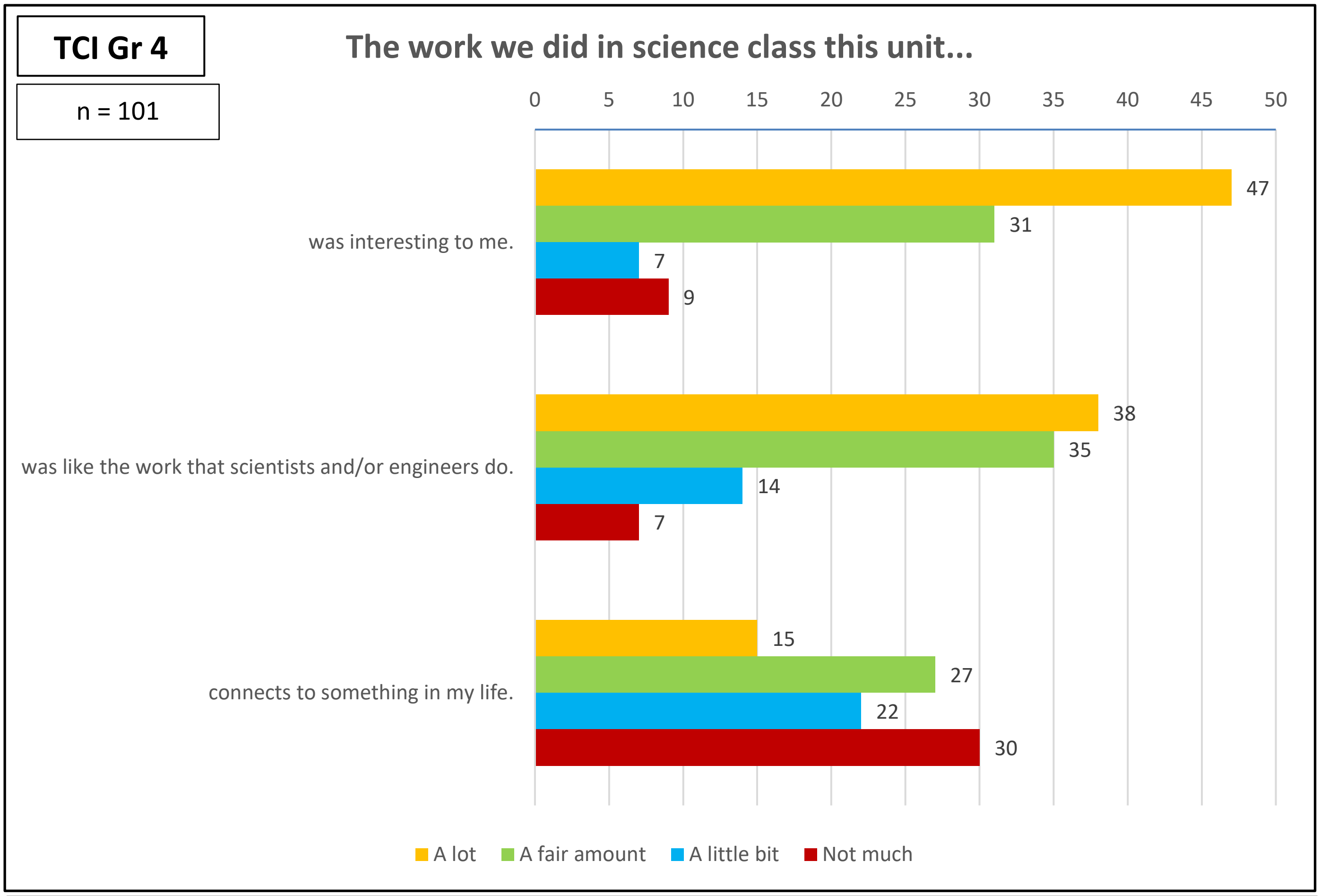
n = 101

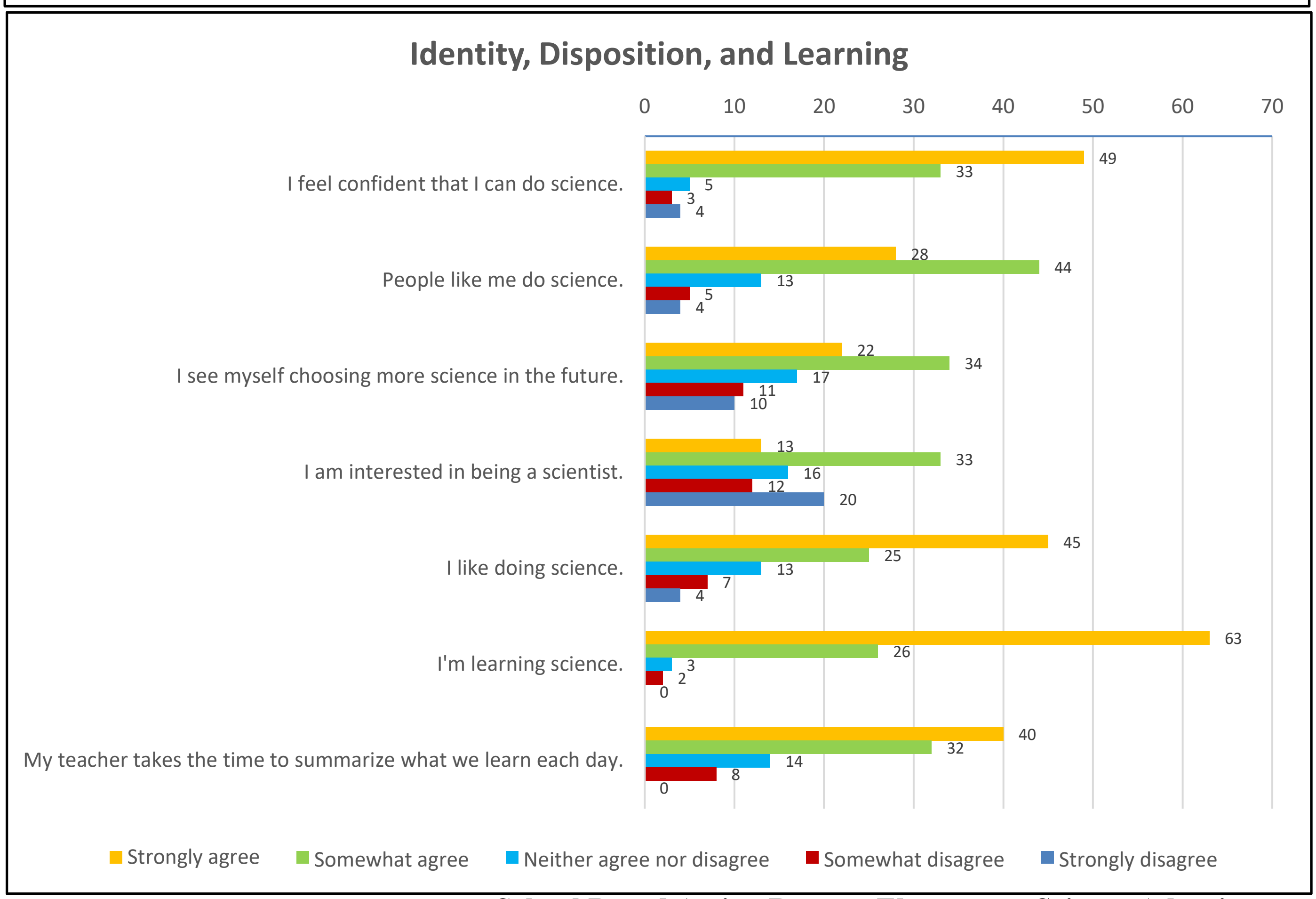


I learn a lot better when we...
0
5
10
15
20
25
30
35
40
45
50
talk in whole class discussions.
31
41
17
9
talk in small group discussions.
36
41
16
5
have time to think before we talk.
44
36
14
4
work individually and silently.
37
24
15
22
A lot
A fair amount
A little bit
Not much



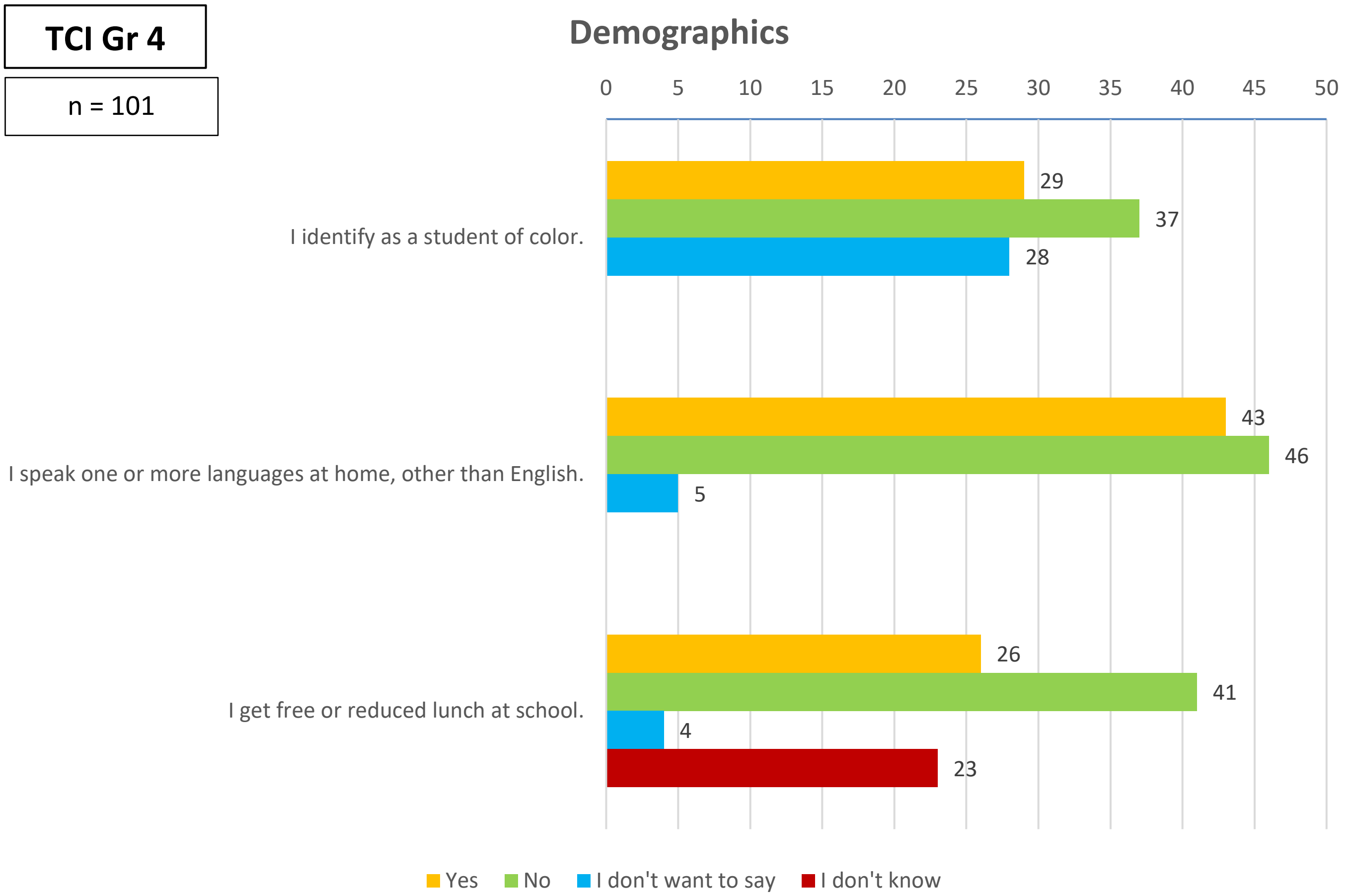
Other Thoughts About Science Talk
0
5
10
15
20
25
30
35
40
45
50
Talking with my peers about my ideas helps me to learn science better.
35
39
15
5
3
I make an effort to listen to and encourage others to share their ideas about science.
43
32
17
3
2
There are enough opportunities in class for me to share my science ideas with others.
35
34
13
10
5
My teacher listens to my ideas and helps me make sense of them.
47
32
10
3
5
In this class, it is important that students have an opportunity to make sense of their science ideas together.
38
41
11
5
2
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


TCI Gr 4
n = 101
The work we did in science class this unit...
was interesting to me.
47
31
7
9
was like the work that scientists and/or engineers do.
38
35
14
7
connects to something in my life.
15
27
22
30
A lot
A fair amount
A little bit
Not much

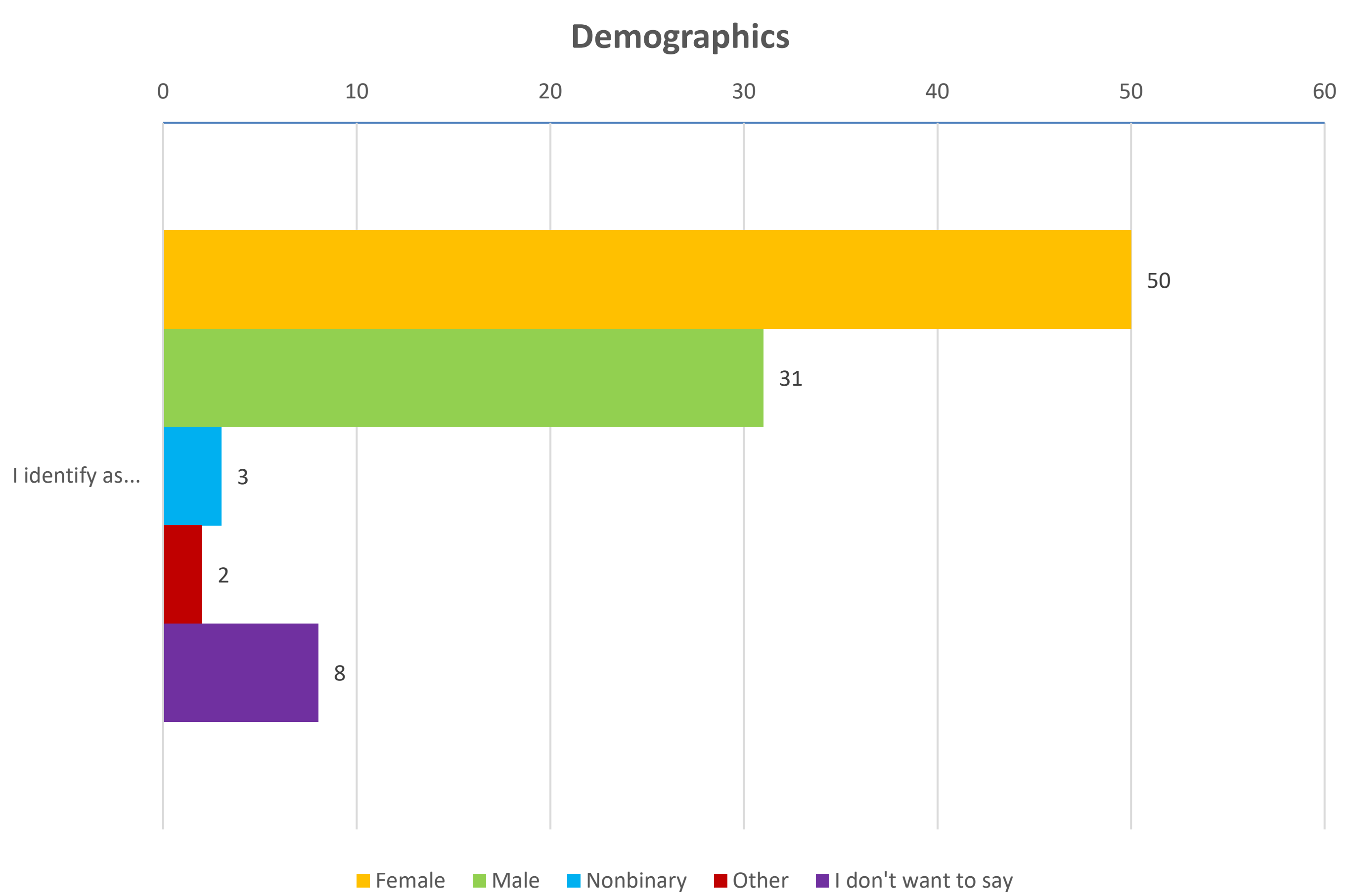

Identity, Disposition, and Learning
I feel confident that I can do science.
49
33
5
3
4
People like me do science.
28
44
13
5
4
I see myself choosing more science in the future.
22
34
17
11
10
I am interested in being a scientist.
13
33
16
12
20
I like doing science.
45
25
13
7
4
I'm learning science.
63
26
3
2
0
My teacher takes the time to summarize what we learn each day.
40
32
14
8
0
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

TCI Gr 4

n = 101



Demographics
0
5
10
15
20
25
30
35
40
45
50
I identify as a student of color.
29
37
28
I speak one or more languages at home, other than English.
43
46
5
I get free or reduced lunch at school.
26
41
4
23
Yes
No
I don't want to say
I don't know



Demographics
0
10
20
30
40
50
60
I identify as...
50
31
3
2
8
Female
Male
Nonbinary
Other
I don't want to say

Attachment I.3: Field Test Data
Student Growth

Field Test teachers collected data from each program's pre-unit and post-unit assessments in order to measure student growth.

Methodology

Results were converted to a percentage, then an average was generated for both pre-unit (PRE) and post-unit (POST). Only data from students that took both the pre-unit and post-unit assessments was used in the calculation. Average growth was calculated using the following formula: (PRE – POST) / (100% – PRE)

Results: 1st Grade Field Test

Program	# of Classrooms / # of Students	Pre-Unit Average (%)	Post-Unit Average (%)	Average Student Growth (%)
AmplifyScience	4 / 81	28.2%	92.6%	**89.7%**
HMH	3 / 51	54.9%	84.6%	**65.9%**
TCI	4 / 87	66.4%	76.0%	**28.6%**

Results: 4th Grade Field Test

Program	# of Classrooms / # of Students	Pre-Unit Average (%)	Post-Unit Average (%)	Average Student Growth (%)
AmplifyScience	3 / 80	17.9%	78.3%	**73.6%**
HMH	3 / 94	47.3%	63.7%	**31.1%**
TCI	3 / 133	45.3%	58.9%	**24.8%**

Attachment I.4

GRADE 1 SCIENCE: AMPLIFY SCIENCE
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: ANIMALS AND PLANTS

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5
SEP attended to within the unit	3	-	3	2	3
Phenomenon					
• Presence of	3	3	3	3	
• Revisiting	3	3	3	3	
• Engaging	2	3	1	1	
Evidence Gathered					
• Multiple types	3	3	3	2	
• Student engagement	3	3	2	2	
Student Discourse for sense-making	3	3	3	2	
Students tracking their progress (self-assessment)	-	-	-	-	
Student Explanations	3	3	2	3	
Usefulness of Materials	3	3	1	2	

Comments to Note:

Teacher #1

- Cards…books really great used in investigation notebooks. Get to respond orally before writing, nicely structured. Works well for students who struggle with just a table to complete. Lots of cards in the kit, living things w/ camouflage lesson, created squares to blend into environment on picture.
- Having overall purpose, yes. You're an aquarium scientist have to be able to explain how Spruce the turtle will survive once he's released. Causes to focus solely on sea turtles instead of all living things. Defense structures have been able to communicate how diff defense structures work and purpose of it, instead of just keeping them safe, camo allows them to blend in and thus prevents them from being eaten.
- Planning creating, testing and revising. Many could explain why they had to revise, change their model. Able to explain why they had to make changes. Its' been easier w/ more hands-on or getting up & doing something whereas not so much in carpet discussions.
- , their explanations of what students' responses should be. Students completed a practice page and used a sentence frame then used the same one in their notebooks, the notebooks have blank lines. Structured to use same sentence frame in their notebooks. Lessons wrapped w/ shared writing, able to track how many students are able to explain, to respond to prompt, to group writing, able to name and explain structure and function of living things.

Teacher #2

- Loved having the individual small readers that mirror the big ones – make a HUGE difference to have them be able to look-up information, review info, and read on their own or reread on their own and not just have to gather around the giant readers on the carpet.
- Sea turtle is great hook and really strong – hook for me too and can bring real examples. The fake scenario with aquarium is a little much , but the script helps you keep coming back to it.
- Lots of good built in prompts for turn and talk. More than half get into good talk. Boosts learning
- The on-the-fly assessments are helpful snapshot s – embedded in the script. Teacher manual is user friendly than the CCC stuff. Really like having both online with updates but definitely the printed manual.
- The teacher accomplished a lot in this lesson and students were engaged throughout. The modeling activity was a real "aha" for many students about the mechanism of the defenses. Using the readers as reference books and for collecting evidence was effective. Lots of referring back to the Spruce the injured sea turtle anchoring phenomenon.

Teacher #3

- The story line is not a hook for my students. Other than reminding them at the start of every lesson, they have no connection to being aquarium scientists
- In my opinion, students are asked to repeat back information they have been told, watched on a video or read in a book.

CS: Feels way too scripted, interferes with her ability to connect with the students. The front-loading feels overwhelming and it takes her a long time to make sense of the lesson plans. There isn't enough time built in for student sensemaking. It took much longer than planned for her to get through Chapter 1. She struggles to have to make additional time to finish activities. Today, she is considering using some of her other scheduled time to have students do the drawing of their model and reflection.

Teacher #4

- The students seem kind of confused about the phenomenon. At first, they were confused about whether or not we would be going to an aquarium or if we would truly be using the information we gather to inform real kids at the aquarium how Spruce the sea turtle will survive. They seemed disappointed that the phenomenon was not real, and something we were just imagining.
- We've read several books and observed photographs and videos. The students seem to be making sense of the evidence they collect.

Teacher #5

- They have gotten really good at using their non-fiction book and reading together, and then using the evidence together with a partner. I would say most of them were able to write out a sentence, draw their animal and label it without too much support. That was definitely successful.
- The kids really like this topic – they really like talking about animals and their defenses. I think some of the stuff is a little silly, like observing other people chewing. It's not to say it wasn't educational, but I don't know. There's a lot of sitting down, so there is a challenge keeping some of my more wiggly students engaged. They have a lot to add to the conversation when they are engaged
- They have done some hands-on, they have observed each other chewing, and we have watched videos, done some reading, and so it has been a mix of sources. When they are in partners, they have an opportunity to make sense of this evidence together. They LOVE reading together.
- I really like the connection to literacy and collecting evidence and writing evidence and talking with partners – because I believe that is scientific. So, there are pros and cons.
- The teacher guide is so scripted. It gets really wordy, so to figure out what needs to be done, you have to read through this entire section. It would be great if there was an outline, so, here's the lesson breakdown, here's the script if you need it.

Field Test Classroom Observation

Teacher: #1
Vendor: Amplify
Unit: Plant & Animal Defenses

Pre-observation Information

1. Is there something you'd like me to pay particular attention to during my visit? Not really, I noticed they give time est. I've found that it usually takes longer, some of that is not familiarity with it. Esp for carpet activities have to share out and the writing. Is it because more students want to share ideas but still get antsy being on carpet long enough, send them to their seats to finish. Challenge I've had. Hands-on have gone smoothly, they took the amt of time I expected. Supposed to be multiple sets of today's cards, but only one set. Was it a typo or lacked those sets?

2. Is there any particular information about the timing of this visit that would be helpful to note? Not really, typical time we do science, started to do 3/lessons a wk. wasn't enough to do, took longer. Early Feb and snow days, almost daily in some capacity. Books w/ program really fantastic, used during reading to get through everything.

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? Observing cards, noting differences were successful, walked around, conversations were about the cards, on topic, working together. Carpet: were able to point out sim/diff, more to come at end of chapter.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? I think so, Ch1 mainly about living things' needs, Ch 2 about defense, Ch 3 getting into offspring: and how do they defend themselves and as they grow how are their structure sim and diff than their parents. Vocab will be in place, got from Ch 1 & 2.

3. Was there something that you would have liked to see that didn't happen? Because most of the lessons involved conversing w/ others if they had had their own set of cards or type of hands-on or movement component may have helped them keep engaged for the carpet conversation. With role playing they're much more engaged, w/o this don't get to grab onto the learning as well. Learn better from each other. Think 3.2 will have some role playing, that'll help them, 30 min of talking is a lot for them.

4. What are your comments on the materials that you used today/ this week? Cards…books really great used in investigation notebooks. Get to respond orally before writing, nicely structured. Works well for students who struggle with just a table to complete. Lots of cards in the kit, living things w/ camouflage lesson, created squares to blend into environment on picture.

Overall:

5. What are your students understanding or not understanding? Understand: main content: living things' needs, structure/function about to explain, defend. Struggle not always clear in instruction about model or model plans, how to explain to them not set up model as a particular animal, clay is just representing a living thing. Not until class model did they get it.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? Having overall purpose, yes. You're an aquarium scientist have to be able to explain how Spruce the turtle will survive once he's released. Causes to focus solely on sea turtles instead of all living things. Defense structures have been able to communicate how diff defense structures work and purpose of it, instead of just keeping them safe, camo allows them to blend in and thus prevents them from being eaten.

7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered? Tracking models, created models for ¾ defense mechanisms, investigation notebook doesn't provide a daily written record so hard to tell all the time. What scientist do, opportunity to : can say what we know now what we didn't know. Post-it notes, can return to them for evidence in books.

8. Have student to student discussions focused on sense-making around evidence collected? Yes, think so. Use the book, talk about observations then preplan, come back together, talk about model's features, structures, why was it effective. Planning creating, testing and revising. Many could explain why they had to revise, change their model. Able to explain why they had to make changes. Its' been easier w/ more hands-on or getting up & doing something whereas not so much in carpet discussions.

9. How would you rate the explanations student generate using the tools from this unit? Application about how living structures defend itself to problem of keeping aquarium food outside w/o being eaten. Beginning of lesson has been very helpful, the overview, their explanations of what students' responses should be. Students completed a practice page and used a sentence frame then used the same one in their notebooks, the notebooks have blank lines. Structured to use same sentence frame in their notebooks. Lessons wrapped w/ shared writing, able to track how many students are able to explain, to respond to prompt, to group writing, able to name and explain structure and function of living things. Able to walk grp to grp, note which students articulate and which ones just listen. Work w/ those to explain, can check off. Can use these tools to see where students are, On the Fly, with more practice will get easier. With those students who are having a harder time to explain concepts, hard to determine how to address before moving on and knowing we're pressed for time, that it all builds.

10. Is there anything that we should know that I haven't asked you? Have enjoyed this more than kits we've used in the past. For most part laid out pretty well sometimes too well. Try to follow but some places too much text, have to listen for responses that the book says we should look for. Enjoy online components, even students like the videos, clear visuals, instead of looking at pictures. If we were to adopt this as implemented we would still need to condense/modify to not have kids sit so long, or not take so much time on the carpet because we're so limited in time. How to incorporate books into reading/writing time. K-2 sm group rotations, can use these books. Very engaged w/ pictures and finding words they've learned in science. Overall, I've enjoyed it. Looking forward to creating their models. Once kids getting hands-on they're creating more and thinking about why they are creating instead of just observing, have to explain their reasoning why they're including something. Has kept them motivated when creating models love referring back to their books/readers. Instead of fun Friday they ask if they can do extra -ong science. Kids love being aquarium scientists.

<u>SECTION 4: Curriculum Lead's Reflections</u>

A lot happening in this session. Students talking on carpet only allows one student to talk at a time, agree that needs tweaking. Group conversations very rich and on task about the cards. Interview with teacher shows the investigation notebook is assessible to students, the repetition of talk-write helps students be independent. Literacy component rich and well used in 1st grade.

Field Test Classroom Observation

Teacher: #2
Vendor: AmplifyScience
Unit: Animal & Plant Defenses

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   Iterative design process was authentic today – successful - models
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   Teacher manuals, script, and on line very user friendly.
3. Was there something that you would have liked to see that didn't happen? First modeling activity should have been scaffolded better - start with just the spikes after the spikes lesson
4. What are your comments on the materials that you used today/ this week?

   Loved having the individual small readers that mirror the big ones – make a HUGE difference to have them be able to look-up information, review info, and read on their own or reread on their own and not just have to gather around the giant readers on the carpet.

Overall:

5. What are your students understanding or not understanding? Kids are engaged and feel like they are learning. Not too much writing, they lay the groundwork first because old kits had way too much writing for primary.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? Sea turtle is great hook and really strong – hook for me too and can bring real examples. The fake scenario with aquarium is a little much , but the script helps you keep coming back to it.
7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered? Chapter 1 was all games and reading but not a lot multiple modalities for evidence collection early-on. Survival game was great. Not nearly as much prep as old kits. It's really user friendly.
8. Have student to student discussions focused on sense-making around evidence collected?
   Lots of good built in prompts for turn and talk. More than half get into good talk. Boosts learning
9. How would you rate the explanations student generate using the tools from this unit?
10. Is there anything that we should know that I haven't asked you? Too much seated time even when activities change. Would recommend still doing learning activities – user-friendly, strong, good but have to make some tweaks.

The on-the-fly assessments are helpful snapshot s – embedded in the script. Teacher manual is user friendly than the CCC stuff. Really like having both online with updates but definitely the printed manual.

SECTION 4: Curriculum Lead's Reflections

I am impressed with the ambitious pacing. The teacher accomplished a lot in this lesson and students were engaged throughout. The modeling activity was a real "aha" for many students about the mechanism of the defenses. Using the readers as reference books and for collecting evidence was effective. Lots of referring back to the Spruce the injured sea turtle anchoring phenomenon.

***Field Test* Classroom Observation**

Teacher: #3
Vendor: Amplify
Unit: Animal and Plant Defenses

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?

   Today's lesson was the first investigative, hands-on activity and the students enjoyed it. The was plenty of time to hear their own thinking, rather than just having them repeat back information. The student discourse during and after the activity was strong.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?

   The materials were interesting and helpful to make the lesson successful.

3. Was there something that you would have liked to see that didn't happen?

   Not really, however, because of its hands-on nature, and ability to engage students in their own ideas, this has been my favorite lesson so far.

4. What are your comments on the materials that you used today/ this week?

   I feel like my comments are well-captured in the next section.

Overall:

5. What are your students understanding or not understanding?

   They are not having any difficulty understanding the material as it is presented. It does not feel very rigorous for first graders.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?

   The story line is not a hook for my students. Other than reminding them at the start of every lesson, they have no connection to being aquarium scientists.

7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?

   That living things need air, water and food to survive and also not get eaten. Living things have structures to help them get what they need as well as defend themselves. We gathered evidence by observing each other eat carrots a couple of times.

8. Have student to student discussions focused on sense-making around evidence collected?

   Only in this one lesson.

9. How would you rate the explanations student generate using the tools from this unit?

   In my opinion, students are asked to repeat back information they have been told, watched on a video or read in a book.

10. Is there anything that we should know that I haven't asked you?

    Thank you for listening!

SECTION 4: Curriculum Lead's Reflections

T: Feels way too scripted, interferes with her ability to connect with the students.

T: The front-loading feels overwhelming and it takes her a long time to make sense of the lesson plans.

T: There isn't enough time built in for student sensemaking. It took much longer than planned for her to get through Chapter 1. She struggles to have to make additional time to finish activities. Today, she is considering using some of her other scheduled time to have students do the drawing of their model and reflection.

T: The students are very engaged, but she feels that the phenomenon is just tacked on (and hollowly readdressed – just a reminder at the beginning of every lesson). No storyline, no persistent model like on a bulletin board or otherwise.

Field Test Classroom Observation

Teacher: #4
Vendor: Amplify
Unit: Plant and Animal Defenses

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?

   I think stating clear expectations and trying to help the kids get into the science lessons by putting on their "scientist hats" helped engage the kids in the learning activity.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?

   I was frustrated with the instructional materials because they were not where I thought they would be. The lessons routinely have photos and videos used in the lesson at the end of the teaching directions, but this time they were not there. The instructions were not clear on how or where to find the images used in this lesson.

3. Was there something that you would have liked to see that didn't happen?

   I was nervous about doing this lesson because many of my students have a difficult time moving through space in a way that is respectful to others and our classroom environment. I was impressed with how well the students moved during the first transition of this lesson, but by the third, it was clear we would have to go back to the rug to have any kind of meaningful dialogue.

4. What are your comments on the materials that you used today/ this week?

   The lesson wanted the students to do the "Think and Walk" Activity with 6 different images and estimated the lesson would take 10 min. It took our class almost 20 minutes to do the "Think and Walk" Activity with a paired down 3 images. Also- it is very difficult to teach this lesson in an engaging way while reading the script.

Overall:

5. What are your students understanding or not understanding?

   My students understand that living things have structures that help them survive. I feel like we have talked about this in one way or another every day since we started this unit at the end of January. While I do believe repetition is a great way for students to learn, I feel like the students understand and it would be great to move on to learning something else.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?

   The students seem kind of confused about the phenomenon. At first, they were confused about whether or not we would be going to an aquarium or if we would truly be using the information we gather to inform real kids at the aquarium how Spruce the sea turtle will survive. They seemed disappointed that the phenomenon was not real, and something we were just imagining. II think this topic of animal defenses is so interesting, and we are really lucky to have a school that sits right next to Carkeek Park, where we can go and witness live animals in several different habitats. I wish the curriculum gave us some leeway to use our natural resources to engage the students in learning.

7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?

   We've read several books and observed photographs and videos. The students seem to be making sense of the evidence they collect.

8. Have student to student discussions focused on sense-making around evidence collected?

   Yes, I believe so.

9. How would you rate the explanations student generate using the tools from this unit?

I would say they are pretty average. I would say that more students are able to express their ideas using the tools from this unit than average.

10. Is there anything that we should know that I haven't asked you?

    I can't think of anything.

Field Test Classroom Observation

Teacher: #5
Vendor: Amplify
Unit: Plant and Animal Defenses

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?

   They have gotten really good at using their non-fiction book and reading together, and then using the evidence together with a partner. I would say most of them were able to write out a sentence, draw their animal and label it without too much support. That was definitely successful.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?

   [see comments below]

3. Was there something that you would have liked to see that didn't happen?

4. What are your comments on the materials that you used today/ this week?

Overall:

5. What are your students understanding or not understanding?

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?

   The kids really like this topic – they really like talking about animals and their defenses. I think some of the stuff is a little silly, like observing other people chewing. It's not to say it wasn't educational, but I don't know. There's a lot of sitting down, so there is a challenge keeping some of my more wiggly students engaged. They have a lot to add to the conversation when they are engaged, but they can't do that if they're wiggling around.

   I think plant and animal survival is a good topic. It's broad, there's a lot to explore, and a lot of opportunities to focus on specific animals. I do wish that the sea turtle thing was more pinpointed on, because we opened on it, but then – OK, we're aquarium scientists, but what? Where is the aquarium in this reading?

   So imagine, we're Carkeek Park scientists, and we're going to go observe how stinging nettles defend themselves, or we're going to go observe barnacles, or whatever. I think that having a script is helpful for first-year teachers, but for me, I just think it would be more useful if I read through it, thinking, "what am I supposed to be saying here?" and find the point, and then I know what to talk about with the students.

7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?

   They have done some hands-on, they have observed each other chewing, and we have watched videos, done some reading, and so it has been a mix of sources. When they are in partners, they have an opportunity to make sense of this evidence together. They LOVE reading together. They love doing that! So if I have a student that has trouble accessing the text, they have a partner who can, they can read it to them, and I don't have to step in to help too many people – I can ask more questions.

8. Have student to student discussions focused on sense-making around evidence collected?

   Yes, they are very interested in talking with each other to share their ideas. They are very engaged during those moments. There is some "talk to your partner" moments in Amplify, but I do it a lot more than the lesson guide says to do it. A) Every kid wants to share out, and that takes forever, and honestly, no one cares what the one kid is saying, they're all waiting for their turn – when is it going to be my turn to talk? Especially at this age.

9. How would you rate the explanations student generate using the tools from this unit?

   Students have been able to construct good explanations within this unit so far.

10. Is there anything that we should know that I haven't asked you?

    I think it's going all right… I do think that if we were to adopt this program, I would not teach it the way that it is written, because we have access to Carkeek Park, we have access to all these live creatures that we could be observing instead of watching videos. But I really like the connection to literacy and collecting evidence and writing evidence and talking with partners – because I believe that is scientific. So, there are pros and cons.

    The teacher guide is so scripted. It gets really wordy, so to figure out what needs to be done, you have to read through this entire section. It would be great if there was an outline, so, here's the lesson breakdown, here's the script if you need it.

    I do like that the phenomenon touches on the NGSS standards. I like there's a focus on literacy and evidence – I don't like that there's too much of a script, too much planning time, and too much sitting.

SECTION 4: Curriculum Lead's Reflections

Summary: This lesson was engaging for the students, but I think I was observing the teacher making modifications based on her pedagogical skills. For example, she added in a reflection at the end about the practices students were engaged in during the lesson. The partner activity worked very well, as students collaborated on their reading and writing activity. They were clearly engaged with the content, as several students approached me to share their drawings before the transition to the kinesthetic activity. Having the students act out the animal's defense challenged them to think deeper about the defenses – at first, most tried to act out the animal, but when reminded of the actual task, many found it challenging yet very engaging.

GRADE 1 SCIENCE: AMPLIFY SCIENCE
SUMMARY OF EVIDENCE GATHERED DURING STUDENT INTERVIEW
UNIT: ANIMALS AND PLANTS

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5
Discourse for sense-making	2	2	2	2	2
Consensus building	-	-	-	-	-
Phenomenon present and helpful	2	3	3	2	1
Elicitation / Initial Model	-	2	-	2	-
Evidence helped understand the phenomenon	2	2	2	2	-
Way to track ideas through the unit	-	-	-	-	-
Assessments fair and helped know where you are	-	-	-	-	-
Does the unit help you learn science	2	2	2	2	-
Would you recommend these materials	-		-	-	-

Comments to Note:

- It's fun to learn about what we didn't know. I didn't know sharks could break turtles shells. We're trying to answer questions about the aquarium, how she'll survive w/ sharks. Keep finding holes in the bags, camouflage. At the start I didn't know a snake could shoot venom from its mouth. I didn't know a snake was called a water snake, all can swim. Eels eat lion fish.
- CS: Students very excited about this topic, they are super interested about offspring/parents but also about Spruce surviving with sharks. Students made connections with their lives (Brennan talking about parents and another student talking about how her dog was an offspring). You can tell they go home and talk about this with their families. The student who voluntarily said he likes science now made me regret not recording it but he said it as we returned to the classroom.
- Figure out how to release Spruce the sea turtle back into the wild after having his shell broken. Have ot think about how spruce will defend herself when she is released. Help her to stay alive in the wild.
- She asks us questions and we raise our hands. She know were listening. We do gallery walk too. We use evidence. Evidence is how I know its true.
- About how spruce survived and how spruce can survive where there are sharks. Sea turtles have salt glands and filter out the salt when they drink the water. Regular turtles can retract but sea turtles can't retract flippers. They have some claws. Other animals have claws.
- We are learning about the animals and their defenses. They can have spikes, and they can have venom. So that the predators can't eat them. It might kill the predators! I have the spikes, and we put the paper over the spikes so the predator won't see them and – [mimes biting into spikes]
- My favorite thing we're learning in science is Bruce the sea turtle.
- We learned a game. We played a game… The animals need air, food, and water – there's a mountain lion, there's a snake, there's a plant, there's a fish. They have to survive. That was the funnest part.
- The science we're doing, we do some turn and talks and that's when I learned some stuff.
- We are learning about animal survival. How they eat, how they defend themselves.
- Yes, we get to draw, like today we drew our animals. But sometimes it's really hard. I am not sure what to do. Like today when we had to become our animals – no, not our animals, we had to become the defense, like a shell
- It helps to draw, because it helps you to remember – it helps you to visualize the things that, like… it's really hard to explain.

Student Interview

Teacher #1
Unit Name: Plant and Animal Defenses
Vendor: AS

Questions:

1. Would you like to show me something you're learning in your notebook? Students didn't bring their notebooks so I asked them to tell me something about their notebooks. She tells us what page to use and it knows what we're doing. Maybe that giant book explains what we're doing, maybe it tells her what to do. What if she doesn't know anything and the big book tells her everything?
2. How does this unit help you to talk to your partner? D: if we can communicate we can solve problems together. V: maybe if we got it wrong, just a little bit, scientists communicate and they can help us.
3. What's fun about leaning about plants & animals? It's fun to learn about what we didn't know. I didn't know sharks could break turtles shells. We're trying to answer questions about the aquarium, how she'll survive w/ sharks. Keep finding holes in the bags, camouflage. At the start I didn't know a snake could shoot venom from its mouth. I didn't know a snake was called a water snake, all can swim. Eels eat lion fish.
4. What is the question that was asked at the beginning or were you shown something to wonder about? How can Spruce survive in the ocean, what does he need to do to survive?
5. Did you start this unit by drawing something to show what you already know? A: 1st we talked, then wrote about it then we made models out of clay, made structures of defense w/ structures. We read a lot. Made chart of models we made.
6. Did your teacher ask you what you already knew about…? She asked us what we learned, what does he need to do to survive. We read about it to get some ideas about it. Read some information.
7. Have you been able to ask questions on what you've been wondering about? Yes, I wonder how Spruce can survive where there are snarks, patterns, can camouflage into rock, like octopus.
8. Does your teacher check to see if you understand? How does she/he do that? Yes, walks around, listens to us talking to our partner, looks at our papers & drawing. I wonder if she looks at our investigation notebooks when we're gone. I really wanted to ask them if they thought she lived in the classroom!
9. Do you think this is interesting? Why or why not? Yes, mainly, not that many people know this much about animals, only scientist. Only scientist make models. I didn't' know anything about scientists, only that they were called scientist. Brennan, they make models, the other students chime in: communicate, get evidence, read, observe, explain.
10. Explain to me what you're learning in science. How Spruce could survive, talking about camouflage, venom, about offspring are babies, how do offspring survive w/ sharks.
11. How is this science different from the other science you've done? Didn't know babies called offspring. *Students couldn't answer this question* I used to like reading but now I like science because we get to do everything in science, we get to read and write in science.

Curriculum Specialist Impressions and Summary: Students very excited about this topic, they are super interested about offspring/parents but also about Spruce surviving with sharks. Students made connections with their lives (Brennan talking about parents and another student talking about how her dog was an offspring). You can tell they go home and talk about this with their families. The student who voluntarily said he likes science now made me regret not recording it but he said it as we returned to the classroom.

Student Interview Protocol

Teacher #2
Unit Name: Animal & Plant Defenses
Vendor: AS

Questions

1. Would you like to show me something you're learning in your notebook?

These are the models we're making when we learn about a new animal defense. These were the drawing sin our gallery walk.

2. How does this unit help you to talk to your partner?

   Yes. It kind of shares your ideas without blurting out. You get a chance to talk about what you're thinking. You don't have to wait for the teacher to call on you. I can share my ideas if I don't get called on. It helps for reminding me of my ideas.

3. What do you like about …?
4. The models . Making them and doing the gallery walk.

5. What is the question that was asked at the beginning or were you shown something to wonder about? Figure out how to release Spruce the sea turtle back into the wild after having his shell broken. Have ot think about how spruce will defend herself when she is released. Help her to stay alive in the wild.
6. Did you start this unit by drawing something to show what you already know? We started with a model with the clay and the pokey thing.
7. Did your teacher ask you what you already knew about…?

   Not really. We did do some stuff in our science journals with a model.
8. Have you been able to ask questions on what you've been wondering about? We read the spikes, spines, and defenses book to look stuff up. We learned about the content. Table of contents.

9. Does your teacher check to see if you understand? How does she/he do that? She asks us questions and we raise our hands. She know were listening. We do gallery walk too. We use evidence. Evidence is how I know its true.

10. Do you think this is interesting? Why or why not? I like it. I like learning about how animals use things on the bodies to survive.
11. Explain to me what you're learning in science.

About how spruce survived and how spruce can survive where there are sharks. Sea turtles have salt glands and filter out the salt when they drink the water. Regular turtles can retract but sea turtles can't retract flippers. They have some claws. Other animals have claws.

12. How is this science different from the other science you've done?

   We didn't learn other science this year.

Student Interview

Teacher #3
Unit Name: Animal and Plant Defenses
Vendor: Amplify

Questions to consider asking younger students:

1. Would you like to show me something you're learning in your notebook?
2. How does this unit help you to talk to your partner?
3. What's fun about this unit?
   Yes, it was really fun! That one there – the red one – that is mine and Penny's – [describes the defenses on the model]
4. What is the question that was asked at the beginning or were you shown something to wonder about?
   We're learning about sea turtles! In an aquarium. But we're not at an aquarium.

   And other animals. There was something called a lionfish. It's a lion that is a fish.

   No, it isn't! They should call it a zebrafish. Because it has black and white stripes. [actually, they can be different colors.] Why didn't it say that in the book then?? [That's a good question!] Maybe we should write a book about it then, and you could put it in the library.
5. Did you start this unit by drawing something to show what you already know?
   I don't think so –

   No, we haven't drawn any pictures.

   [Do you think drawing helps you learn science?]

   Well, sometimes. Once when we were doing science, we were building to make ramps for balls, and we needed to draw plans first, but mine didn't work, so we had to draw a new plan that worked.
6. Did your teacher ask you what you already knew about…?
7. Have you been able to ask questions on what you've been wondering about?
8. Does your teacher check to see if you understand? How does she/he do that?
9. Do you think this is interesting? Why or why not?
   Yes. I think it is interesting to learn about animals.
10. Explain to me what you're learning in science.
    We are learning about the animals and their defenses. They can have spikes, and they can have venom. So that the predators can't eat them. It might kill the predators! I have the spikes, and we put the paper over the spikes so the predator won't see them and – [mimes biting into spikes]

    My favorite thing we're learning in science is Bruce the sea turtle.

    I like doing the ball testing where the ball goes up and down [from the previous unit].
11. How is this science different from the other science you've done?
    [Ss express their career goals, including becoming a doctor.
    Do you think the science you're learning now will help you become a doctor?]
    No. But it will help you become a scientist. They figure out what is wrong with your body by using tools.
    But this won't help us become doctors, because we're learning about animals!
    [Ss are reminded that humans are animals. Ss laugh.]
    [To S who wants to become a veterinarian: Do you think this will help you become a veterinarian?] No, but it will help you become an aquarium worker!
    Okay, but you'll have to learn everything, and you'll have to explore the whole world.

Student Interview

Teacher #4
Unit Name: Plant and Animal Defenses
Vendor: Amplify

Questions to consider asking younger students:

1. Would you like to show me something you're learning in your notebook?

2. How does this unit help you to talk to your partner?

   Yes. If I know, I immediately tell my partner. I talk really quick, so sometimes I tell my partner, and they say they don't know that, so I like to talk about it because it helps.

3. What's fun about…?

   We learned a game. We played a game… The animals need air, food, and water – there's a mountain lion, there's a snake, there's a plant, there's a fish. They have to survive. That was the funnest part.

4. What is the question that was asked at the beginning or were you shown something to wonder about?

   We are looking at the sea turtle. Spruce the sea turtle!

   I am not really learning about the sea turtle, because I knew it before we started.

   I knew some of it but not all of it. I did learn some stuff. The science we're doing, we do some turn and talks and that's when I learned some stuff.

5. Did you start this unit by drawing something to show what you already know?

   We drew some animals in art before! But I guess we haven't drawn an animal yet.

6. Did your teacher ask you what you already knew about…?

   Yes, we had some ideas.

   I already knew about the sea turtle. So it was easy. But not some of the other animals!

7. Have you been able to ask questions on what you've been wondering about?

8. Does your teacher check to see if you understand? How does she/he do that?

   We are on the carpet. If I already know the answer – if it's a little too easy – it can get boring on the rug.

9. Do you think this is interesting? Why or why not?

   Yes. It's interesting.

10. Explain to me what you're learning in science.

    We are learning about animal survival. How they eat, how they defend themselves.

11. How is this science different from the other science you've done?

    [Do you think this is what scientists do? Do you think you will use this when you get older?]

    Yes! And I knew most of this stuff. But I think we have to know it for more grade levels.

    This is too easy to be real scientists' [work]. I mean they wouldn't do some of this stuff! They wouldn't sit on the rug.

    [Do you think this is something that all 1st graders should learn?]

    Yes.

    I don't know. We have been doing it for about a week? Two weeks? Maybe. I mean we should know about animals.

<u>Student Interview Protocol</u>

Teacher #5
Unit Name: Animal and Plant Defenses
Vendor: Amplify

Questions to consider asking younger students:

1. Would you like to show me something you're learning in your notebook?
   [Many students shared their drawings with me today during the observation. They had drawn their selected animals and the animals' defenses. Some had not yet labeled the drawings but quickly returned to their tables to do so when prompted.]

2. How does this unit help you to talk to your partner?
   We got to read today with a partner, and then we wrote about the animal. That made it easier.

   But sometimes, it is not so easy, like, if you want one animal and they want another animal. It is like the clay animal we made. See, that was a problem. It was a really good animal. But we were allowed to take it home, but I wanted it and my partner wanted it.

3. What's fun about this unit and science?
   I like that you learn a lot, and I like doing new stuff.

   I like to read my science book at home.

   I like to read a science book about outer space.

4. What is the question that was asked at the beginning or were you shown something to wonder about?
5. Did you start this unit by drawing something to show what you already know?
   Yes, we get to draw, like today we drew our animals. But sometimes it's really hard. I am not sure what to do. Like today when we had to become our animals – no, not our animals, we had to become the defense, like a shell – I didn't know what I was supposed to do. How am I supposed to become a spike?

   It helps to draw, because it helps you to remember – it helps you to visualize the things that, like… it's really hard to explain.

6. Did your teacher ask you what you already knew about…?
7. Have you been able to ask questions on what you've been wondering about?
8. Does your teacher check to see if you understand? How does she/he do that?
   Well, yeah! She is always asking us when we are working what we are wondering. I am wondering, I have two dogs. But one got sick… [diverged from answer here]

9. Do you think this is interesting? Why or why not?
   I like this one – actually, he last unit about balls and rolling them was more interesting.

10. Explain to me what you're learning in science.
    We get to watch videos sometimes. And we are learning about the animals, and their defenses. Their camouflage. They have shells and spikes. And venom.

11. How is this science different from the other science you've done?
    Our last science, we had balls, and we made them go up and we made them go down. On ramps. But this is about animals and sea turtles.

GRADE 4 SCIENCE: AMPLIFY SCIENCE
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: EARTH'S FEATURES

4: Superior Evidence   3: Strong Evidence   2: Moderate Evidence   1: Minimal Evidence   0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5
SEP attended to within the unit	2	3	2	4	2
Phenomenon					
• Presence of	3	3	3	3	3
• Revisiting	3	3	3	2	2
• Engaging	3	2	3	2	2
Evidence Gathered					
• Multiple types	3	3	3	3	3
• Student engagement	3	3	3	3	3
Student Discourse for sense-making	3	2	2	3	2
Students tracking their progress (self-assessment)	3	-	-	-	-
Student Explanations	3	3	3	3	3
Usefulness of Materials	3	2	3	3	3

<u>Comments to Note:</u>

Teacher #1

- Sim very effective tool, we keep returning to it each of the chapters, excited to see how it all connects to the national park. Modeling tools have also cemented concepts for kids. They are really into them and anything w/ a computer.
- Nice continuous theme building into the lessons. Have activities that specifically site the park but then a couple of lessons later will refer back to phenomenon. Yes, just to have something to draw from, go back to, couple have sited the Desert Park
- I've been really impressed on how user friendly this unit has been. I didn't feel there was enough detail w/ one activity, couldn't tell if I use big/little cups, but that was all. Nice balance of tech, books, tools. Impressed with all the pictures providing in this unit.

Teacher #2

- Teacher Guide scaffolds are dense and wordy. ELL suggestions, differentiation suggestions, multi-modalities to make meaning. Lots of scaffolds. Does a fine job.
- SIMs are great, the readers are great. The reading helped me to visualize what the environment where the rock formed might have looked like. In 1.5 they make a physical model of a sedimentary rock. Confusing purpose. They are excited about adding another layer but not sure if they are seeing the concept they are supposed to be seeing. Books are engaging and SIMS engaging. The lab book is good. I do optional pages (before/after) to transition. Usually do optional warm-up and end reflection. No rubrics for the OTF assessments, but there's look-for. I use their writing to check for understanding. Using their talk but mostly use their writing. Try to correlate with OTF.

Teacher #3

- This week, students used both the simulation and the evidence cards, which helped them think more deeply about the concept. They were also able to refer to their models which helped them as they continued to build on ideas about the concepts: What do fossils tell us about the environments in the past?
- Both books are very helpful and very engaging for students' understanding. My students really geeked out on them, which is really hard to find!
- Through simulations (which haven't been very effective, I think), through hands on projects such as forming a sedimentary rock and through reading kids have been able to expand on their thinking. They have gained lot of information from reading the book.
- My students are excited about this unit. The only issue is timing. I have dedicated every day to science, and we are still quite behind. The lessons are just very long. Each lesson has too many activities.

Teacher #4

- Challenging material. The teacher book is very helpful. At the beginning of the groups of lessons, it tells you what you need for all 5 at once. If it was subdivided it would be helpful. At the top of the lesson guide you would have it at your fingertips. I need to know what I need for each lesson.
- Especially challenging for kids with reading problems. If they don't understand the first day, they have time to get the concept down. I think maybe getting some of the books on audio for kids who don't read as well.

Teacher #5

- Book, like the way curriculum incorporates the readings. Old materials used included book, but more like an extension. Little bit of the book, tie in, short enough to feel like we're doing science. Student notebook, today's page was a good one, analyzing reading. Recording it and tying to materials, to be successful, slow it down. Look at rock, then sim, then get info, if we can go back and ID steps in sim, what evidence in rock shows these steps. Not sure if it'll be necessary, feels too fast. Couple of higher readers, and kids love science were in it and figuring these out. Needs to be slowed down, don't know, is it more important to get their hands into it?
- With students who are actually talking about science, yes. Lots of good opportunity to talk through evidence before writing or applying to something else. Essential pc for Ell and low readers w/ slow processing. Not too redundant for faster students, can always learn something.

***Field Test* Classroom Observation**

Teacher #1
Vendor: Amplify
Unit: Earth's Features

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? Showing student examples on the doc-cam. Everyone had a chance to see, to experience, to listen and try to figure out, reinforcing the understanding older on bottom & new on top.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Yes, helpful hints, notes for teacher about simulation, would have taken me a long time to figure out on my own.

3. Was there something that you would have liked to see that didn't happen? This grp takes a while to transition into something new, doesn't have anything to do w/ curriculum. Good structure to layout, each builds on the last activity. More of the students fill in the diagram and the diagram is more filled, use the fossil symbols, get partners to infer what environment was there.

4. What are your comments on the materials that you used today/ this week? Sim very effective tool, we keep returning to it each of the chapters, excited to see how it all connects to the national park. Modeling tools have also cemented concepts for kids. They are really into them and anything w/ a computer.

Overall:

5. What are your students understanding or not understanding? They are beginning to understand that the bottom layer is the oldest, compacting & cementing; some are still struggling w/ order.

6. How have your students engaged with the phenomenon? Looked at image quite a bit, one form England showing distinct rock layers, how did those fossils get into the rocks. Has this phenomenon helped them to expand their thinking about this topic? Nice continuous theme building into the lessons. Have activities that specifically site the park but then a couple of lessons later will refer back to phen. Yes, just to have something to draw from, go back to, couple have sited the Desert Park.

7. What kinds of evidence have students gathered so far in this unit? Just today, designing the diagram, starting to gather evidence how these rock layers are forming. Have students been able to make sense of the evidence they have gathered? They'll be able to explain what's happening at the Park. Big group of readers, like gathering evidence from the nonfiction books in unit and other books they're reading. Using reading time to look at C/E, not much reasoning. Lots of C/E in this unit.

8. Have student to student discussions focused on sense-making around evidence collected? Yes, when engaged talking about building on what they know previously.

9. How would you rate the explanations student generate using the tools from this unit? Sim & modeling tools very helpful. Being able to fast forward through geologic time helps students see. Does this change day by day, or year by year? As sediment builds carried by the water.

10. Is there anything that we should know that I haven't asked you? I've been really impressed on how user friendly this unit has been. I didn't feel there was enough detail w/ one activity, couldn't tell if I use big/little cups, but that was all. Nice balance of tech, books, tools. Impressed with all the pictures providing in this unit.

I wondered about lost of instructional time with computer cart use but students quickly transitioned from their desks, to getting a computer, to sitting with their computer partner, to logging on to the simulation. Not only were students 'playing' with the sim, they were attending to the lessons question. They were able to make a claim about the rock layers and then use the sim to provide evidence for their claim. Partners used the computer equally.

A lot happened within the time of my observation: use of the sim, create a diagram of deposition and exchange w/ partner to see if they can identify what happened by the layer, presentations of diagrams for other class members to identify. A lot of student talk. Healthy cognitive demand with a variety of ways students could explain their understanding.

Student investigation notebooks manageable.

***Field Test* Classroom Observation**

Teacher: #2
Vendor: Amplify
Unit: Earth's Features

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   Teacher guide wasn't explicit about how does sediment get into deep and student raised questions and I jumped on that and had them go further. Different way to get a learning. Can differentiate and see were students are taking it and other kids hear from each other because they get tired of me talking. Peer talk positive.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   Teacher Guide scaffolds are dense and wordy. ELL suggestions, differentiation suggestions, multi-modalities to make meaning. Lots of scaffolds. Does a fine job.
3. Was there something that you would have liked to see that didn't happen?
   Not enough sandstone for pairs but plenty of conglomerate. Could have modified it and referred them back to their drawing of the conglomerate. They had to wait for the samples. Having them have to draw the conglomerate back in 1.4 helped focus them more and they learned about a scientific drawing. Focused them better. Drew it in detail and made observation – practicing that skill as a scientist. A little redundant in this observation, but building on it because it was about observing what environment it was formed in.
4. What are your comments on the materials that you used today/ this week?
   SIMs are great, the readers are great. The reading helped me to visualize what the environment where the rock formed might have looked like. In 1.5 they make a physical model of a sedimentary rock. Confusing purpose. For elementary, kids should get to make their own thing if it's something they could take home. Intention of activity was a little unclear. White gravel just blended in with plaster. Not collaborating with another teacher makes it hard to know if I'm doing right. It should have been really engaging but I'm not sure it showed what it was supposed to. They are excited about adding another layer but not sure if they are seeing the concept they are supposed to be seeing. Books are engaging and SIMS engaging. The lab book is good. I do optional pages (before/after) to transition. Usually do optional warm-up and end reflection. No rubrics for the OTF assessments, but there's look-for. I use their writing to check for understanding. Using their talk but mostly use their writing. Try to correlate with OTF.

Overall:

5. What are your students understanding or not understanding?
   I feel like they're tracking. They had some background knowledge. Some of the activities give them aha moments they have to put together. Even though they are HCC it's definitely not too easy for them. They always think the know more than they really do. But they're learning for sure. The lessons walk them through it so students build it. They organize their ideas and build on it. Building understanding as they go.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
   Don't feel like it's threaded in enough. How did the fossil get inside the rock? Hope they come back and answer this . Hope they can come back.
7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered? Chapter 1 the write an explanation – modeled it with more on the student to do.
8. Have student to student discussions focused on sense-making around evidence collected? Yes, how do they apply it forward. The pair shares slows them to think about what they are learning, Hearing each other ideas and pushing each other. Learning norms around discussion and norms
9. How would you rate the explanations student generate using the tools from this unit? Applying vocabulary and using evidence collected in learning activities but need more practice because haven't done as much of this in science.
10. Is there anything that we should know that I haven't asked you? I felt inspired after training and was excited about t. Topic not super engaging but I think the kids are definitely engaged and learning.

***Field Test* Classroom Observation**

Teacher: #3
Vendor: Amplify
Unit: Earth's Features

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   Adding some "spunk" to my voice is always successful to keep the kids engaged. What also made it successful was using the evidence cards (hints) to help students come up with sentences that would help us build a scientific claim together. Having an example of what a scientific argument entailed is very important.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   In terms of content, yes.

3. Was there something that you would have liked to see that didn't happen?
   The activities for each lesson are very long. So, one activity can take a very long time. This one was only supposed to last 15 minutes, and that just isn't very realistic (especially for ELL students).

4. What are your comments on the materials that you used today/ this week?
   This week, students used both the simulation and the evidence cards, which helped them think more deeply about the concept. They were also able to refer to their models which helped them as they continued to build on ideas about the concepts: What do fossils tell us about the environments in the past?

   Both books are very helpful and very engaging for students' understanding. My students really geeked out on them, which is really hard to find!

Overall:

5. What are your students understanding or not understanding?
   Some students are understanding deeply and developing their understanding of how fossils and rocks form (especially my kid who has background knowledge that comes from home). For my students who don't, it's very complex. One understanding that all kids are coming away with is how fossils are formed.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
   Through simulations (which haven't been very effective, I think), through hands on projects such as forming a sedimentary rock and through reading kids have been able to expand on their thinking. They have gained lot of information from reading the book.

7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?
8. Have student to student discussions focused on sense-making around evidence collected?
   They definitely do this, but I realized (after reading the notes) how much teacher talk there is. Yeesh. I do feel like I am talking a lot!

9. How would you rate the explanations student generate using the tools from this unit?
   From a scale of 1-5 (5 being kids generate very little), students average about a 3.5. As we immerse ourselves in the unit, students are able to elaborate on their thinking. I don't think we are too far into the unit to do this.

10. Is there anything that we should know that I haven't asked you?
    My students are excited about this unit (not all but the majority are). The only issue is timing. I have dedicated every day to science, and we are still quite behind. The lessons are just very long. Each lesson has too many activities.

***Field Test* Classroom Observation**

Teacher: #4
Vendor: Amplify
Unit: Earth's Features

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   a. I adopted the lesson plan with the construction paper. That was successful. The directions did not seem very explainable.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   a. Yes. It has stuff.

3. Was there something that you would have liked to see that didn't happen?
   a. Maybe some videos

4. What are your comments on the materials that you used today/ this week?
   a. Challenging material. The teacher book is very helpful. At the beginning of the groups of lessons, it tells you what you need for all 5 at once. If it was subdivided it would be helpful. At the top of the lesson guide you would have it at your fingertips. I need to know what I need for each lesson.
   b. Especially challenging for kids with reading problems. If they don't understand the first day, they have time to get the concept down.

Overall:

5. What are your students understanding or not understanding?
   a. So far, I think with each chapter, they get the main ideas. Some of the finer details is left out.
   b. How rock was formed. Chapter 3 questions. They don't' always know how to phrase what they want to say. I am sure they have questions but don't' know how to phrase it.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
   a. We are on the path. With 4th graders it is easier to understand.
   b. Yes a phenomenon is helpful but it gets lost. You do come back to it.
7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?
   a. Made models of rock formation
   b. Computer models
   c. Looked thru 3 books.
   d. Good resources.

8. Have student to student discussions focused on sense-making around evidence collected?
   a. Depends on who their partner is. When they talk to someone they want to talk to their friends.

9. How would you rate the explanations student generate using the tools from this unit?
   a. They do. If you look at their notebooks. It is one their workplan. A lot of student put in effort. The first lesson in chapter 3 so more time to get in to this.

10. Is there anything that we should know that I haven't asked you?
    a. I think maybe getting some of the books on audio for kids who don't read as well.
    b. It is good. I think I am running out of supplies.
    c. Kids are engaged.

The student workbooks are good. Some things are optional, they should go in the back.

***Field Test* Classroom Observation**

Teacher: #5
Vendor: Amplify
Unit: Changing Earth

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? Nothing ever feels all the way successful. Writing steps from text seems successful. Felt like I was feeding them more, wish I'd treated it like a reading lesson. Lesson a nice set up. Clear way to think through steps they'd have to do. Let go; they have to be successful with these models. Didn't get through as much.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? With this grp, no. what's needed w/ this grp, recording w/ steps, written as gradual release, they needed more than that. They needed more support, teach w/ intent but needed more. A lot don't know what is plaster, here's how to play w/ it first. Rocks & Minerals, made fossils w/ plaster.
3. Was there something that you would have liked to see that didn't happen? Start w/ phen, wished pic was at beginning of every lesson. Referred back to it but not sure kids know what I'm referring about. future lesson will go better, more practice w/ writing. Take idea from real world and transfer to materials, wish they'd had more practice w/ it. Are we going to learn from it when the models don't work? Wish similar activity first, as a practice, to transfer ideas about the process to be successful. Maybe start w/gravel.
4. What are your comments on the materials that you used today/ this week? Book, like the way curriculum incorporates the readings. Old materials used included book, but more like an extension. Little bit of the book, tie in, short enough to feel like we're doing science. Student notebook, today's page was a good one, analyzing reading. Recording it and tying to materials, to be successful, slow it down. Look at rock, then sim, then get info, if we can go back and ID steps in sim, what evidence in rock shows these steps. Not sure if it'll be necessary, feels too fast. Couple of higher readers, and kids love science were in it and figuring these out. Needs to be slowed down, don't know, is it more important to get their hands into it?

Overall:

5. What are your students understanding or not understanding? Have the time concept, idea of something begin covered in sediment. Obsessed w fossil, w/ sim watch rock form, kept talking about fossils, but not fossils. Excited about fossils. Hopefully it'll all come together by the time we come to the end.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? I fear they've forgotten about it, keep saying it them. Wasn't too sure which was the phenomenon, on the pretest. Hoping chapter 2 starts w/ same picture.
7. What kinds of evidence have students gathered so far in this unit? Reading sim, observations, pictures of fossils although questionable. Have students been able to make sense of the evidence they have gathered? On the fly: When do fossils form in sed rocks? Water's involved somehow. Sim talks about siltstone and sandstone but didn't see these rocks. These terms not given as rocks.
8. Have student to student discussions focused on sense-making around evidence collected? a
9. How would you rate the explanations student generate using the tools from this unit? Are tools useful to tell whether or not they're learning? Yes, there's a lot of writing—pretest. Drawings have been helpful. When I can listen in on all the conversations but materials are there.
10. Is there anything that we should know that I haven't asked you? Tech is hard, they're really good; skeptical at first short burst, rickety old cart. Tech person here, ½ log-ins working. Kids have skills to click through and explain how to with others. Maps really nicely with concepts, they break out the concepts into little pcs. Digital models good tool to use, demo geographic time. 20 min take an hour, maybe it's a learning curve. Don't use personal logins at all. Wifi slows down, or if they have to restart, can't use generic login, could tech person put in a short cut. So new, trying things out before they can complete the task. Went to computer lab to practice, but carts are different. Did sim together & wrote observations together, making sure they got the science. Need more tech capacities. Kids didn't like starting the unit with written assessment.

SECTION 4: Curriculum Lead's Reflections

This is a careful teacher, wanting students to understand what they are doing. Lesson seemed very rich even though it was a preparation for making a model. She took the time to go around the entire room to check on understanding. In the interview it felt she was being cautious because she was uncertain of the outcome to the steps in the lesson plan.

GRADE 4 SCIENCE: AMPLIFY SCIENCE
SUMMARY OF EVIDENCE GATHERED DURING STUDENT INTERVIEW
UNIT:

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5
Discourse for sense-making	2	2	2	2	3
Consensus building	-	-	-	-	2
Phenomenon present and helpful	-	3	2	2	2
Elicitation / Initial Model	-	2	2	2	2
Evidence helped understand the phenomenon	2	3	2	2	3
Way to track ideas through the unit	-	2	2	2	2
Assessments fair and helped know where you are	-	-	-	2	2
Does the unit help you learn science	-	3	2	2	2
Would you recommend these materials	3	2	-	3	2

Comments to Note:

- *CS:* All students interviewed were fully engaged during the lesson though. I inferred that they never thought about the formation of rock layers although they've had previous experience with fossils but NOT how fossils are formed. This is new learning for all of them and the abstractness of geologic time will take a while for students to understand. There's a balance of engagement and challenge with new concepts anchored in the sims and all the visuals provided, it's keeping the students wondering about the phenomenon.
- Yes a phenomenon. Each chapter has one. But there's a big like overarching. It's on the poster .how do rocks and fossils form or tell us about how things were in the past. Its like figuring out puzzle pieces to figure the big idea. Agree. Chapters like a puzzle piece and the lessons are little puzzle pieces. And they all fit into the really big puzzle piece. Lessons within each puzzle piece and it all gets you to the big idea. It makes it clear to see where were going. I like it better when I know why we're doing because if there not then I don't know what's going on. You know what you're trying to figure out and you can see if you're right or wrong at the end.
- We collect evidence, like different kinds of rocks and done some hands-on. Like today with the two different rocks. We did the SIMS too. We do the readings too. We saw examples of how the sedimentary rocks form. You can gather the evidence and can share it with our table partner then you can pick the best things to write down or to share.
- It's helping me learn ideas. We put a certain type of sediment in plaster. But it's not always just one kind of sediment so some things are more realistic than others. I'm definitely getting stuff in my head. Every little lesson we go over and over it. I like when its more realistic.
- It would be nice if it was a real national park and we could go there and find real fossils. Because you could <u>see</u> where you find the fossil. It doesn't matter if it's fake or not.
- We have used a simulation on the computer, which was helpful. We could set the conditions and then go forward in time or backward in time. We could change the water level. I don't know how we would do that in the classroom. Maybe we would pour our water bottles out on the floor? But then we would have to wait and just sit and look at it for thousands of years!
- We did make a model [gets the cup-based sediment model from the hands-on activity and shows it to me]. This was very helpful,
- I think it is very useful to use the computers, because we do work on the computers, and also put it in our notebook, but I couldn't do a lot of the computer work in my notebook. It would be harder to draw in our notebook some of the stuff. I think it would be hard to draw what I meant in a notebook – but then, if you connect the computer to the notebook, you write down the steps you used in the simulation, then someone else could see it in the computer.
- CS: Kids kept checking in about their rock formation models. I had a chance to talk to several kids who really knew the what and why of the model.
- I was confused at first but I have learned about fossils. Know and wonder. I have learned the some of the wonder questions. Makes me feel smarter
- We need write more this time. Writing more helps me learn more
- Like working together. Reading.

- CS: Students very excited about the unit. Even though they studied fossils in Rocks & Minerals last year, understanding how fossils form and are within sedimentary layers was deeper understanding. Hard to capture this interview because the group talked over each other a lot and I was caught in their enthusiasm
- : helps me learn new things, 5: be more curious & interact w/ other people, 4: teaches me to learn more about sci & do better, 3: more about fossils, can come in any design, created in different ways, 2: makes it so I know my partners ideas & they know mine. 1: gets me into the learning and what we're learning about. 6: sometimes when my partners share, absolutely helps me learn new things about science, always good to know what other people are thinking, everyone in class has diff ideas, even if they don't really want to share, 6: they still give you things to think about. Sometimes partners really smart, if you don't listen that's on you. You all just helped answer several of my questions.
- Yes, for me it's based on things I've learned before and not learned before, puzzle, I'm adding new pieces each day, I have some of the puzzle done & I'm adding more. Some shared things, last yr we learned all about fossils but now we need to know better. She's teaching us to get better, like sediment. If you don't remember a lot of things, it's repeated so you can learn it again. In 5th grade, you'll get it right because you'll know how to ask.
- Explain how sedimentary rocks forms, its connection to fossils, learned about observation & inferences, mostly rocks & little animals were trapped in sed rocks. Kind of like science, because we would answer questions

Student Interview

Teacher #1
Unit Name: Earth's Features
Vendor: Amplify

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain. Yes, a little bit; we have lots of conversations, getting new ideas from your partners is good.
2. Is having conversations with your peers something new to this unit or something you regularly do in science? Regularly
3. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not? Yes, because we could be wrong & their ideas might be more realistic, or we get better ideas from each other.
4. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Yes. Does a phenomenon help you understand the science ideas? Yes, Emma kind of. Sort of helps. Gabby: it's a real reason why where doing it, even if it's not a real place. Sometimes it helps when you look at it. Emma.
5. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? Johan: not really, maybe. Gabby: it's been awhile. He did ask a few questions, that was what the chart was about, but I don't remember.
6. What kinds of evidence have you gathered in this unit? Matt: mostly about fossils, environments, rocks how they're made. Did that evidence help you explain the phenomenon or answer the unit question? Explain Yes, how you can tell which layer by the fossil or sediment.
7. Did the lessons link together to help you explain the phenomenon? Yes. Do you think you can explain it to me? Johan, no. Gabby learned how fossils are made, how rocks created, to see how long it takes to become rocks. All helps to explain how environments are created over time.
8. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so? We have a notebook to track, we don't really use it, more like a guidance. We have books we use, to help us find questions in the investigation notebook.
9. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful? We keep charts: things we know, don't know. What we learn. Didn't draw.
10. Were you able to ask your questions during the unit? To whom did you ask your questions? Yes, to our teacher and our partners.
11. Did your teacher have students share their individual ideas before coming to class "consensus"? yes
12. Has your teacher checked to see if you understand the science ideas during the unit? Yes, goes around the classroom to see how we're doing. What did that look like? Were the questions fair or tricky?
13. Did this unit help you learn science ideas? Yes, probably. Did you like the way it was organized? Yes, super neat & tidy. Like going on the computers and working on the sims ourselves. How is it different/the same as other units you have done? Same: we still study science, look in a book for help; this is about something else, this is newer, a lot nicer, I don't usually like sci but this one is fun, look forward to it, the book has everything set up. I like talking about fossils and how things are set up.
14. Do you think this unit is interesting? Yes. Do you think this is the kind of work that scientists do? Explain. Yes, we look at diff evidence & make our own claim. See what's happening by making inferences.
15. Would you recommend that we use these materials for ALL students in __4th grade__ across the district. Definitely, yes. The teacher explains it really good.

Curriculum Specialist Impressions and Summary:
This wasn't a very articulate set of students and talking to them in the hallway before lunch didn't help much. All students interviewed were fully engaged during the lesson though. I inferred that they never thought about the formation of rock layers although they've had previous experience with fossils but NOT how fossils are formed. This is new learning for all of them and the abstractness of geologic time will take a while for students to understand. There's a balance of engagement and challenge with new concepts anchored in the sims and all the visuals provided, it's keeping the students wondering about the phenomenon.

Student Interview Protocol

Teacher #2
Unit Name: Earth's Features
Vendor; Amplify

Sample Questions (feel free to modify as the students begin to talk)

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
   a. Is having conversations with your peers something new to this unit or something you regularly do in science?

Conversation with my partner. We've been engaging a lot more than we usually do. A lot of examples of real life in SIM discussions. I don't think id talk as much without my partner and hare ideas. Buti think already knew most things. I didn't need my partner to tell me. We talk more in this unit than we would in like our other units. Because we focus and share a lot more I think we get more ideas out. I think we engage more.

2. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not?

If you're on task to have more creative ideas and share the work. The more ideas you can generate then you take them and create more out of those. Like multiple paths. I like to explain to my partner and then expand on it. Get I tout of your head. If your partner doesn't agree with your opinion you can like compare. And know if you're correct. Challenge each other and come up with new ideas.

3. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas?

Yes a phenomenon. Each chapter has one. But there's a big like overarching. It's on the poster .how do rocks and fossils form or tell us about how things were in the past. Its like girung out puzzle pieces to figure the big idea. Agree. Chapters like a puzzle piece and the lessons are little puzzle pieces. And they all fit into the the really bog puzzle piece. Lessons within each puzzle piece and it all gets you to the big idea. It makes it clear to see where were going. I like it better when I know why we're doing because if there not then I don't know what's going on. You know what you're trying to figure out and you can see if you're right or wrong at the end.

4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?

She has us a packet at the beginning and tried answering the questions we did it when we started. Like a packet to see what we knew. I bet we'll have one at the end to see if we learned a lot.

5. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain

We collect evidence, like different kinds of rocks and done some hands-on. Like today with the two different rocks. We did the SIMS too. We do the readings too. We saw examples of how the sedimentary rocks form. You can gather the evidence and can share it with our table partner then you can pick the best things to write down or to share.

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?

   The lessons link together, like the puzzle pieces. The lessons are like parts of the puzzle pieces. It kind of builds, Each lesson gives you another part but then it builds and goes back to the big thing. , Like I started with the here's the fossil then we find out later about the sediment and that its called sediment and now it make sense. Once you get more information you bring it back t the first lesson and combine it all.

7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?
8. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?
9. Were you able to ask your questions during the unit? To whom did you ask your questions?

Sometimes we can ask the teacher. Sometimes the SIM tells us. But sometimes we are ready to do more but we have to finish that lesson. Usually I ask my partner.

10.
11. Did your teacher have students share their individual ideas before coming to class “consensus”?
12. Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?

She asks us wat we’ve learned so far and all the pairs take turns sharing to ear each other’s ideas before we move on. We answer I our notebook or she asks us questions and we go around. Or she look sat what we wrote. And calls on us.

13. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?

It’s helping me learn ideas. We put a certain type of sediment in plaster. But it’s not always just one kind of sediment so some things are more realistic than others. I’m definitely getting stuff in my head. Every little lesson we go over and over it. I like when its more realistic.

14. Do you think this unit is interesting?

I like the SIMs. I like getting to come back and od them again. Wish they let us go further back in time. it would be fun to do more. I wish we could do less writing because it’s not really like science so much. I like that you know where the unit is going. It could be more hands-on. The sediment activity was cool but the other units form before we had more days we touched stuff. Maybe it’s just hard with rocks. There’s a lot more wiring but it’s usually short but there’s a lot of them. You get a book with this suit and in the old one n you had to copy a bunch of stuff in your notebook and had to make the questions in your notebook too. At activities you could do more in the other units with experiments. We did a lot of them but it would be more fun to do more. I wish there were more of the fun things. The battery unit was more fun.

Do you think this is the kind of work that scientists do? Explain.

Yes, I feel like this is what scientists do. Some might do more hands-on but I think they also do a lot of writing. More focused and paying attention. The last one with the circuits but they would get bored with the writing before but this one we have to write a well written response. There’s like the pressure of grading but unless you love writing it might be lesson interesting.

Yes, it’s interesting. Its cool to learn about the past.

15. Would you recommend that we use these materials for ALL students in ____ across the district.

That would be ok but I want more hands-on and outlearn about some other topics too. Keep the SIMS. I agree with Chase. The SIMS were really good.

Student Interview Protocol

Teacher #3
Unit Name: Earth's Features
Vendor: Amplify

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
   Yes, we have a partner. It's helpful sometimes.

1. Is having conversations with your peers something new to this unit or something you regularly do in science?
   We have had partners before, and we got to talk to our partners before.

2. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not?
   Sometimes, it depends on what partner you have. Because if you get a partner that is talking all the time, or off topic, that isn't very helpful. But if you have a partner is focused and cares about the learning, then if you have a question, then it is more likely that your partner will have the answer.

3. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas?
   Yes, we were looking at a fake national park and a fossil and wondering how did the fossil form there.

   [Do you think it matters that the national park was real or fake?]

   It would be cool if we could actually see it or go there. But they just have to say it's there like that.

   It doesn't matter if it's fake or not.

   It would be nice if it was a real national park and we could go there and find real fossils. Because you could <u>see</u> where you find the fossil. When I found a fossil, I found two different fossils. One I broke off a piece of rock. There's different things fossils can form in. So it would be helpful to see those.

   [Do you think having a phenomenon helps you learn science?]

   [All] Yes. It really helps – if there was a real National Park, if there were bones around it – in the simulation, there's a beach, you can change the water level, you can add some organisms…

   You can't just watch how a fossil forms over 20 thousand years. It would be the most boring thing ever. Like staring at a wall or something. You might forget what you were doing – oh, wait, I don't care about it anymore!

   I think it helps because when you are using the tools – if you are looking for something, sometimes when you are learning something, it helps with your learning because you need this, and this, and this… it helps you know what is important about what you're learning.

4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?
   Well, no, we didn't know anything yet. We had to wait until we knew some stuff to be able to say. We had to study. We were learning about sand and sediment and how they make fossils, so that matters to our answer. We couldn't say right away, because I think we would have messed up.

5. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain
   We have used a simulation on the computer, which was helpful. We could set the conditions and then go forward in time or backward in time. We could change the water level. I don't know how we would do that in the classroom. Maybe we would pour our water bottles out on the floor? But then we would have to wait and just sit and look at it for thousands of years!

   We have done some reading, and we used a model. And we write in our notebooks. All this has been helpful.

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
   Yes, I guess it was? I don't know how it would be different.

7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?
8. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?
   No, we didn't draw anything at the beginning. I think it was something about Argentina…? But we drew and labeled a picture of our rock [gets workbook and shows me the diagram]. It was good to do the drawing, because the teacher takes the rock away, and then you wouldn't know what it looks like unless you remembered really well. I think you could go back to your drawing and it would remind you.

   We did make a model [gets the cup-based sediment model from the hands-on activity and shows it to me]. This was very helpful, but I made a mistake with it and broke the top. We stuck a spoon it and it got really cracked. We put rocks in it, and used sand and plaster water. I wish we could add different things to it, maybe do it again. We made it, but then we were on break so it really dried out.

9. Were you able to ask your questions during the unit? To whom did you ask your questions?
   We can ask our partners questions, but if they don't know the answers, we can ask our teacher.

10. Did your teacher have students share their individual ideas before coming to class "consensus"?
    Yes, and we have partners. And we share on the rug and our teacher then writes what our ideas are on the front.
11. Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?
12. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?
    Yes, because – well, most of it. There are some things I didn't understand the first time, but then we learned about it again.

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.
    Yes, I think so, but their simulations will be much more complicated and I wouldn't even know what it was saying if I tried to use it! I mean, I have seen some of what scientists use, and I looked at it and I couldn't figure out what it was saying at all.

    I think yes, but I can't wait to actually see some fossils. I hope we get to see some fossils.

    Everybody's always learning new things. If scientists were studying something they already knew, they wouldn't exactly be studying it.

14. Would you recommend that we use these materials for ALL students in ____ across the district.
    [All] Yes. I think everyone should be able to use Amplify.

    It's a little complicated how you get in there. There's an error, you click on Earth's Features, then you click on the other part and it takes you there. But it's okay.

    We use the computers about every other day. Sometimes we are on the computers, sometimes we are just writing in our notebooks.

    I think it is very useful to use the computers, because we do work on the computers, and also put it in our notebook, but I couldn't do a lot of the computer work in my notebook. It would be harder to draw in our notebook some of the stuff. I think it would be hard to draw what I meant in a notebook – but then, if you connect the computer to the notebook, you write down the steps you used in the simulation, then someone else could see it in the computer.

Student Interview Protocol

Teacher #4
Unit Name: Earth's Features
Vendor: Amplify

Questions to consider asking younger students:

1. Would you like to show me something you're learning in your notebook?
   a. Sedimentary rocks and how they form. See how they turn in to fossils.
2. How does this unit help you to talk to your partner?
   a. You do talk to your partners.
   b. Sometimes it helps. Sometimes we don't know it and it helps
   c. We both have different kinds of ideas and if we put them together we can figure it out.
3. What's fun about…?
   a. I would rather work with a partner. You finish your work faster. I feel I can socialize with people you would not otherwise work with .
4. What is the question that was asked at the beginning or were you shown something to wonder about?
   a. I was confused at first but I have learned about fossils. Know and wonder. I have learned the some of the wonder questions.
   b. Makes me feel smarter
5. Did you start this unit by drawing something to show what you already know?
   a. Yes. Only once. We made models using materials.
   b. Models make me practice
   c. Helps me know how things form.
   d. Gives you something you can see and talk about.
6. Did your teacher ask you what you already knew about…?
   a. Yes. I some to add. I only had only 2.
7. Have you been able to ask questions on what you've been wondering about?
   a. YES!
   b. Why are some rocks valuable? How many years ago were dinosaurs are extinct.
8. Does your teacher check to see if you understand? How does she/he do that?
   a. Quite a bit. Sometimes. Mostly when it is hard for us, he can tell, we start getting loud and not on task. He knows and comes visit you.
9. Do you think this is interesting? Why or why not?
   a. Yes because I like learning about fossils.
   b. No. I don't like rocks.
   c. Kinda considering I had a rock unit last.
   d. Yes. Might help us someday. Sometimes it gets hard.
   e. I like it. Sometimes it is fun and interesting.
10. Explain to me what you're learning in science.
    a. How sedimentary rocks are formed.
    b. Fossils
    c. Rock Layers how they form.
    d. And minerals
11. How is this science different from the other science you've done?
    a. Last year I learned about geodes. Last year was easier.
    b. We are learning more this year. We wouldn't understand last year.
    c. Last year we learned easier. We need write more this time. Writing more helps me learn more
    d. Like working together. Reading.
    e. Today was like the simulators. Up and up and how rocks were formed.
12. Interesting enough for all 4th graders. YES!!!!
13. They like the workbooks!

Kids kept checking in about their rock formation models. I had a chance to talk to several kids who really knew the what and why of the model.

Student Interview Protocol

Teacher #5
Unit Name: Earth Changes
Vendor: Amplify

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain. 6: helps me learn new things, 5: be more curious & interact w/ other people, 4: teaches me to learn more about sci & do better, 3: more about fossils, can come in any design, created in different ways, 2: makes it so I know my partners ideas & they know mine. 1: gets me into the learning and what we're learning about. 6: sometimes when my partners share, absolutely helps me learn new things about science, always good to know what other people are thinking, everyone in class has diff ideas, even if they don't really want to share, 6: they still give you things to think about. Sometimes partners really smart, if you don't listen that's on you. You all just helped answer several of my questions.
    a. Is having conversations with your peers something new to this unit or something you regularly do in science?
2. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not?
3. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas? Yes, for me it's based on things I've learned before and not learned before, puzzle, I'm adding new pieces each day, I have some of the puzzle done & I'm adding more. Some shared things, last yr we learned all about fossils but now we need to know better. She's teaching us to get better, like sediment. If you don't remember a lot of things, it's repeated so you can learn it again. In 5th grade, you'll get it right because you'll know how to ask.
4. So what you're learning about fossils this year, is it mostly what you learned about last year or new? New learning, ½ new, ½ old. New is about sedimentary rocks, how they form is new, what's been happening while they're forming. What's confusing in this unit, you're supposed to know about fossils, but I forgot it. Sometimes we skip science because we have a lot to do, this year.
5. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? Yes, if we're okay doing this; test to see our knowledge, recorded probably; to see what she wants to teach us. Asks what we know at other times. What we already know about fossils. To teach us at our levels.
6. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain how sedimentary rocks forms, its connection to fossils, learned about observation & inferences, mostly rocks & little animals were trapped in sed rocks. Kind of like science, because we would answer questions, kind of like philosophy.
7. Did the lessons link together to help you explain the phenomenon? ~~Do you think you can explain it to me?~~ Yes, billion times yes—starting to lose them.
8. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so? Journal w/ cubby numbers, folders w/ most of our observations, what do you wonder, separate than science notebook. Learn something every single day. Freddy: every day? Well, no every single but every time we do science.
9. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?
10. Were you able to ask your questions during the unit? Yes, mostly at end. She always asks at the end because we can't interrupt the lesson when someone's talking. To whom did you ask your questions? Her and our partners & classmates.
11. Did your teacher have students share their individual ideas before coming to class "consensus"? Yes, w/o doing this we wouldn't get to too many places. If it weren't for that one person asking the question, we wouldn't be able to build on to it. Agreement/disagreements
12. Has your teacher checked to see if you understand the science ideas during the unit? Yes, always checks on us, always walks around in class and checks our work. To see if we get it. She checks our work and then assigns us a reading. What did that look like? Were the questions fair or tricky?
13. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?

14. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.
15. Would you recommend that we use these materials for ALL students in _4th grade___ across the district. Yes

Curriculum Specialist Impressions and Summary: Students very excited about the unit. Even though they studied fossils in Rocks & Minerals last year, understanding how fossils form and are within sedimentary layers was deeper understanding. Hard to capture this interview because the group talked over each other a lot and I was caught in their enthusiasm

GRADE 1 SCIENCE: HMH
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: ANIMALS AND PLANTS

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4
SEP attended to within the unit	2	3	2	2
Phenomenon				
• Presence of	2	1	1	2
• Revisiting	1	1	1	2
• Engaging	1	-	2	2
Evidence Gathered				
• Multiple types	2	-	2	2
• Student engagement	2	2	2	2
Student Discourse for sense-making	1	1	2	2
Students tracking their progress (self-assessment)	-	-	-	
Student Explanations	2	2	2	2
Usefulness of Materials	3	3	3	3

Comments to Note:

Teacher #1

- In primary the workbook is really nice and less crazy making for teacher. Contained and all together. Easy to manage. All in color. Big print. Everything is online too.
- Not a unit phenomenon. But each lesson starts with a question and a focus question and revisits it at the end of the lessons. What parts of plants help them live? Ask students to draw a connection between structure of the maple seed and a helicopter in lesson 1 and then they revisit at end. Then looked at hedgehog and said design something that keeps something safe. And then visit the hedgehog later
- Evidence is Mostly from the videos and readings. Using the pictures
- CS: Often they are shown something and it is described then and then the teacher ask them to reiterate what was just said. At the end their was one multiple choice quiz questions. This is the same as what I saw of HMH grade 1 on 1/31. Student report they feel like they are learning and gave specific examples of things they'd learned and could even apply it to other example sin the plant and animal kingdom. They were interested and curious. Students reported that they don't do turn and talks in science -thought they do in math and ELA – they only answer teacher questions in whole group. They do some writing in their notebooks and a lot of drawing

Teacher #2

- Usually do workbook activities after carpet time but hard for kids to stay focused, so sometimes collect ideas on poster paper write by teacher. Even reluctant kids often share. Evidence notebooks – use composition book – are in teacher guide.
- Have to prepare for the hands-on stuff but not a ton of preparation for most lessons and the computer voice and kids interact with the computer presentation on big screen. Having things in workbook make s it easier. Only done one hands-on so far but it was good. Kids look forward to it most out of everything else. Engaged in the materials. Like coming up with their own ideas. Get bored sitting with workbook all the time.
- No prompts for turn and talks so far (halfway through lesson 2) . Mostly just all-class. Sometimes workbook prompts to get a partner but NO TALK TO YOUR PARTNER stuff. But kid are used to it.

Teacher #3

- Most students were able to identify at least 2 or 3 cases whether animals used gills or lungs to breathe. Students liked using the computer and talking with friends about how they knew. I think these were successful because most students were engaged. They usually are when they are talking to a friend. with talking to a friend.
- I really like using this material. It's usually really engaging for students. But it definitely takes additional scaffolding for my class since my class is primarily made up of English Language Learners. We love the computer component
- Evidence: Mostly from the videos and readings. And using the pictures
- Students enjoy using their workbooks to write their ideas. They make connections or design their own tool based on ideas about animals. The projects have been a little abstract, some of my very creative students have been able to make sense of their ideas and develop them, but others really struggled to put their ideas into their designs.

Teacher #4

- This curriculum has a good mix of activities and explorations that can sustain students who are not writing and reading at grade level. It also is highly engaging for those who can read and write at grade level. The workbook may not be accessible to many 1st graders without whole group support. The on-line component was easy for students to click through—once they logged in, hoping for single log-in for the adoption.
- CS: On line component hard for students to access. If it was point and click, would be better. Love the unit, very engaging. Although teacher chose to have students present their creations, and thus created a long sit and listen session, most students were very interested in hearing about their peer's shoes. All presenters were able to answer what changes they'd make if they had that opportunity. Their work was evidence of well thought out plans.

***Field Test* Classroom Observation**

Teacher:#1
Vendor: HMH
Unit: Animals and Plants

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   The online. Computer part is great.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?

Absolutely. SO

3. Was there something that you would have liked to see that didn't happen?
   Would love to have student devices and headphones so that they have their own but would love for them to have their own access to the online stuff and take test on line. I use the Ebook and project it. Projection in Ebook mirrors their books AND mirrors the TG which is great!! These kids need the tech. It would be great.
4. What are your comments on the materials that you used today/ this week?
   More choices.
5. Stations with iPad could work too – like use the extensions (the purple) – kids could do this. Could do while rest of kids re doing math stations. More small group would be great instead of ALL whole group.

Overall:

6. What are your students understanding or not understanding? Most stuff according to the quizzes! I can come around and see their ideas.
7. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? Somewhat – the engineering inspired by plants and animals and examples. Helicopter and maple seeds.
8. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered? Yes, labeled drawn, read, discussed, anchor chart,
9. Have student to student discussions focused on sense-making around evidence collected?
   Carpet time is really important.
10. How would you rate the explanations student generate using the tools from this unit?
11. Is there anything that we should know that I haven't asked you?

Positive experience, before not much science. Focus mostly on math & ELA so didn't open it. No guide, requires a lot of effort. Having a curriculum that has a clear lesson plan like the ELA CCC and Eureka math. It's cohesive program and we're all doing it so you can collaborate. Sometimes instead of writing in workbook - which take forever – we do anchor charts. Some of more quiet kids

Usually do workbook activities after carpet time but hard for kids to stay focused, so sometimes collect ideas on poster paper write by teacher. Even reluctant kids often share. Evidence notebooks – use composition book – are in teacher guide. In addition to the Workbook. Use to generate ideas and explain form drawings. Like ideas from plants for something human made same with animals keeping safe. Used both this and the workbook. Selected some evidence notebooks things from the teacher guide. Have to prepare for the hands-on stuff but not a ton of preparation for most lessons and the computer voice and kids interact with the computer presentation on big screen. Having things in workbook make s it easier. Can remove it form workbook and display it. Everything is structured. Only had to get notebooks – all materials provided were useful. Only done one hands-on so far but it was good. Kids look forward to it most out of everything else. Engaged in the materials. Like coming up with their own ideas. Get bored sitting with workbook all the time. Mix it up. No prompts for turn and talks so far (halfway through lesson 2) . Mostly just all-class. Sometimes workbook prompts to get a partner but NO TALK TO YOUR PARTNER stuff. But kid are used to it.

***Field Test* Classroom Observation**

Teacher: #2

Vendor: HMH
Unit: Plant & Animal Structures

Post-Observation Notes

Focus on Today:
1. What did you try today that seemed successful? Why would you call it successful?
This activity set them up to for the ED activity (show) coming up. The whole unit is around using animal plant and plant structures to inform ED for human problems.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
If they had done the early unit in the module it would have worked better because it gave them scaffolds and training to prepare them for later units. No set science time in their schedule, so it's a different. In primary the workbook is really nice and less crazy making for teacher. Contained and all together. Easy to manage. All in color. Big print. Everything is online too.
3. Was there something that you would have liked to see that didn't happen?
4. The E books are cool because they could transcribe their talk and then teacher can go onlin e and listen to them talk. I don't have access to technology so that wouldn't be something I would use. Nice to have kids review online but somedays you turn and talk and discuss. I like that online stuff is available and I could use it but also use the notebook. Having the option tohave student devices is nice.
5. What are your comments on the materials that you used today/ this week?
The use the readers/workbooks every or every lesson. Some we do together on the board then move to workbook. Record observations and evidence for more structured activities. The notebooks are more drawing and design.

Used this at grade 3 in Tacoma SD and kids struggled at start of the year because they are asked to come up with their own idea for designs but super hard for kids to come up with ideas and conceptualize. Hard especially for ELLs to generate ideas. Confidence is an issue for all of the students so they are less likely to generate these.

Overall:
6. What are your students understanding or not understanding?
   Struggling with design without the scaffold of earlier units or science.
7. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? Not a unit phenomenon. But each lesson starts with a question and a focus question and revisits it at the end of the lessons. What parts of plants help them live? Ask students to draw a connection between structure of the maple seed and a helicopter in lesson 1 and then they revisit at end. Then looked at hedgehog and said design something that keeps something safe. And then visit the hedgehog later

8. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered? Mostly from the videos and readings. Using the pictures

9. Have student to student discussions focused on sense-making around evidence collected?
Lots of explanations required and how do you think of it and where did you get the idea. I like to use anchor charts to generate ideas, no right or wrong, then revisit at end and then they can apply learning evidence collected and eliminate some ideas keep others based on evidence and come to consensus

10. How would you rate the explanations student generate using the tools from this unit?
    We'll do it together on the board then students go back to notebook on their own and then can use it as a FA. In the lesson – yellow Lesson Check pages, kids can do those or could do it as a group. Quizzes. Quizzes are short MC questions - recalling engineering and stricture questions.

11. Is there anything that we should know that I haven't asked you?

I like it. And really like how they organize the materials. Prepackaged by units, makes it so easy. I can just grab the unit bag. A lifesaver! There was a common items bag but each unit had a specific bag. All on a list in one box. Teacher supplied items were clearly listed so we could prepare and plan it out. Materials arrangement and management systems are excellent.

<u>SECTION 4: Curriculum Lead's Reflections</u>

CL: Record thoughts, observations, or areas of interest here, after your observation and interview.

The complexity of the materials and the level of rigor was really limited, though students didn't use the notebook/labbooks while I was there. It's a lot of here's the example and students repeat that back. Often they are shown something and it is described then and then the teacher ask them to reiterate what was just said. At the end their was one multiple choice quiz questions. This is the same as what I saw of HMH grade 1 on 1/31. Student report they feel like they are learning and gave specific examples of things they'd learned and could even apply it to other example sin the plant and animal kingdom. They were interested and curious.

Students reported that they don't do turn and talks in science -thought they do in math and ELA – they only answer teacher questions in whole group. They do some writing in their notebooks and a lot of drawing. Compared with the animal structure design activity in the other grade program, the drawing a box "design" had little learning to leverage.

***Field Test* Classroom Observation**

Teacher: #3
Vendor: HMH
Unit: Plant & Animal Structures

Post-Observation Notes
Focus on Today:

1. Which learning activities in today's lesson seemed most successful for student learning ? Why do you think it was successful?
   Most students were able to identify at least 2 or 3 cases whether animals used gills or lungs to breathe. Students liked using the computer and talking with friends about how they knew. I think these were successful because most students were engaged. They usually are when they are talking to a friend. with talking to a friend. The computer was too, for engagement. As much as it could be on the first day back from break and snow days.
2. Was there something that you would have liked to see that didn't happen?

I would have liked to get through more material than we did because students were talking so much.

3. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?

It provided a good base but we had to have more of a discussion about how lungs or gills take in oxygen. They weren't really sure what was oxygen was and why it helps you breathe, how oxygen is in the air but you can't see it.

5. What are your comments on the materials that you used today/ this week?

I really like using this material. It's usually really engaging for students. But it definitely takes additional scaffolding for my class since my class is primarily made up of English Language Learners. We love the computer component, I use it on the presentation station because we don't have enough computers or iPads for the kids.

Overall:

6. What are your students understanding or not understanding?

Some students were having a hard time understanding some of the concepts of this unit. Like the bats and echolocation. We watched a video about a blind man who uses echolocation and his cane, and they developed a little more understanding. I think some of this is because my students don't have exposure to animals or that kind of learning at home or other science concepts. Like they couldn't come up with examples of an animals with forward facing ears. Well there was one student who was able to think of a lion.

7. How have your students engaged with the unit phenomenon? Has this phenomenon helped them to expand their thinking about this topic?

They've been comparing animals to other animals or animals to objects that got ideas from animals – in engineering. Like train and the kingfisher bird. I think this helps them expand their thinking because they can make comparisons or connections in other areas.

8. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?

Mostly from the videos and readings. And using the pictures

Students enjoy using their workbooks to write their ideas. They make connections or design their own tool based on ideas about animals. The projects have been a little abstract, some of my very creative students have been able to make sense of their ideas and develop them, but others really struggled to put their ideas into their designs.

9. Have student to student discussions focused on sense-making around evidence collected?

Most students can explain their thinking to each other in most cases, when it comes to information from the book. Like when answering questions or fill in the blanks) Some struggled with more abstract activities like the hands on activities.

10. How would you rate the explanations student generate using the tools from this unit?

They have good explanations when it comes to this unit, but it has taken extra scaffolding to add to their language in pretty much for every lesson.

11. Is there anything that we should know that I haven't asked you?

Overall I really enjoy this curriculum but I think it would need to be adopted with supports for ELLs who don't have the schema in English about a lot of the topics.

***Field Test* Classroom Observation**

Teacher: #4
Vendor: HMH
Unit: Plant and Animal Structures

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? This lesson was fairly successful. I have 7 ELL students who are emerging readers and writers, so I let students have opportunities to verbalize their ideas, findings, and how the activity went rather than having them all "write" it out in the workbook. Usually, if we are writing in our books, I will model it on the overhead so they have a reference to use. So, we planned, designed, and built a shoe. Students were highly engaged and very successful with this activity. They were able to see the challenges of putting a design or idea into action or a creation. They were also able to test their shoe and think of ways they could have improved it. Students were successful because they were able to see their peer's creations, listen to their ideas and offer up questions or comments. Most students were engaged (although it was a long carpet time- students managed fairly well)

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Yes, the instructional materials did provide opportunities to scaffold. Teachers always need to adjust to fit the group of students who are learning- differentiation for science can include students verbally explaining their reasoning and those who are able can write it out. I added to the "craft" materials that students designed with- things like cotton balls, and other mixed media. Based on what students were including in their designs. Students talked a lot about cotton, since the kit did not have this, I added three types of cotton materials. The kit had felt so I added mesh materials as well. The instructions were confusing, it said to use items found in our craft supplies. This supposes teachers have a supply of materials that can be used for this design project, teachers will have to supply some

3. Was there something that you would have liked to see that didn't happen? I would like to go back and show students a DIY video on how to make a shoe, but I think that would have stifled their creativity if I had done it beforehand.

4. What are your comments on the materials that you used today/ this week? The online component to this curriculum is very good for demonstrating and engagement, but SPS would need to have it as a 'one click' login from an icon on the desktop to help access it

Overall:

1. What are your students understanding or not understanding? They understand that scientists and inventors use ideas from the natural world to create things for humans.

2. How have your students engaged with the phenomenon? Observing plants and animals and thinking of why and how and beyond… Has this phenomenon helped them to expand their thinking about this topic? Yes, the students are finding connections to this idea throughout the week and bringing those ideas back to share with the group. They notice hats that look like they could have been modeled after animals, and trees that provide shade and look like ceiling fans…thinking about plants and animals- how they survive and thrive has been very exciting.

3. What kinds of evidence have students gathered so far in this unit? The students have learned about many plants and animals- and within that have seen many adaptations and how humans may have used the plant or animal for a model to design things for humans. I suppose this science unit is somewhat "human" centered in that the observations are related to how humans utilize the creative elements of nature to meet our needs. Have students been able to make sense of the evidence they have gathered? Yes, they seem to be tracking the unit and making connections, observations, and thinking of ideas based on this unit.

4. Have student to student discussions focused on sense-making around evidence collected? That is happening. Students did observations of our local plants and fauna and then were able to create ideas and designs for how to create shade or a cooling environment for humans.

5. How would you rate the explanations student generate using the tools from this unit? I had a hard time with this question because the school science fair was confusing students' explanations of their shoe design. We had to iron-out this confusion before students could concentrate on explaining their shoe design.
6. Is there anything that we should know that I haven't asked you? This curriculum has a good mix of activities and explorations that can sustain students who are not writing and reading at grade level. It also is highly engaging for those who can read and write at grade level. The workbook may not be accessible to many 1st graders without whole group support. The on-line component was easy for students to click through—once they logged in, hoping for single log-in for the adoption.

On line component hard for students to access. If it was point and click, would be better. Love the unit, very engaging. Although teacher chose to have students present their creations, and thus created a long sit and listen session, most students were very interested in hearing about their peer's shoes. All presenters were able to answer what changes they'd make if they had that opportunity. Their work was evidence of well thought out plans.

GRADE 1 SCIENCE: HMH
SUMMARY OF EVIDENCE GATHERED DURING STUDENT INTERVIEW
UNIT: ANIMALS AND PLANTS

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4
Discourse for sense-making	2	2	2	2
Consensus building	-	-	-	-
Phenomenon present and helpful	1	-	1	-
Elicitation / Initial Model	-	-	-	-
Evidence helped understand the phenomenon	2	-	2	2
Way to track ideas through the unit	-	-	2	-
Assessments fair and helped know where you are	-	-	-	-
Does the unit help you learn science	2	2	2	-
Would you recommend these materials	-	-	-	-

Comments to Note:

- Helps us learn when we draw and write if you don't get it. You can talk during talk time then can do it in notebook. But we don't have to show the teacher.
- CS: Students had great ideas and were making good connections to real life events but the unit seemed light on explanations. Mostly only opportunities to observe and show examples of a structure shown in the video. The design a box that you can't get into – which was really just a drawing of lots of boxes with locks and wrappings didn't really seem like an authentic application for their learning about animals defenses.
- I don't know. But we draw in the idea notebook a lot. We design things about the animals.
- I like the animals in Kindergarten but I like the videos in this one.
- Engineers get ideas from animals.
- We solve questions. We look back at what we wrote. We answer questions after we watch the videos and learning on the rug. There are a lot of pictures in the notebook. If you don't see the video the pictures are in the book. We also have the black notebooks to write our ideas in
- CS: Not a lot of evidence gathering in service of explaining something. The backbone of the unit is how animal adaptations inspire engineering design. The videos are interesting to kids but they mostly encourage recall to build understanding. No phenomena to be explained. No prompts for student discourse. The notebook mirrors the videos so that is helpful for both teachers and students.
- We started w/ I wonder…why you… how she made the shoe so pretty. We designed shoes to keep us warm in the winter. We had ice packs to test them. Can't test today, the ice packs aren't warm.
- Students studied animals' feet and then designed shoes to keep their feet warm. Observation spent on presentations. Everyone who presented made a shoe, tested it and was able to describe how they would change it to make it better.

<u>Student Interview Protocol</u>

Unit Name: Plant and Animal Structure by _HMH Vendor
Teacher 1

Preparation for Interview *Before you start, explain to the students that we are in an instructional materials adoption and an important part of learning about these materials is to see how they work for students. Share with the students that you are grateful to them that they will help you to learn more about how this unit looks for students. Tell them that their comments are not used to evaluate their teacher or them as students. The data is simply to help us know about the materials. Ask if they have any questions. Tell them you would like to record their answers, so you make sure you don't miss anything. Ask if that is OK?*
As an interviewer, it may be useful to ask clarifying and follow-up questions to the student that are unscripted in order to fully investigate their thinking. Examples of good questions are "what do you mean by that?" "Could you summarize that answer for me again?"

Choose a setting with little distraction.

Questions to consider asking younger students:

1. Would you like to show me something you're learning in your notebook?
   We did this today Its's about how they defend themselves. We learned about scales and claws.

2. How does this unit help you to talk to your partner?
   I don't know. Sometimes but usually just answer the teacher's questions

3. What do you like about doing science?
   We start on the carpet. We get to make things about what we are learning at our desks. We draw and write in our idea in a notebook at our desks. We used these with our plant project. The plant project was we got to see seeds.

4. What is the question that was asked at the beginning or were you shown something to wonder about?
   First day we learned about plants and trees and how they stay safe. Trees have roots. In dirt . So they don't get pulled out. They get water of it and they can send messages.

5. Did you start this unit by drawing something to show what you know?

Helps us learn when we draw and write if you don't get it. You can talk during talk time then can do it in notebook. But we don't have to show the teacher.

6. Did your teacher ask you what you already knew about plants and animals?
   Not really.
7. Have you been able to ask questions on what you've been wondering about?
   Sometimes. We have to take turns and raise our hands. I've been wondering something about the plant. When we check it at the end I wonder if I'll se different roots.
8. Does your teacher check to see if you understand? How does she/he do that?
   Answer questions during the carpet discussions
9. Do you think this is interesting? Why or why not?
   Yes because I have a cat and it got lost and I Wonder if it's still alive, if it is survived . I liked learning about the octopuses and that they protect with their ink and run away from poisonous sea animals. Dolphins have fins like fish but different. They can swim away form danger. We can see what happens to plants when it's covered. I predict it will be brown and crispy!

10. Explain to me what you're learning in science.
    How animals protect themselves in really bad weather. The structures that have for protection. That they can move away from danger.
11. How is this science different from the other science you've done?
    We haven't really done science before. We didn't do it last year.

Curriculum Specialist Impressions and Summary:
Students had great ideas and were making good connections to real life events but the unit seemed light on explanations. Mostly only opportunities to observe and show examples of a structure shown in the video. The design a box that you can't get into – which wa really just a drawing of lots of boxes with locks an wrappings didn't really seem like an authentic application for their learning abut animals defenses.

Student Interview

Teacher #2
Unit Name: Plants and Animals
Vendor: HMH

Questions

1. Would you tell me something you're learning in your notebook?
   An animal likes to run. Can give ideas to engineers to make things. Teacher said when animals eat flowers pokey things protect themselves so birds cant eat them. We use the notebooks for things we elarn.

1. Does this unit help you to talk to your partner?
   Sometimes. We sometimes do a turn and talk.

2. What do you like about plants and animals?
   Learning about science. Science because we do reading. Animals are good like the shark.

3. What is the question that was asked at the beginning or were you shown something to wonder about?
   I don't know. We just learned about the plants at the beginning.

4. Did you start this unit by drawing something to show what you already know?
   I don't know. But we draw in the idea notebook a lot. We design things about the animals.

5. Did your teacher ask you what you already knew about…?
   Yes.

6. Have you been able to ask questions on what you've been wondering about?
   On the carpet we can raise our hands.

7. Does your teacher check to see if you understand? How does she/he do that?
   She comes around to our tables to see what we're writing. Helps make your drawing right.
8. Do you think this is interesting? Why or why not?
   Yesbu tin Kindergarten we saw real animals. We saw fish.

9. Explain to me what you're learning in science.
   Engineers get ideas from animals.

10. How is this science different from the other science you've done?

we didn't do science this year. I like the animals in Kindergarten but I like the videos in this one.

Student Interview Protocol

Teacher # 3
Unit Name: Plant & Animal Structures
Vendor: HMH

Questions:

1. Would you like to show me something you're learning in your notebook? What do you write in your notebook? We solve questions. We look back at what we wrote. We answer questions after we watch the videos and learning on the rug. There are a lot of pictures in the notebook. If you don't see the video the pictures are in the book. We also have the black notebooks to write our ideas in

2. How does this unit help you to talk to your partner?
Yes, you tell your partner what you think. You share your answers and ideas. I learn from y partner.

3. What do you like about what you are learning?
Learning about animals. And if they have that help them to survive.

4. What is the question that was asked at the beginning or were you shown something to wonder about? At the beginning of the lesson there's a title and we get examples and after we answer the questions there's a box to write solutions.

5. Did you start this unit by drawing something to show what you already know?
No.

6. Did your teacher ask you what you already knew about animals ?

   We raise our hands and tell the teacher what we already know.

7. Have you been able to ask questions on what you've been wondering about?
We can raise or hands.

8. Does your teacher check to see if you understand? How does she/he do that?
She asks us what have we learned about. The video asks you what you know too and you can click on the answers when it's your turn

9. Do you think this is interesting? Why or why not?
Yes because we get to learn about animals body parts. I like that we learn new things. When you see animals you can notice what parts they have. And we can learn about us too. And we can teach other people.

10. Explain to me what you're learning in science.
We're learning about animals stay cool when it's hot

11. How is this science different from the other science you've done?
Learning about engineers and how they make stuff. Or ad dto stuff. They use tools. We can use our ideas to make things.

Curriculum Specialist Impressions and Summary:
Not a lot of evidence gathering in service of explaining something. The backbone of the unit is how animal adaptations inspire engineering design. The videos are interesting to kids but they mostly encourage recall to build understanding. No phenomena to be explained. No prompts for student discourse. The notebook mirrors the videos so that is helpful for both teachers and students.

<u>Student Interview</u>

Teacher #4
Unit Name: Plants & Animals
Vendor: HMH

Questions:

1. Would you like to show me something you're learning in your notebook? Looking at nature, been learning about the ecosystem, life system of plants & animals.
2. How does this unit help you to talk to your partner? We were making shoes, I liked everyone's ideas & I like how Mason made skis.
3. What's fun about animals? About camouflage. We designed paper airplanes, we did that to observe helicopters. Look at pictures of birds for ideas.
4. What is the question that was asked at the beginning or were you shown something to wonder about? We started w/ I wonder…why you… how she made the shoe so pretty. We designed shoes to keep us warm in the winter. We had ice packs to test them. Can't test today, the ice packs aren't warm.
5. Did you start this unit by drawing something to show what you already know? Yes, I put a sponge on top same size of cardboard. We got these ideas from animals.
6. What did you learn about animals? We learned they have diff parts to keep them safe and warm. Also designed a shoe. We looked at pictures and got our ideas.
7. Did your teacher ask you what you already knew about…? Not technically.
8. Have you been able to ask questions on what you've been wondering about?
9. Does your teacher check to see if you understand? How does she/he do that? She understands everything we're learning. Get w/ a partner & share your ideas.
10. Do you think this is interesting? Why or why not? I just start doing my own thing.
11. Explain to me what you're learning in science. We've been learning all kinds of stuff. Grandma's dirt.
12. How is this science different from the other science you've done? First sci we ever did was taking care of plants, how many leaves, stems, flowers. Last year. No, this year.

Curriculum Specialist Impressions and Summary:
Students studied animals' feet and then designed shoes to keep their feet warm. Observation spent on presentations. Everyone who presented made a shoe, tested it and was able to describe how they would change it to make it better.

GRADE 4 SCIENCE: HMH
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: EARTH'S FEATURES

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3
SEP attended to within the unit	1	2	2
Phenomenon			
• Presence of	2	3	2
• Revisiting	2	2	2
• Engaging	2	2	2
Evidence Gathered			
• Multiple types	2	3	2
• Student engagement	2	2	3
Student Discourse for sense-making	2	3	2
Students tracking their progress (self-assessment)	2	-	-
Student Explanations	2	2	2
Usefulness of Materials	2	3	2

Comments to Note:

Teacher #1

- My students are understanding the difference between weathering and erosion. They're not understanding some basic concepts about how water moves things (some think that rivers need to move slow in order to move rocks because rocks are heavy).
- Planning has been much easier with HMH, and it's also easier for me to know what to listen for in student responses.
- Brainstorm as possible solutions, was suggested as a ED but not supported in that way. No opportunities to actualize. Used as a filler and a hands-on, students needed a hands-on.

Teacher #2

- Fantastic. Not a doc camera teacher but learning that using doc camera and presentation station that explain these phenomena well and see it happen rather than just a still phot. Very teacher adaptable. But all points in the same direction. Another teacher might do it differently but would still get there.
- They're getting it. Having a lot more Aha moments. So well laid out in storyline and they can talk to each other.
- Working on explaining our thinking - language is a barrier for some – explaining their thinking is still new for these student s bit there are plenty of opportunities but I want to scaffold it. Some are starting to participate in the class discussions to share their thinking because they are finding they can participate and they can make sense of it. I have the freedom to be wrong. Not right or wrong but want a good discussion. More participation from the non-participators. Book gives them opportunities to give evidence and explain their thinking. Plenty of these - almost bottom of every page – "Explain reasoning you used…." But the talk we do is a scaffold we use to get there.

Teacher #3

- Students were fairly engaged for most of the lesson, as they seem to be really curious about these natural 'mysteries' we've been talking about in this unit. I would call that successful because we were able to get through a lot of the lesson, and students were for the most part sharing ideas either vocally or in their own books.
- One thing that I'm finding that's really lacking is a general teacher lesson plan. In my teacher book I have to spend a lot of time going through each page of a lesson and deciding what I'm going to say, how I'm going to transition, and how much time I should spend on each portion. I don't really want a full-on script or anything, but as someone who definitely did not ever specialize in science, I want to make sure I am using accurate and specific language throughout.
- Yes! I'm still unsure in my role when to correct misconceptions as we are still learning, and when to let students come to their own conclusions as we gather more evidence. I'm also using facilitation moves from the ELA CCC curriculum here because this curriculum didn't explicitly state (where I've seen) how we should format peer discussions.

***Field Test* Classroom Observation**

Teacher #1
Vendor: HMH
Unit: Changes to the Earth's Surface

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? Shares while students were answering questions on the worksheet, which wasn't in the curriculum lesson but it supported the 4 students who consistently have a hard time getting started.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Not this time-- the activity asked for students to come up with solutions to prevent weathering, but there wasn't a place to list the objects that are weathered. This class needed that executive function to help them stay on task.

3. Was there something that you would have liked to see that didn't happen? I would have liked the students to be more centered on their task when they were outside. I think the worksheet could have given students suggestions for what to look for with regards to weathering. The lesson has focused on landforms being weathered, but we were in an urban environment and were looking at manmade items (sidewalks, planters, basketballs).

4. What are your comments on the materials that you used today/ this week? The lesson leading to this point were well-scaffolded. Workbooks are organized and easy to use. All of my students participate when I ask them to fill them out. The online resources really help students understand the concepts, so I rarely supplement. The focus and direction of the unit is clear, so I can supplement in a natural way: for instance, when students come in, their entry tasks are projected on the whiteboard. The image I've been using has been of cars lining a riverbank. I used this image because it was how my grandfather slowed erosion on the creek on his ranch (from his cattle). When students asked about the image, it prompted a great discussion.

Overall:

1. What are your students understanding or not understanding? My students are understanding the difference between weathering and erosion. They're not understanding some basic concepts about how water moves things (some think that rivers need to move slow in order to move rocks because rocks are heavy).

2. How have your students engaged with the phenomenon? Because of the weather and wheat week, this was our first hands-on activity. Most engaged quickly with weathering that is happening outside of their classroom. Has this phenomenon helped them to expand their thinking about this topic? Yes, it helped them understand how they might prevent weathering on school grounds.

3. What kinds of evidence have students gathered so far in this unit? Students gathered evidence on how water expands when it freezes, and how sun, wind and water weather items. Have students been able to make sense of the evidence they have gathered? Yes, both the activity and evidence in their workbooks are presented in a way that helps students understand weathering and erosion.

4. Have student to student discussions focused on sense-making around evidence collected? Yes. Students to student discussions focused on weathering. They will have more discussions when they work on their presentations.

5. How would you rate the explanations student generate using the tools from this unit? Meets expectations. Students had the skills needed to discuss weathering on the school ground.

6. Is there anything that we should know that I haven't asked you? Planning has been much easier with HMH than with Amplify, and it's also easier for me to know what to listen for in student responses.

- Students were conducting internet research with sites provided on a half-sheet. Did you provide these or were these part of the curriculum? Is this what you are referring to in the first question answered? *It was suggested in the curriculum, it gave some suggestions but one of the site already outdated; she provided links. I went back through the curriculum and could not find a reference to this suggestion. I've emailed her to ask.*

- Are evidence notebooks part of your academic culture or something the unit asked you to create? *The curriculum suggests Evidence Notebooks, Teacher adapted them to fit into their binders.*

- Students developed a plan to prevent weathering, was this supported as an Engineering Design lesson or just a brainstorm of possible solutions? Did the unit provide opportunities for students to actualize their plans*? Brainstorm as possible solutions, was suggested as a ED but not supported in that way. No opportunities to actualize. Used as a filler and a hands-on, students needed a hands-on. Poster sessions but not presented verbally, chose not to present because of sick days.*

Curriculum Specialist Notes: Students went outside to look for evidence of weathering in their immediate courtyard. Few examples of the same thing, cracked sidewalks, sun bleaching items. How does this connect to what students are learning? Then students were to create a solution/plan to prevent weathering. They were told to do this, they were not brought to this idea as something that was important for them to do. The curriculum did not create the need, it was like students were merely checking off the parts of the lesson they had to complete.

This is bothersome, even Teacher said this activity was just a filler and therefore falls short of having relevant and meaningful experiences for students.

This lesson came from the Making Connections portion of the unit and not part of the lessons nor are these mentioned in the 5E lesson cycle. If we were to adopt this curriculum, we would have to specify which of these should be part of the Scope and Sequence so that all students have access.

***Field Test* Classroom Observation**

Teacher #2
Vendor: HMH
Unit: Changes to the Earth's Surface

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? Shares while students were answering questions on the worksheet, which wasn't in the curriculum lesson but it supported the 4 students who consistently have a hard time getting started.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Not this time-- the activity asked for students to come up with solutions to prevent weathering, but there wasn't a place to list the objects that are weathered. This class needed that executive function to help them stay on task.

3. Was there something that you would have liked to see that didn't happen? I would have liked the students to be more centered on their task when they were outside. I think the worksheet could have given students suggestions for what to look for with regards to weathering. The lesson has focused on landforms being weathered, but we were in an urban environment and were looking at manmade items (sidewalks, planters, basketballs).

4. What are your comments on the materials that you used today/ this week? The lesson leading to this point were well-scaffolded. Workbooks are organized and easy to use. All of my students participate when I ask them to fill them out. The online resources really help students understand the concepts, so I rarely supplement. The focus and direction of the unit is clear, so I can supplement in a natural way: for instance, when students come in, their entry tasks are projected on the whiteboard. The image I've been using has been of cars lining a riverbank. I used this image because it was how my grandfather slowed erosion on the creek on his ranch (from his cattle). When students asked about the image, it prompted a great discussion.

Overall:

1. What are your students understanding or not understanding? My students are understanding the difference between weathering and erosion. They're not understanding some basic concepts about how water moves things (some think that rivers need to move slow in order to move rocks because rocks are heavy).

2. How have your students engaged with the phenomenon? Because of the weather and wheat week, this was our first hands-on activity. Most engaged quickly with weathering that is happening outside of their classroom. Has this phenomenon helped them to expand their thinking about this topic? Yes, it helped them understand how they might prevent weathering on school grounds.

3. What kinds of evidence have students gathered so far in this unit? Students gathered evidence on how water expands when it freezes, and how sun, wind and water weather items. Have students been able to make sense of the evidence they have gathered? Yes, both the activity and evidence in their workbooks are presented in a way that helps students understand weathering and erosion.

4. Have student to student discussions focused on sense-making around evidence collected? Yes. Students to student discussions focused on weathering. They will have more discussions when they work on their presentations.

5. How would you rate the explanations student generate using the tools from this unit? Meets expectations. Students had the skills needed to discuss weathering on the school ground.

6. Is there anything that we should know that I haven't asked you? Planning has been much easier with HMH than with Amplify, and it's also easier for me to know what to listen for in student responses.

- Students were conducting internet research with sites provided on a half-sheet. Did you provide these or were these part of the curriculum? Is this what you are referring to in the first question answered? *It was suggested in the curriculum, it gave some suggestions but one of the site already outdated; she provided links. I went back through the curriculum and could not find a reference to this suggestion. I've emailed her to ask.*

- Are evidence notebooks part of your academic culture or something the unit asked you to create? *The curriculum suggests Evidence Notebooks, Teacher adapted them to fit into their binders.*

- Students developed a plan to prevent weathering, was this supported as an Engineering Design lesson or just a brainstorm of possible solutions? Did the unit provide opportunities for students to actualize their plans*? Brainstorm as possible solutions, was suggested as a ED but not supported in that way. No opportunities to actualize. Used as a filler and a hands-on, students needed a hands-on. Poster sessions but not presented verbally, chose not to present because of sick days.*

Curriculum Specialist Notes: Students went outside to look for evidence of weathering in their immediate courtyard. Few examples of the same thing, cracked sidewalks, sun bleaching items. How does this connect to what students are learning? Then students were to create a solution/plan to prevent weathering. They were told to do this, they were not brought to this idea as something that was important for them to do. The curriculum did not create the need, it was like students were merely checking off the parts of the lesson they had to complete.

This is bothersome, even Teacher said this activity was just a filler and therefore falls short of having relevant and meaningful experiences for students.

This lesson came from the Making Connections portion of the unit and not part of the lessons nor are these mentioned in the 5E lesson cycle. If we were to adopt this curriculum, we would have to specify which of these should be part of the Scope and Sequence so that all students have access.

Field Test **Classroom Observation**

<u>Teacher</u> # 3
<u>Vendor:HMH</u>
<u>Unit: Earth's Features</u>

<u>**Post-Observation Notes**</u>

<u>Focus on Today:</u>

1. What did you try today that seemed successful? Why would you call it successful?
    a. Students were fairly engaged for most of the lesson, as they seem to be really curious about these natural 'mysteries' we've been talking about in this unit. I would call that successful because we were able to get through a lot of the lesson, and students were for the most part sharing ideas either vocally or in their own books. (have a decent amount of super-shy students)
    b. I also really liked how students posed a bit of debate for some of the questions we were answering. That tells me engagement is high and that they are gathering evidence because they are able to articulate it through an argument one way or another.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
    a. I believe so. One thing that I'm finding that's really lacking is a general teacher lesson plan. In my teacher book I have to spend a lot of time going through each page of a lesson and deciding what I'm going to say, how I'm going to transition, and how much time I should spend on each portion. I don't really want a full-on script or anything, but as someone who definitely did not ever specialize in science, I want to make sure I am using accurate and specific language throughout. I also would like to feel more confident in clearing up student misconceptions, but again, science is not my strength.
3. Was there something that you would have liked to see that didn't happen?
    a. I would have liked to hear from more students, but that always feels like the case. I also would have liked more videos to show up front as in the past section.
4. What are your comments on the materials that you used today/ this week?
    a. Overall we really like them so far! We only received them to our room at the start of this section, so the students are still super excited and surprised they get to write in the full-color books!

<u>Overall</u>:

5. What are your students understanding or not understanding?
    a. It seems like they are understanding how water changes earth surface (first section) and how that can actually affect us day-to-day with canyons/potholes/etc. They are starting to develop understanding of this concept with other natural things like wind, sand, etc.
    b. They do not yet seem to understand that THIS IS SCIENCE! I've heard them label this work as all sorts of things including social studies, and geography. I have not corrected this because I want to ultimately make the connection repeatedly as we continue on, but this was curious to me.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
    a. Most definitely yes, has helped them expand their thinking. I think they were really engaged with the water portion because the pot hole connection was so easily seen in their own lives in Seattle streets!
7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?
    a. The evidence that has stuck with them the most took place during the first section when we did the experiment filling a cup with water and freezing it overnight. When the students were able to concretely see the water level rise during freezing in such a short timeframe it made very clear to them how that can have effects on earth's surface. I'm still unsure about how that helped or hurt their understanding of this phenomenon related to how fast things happen.
8. Have student to student discussions focused on sense-making around evidence collected?
    a. Yes! I'm still unsure in my role when to correct misconceptions as we are still learning, and when to let students come to their own conclusions as we gather more evidence. I'm also using facilitation moves from the ELA CCC curriculum here because this curriculum didn't explicitly state (where I've seen) how we should format peer discussions.
9. How would you rate the explanations student generate using the tools from this unit?

   a. Their understanding has greatly improved so their explanations have been impressive! The only thing my students are including (yet, perhaps) is the specific science vocabulary. Again, since I'm not 100% comfortable with some of it yet, I'm letting that slide a bit so as not to say the wrong word and confuse them more.

10. Is there anything that we should know that I haven't asked you?
    a. Overall I'm liking the curriculum so far, I just don't feel that it fully support teachers like me who don't feel super confident in science! Maybe that's just because of this short time window, but it also makes me feel like I would never leave this lesson for a sub to do, unless I had fully written out my own script (which I'm only doing every couple days right now) ahead of time.

GRADE 4 SCIENCE: HMH
SUMMARY OF EVIDENCE GATHERED DURING STUDENT INTERVIEW
UNIT: CHANGES TO EARTH'S SURFACE

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3
Discourse for sense-making	2	2	2
Consensus building	-	-	-
Phenomenon present and helpful	-	-	2
Elicitation / Initial Model	-	2	2
Evidence helped understand the phenomenon	2	2	1
Way to track ideas through the unit	-	2	2
Assessments fair and helped know where you are	-	2	2
Does the unit help you learn science	2	2	2
Would you recommend these materials	2	2	2

Comments to Note:

- Lots of opportunities to discuss w/ our table grp, some form of asking you to discuss, we got to talk about our plan; to explain how weathering works & erosion works, before I didn't know what they were, now I know after talking to a lot of people; good variety of diff things we do.
- So far had to figure out what is weathering, erosion, and deposition. Have had to define them. Had to match pictures w/ words. Don't know if I found that to be the most helpful.
- CS: I don't understand how the students felt their last unit didn't have group work or opportunities to talk to each other. They really like this unit because it has a variety of things to do and they feel they are learning a lot. What I saw was a string of different things with little to tie things together? Some sense making but no 'so what'? Wasn't able to ask all the questions. Based on the quality of the science they described they had last year, anything would be better.
- We write answers about weathering, deposition, or erosion and give examples or evidence. Sometimes multi choice and sometimes short answer. Sometimes. With hands—on don't have to write about it. We sometimes we draw on top of pictures in the book to show things but don't draw diagrams.
- When we first began this we were asked before we knew what erosion and stuff and we had to think how does a grand canyon form. Saw unit vocabulary page at the beginning. He taught us about canyons and got an idea in our mind and wrote it down here. I just realized that freezing and thawing might also have cause d it not just moving water. Didn't know about weathering then. First thing I thought was it was the water before I even knew. Then we learned about rivers.
- CS: The students really seem to like this unit and have clearly learned a lot. I was impressed with their thoughtful responses. They made a point to tell me that the teacher didn't even choose them intentionally – he used fairness sticks so it was random. There's no student to student talk though lots of chance to agree or disagree with each other in whole group discussion with the teacher – productive conversation. or developing and using models but a lot of opportunity for investigation, argumentation, and explanation
- We're learning about canyons and rocks were formed, and now we're learning more about animals. How water shapes Earth's surface.
- But now we're learning about animals, in deserts and rain forests.
- Well, today, we were going to gather evidence. But well, it just kind of explained the answer – well, it just kind of clarified things a little bit. I don't know if it was actually evidence. It was *sort of an answer.*

Student Interview

Teacher #1
Unit Name: Changes to Earth's Surface
Vendor: HMH

Questions (feel free to modify as the students begin to talk)

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain. Lots of opportunities to discuss w/ our table grp, some form of asking you to discuss, we got to talk about our plan; to explain how weathering works & erosion works, before I didn't know what they were, now I know after talking to a lot of people; good variety of diff things we do. We get to understand more, doing stuff by ourselves or listening to her; we didn't get to expand our thinking in other unit.
2. Is having conversations with your peers something new to this unit or something you regularly do in science? In old unit, we didn't do anything in a grp; we didn't do much sci before; didn't get into the sci as much didn't get as much grp time; just looked at our books on the carpet & talk to people next to us about it.
3. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not? Yes, it forces me to think about it in diff ways, they think of things I didn't think about; sometimes I feel too shy to share but still think it's a good thing to do; everyone needs to get a chance, people shouldn't say something that lasts forever, I try to shorten my ideas. Teacher good at having us all share; like having a coin, look at head, listening to someone else is looking at the other side, looking at both sides, you know other's thinking.
4. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas? So far had to figure out what is weathering, erosion, and deposition. Have had to define them. Had to match pictures w/ words. Don't know if I found that to be the most helpful.
5. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? Pretest to understand what we think, not graded, what do you think, how she learns about us. And then go on the computer to learn about it, get into things.
6. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain Running out of time, dropped to last questions.
7. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
8. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?
9. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?
10. Were you able to ask your questions during the unit? To whom did you ask your questions?
11. Did your teacher have students share their individual ideas before coming to class "consensus"?
12. Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?
13. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?
14. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.
15. Would you recommend that we use these materials for ALL students in _4th graders___ across the district. Much more interactive, I've learned more in first lesson than 10 lessons of last unit. What do you think about this/that. This one more when you go outside and looking more around outdoors. But this is just what we think. It's too long for most people, outside together, hands-on activities, we like this unit. We're learning more, we had less hands on in the last unit. They weren't helping me learn, I made a terrible windmill. We did learn how they work but this is more logical. Cups & popsicles are dumb.

Curriculum Specialist Impressions and Summary:
I don't understand how the students felt their last unit didn't have group work or opportunities to talk to each other. They really like this unit because it has a variety of things to do and they feel they are learning a lot. What I saw was a string of different things with little to tie things together? Some sense making but no 'so what'? Wasn't able to ask all the questions.
Based on the quality of the science they described they had last year, anything would be better

***Field Test* Classroom Observation**

Teacher #2
Vendor: HMH
Unit: Changes to the Earth's Surface

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? Shares while students were answering questions on the worksheet, which wasn't in the curriculum lesson but it supported the 4 students who consistently have a hard time getting started.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Not this time-- the activity asked for students to come up with solutions to prevent weathering, but there wasn't a place to list the objects that are weathered. This class needed that executive function to help them stay on task.

3. Was there something that you would have liked to see that didn't happen? I would have liked the students to be more centered on their task when they were outside. I think the worksheet could have given students suggestions for what to look for with regards to weathering. The lesson has focused on landforms being weathered, but we were in an urban environment and were looking at manmade items (sidewalks, planters, basketballs).

4. What are your comments on the materials that you used today/ this week? The lesson leading to this point were well-scaffolded. Workbooks are organized and easy to use. All of my students participate when I ask them to fill them out. The online resources really help students understand the concepts, so I rarely supplement. The focus and direction of the unit is clear, so I can supplement in a natural way: for instance, when students come in, their entry tasks are projected on the whiteboard. The image I've been using has been of cars lining a riverbank. I used this image because it was how my grandfather slowed erosion on the creek on his ranch (from his cattle). When students asked about the image, it prompted a great discussion.

Overall:

1. What are your students understanding or not understanding? My students are understanding the difference between weathering and erosion. They're not understanding some basic concepts about how water moves things (some think that rivers need to move slow in order to move rocks because rocks are heavy).

2. How have your students engaged with the phenomenon? Because of the weather and wheat week, this was our first hands-on activity. Most engaged quickly with weathering that is happening outside of their classroom. Has this phenomenon helped them to expand their thinking about this topic? Yes, it helped them understand how they might prevent weathering on school grounds.

3. What kinds of evidence have students gathered so far in this unit? Students gathered evidence on how water expands when it freezes, and how sun, wind and water weather items. Have students been able to make sense of the evidence they have gathered? Yes, both the activity and evidence in their workbooks are presented in a way that helps students understand weathering and erosion.

4. Have student to student discussions focused on sense-making around evidence collected? Yes. Students to student discussions focused on weathering. They will have more discussions when they work on their presentations.

5. How would you rate the explanations student generate using the tools from this unit? Meets expectations. Students had the skills needed to discuss weathering on the school ground.

6. Is there anything that we should know that I haven't asked you? Planning has been much easier with HMH than with Amplify, and it's also easier for me to know what to listen for in student responses.

SECTION 4: Curriculum Lead's Reflections

- Students were conducting internet research with sites provided on a half-sheet. Did you provide these or were these part of the curriculum? Is this what you are referring to in the first question answered? *It was suggested in the curriculum, it gave some suggestions but one of the site already outdated; she provided links. I went back through the curriculum and could not find a reference to this suggestion. I've emailed her to ask.*

- Are evidence notebooks part of your academic culture or something the unit asked you to create? *The curriculum suggests Evidence Notebooks, Teacher adapted them to fit into their binders.*

- Students developed a plan to prevent weathering, was this supported as an Engineering Design lesson or just a brainstorm of possible solutions? Did the unit provide opportunities for students to actualize their plans*? Brainstorm as possible solutions, was suggested as a ED but not supported in that way. No opportunities to actualize. Used as a filler and a hands-on, students needed a hands-on. Poster sessions but not presented verbally, chose not to present because of sick days.*

Curriculum Specialist Notes: Students went outside to look for evidence of weathering in their immediate courtyard. Few examples of the same thing, cracked sidewalks, sun bleaching items. How does this connect to what students are learning? Then students were to create a solution/plan to prevent weathering. They were told to do this, they were not brought to this idea as something that was important for them to do. The curriculum did not create the need, it was like students were merely checking off the parts of the lesson they had to complete.

This is bothersome, even Teacher said this activity was just a filler and therefore falls short of having relevant and meaningful experiences for students.

This lesson came from the Making Connections portion of the unit and not part of the lessons nor are these mentioned in the 5E lesson cycle. If we were to adopt this curriculum, we would have to specify which of these should be part of the Scope and Sequence so that all students have access.

<u>Student Interview</u>

Teacher #3
Unit Name: Changes to Earth's Surface
Vendor: HMH

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
   A little bit. She calls on us to answer questions, and every once in a while, she let's us turn and talk to our partners about the question.

2. Is having conversations with your peers something new to this unit or something you regularly do in science?
   We started doing it more at our desks, because before we only used to do it on the carpet. I mean, we used to do it when we did electricity, she split us into groups of four. But now we're doing it in partners.

3. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not?
   I like it with a partner better, because everybody gets to do it.

   I like it when she calls on three people to do it out loud [to the class], and then everybody gets to turn and talk with their partner afterward. So they know what to talk about first.

4. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas?
   We're learning about canyons and rocks were formed, and now we're learning more about animals. How water shapes Earth's surface.

   But now we're learning about animals, in deserts and rain forests.

   [Was there a phenomenon or puzzling questions as you've been doing this unit?]

   Well, this right now is pretty puzzling. [About the rock tree in today's lesson] Because I had a hypothesis, that it would be a sandstorm and erosion, but that's just my hypothesis – I don't have any real proof.

   [Does it help to have a phenomenon or puzzling question to think about while you're doing science?]

   [all] Yes.

   It helps me understand why we're doing what we're doing.

   In second grade, when we did science, we didn't have that, and so, it was confusing. And --

   We had science together, and the teacher just explained everything. You take this metal rod, you vibrate it against this, it makes a sound, and when you put it on water, it makes ripples, and the ripples cause sound. And then we didn't have any questions. That was it.

   I don't think that was very helpful, though. Because we didn't actually – I mean, once we knew that, we didn't want to know any more.

5. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?
   Yes, we got to talk about it on the carpet. But they were just a hypothesis, we really didn't know the answer.

6. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain
   Well, today, we were going to gather evidence. But well, it just kind of explained the answer – well, it just kind of clarified things a little bit. I don't know if it was actually evidence. It was sort of an answer.

7. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
   I feel like – it kind of – it stays on water, but it goes into different effects, like flooding, then it goes into different parts of what water can do. One page it's canyons, then it's rivers, then it's flooding, then it's the rainforests. It keeps changing, but it's all about water. I like that it keeps moving.

8. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?

9. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?

10. Were you able to ask your questions during the unit? To whom did you ask your questions?

11. Did your teacher have students share their individual ideas before coming to class "consensus"?
    We get to turn and talk to our partners.

12. Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?
    I think they are kind of medium – some of them I kind of knew the answers to already, but I don't know the others.

    I agree with her, but I did find some of them a bit tricky. Well, they didn't really give us much to work with with the sandstorm, or the rock tree I mean. They just talked about animals today.

    It kind of varies a lot. I think that the second to last question about the rain forest – how does the water level affect the animals – I felt that one was a little bit easier, it was just kind of long.

13. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?

14. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.
    [Interesting?] Yes.

    Kind of. It's all interesting and fun, but there's a lot more stuff that I want to learn about that would be more interesting. Like chemistry.

    I like it.

    [Doing the work of scientists?] I mean, probably. I guess this is what they would do.

    [Students explain that they have been working on and off for about a month, but they have only had access to the workbooks for two days. Before that, the teacher had been printing worksheets (excerpts, in their words) for each lesson.

    Q: Do you think that having the workbook is important, or is using printed excerpts OK?]

    I don't think it matters if we have the book, it's pretty much the same.

    Well, I like the color parts. Yeah, but we can see the color on the screen so it's not that important.

    To me, it doesn't really matter – if we used excerpts, it would be cheaper, right? Well, that would be worth it to me to save money.

15. Would you recommend that we use these materials for ALL students in ____ across the district.
    Excerpts are the way to go. Don't buy the books.

    Yes, this program is very good. It leaves you hanging. I like that part.

GRADE 1 SCIENCE: TCi
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: ANIMALS AND PLANTS

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4
SEP attended to within the unit	4	2	2	1
Phenomenon				
• Presence of	2	2	1	1
• Revisiting	1	1	1	1
• Engaging	1	2	2	1
Evidence Gathered				
• Multiple types	2	3	2	2
• Student engagement	3	3	2	2
Student Discourse for sense-making	2	2	2	2
Students tracking their progress (self-assessment)	-	-	-	
Student Explanations	2	2	2	2
Usefulness of Materials	2	2	3	2

Comments to Note:

Teacher #1

- Engineering challenge to connect to plant growing. Very big leap.
- Phenomenon at the beginning is a question about the flowers. Don't' see how this experiment deepens their understanding of the driving question.
- I don't see that the lessons tie together.
- They don't offer a lot of teacher support on how to draw the question.
- Overarching was about yellow and black fish in the ocean but we never return to it Not drawing connections to the phenomenon. They understand that plants and animals have parts and the parts have a purpose, parents & offspring look alike. No so what…. The had a lot of fun but did not have a deep understanding of connecting to the animal.
- A lot more of talking about activities. Not really sense making. More of "what is this".
- I personally have seen the kids like the images and technology, I have felt that it has created a disconnect between me and the kids and the kids to kids. Screen, then go to your book to answer the questions. More matching games. There have really only been a handful of hands on sense making activities. Most of the questions are too easy.
- Demonstrated what it looks like as she stands in the front, playing the ppt or video, then pointing to the question on the screen, kids answer and then she plays the next slide.

Teacher #2

- Love all of the stuff on the screen that's provided. It switches up a lot in a lesson – video, biologist audio, notebook, physical movement, the cards, – all in one lesson. Engaging because of different modalities.
- Lesson guides aren't teacher friendly – all online – super hard to print. So nice to have the book – glad they printed but they aren't very clear. It isn't clear when you bring in the notebook or a reading. Not clear for teachers when to bring in notebook – a lot of latitude but not always clear when it's optimal or how to fit it in. Textbooks are really nice.
- Not really a phenom but sequence is good. The sequence make sense.
- It's a lot of whole class discussion, no prompts for discourse.
- The visuals are a great scaffold. Lots of pictures for drawing too. Lots of ways to show what they know.

Teacher #3

- Didn't put the screen on to show them the ppt that had all the steps. I just did the lesson. Better for them to focus on me than look at the screen. Went back & defined offspring, thought they knew but they didn't. Lesson didn't include this step, I added it in. Lesson 2 is 4 hours long, have to go back & review ea time.
- I would like the slides (TG) to have more background information, including: what we're hoping the kids get to this, try asking these questions, more teacher prompting. No differentiation so far but it's early in the unit. Switched to write then draw if time. Would like to see more hands-on.
- CS: I didn't see science today, I saw a matching game that preschoolers can do—matching parents to offspring by guessing on descriptions students gave. Minimal work on how they are alike and different.

Teacher #5

- When we go back to the phenomenon at the end, it doesn't tie in well. Students generate a lot of questions but then it doesn't get back to the phenomenon. The lesson didn't address the phenomenon specifically, so the students had trouble connecting the phenomenon with the content of the lesson. Students still don't know the "answer" to the phenomenon unless we opened a book to read it. This is also tricky for a large class – the "hands-on" part (like fanning each child, or touching them with a piece of paper) relies on teacher-to-student interaction.
- Some of the hands-on investigations are not feasible for a large class – we didn't get enough materials, and I would have liked for the direction to be clearer (like on the warmth day – it wasn't clear if students were supposed to compare materials, explore combinations of materials, etc.) The materials are really hard to manage with larger groups.
- The games and investigations are great – kids love matching, hands-on exploring. Sections with watching the overhead was too long. The performance assessment was just a packet of paper – this would not have engaged my students, so I had to modify. If you're an experienced teacher you have to think a step ahead and figure out how to tweak the lesson.
- CS: *, the examples given were scientifically inaccurate. In comparing how a human hears and how a whale hears, the curriculum simply made the whale "hearing" louder than human hearing. With cat vision, they superimposed a picture of a mouse on a black background, whereas the human vision was a black box. This simplification also led to limited student responses. (How is whale hearing different than human hearing? It's louder.) Importantly, in the student interviews, students were not able to answer the question "why are we learning this?" This speaks to the lack of storyline in this curriculum.*

***Field Test* Classroom Observation**

Teacher: #1
Vendor: TCi
Unit: Plant and Animal Parts

Post-Observation Notes
Focus on Today:
1. What did you try today that seemed successful? Why would you call it successful?

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
    a. No. Not really
3. Was there something that you would have liked to see that didn't happen?
    a. More time to figure it out. Has a side panel with teacher information. More information that says if kids say X then do Y. Dig deeper. Even CCC has teacher guidance to do digging in .

4. What are your comments on the materials that you used today/ this week?

Overall:
5. What are your students understanding or not understanding?
    a. Not drawing connections to the phenomenon. They understand that plants and animals have parts and the parts have a purpose, parents & offspring look alike. No so what…. The had a lot of fun but did not have a deep understanding of connecting to the animal.
    b. Observational science. No deep meaningful connections.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
    a. Not at all. They are having fun but so what!
    b. I don't see the driving phenomenon is helping at all to draw connections.

7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?
    a. Not any. This glove was effective because, but the glove didn't relate to the plants and animals. Crazy, hilarious glove. Not great connections.
    b. No design principle, think about and then off you go….just a toss together event.

8. Have student to student discussions focused on sense-making around evidence collected?
    a. A lot more of talking about activities. Not really sense making. More of "what is this".

9. How would you rate the explanations student generate using the tools from this unit?
    a. I think they will say the same thing they said in their inial elicitation. I don't see an exemplar explanation.

10. Is there anything that we should know that I haven't asked you?
    a. I personally have seen the kids like the images and technology, I have felt that it has created a disconnect between me and the kids and the kids to kids. Screen, then go to your book to answer the questions. More matching games. There have really only been a handful of hands on sense making activities. Most of the questions are too easy.
    b. Demonstrated what it looks like as she stands in the front, playing the ppt or video, then pointing to the question on the screen, kids answer and then she plays the next slide.

***Field Test* Classroom Observation**

Teacher: #2
Vendor: TCi
Unit: #1, Plant & Animal Parts

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   They like questioning and wondering. Getting better at asking a question and not just state fact.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   Grouping for tomorrow's activity is recommended 5 or 6 - too many. Modifying to 4 for success. Love all of the stuff on the screen that's provided. It switches up a lot in a lesson – video, biologist audio, notebook, physical movement, the cards, – all in one lesson. Engaging because of different modalities.

3. Was there something that you would have liked to see that didn't happen?
   There's an online textbook E-reader where kids can click through or be read to – for first graders especially.
4. What are your comments on the materials that you used today/ this week?
   Lesson guides aren't teacher friendly – all online – super hard to print. So nice to have the book – glad they printed but they aren't very clear. It isn't clear when you bring in the notebook or a reading. Not clear for teachers when to bring in notebook – a lot of latitude but not always clear when it's optimal or how to fit it in. Textbooks are really nice.

Overall:

5. What are your students understanding or not understanding?
   Using formal and informal assessments – talk and notebooks mostly and the performance tasks.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? Not really a phenom but sequence is good. The sequence make sense. Starting with "What is an animal?" In unit then into plants and then parts and what there for. There is a lesson level phenomenon – like the jelly fish today or the plant lesson was just a picture of a flower. AT the start it was yellow vs. black fish – why? Some were good, like the fact that the duck has baby that look same. Like today should have started with the polar bear then discussed parts for survival then finished with model of how they sty warm!

7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered? I notebook and class talking. They know how to use evidence from common core. I know this because… Unit is good to have them only share what they see and evidence they collect. Mostly activities like card sorts/pictures, videos, on screen, audio – really concrete

8. Have student to student discussions focused on sense-making around evidence collected?

It's a lot of whole class discussion, no prompts for discourse.

9. How would you rate the explanations student generate using the tools from this unit?

IN performance task. Explain how "these are different". The notebook asks how same and how different and explain why. It's more talking. than writing but makes sense froe early readers/writers. The notebook does prompt them to explain. Kids have more chances to collect evidence from visuals – a lot of scaffolds for students to collect evidence. The visuals are a great scaffold. Lots of pictures for drawing too. Lots of ways to show what they know.

10. Is there. anything that we should know that I haven't asked you?

there are two performance task. Some informal assessments to see if kids understand. Engineering design. Not much to grad er evaluate. I can use workbook or student talk as informal assessment of understand. In the online version I can use questions in bank to make a test but there so much already.

I liked the plants because the kids actually had to talk about the structure and function. They had to build a stem to see how it worked.

***Field Test* Classroom Observation**

Teacher: #3
Vendor: TCi
Unit: Animals & Plants

SECTION 1: Pre-observation Information

1. What lessons did you complete with your students yesterday? What will you do tomorrow? 2 Last week we did the intro, talked about what offspring means and looked at slide 8 (pictures of families). Monday we will review the definition of offspring, play the first game where kids have to guess if they have a match to the child's description. Then the kids will talk to table partners and write in their science notebooks (slides 9-12). We will continue lesson 2 Tues afternoon.

2. Is there something you'd like me to pay particular attention to during my visit? Pay attention to how long kids are asked to sit for a whole class game, particularly after their card is called.

3. Is there any particular information about the timing of this visit that would be helpful to note? Something to note (probably district wide) is that kids are not at their freshest for learning by mid-afternoon.

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? Didn't try anything different, followed the script. Didn't put the screen on to show them the ppt that had all the steps. I just did the lesson. Better for them to focus on me than look at the screen. Went back & defined offspring, thought they knew but they didn't. Lesson didn't include this step, I added it in. Lesson 2 is 4 hours long, have to go back & review ea time.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Yeah
3. Was there something that you would have liked to see that didn't happen? Once you're matched up with your partner, what keeps you interested in the other cards? A lot of sitting, in general.
4. What are your comments on the materials that you used today/ this week? Too much sitting

Overall:

5. What are your students understanding or not understanding? Able to match parents & offspring. Rose one hard. What whole unit is on is *how are plants & animals like their kind*. But mostly about animals not about plants, no mention about plants just today. Threw in living things can be both plants and animals. Supposed to be able to match plants but lessons have been about animals.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? Don't think so, hard to know, so rudimentary in beginning. Should assume that everyone knows what is an elephant.
7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered? None, haven't done hands-on stuff, today is about hands-on as they've gotten.
8. Have student to student discussions focused on sense-making around evidence collected? No there yet.
9. How would you rate the explanations student generate using the tools from this unit? Working on it, it's a process. Being able to say how they're same/diff, still working on it.
10. Is there anything that we should know that I haven't asked you? I would like the slides (TG) to have more background information, including: what we're hoping the kids get to this, try asking these questions, more teacher prompting. No differentiation so far but it's early in the unit. Switched to write then draw if time. Would like to see more hands-on. Explained it's only one of the practices. Pretest should be created by someone else; have to know the unit. CS should create so that everyone uses the same one. What do you do w/ differentiation? Will do surveys after each lesson instead of on Fridays. Lessons take multiple days. Come after the break.

11. Teacher Comments: Feels like, pretest, we choose 3D but most of them they were able to do already. Feels like stuff they already know. Only in lesson 2 but feels like common sense material. Except for the roses. Next page is

matching, kids can do w/o instruction. Don't have language to put page 4/5 together. Don't use term attribute. Seem to be happy to do it, involves games. Zoo game, act out animal, students guess what it was. How did it connect to phenomenon? Having a hard time with that. Overarching phen: parent animals take care of the offspring. Don't see the rigor.

SECTION 4: Curriculum Lead's Reflections

About #7: Explained to Teacher that the hands on in the past has been focused on controlled experiments, identifying variables and conclusion writing. The new standards have shifted away from this format; the scientific method is not a realistic representation of science thinking, it's more about having students explain their thinking. She was blown away.

I didn't see science today, I saw a matching game that preschoolers can do—matching parents to offspring by guessing on descriptions students gave. Minimal work on how they are alike and different. Really looking forward to returning later in the unit to see if rigor is present.

***Field Test* Classroom Observation**

Teacher: #4
Vendor: TCI
Unit: Animal Parts

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   There seemed to be a lot of student engagement, thinking about how humans sense things versus how animals sense things. Students were still engaged today when we continued the lesson. We finished with taste and touch, comparing how two different animals would taste and touch and this was more hands-on. Yes, the lesson is successful because of student engagement and student understanding of the goal (human and animal senses are different), and each part that functions with those senses is different.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?

Yes

3. Was there something that you would have liked to see that didn't happen?
   When we go back to the phenomenon at the end, it doesn't tie in well. Students generate a lot of questions but then it doesn't get back to the phenomenon. The lesson didn't address the phenomenon specifically, so the students had trouble connecting the phenomenon with the content of the lesson. Students still don't know the "answer" to the phenomenon unless we opened a book to read it. This is also tricky for a large class – the "hands-on" part (like fanning each child, or touching them with a piece of paper) relies on teacher-to-student interaction.
4. What are your comments on the materials that you used today/ this week?

We had to provide our own beef jerky and fruit juice. There's a lot of management involved and out of pocket cost should be discussed with the teacher.

Overall:

5. What are your students understanding or not understanding?

Students already had prior knowledge of the 5 senses. The "new facts" come from the examples given in the curriculum – they are understanding exactly how the senses are different. They are not connecting back to the phenomenon.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?

They had lots of questions and the content of the lessons was clear, but there's a disconnect with the phenomenon. In a previous lesson, the question was "what parts of a jellyfish help it to survive?" and the content did not address the phenomenon.

7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?

In lesson notebook students turn and talk and fill out a "complete the sentence" page. "Cats see better than humans at night. This helps them _________" (hunt for food)

8. Have student to student discussions focused on sense-making around evidence collected?

Usually after students collect evidence, we discuss as a class but there is no right or wrong answer. Today they were smelling and tasting. Students primarily "experienced" different senses and then discussed how they were similar or different.

9. How would you rate the explanations student generate using the tools from this unit?

Students met expectations in that they were able to explain how senses are different and how they are the same in animals versus humans. The lesson did not go any deeper.

10. Is there anything that we should know that I haven't asked you?

Some of the hands-on investigations are not feasible for a large class – we didn't get enough materials, and I would have liked for the direction to be clearer (like on the warmth day – it wasn't clear if students were supposed to compare materials, explore combinations of materials, etc.) The materials are really hard to manage with larger groups.

The games and investigations are great – kids love matching, hands-on exploring. Sections with watching the overhead was too long. The performance assessment was just a packet of paper – this would not have engaged my students, so I had to modify. If you're an experienced teacher you have to think a step ahead and figure out how to tweak the lesson.

I think the previous curriculum goes deeper than this -- there is a fair test, making predictions, more data analysis and recording. With this curriculum, not so much. It's not a bad curriculum.

SECTION 4: Curriculum Lead's Reflections

CL: Record thoughts, observations, or areas of interest here, after your observation and interview.

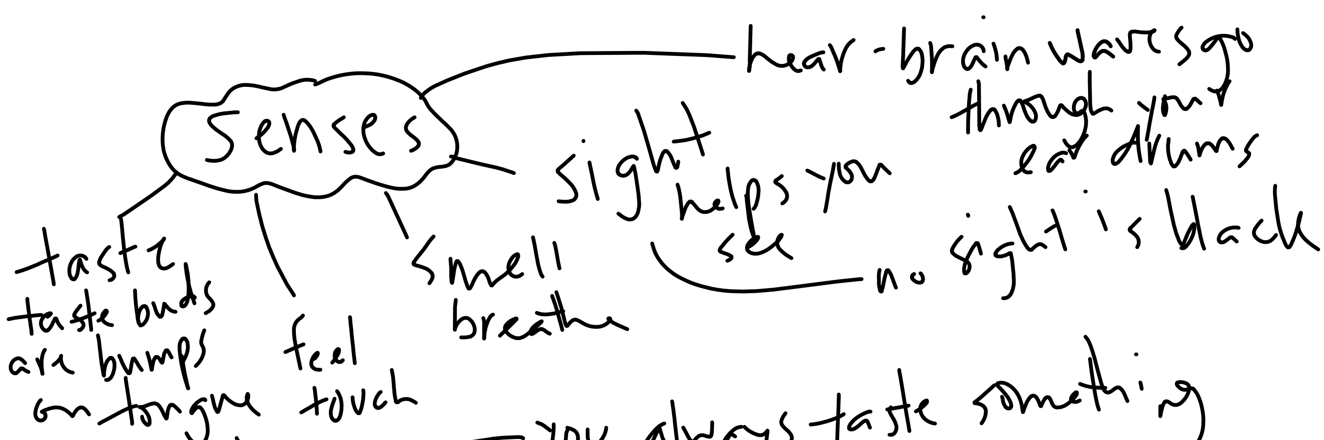
It was difficult to select an SEP for this lesson because of the simplistic nature of the lesson. Students were merely comparing loud vs quiet sounds, smelly vs not smelly materials, and relating this to how humans and animals sense the world differently. It was a way of delivering facts, rather than having students engage in scientific thinking. The "phenomena" were not true phenomena, but simply fact statements (like "Bees find nectar with their antenna") rather than anything puzzling that would lead to student investigation, data collection, or evaluation of data.

In addition, the examples given were scientifically inaccurate. In comparing how a human hears and how a whale hears, the curriculum simply made the whale "hearing" louder than human hearing. With cat vision, they superimposed a picture of a mouse on a black background, whereas the human vision was a black box. This simplification also led to limited student responses. (How is whale hearing different than human hearing? It's louder.)

Importantly, in the student interviews, students were not able to answer the question "why are we learning this?" This speaks to the lack of storyline in this curriculum.

While the teacher cited students collecting "evidence", I would categorize the evidence as recall with potential hypothesizing statements based on prior knowledge, but no avenue for students to then collect data to examine their assumption.

All-group brainstorm at the beginning of class:



GRADE 1 SCIENCE: TCi
SUMMARY OF EVIDENCE GATHERED DURING STUDENT INTERVIEW
UNIT: ANINALS AND PLANTS

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4
Discourse for sense-making	3	2	2	2
Consensus building	2	-	-	-
Phenomenon present and helpful	2	-	-	-
Elicitation / Initial Model	2	-	-	-
Evidence helped understand the phenomenon	2	-	-	2
Way to track ideas through the unit	2	2	-	3
Does the unit help you learn science	2	2	2	3
Would you recommend these materials	2	3	-	3

<u>Comments to Note:</u>

- What's fun? I get educated and talk more. You get to learn something that your partner. Sometime they think of things I didn't think about. Get to listen to what your partner is thinking. It might give you an idea.
- Like the notebooks. It is easy. Like growing plants is good
- We watch a video, then there is a picture in the book, tell me the phenomena. There is a big question/wondering that we ask at the beginning of the lesson. We come up with that question. Not one at the beginning of the unit. No compare to other kids. Don't really come back to it.
- She asks us a lot of questions. We have to wrote tings down in our notebooks a lot.
- I like planting seeds. Waiting for the pants to grow. Putting plants in dirt. Look at hermit crabs.
- I like talking about O/P because we played that really fun game. get to sit next to your partner, have to describe your animal or plant.
- Teacher didn't ask us what we knew, she showed us the video and told us the question.
- Get to see really cute animals. Get to learn how plants and animals are same & diff. like tigers, ducks, owls, plants.
- learning how to describe them
- We are learning about animal parts, offspring and parents and what they do and don't have in common. Planting seeds and observing them, drawing in science packets.
- She asked us questions like "what parts does a plant have" and she would call on us. If we disagree, we would share why we disagree and we could look at a plant and see.
- Yes – I liked that we got to do a lot of experiments with the animal parts. It was teaching us stuff that we knew and didn't. We used things to represent other things.

Student Interview Protocol

Teacher #1
Unit Name: Animal and Plants
Vendor: TCi

Questions:

1. Would you like to show me something you're learning in your notebook?
    a. *Body parts of a made up animal.*
    b. *Zoo Trip. Explained what it looked like and does different things*
    c. *Offspring to partner. How the parent looks different than the offspring.*
    d. *Where animals belong. Everybody glued. But we didn't talk together.*
2. How does this unit help you to talk to your partner?
    a. *Mostly sometimes, Do thing with my partners, write in my notebook and then talk about it. Sometime we play a game at the carpet.*
3. What's fun about…?
    a. *I get educated and talk more. You get to learn something that your partner. Sometime they think of things I didn't think about. Get to listen to what your partner is thinking. It might give you an idea.*
4. What is the question that was asked at the beginning or were you shown something to wonder about?
    a. *I was kind of wondering what things we would do with the animals.*
    b. *We watch a video, then there is a picture in the book, tell me the phenomena. There is a big question/wondering that we ask at the beginning of the lesson. We come up with that question. Not one at the beginning of the unit. No compare to other kids. Don't really come back to it.*
5. Did you start this unit by drawing something to show what you already know?
    a. *The picture is somewhere in the unit but not in the beginning.*
6. Did your teacher ask you what you already knew about…?
    a. *No.*
7. Have you been able to ask questions on what you've been wondering about?
    a. *YES> big part!*
8. Does your teacher check to see if you understand? How does she/he do that?
    a. *Sometimes. She starts it off, does it with us, stop and we do it together, then by our self. She looks at it while we are doing it. No tests.*
9. Do you think this is interesting? Why or why not?
    a. *Yes because animals and plants are cool. I like learning new things. I want to be a scientists. We can get smarter, smarter, smarter.*
10. Explain to me what you're learning in science.
    a. *Learning what animal eat, do, breathe*
    b. *Body parts to stay alive*
11. How is this science different from the other science you've done?
    a. *Weather earlier. We don't have books in weather. Journals with nothing in them.*
    b. *We went outside for weather.*
    c. *Not done with this one. One more lesson.*
    d. *Like the notebooks. It is easy.*
    e. *Growing plants is good*

Student Interview Protocol

Teacher #2
Unit Name: Plants &Animal Parts
Vendor TCi

Questions:

1. Would you like to show me something you're learning in your notebook?

   Sorted some pictures of animals - learned about them from video showing different animals at the zoo. Here is a drawing of out seeds sprouting. We labeled the parts.

2. How does this unit help you to talk to your partner?
   We don't really do that. We talk a lot with Teacher.
3. What do you like about …?
   I like planting seeds. Waiting for the pants to grow. Putting plants in dirt. Look at hermit crabs.

4. What is the question that was asked at the beginning or were you shown something to wonder about?

   Growing plants. How they grow and the parts. What they need. Animals have offspring. Drew the plant while it's growing in investigation notebooks. I liked the animal offspring game
5. Did you start this unit by drawing something to show what you already know?
   Know and wonder charts. That's not drawing. We sometime draw what we see.
6. Did your teacher ask you what you already knew about…?
   We did the know chart. We can tell her what we know when we are on the carpet.
7. Have you been able to ask questions on what you've been wondering about

She puts it on the "Wonder" chart. The hermit crabs questions we put on sticky square

8. Does your teacher check to see if you understand? How does she/he do that?

   I don't know. She asks us a lot of questions. We have to wrote tings down in our notebooks a lot.

9. Do you think this is interesting? Why or why not?
   All students gave a thumbs up.
10. Explain to me what you're learning in science.
    About plant parts. Animals have babies (they started the animal structures lessons today)
11. How is this science different from the other science you've done?
    We have videos and the videos talk sometimes. We have notebooks.

Student Interview Protocol

Teacher #3
Unit Name: Animals and Plants
Vendor: TCi

Questions
Would you like to show me something you're enjoying learning in your notebook? P/O like learning about, forgot. We've been learning about animals and there's this video where we go. Tell me about the video, they're like little clues you write on these lines. Helps you write down what you want and talk to your partner.

Tell me more about how this unit helps you to talk to your partner? Helps your partner not get stuck. I like talking about O/P because we played that really fun game. What's fun about the game? No one knows what you have, get to sit next to your partner, have to describe your animal or plant.

And we've been learning how plants and animals are like. Didn't know this before, plants are alive

I learned that people that have parents can be offspring.

Asked a question in beginning. What does this animal have, and this animal. What do these two have in common? How are plants and animals the same.

Tell me about the pictures: they help because they show you pictures and ask you questions.

Teacher didn't ask us what we knew, she showed us the video and told us the question.

How is this science different from other science you've done. Last year we did the Puddles, and blue toxic water, nitrogen. Jackson & Rings; we studied amazon rain forest animals. I've done science at home. Last year didn't have the big book, last yr we only did one experiment on rain puddles. What kind of things plants and animals relate to in the rain forest.

Have you been able to ask questions, yes but we haven't had that many. Who do you get to ask, from our teacher. And if our partner knows something we don't know they help us out. Sometime two partners talk then write on their paper.

She checks us a lot to see if we understand. How does she ck? She comes around, looks, and asks us questions about what we learned.

Did your unit start w/ drawing something you know? No

Do you think it's interesting. Yes, a lot. Why? because we get to learn things we don't know. Get to see really cute animals. Get to learn how plants and animals are same & diff. like tigers, ducks, owls, plants.
learning how to describe them

not just ponies, but different plants and animals
turtles, what did you learn about them. Watching the video: all different, but all like to eat and sleep.

I didn't know that gorillas don't eat meat and I thought zebras ate meat. Learned at home.

That's how we're similar to each other? Yes. Snakes are mammals, learned it in a book, my mom talks about it.

One student could not tell me anything, she kept saying she didn't know. It appears the only thing students have learned is the word offspring

<u>Student Interview Protocol</u>

Teacher #4
Unit Name: Earth's Changing Surface (Lesson 3)
Vendor: TCI

Questions:

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
    a. Is having conversations with your peers something new to this unit or something you regularly do in science?
2. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not?

When we have conversations with other people, they might know more than you.

3. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas?

We are learning about animal parts, offspring and parents and what they do and don't have in common. Planting seeds and observing them, drawing in science packets.

4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?

Doesn't seem to be a question.

5. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain.

We write about how our plants are getting every two days, because we want to know how plants grow and how tall and how long.

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?

No, but we do have a plant journal.

8. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?

We did an "I know" and "I wonder".

9. Were you able to ask your questions during the unit? To whom did you ask your questions?

Yes – asked questions to the teacher.

10. Did your teacher have students share their individual ideas before coming to class "consensus"?

She asked us questions like "what parts does a plant have" and she would call on us. If we disagree, we would share why we disagree and we could look at a plant and see.

11. Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?

Teacher would walk around and look at our work. If we didn't really know the answer she would explain again to us.

12. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?

Yes – I liked that we got to do a lot of experiments with the animal parts. It was teaching us stuff that we knew and didn't. We used things to represent other things.

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.

I think scientists actually test things out, but we were learning in packets.

14. Would you recommend that we use these materials for ALL students in 1st grade across the district? YES

GRADE 4 SCIENCE: TCi
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: EARTH'S CHANGING SURFACE

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3
SEP attended to within the unit	2	2	2
Phenomenon			
• Presence of	3	3	3
• Revisiting	2	1	1
• Engaging	2	2	2
Evidence Gathered			
• Multiple types	2	2	2
• Student engagement	2	2	2
Student Discourse for sense-making	2	3	2
Students tracking their progress (self-assessment)	-	2	-
Student Explanations	3	2	2
Usefulness of Materials	1	1	2

Comments to Note:

Teacher #1:

- **CS Summary:** This lesson does not have enough time built in for reflection after the activity. The hands-on activity itself does not seem like it was vetted appropriately: the plastic needs to be held down by tape and expecting that 4th graders will blow through their straws with an appropriate level of force is a bad assumption. The overall design is well-intended, but not practical at all; the air and flour have nowhere to go but back out the straw hole. Without provided safety goggles, the students were left to be creative to protect their eyes. Cleanup meant there would be flour everywhere. The kit doesn't provide enough materials for each group to be of reasonable size, and there is no setup for teacher demo. The addition of obstacles gives students a choice but does not qualify it to be considered a student-designed investigation. This is, unfortunately, a relic of the previous methods of science instruction, which would not have included appropriate scientific practices, if it weren't for the teacher's pedagogy.

Teacher #2:

- At no point yet have they tied it back to anchoring phenomenon: why Appalachian mtns have changed. Assuming we'll go back in the end but should have returned to it repeatedly.
- Concern: the video! The white-presenting student was cast as more knowledgeable, more dominant than the brown-presenting student. This reinforces the idea of white privilege and shows students that would identify with the brown student that their place is one of unequal footing with that of white-presenting students. I need to return to the video and time and ID type of interactions.
- Wording on slides are editable but not font size, how to standardize for equity?
- The student notebook includes all handouts needed for extensions, seems like a waste of resources if not used. Teacher said families would be confused by all the blank pages.

Teacher #3

- Haven't gone back to the unit question. Why Appalachian mtns the way they are. But are bringing ideas from other places they've seen weathering & deposition. Has this phenomenon helped them to expand their thinking about this topic? Hard to know because we're not going back to phen.
- Re Sensemaking: Image analysis, somewhat. Don't feel they have been pushed too far in that direction. Haven't been asked to explain anything yet.
- Pacing is kind of off. It's pretty paper heavy, not clear what they're supposed to be doing. Teacher platform, once you make edits format changes. Spanish isn't vocab we'd use, not good word choice. Can't download. Can't change color of text, little things to make it easier for kids to read

Field Test Observation

Teacher #1
Vendor: TCI
Unit: Earth's Changing Surfaces

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   How I have the investigation groups organized–with job role name tags and numbered table signs. This helped us all be mindful of who had which role and what the groups were. I'd call it successful because it helped make the investigation cohesive and organized.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   The instructional materials – with regard to the directions and instructional content – were scaffolded succinctly and clearly. In terms of the actual materials for the investigation, it would have been nice to have been forewarned to save sand from the previous investigation, and I would have appreciated having safety goggles for all my students, as well as duct tape.
3. Was there something that you would have liked to see that didn't happen?
   I'm not sure this investigation provided my students with a solid understanding of wind erosion. Blowing sand & flour with a straw only gave them a limited experience with wind erosion.
4. What are your comments on the materials that you used today/ this week?
   As I said above, I would have liked to have been provided with safety googles and strong tape. The other thing that my students commented on was the use of plastic straws, which have been banned in our city. I think TCI should consider using paper straws for this investigation.

Overall:

5. What are your students understanding or not understanding?
   My students are understanding ways that wind, water & living things affect the earth's surface. I would like there to be more examples and probing into ways humans are impacting the earth's surface. e.g. development, impervious surfaces, etc.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
   We've come back to the original phenomenon (Appalachian Mountains) a few times. I think they have a good understanding of how the earth's surface changes over time.
7. What kinds of evidence have students gathered so far in this unit? Have students been able to make sense of the evidence they have gathered?
   They've gathered evidence based on the investigations on water and wind erosion. I will say that having done the Community Waters science unit in the fall, my students already had a solid understanding of erosion and types of surfaces. They keep referencing their background knowledge.
8. Have student to student discussions focused on sense-making around evidence collected?
   Somewhat. It's not always easy to extrapolate info gathered in an investigation conducted indoors using small bins to phenomenon that occurs over very large expanses.
9. How would you rate the explanations student generate using the tools from this unit?
   I would rate my students relatively high, mostly because even though the instructional materials are well-thought out and accessible, the content is not necessarily new and rigorous.
10. Is there anything that we should know that I haven't asked you?
    Only that I wish this field test had been done on a unit other than earth science, especially considering we did Community Waters last semester.

SECTION 4: Curriculum Lead's Reflections

T: One thing that she has found is that the pacing is very fast. They almost never have enough time as prescribed by the scope and sequence. Example: They did the article this morning, and no one got close to finishing. Have to go back to it before starting this afternoon's activity.

T: (1:26) Didn't get to the reflection; We'll have to come back to it later today. I have effectively been teaching science all day now.

T: One of the big benefits to the digital interface is having the articles read aloud. Even students at grade level want to use it – especially with science texts being so technical, everyone benefits. Sometimes, the kids get kicked off the website and they have to go back in.

T: Allowed students to add sand during the water erosion activity, as it suggested student-designed investigations. But she didn't realize she would need more sand for today's activity – so, the containers have a minimal amount of sand and flour in them.

T: Likes that the lesson materials are "bundled" together in the kits. Makes prep much easier, no digging for things.

Supply note: It seems they only have 6 setups in a box; Ms. Colando could have used 8! There was also a list of "common" materials that she was expected to have, including tape, which is critical to keeping the plastic wrap on. She also doesn't have goggles. What are we going to do about the straw situation?

Summary Observations: This lesson does not have enough time built in for reflection after the activity. The hands-on activity itself does not seem like it was vetted appropriately: the plastic needs to be held down by tape and expecting that 4th graders will blow through their straws with an appropriate level of force is a bad assumption. The overall design is well-intended, but not practical at all; the air and flour have nowhere to go but back out the straw hole. Without provided safety goggles, the students were left to be creative to protect their eyes. Cleanup meant there would be flour everywhere. The kit doesn't provide enough materials for each group to be of reasonable size, and there is no setup for teacher demo. The addition of obstacles gives students a choice but does not qualify it to be considered a student-designed investigation. This is, unfortunately, a relic of the previous methods of science instruction, which would not have included appropriate scientific practices, if it weren't for the teacher's pedagogy.

***Field Test* Classroom Observation**

Teacher #2
Vendor: TCI
Unit: Earth's Changing Surface

SECTION 1: Pre-observation Information

1. Vendor lesson(s) you will be teaching:

I will be teaching TCI, finishing up on lesson 3 (was going to do this today and start lesson 4, but atlas a snow day…). I will be beginning lesson 4.

2. What lessons did you complete with your students yesterday? What will you do tomorrow?

We almost completed lesson 3. I will start lesson 4 and will likely finish it on Thursday (my next science class this week). Just an FYI, I am not thrilled with lesson 4, but I agreed to teach it as written and I will do that. The main activity is way too simple for 4th graders.

3. Is there something you'd like me to pay particular attention to during my visit?

Student engagement. My students are usually very engaged, I am wondering how this will go when the lesson is not very engaging for them. I would have certainly modified this lesson, but will not as agreed upon. I am not worried how this might reflect on me – this might be an interesting one for you to see.

4. Is there any particular information about the timing of this visit that would be helpful to note?

With the snow day we got off a bit. As I mentioned above if we have a late start the timing might be different than I originally told you.

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Having them buddy read resource book. Why would you call it successful? 95% are on task and share out adds to the learning. Did a lot of cold calling for questions w/ no right or wrong answer, 30% do all talking, trying to get thinking responses.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Yes.
3. Was there something that you would have liked to see that didn't happen? More rigor! Next lesson students pick idea, like beaver pond, and act it out. Not sure how it's going to go. Would like something hands on in every lesson, most lessons.
4. What are your comments on the materials that you used today/ this week? Wind bucket: supposed we're doing it, not results, but blow out, not in, said hundred times, still have students sucking up. Question someone will get hurt by this. Lesson 4 activity too obvious, matching description to pictures. If we can mod. This is one I would.

Overall:

5. What are your students understanding or not understanding? Definitely understanding weather, erosion & deposition. At no pt yet have they tied it back to anchoring phen: why Appalachian mtns have changed. Assuming we'll go back in the end but should have returned to it repeatedly.
6. How have your students engaged with the phenomenon? All engaged, exited about the unit. Have no trouble discussing it, no one said they're bored but was worried about it today. Takes 2-3 days to get through a lesson. Engaged enough to talk about it in the end. Has this phenomenon helped them to expand their thinking about this topic? Answering at ea indiv one, haven't gone back to anchoring. Not sure how if they truly understand.
7. What kinds of evidence have students gathered so far in this unit? Through experimentation gathered evidence how water and wind erosion happen and write about it. Evidence will mostly come from readings and discussion. Have students been able to make sense of the evidence they have gathered? Yes.
8. Have student to student discussions focused on sense-making around evidence collected? Yes, all the time. Discussions after they've done everything. So many pages in notebook, rep said others are optional. These worksheets would make lessons last 2 weeks.
9. How would you rate the explanations the student generate using the tools from this unit? Preassessment, after lesson 5 is mid-assessment. Informally, 1-10, most of them out of 84, 90% able to write thorough explanation, maybe more than that. They know my expectations, writing wise.

10. Is there anything that we should know that I haven't asked you? Lesson 4 not grade level appropriate. I'd rather students create their own notebook instead of having the big notebooks. Family members would wonder at all the blank pages. Am trying one extension per lesson.

SECTION 4: Curriculum Lead's Reflections

DEAL BREAKER: the video! The white-presenting student was cast as more knowledgeable, more dominant than the brown-presenting student. This reinforces the idea of white privilege and shows students that would identify with the brown student that their place is one of unequal footing with that of white-presenting students. I need to return to the video and time and ID type of interactions.

https://kcts9.pbslearningmedia.org/resource/ade51ca4-966e-496f-88d1-4a840f5f57c4/ade51ca4-966e-496f-88d1-4a840f5f57c4/

TCi provides a lot of options for teachers to navigate; would District outline this and ID extensions and reteaching suggestions? What are the must haves for everyone? How much of these options would create inequities if teachers choose?

Wording on slides are editable but not font size, how to standardize for equity?

The student notebook includes all handouts needed for extensions, seems like a waste of resources if not used. Teacher said families would be confused by all the blank pages.

Field Test **Classroom Observation**

Teacher #3
Vendor: TCi
Unit: 3: Earth's Changing Surface

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? To explore stream table set-up on their own. Why would you call it successful? Worked well in their groups, they had rt amount of time.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Yes and no. Challenge: online interface w/ videos, set-up & questions, & handout. Cohesion btwn notebook pgs and ppt slides, isn't there. Lots of pages in notebook not covered in presentation, she skipped. Think they're tied to the reading. TCi said everything was optional. In 1st lesson, very unclear where they would have gotten the definition of erosion & weathering. Had to backtrack to do the reading. Never 'and now do this reading', explicitly direct you on how to use those pages.
3. Was there something that you would have liked to see that didn't happen? Not related to activities; wish we were moving faster.
4. What are your comments on the materials that you used today/ this week? The way lab materials packed are easy to use. Stream table similar to FOSS kits. We had used them earlier. Biggest concern is in designing their own experience is beyond what they can do. Why presented is way you would present to HS students, no visuals, paper no scaffold. Knowing my school & amt of time they've had in science w/ controlled experiments and specific vocab, will be difficult

Overall:

5. What are your students understanding or not understanding? Broad sci idea: how much you can discern by looking at it closely, image analysis, motivating more & more. Getting more comfortable w/ vocab.
6. How have your students engaged with the phenomenon? Haven't gone back to the unit question. Why Appalachian mtns the way they are. But are bringing ideas from other places they've seen weathering & deposition. Has this phenomenon helped them to expand their thinking about this topic? Hard to know because we're not going back to phen.
7. What kinds of evidence have students gathered so far in this unit? Observational evidence, from photo, video, audio and from today. Have students been able to make sense of the evidence they have gathered? Talked about soil moving in the stream table. I left to do the student interview while she debriefed; will send me a pic of student generated observations.
8. Have student to student discussions focused on sense-making around evidence collected? Image analysis, somewhat. Don't feel they have been pushed too far in that direction. Haven't been asked to explain anything yet. Lesson 2
9. How would you rate the explanations student generate using the tools from this unit?
10. Is there anything that we should know that I haven't asked you? Pacing is kind of off. If we had enough tech, it's pretty paper heavy, not clear what they're supposed to be doing. Teacher platform, once you make edits format changes. Spanish isn't vocab we'd use, not good word choice. Can't download. Can't change color of text, little things to make it easier for kids to read.

SECTION 4: Curriculum Lead's Reflections

CL: Record thoughts, observations, or areas of interest here, after your observation and interview.

The Appalachian Mountains cannot be a phenomenon if students do not return to it and make connections or revise their thinking about what they know, it just becomes a question (which again, doesn't serve as an anchor). We'd have to build this into it. There were a lot of disruptions to the learning, not sure if this is the way the class runs or if the materials were not engaging, or if implementation was outside of their learning structure of an immersion program.

Teacher was concerned that the investigation was too open-ended, leaving the students to construct their own once they understood how the materials worked, this is part of the shift in practice and one we will have to emphasize in PD and help support the intermediate grades with once students become more proficient with the practices.

We'd have to address the options in the lessons by providing teachers with a scope & sequence that includes some of these components and identify others as more scaffold and more to go into depth.

GRADE 4 SCIENCE: TCi
SUMMARY OF EVIDENCE GATHERED DURING STUDENT INTERVIEW
UNIT: EARTH'S CHANGING SURFACE

4: Superior Evidence 3: Strong Evidence 2: Moderate Evidence 1: Minimal Evidence 0: No Evidence

Characteristic	Teacher 1	Teacher 2	Teacher 3
Discourse for sense-making	2	2	2
Consensus building	-	-	-
Phenomenon present and helpful	2	2	2
Elicitation / Initial Model	-	2	-
Evidence helped understand the phenomenon	2	2	2
Way to track ideas through the unit	-	-	-
Assessments fair and helped know where you are	-	-	-
Does the unit help you learn science	2	2	2
Would you recommend these materials	3	2	2

Comments to Note:

- Sometimes, we don't have enough time to finish the work, and we don't have enough time to talk about it together. It's like a basket, that you are trying to fill with kittens. You can only put so many kittens in the basket. The basket is a little small, and all the kittens are smashed together in the tiny basket.
- It was sometimes challenging to answer the questions in the book, because it was difficult to understand what they were asking. Sometimes, my teacher is busy helping someone else at another table, so I have to ask a friend and try to figure it out together. Sometimes my friends don't get it either.
- I like it a lot more than the old science. First of all, there's interactive stuff. Second of all – some people don't think it's good to do lots of things, but I do, and instead of doing just one experiment, we are doing 3 or 4. I am learning a lot more than if we just did one experiment.
- CS: Students were fatigued from two sessions of science for the day, both of which ran longer than scheduled. The activity was slightly frustrating because of the logistics and poor design, and students had not yet reflected and debriefed about the activity. These students focused a lot on the hands-on activities, but acknowledged that doing other activities, such as readings, are valuable work as long as they are providing them with evidence that helps them explain the phenomenon. Based on my observation, the teacher prioritizes science and scientific thinking, provides voice to students' ideas, elevates their work, and provides a structured, safe learning environment. This has a significant impact on her students' opinion of their experience in science, as many of her teaching moves were not prescribed by the field test curriculum.
- Yes, they all looped back to the beginning. Wind at the end looped back to how erosion is, how weathering & deposition can be caused by different things. All one big unit, but dividing it up into 3. We have one big thing to answer. At the end of the section we have to answer the bigger question that we looked at the beginning.
- It's erosion, it's a picture, pics are easy to observe and that's how we learn about erosion. Sound we hear helps, play some sounds w/ ea question. We have to choose wind, water, can figure out what it sounds like, it helps w/ the picture. Helps me picture the picture.

Student Interview Protocol

Teacher #1
Unit Name: Earth's Changing Surface (Lesson 3) by Brad Shigenaka
Vendor: TCI
School: Queen Anne Elementary (4th Grade – Julie Colando)
Date: 1/29/19
Time: 1:30pm
Students First Names: Macki, Charlotte, Beau, Quinn

Preparation for Interview *Before you start, explain to the students that we are in an instructional materials adoption and an important part of learning about these materials is to see how they work for students. Share with the students that you are grateful to them that they will help you to learn more about how this unit looks for students. Tell them that their comments are not used to evaluate their teacher or them as students. The data is simply to help us know about the materials. Ask if they have any questions. Tell them you would like to record their answers, so you make sure you don't miss anything. Ask if that is OK?*

As an interviewer, it may be useful to ask clarifying and follow-up questions to the student that are unscripted in order to fully investigate their thinking. Examples of good questions are "what do you mean by that?" "Could you summarize that answer for me again?"

Choose a setting with little distraction.

Sample Questions (feel free to modify as the students begin to talk)

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
    a. Is having conversations with your peers something new to this unit or something you regularly do in science?
2. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not?

When we have conversations with other people, they might know more than you.

3. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas?

We are learning about animal parts, offspring and parents and what they do and don't have in common. Planting seeds and observing them, drawing in science packets.

4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?

Doesn't seem to be a question.

5. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain.

We write about how our plants are getting every two days, because we want to know how plants grow and how tall and how long.

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?

No, but we do have a plant journal.

8. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?

We did an "I know" and "I wonder".

9. Were you able to ask your questions during the unit? To whom did you ask your questions?

Yes – asked questions to the teacher.

10. Did your teacher have students share their individual ideas before coming to class "consensus"?

She asked us questions like "what parts does a plant have" and she would call on us. If we disagree, we would share why we disagree and we could look at a plant and see.

11. Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?

Teacher would walk around and look at our work. If we didn't really know the answer she would explain again to us.

12. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?

Yes – I liked that we got to do a lot of experiments with the animal parts. It was teaching us stuff that we knew and didn't. We used things to represent other things.

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.

I think scientists actually test things out, but we were learning in packets.

14. Would you recommend that we use these materials for ALL students in 1st grade across the district?

Yes

Curriculum Specialist Impressions and Summary:

<u>Student Interview Protocol</u>

Teacher #1
Unit Name: Earth's Changing Surface (Lesson 3)
Vendor: TCI

Sample Questions (feel free to modify as the students begin to talk)

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.

   Yes, we get to talk, especially when we're on the rug (at the front of the room). Today, we got to talk at our tables, especially at the end, it's the communicator's job.

   Sometimes, we don't have enough time to finish the work, and we don't have enough time to talk about it together. It's like a basket, that you are trying to fill with kittens. You can only put so many kittens in the basket. The basket is a little small, and all the kittens are smashed together in the tiny basket.

   a. Is having conversations with your peers something new to this unit or something you regularly do in science?

      We regularly talk about science with each other in class.

2. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not?

   Yes, we get to share our ideas, but also ask questions and sometimes we can answer them together, sometimes Teacher will help us find the answers. I think it is important to ask the questions because otherwise we will be lost and sitting there not doing anything.

3. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas?

   We have talked about the ocean being polluted. What if there were puppies that lived in there, and they were getting polluted? Then maybe people would care! Octopuses are not cute, but they are my favorite animal, but people don't care about them being polluted. Whales and dolphins are cute, so if you talk about them, people would care and want to learn about the science.

   In this unit, we are looking at water, wind, and living things change the Earth. How do all those things change the Earth's surface? So, what if we asked, how do puppies change the Earth's surface? Maybe more people would care.

   So the question is – Ms. Teacher has it up on the board, we are trying to understand why the Appalachian Mountains are rounded when they used to be tall and spiky.

   (Does the phenomenon help you understand the science ideas?) [All students] Yes! Definitely!

   If you're in science and you don't have a question, you might make one up that isn't really meaningful, that is what I have learned. When that happens, your brain goes to that question and might skip a few things that don't include the question that might be in your mind.

   So it is important to have a good question. We are "geologist helpers", that's what it says, and we're trying to figure out why [the mountains are now that shape].

   (Do you care about the Appalachian Mountains?) [All students] Yes. Because they are a part of the world, and we care about the world. We are all a community, and we need to care about our WHOLE world. Not just Queen Anne. That would just be weird because I wouldn't have my friends in Magnolia.

4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?

   Yes. It's actually one of the kids that made that question [about the Appalachian Mountains]. I think it was George. He said, they used to be tall and pointy, and now they're not. [Other students: "no, that was a video!"] Oh, I thought it was George. I guess he was just talking about his ideas about

5. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain.

   We did today's activity and drew pictures, and we did an activity with water. Yes, it will help us answer the question – I don't really know if it's related to it… well, yes, it is. It could be wind, water, or living creatures, I don't know. [another student] It could be living things, because people have walked there. That's part of it, and I think the wind could be part of it. I don't think it's water though.

   (Have you collected any evidence about the effect of living things yet?) No, not yet. I don't think it is living things though. (What might that look like, if you were to gather evidence?) Maybe grass, and tiny people? I'm not sure!

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?

   Well, yes, but this lesson [today] didn't really link to the question… does it? I don't know. (Could you use today's activity with the flour and sand to explain something about the Appalachian Mountains?) [All students] Yes! Because… wait, what is the word we learned? It was a dust storm… [student moves to board to raise map to reveal the word wall] and, um… deposition! Weathering! Which one? Weathering, it wore the mountains down, and by weathering it means that the wind weathered down the sand mounds.

   In one of the questions, my and my friends didn't get it. It was about a video, and nothing happened in the video. My question was, why is nothing happening in the video?

7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?

   [not asked]

8. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?

   We talked about the question, then we had time to think about it, and then our peers tried to answer the question and questions about it. I kind of already know the answer – it's erosion [another student] No, weathering. Erosion leads to weathering, so basically both.

   (But do you have enough evidence to support that claim yet? What if the answer is something you haven't studied yet?) That's actually happened to us before. Because Ms. Teacher asked questions on the board [different scenarios], and some people thought it was erosion or weathering or deposition, but they were wrong. So maybe we don't know yet.

9. Were you able to ask your questions during the unit? To whom did you ask your questions?

   We sometimes asked the teacher, but sometimes we asked each other. Sometimes, though, we couldn't figure out the answer by ourselves. And the teacher is sometimes busy helping other people. That is during an activity. When we are on the rug (in the front of the room), we can ask questions to the teacher and she helps us find the answers.

10. Did your teacher have students share their individual ideas before coming to class "consensus"?

    [not asked; see responses above for context]

11. Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?

    [not asked; referenced by students above in #8]

12. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?

    It was sometimes challenging to answer the questions in the book, because it was difficult to understand what they were asking. Sometimes, my teacher is busy helping someone else at another table, so I have to ask a friend and try to figure it out together. Sometimes my friends don't get it either.

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.

    Yes! It's really fun. We get to be creative with it, and we can do something and compare things, so we don't just do one thing, and everyone is doing the same thing, we get to make choices about what to test. Also, I personally *don't like group work, but it is a very good thing that we are doing this in groups. It would be really hard to have to do it alone! And we might want extra materials so that teachers can demonstrate it first.*

(Do you think this is the kind of work that scientists do?) Somewhat – because we are investigating, and scientists do that. But we are younger scientists, so… younger scientists are smarter, because they have more they can put in their brain. Older scientists, I think, if they already did this, they would probably already know this. They wouldn't have to do this.

14. Would you recommend that we use these materials for ALL students in 4th grade across the district?

I like it a lot more than the old science. First of all, there's interactive stuff. Second of all – some people don't think it's good to do lots of things, but I do, and instead of doing just one experiment, we are doing 3 or 4. I am learning a lot more than if we just did one experiment.

In second grade, we were doing minerals, we were doing just a little bit of experiments, but it was really rare. But when we're experimenting more, it makes me learn more. We learn more than if the teacher were just telling us. At first, the science – I didn't like it. But as we got farther into the curriculum, I loved it. At first, we were just talking about it, and it was kind of boring. But then we got into more fun things. Now it's more fun.

(Is it because it is more interesting, or because there is more to do?) More to do. More interesting, too.

(if I said that tomorrow's lesson is that you are going to do another reading…) I would be fine with that, as long as we get something out of it. But, I think it's more fun to do it on the iPad, because we get to interact with it more.

Curriculum Specialist Impressions and Summary:

Students were fatigued from two sessions of science for the day, both of which ran longer than scheduled. The activity was slightly frustrating because of the logistics and poor design, and students had not yet reflected and debriefed about the activity. These students focused a lot on the hands-on activities, but acknowledged that doing other activities, such as readings, are valuable work as long as they are providing them with evidence that helps them explain the phenomenon. Based on my observation, the teacher prioritizes science and scientific thinking, provides voice to students' ideas, elevates their work, and provides a structured, safe learning environment. This has a significant impact on her students' opinion of their experience in science, as many of her teaching moves were not prescribed by the field test curriculum.

Student Interview

Teacher #2
Unit Name: Earth's Changing Surface
Vendor: TCi

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain. Yes, we usually only do it w/ close, turn & talk partner. Usually in our groups or big conversation. We have a lot of class discussions in that case not everyone's ideas get heard.
2. Is having conversations with your peers something new to this unit or something you regularly do in science? Regularly do in science, so popular, whole school, it's a requirement to talk & learn their ideas, otherwise you'd keep your ideas to yourself and others don't learn. Any class you go to will have discussion stems.
3. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Sometimes. Why or why not? It's like a short debate, sometimes you change your thinking, but sometimes they're off topic. We don't say your rt/wrong, we ask can you prove that.
4. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Very clear, they even call it phen. Does a phenomenon help you understand the science ideas? Yes, probably, kind of. You're learning phen kinda challenging. Does help giving us a big example, if we don't understand, gives example, add excitement. Phen would let us see it. Makes it more interesting in that we have something to do instead of listening to a video explain it. We get to write down our ideas.
5. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? Yes, what do you think these words mean? Read a section from the book, we were asked what the bold words in book meant.
6. What kinds of evidence have you gathered in this unit? Wind testing: we saw what it would look like. Water unit: stream table, dirt & sand, how long you were able to test it. Did that evidence help you explain the phenomenon or answer the unit question? Explain. Yes, because once we have a question. Once we understand it, we can answer the question. Helped us understand how to do it.
7. Did the lessons link together to help you explain the phenomenon? Yes, they all looped back to the beginning. Wind at the end looped back to how erosion is, how weathering & deposition can be caused by different things. All one big unit, but dividing it up into 3. We have one big thing to answer. At the end of the section we have to answer the bigger question that we looked at the beginning. Do you think you can explain it to me? Phen is main example; what have you learned so far: water, wind & living things can affect weather, deposition & erosion. We learned if something stops wind, then it may not have that much of an affect. Slope affects the water.
8. Would you recommend that we use these materials for ALL students in _4th grade___ across the district. Yes, we are learning interesting things in this unit. We need to adjust to make more room to write down their ideas, there's not enough room. You have to prioritize your ideas. SPS would have to adjust space in our sci notebooks.

Curriculum Specialist Impressions and Summary:
Students were very engaged with today's lesson, they are well versed in academic behavior. They are motivated by generating their ideas then verifying which ones best support their explanations.

Student Interview

Teacher #3
Unit Name: Earth's Changing Surface
Vendor: TCi

Questions (feel free to modify as the students begin to talk)

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Yes, we raise our hands and we communicate. Sometimes she lets us talk at our table about the sci we are learning. Talk about the clues, branches below but actually rock was squishing the tree, rock grabbing tree. Explain.
2. Is having conversations with your peers something new to this unit or something you regularly do in science? Regularly do in science and math, been doing it for years, about 2 months. About science before, we had to figure it out on our own, but now we can talk and figure it out together w/ new sci curriculum.
3. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Yes, gives me other ideas. Why or why not? Other opinions like scientists do. Helps me to see new things when I get to talk to other people.
4. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Yes. Pretty clear what we're supposed to figure out. Also like it better than our old science, other sci not fun, had to write a lot, observing listening then writing is better. Does a phenomenon help you understand the science ideas? Yes. What is the phen? I don't know. Helps w/ our observations. Different things about erosion, eygty or something, oval looked like an egg, clues, like sand.
5. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? Yes.
6. What kinds of evidence have you gathered in this unit? How erosion can change the world a lot, like break rock w/ a tree. I never knew trees could break the rock open. Did that evidence help you explain the phenomenon or answer the unit question? Yes. Explain: one part then we discuss what it is. It's erosion, it's a picture, pics are easy to observe and that's how we learn about erosion. Sound we hear helps, play some sounds w/ ea question. We have to choose wind, water, can figure out what it sounds like, it helps w/ the picture. Helps me picture the picture.
7. Did the lessons link together to help you explain the phenomenon? Yes, diff pic leads to same thing, erosion. Do you think you can explain it to me? Erosion? Wind water living things wearing away the earth. Rock rubbing against it long time, that's erosion. Sometimes bad and good thing. How it is a good thing? it can fix something like in Alaska it hot & cold when erosion hits again, it can help it.
8. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so? We write in our packet, our clues, how world's changing. Girl discovering about mountains. Meteorologist. Natalie/Amanda
9. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful? No, we look at pics. We observed then write it down.
10. Were you able to ask your questions during the unit? yes To whom did you ask your questions? Write them on paper, we share w/ table mates. I don't like sharing my ideas
11. Did your teacher have students share their individual ideas before coming to class "consensus"? Yes, but not everyone.
12. ~~Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?~~
13. ~~Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?~~ Running out of time, dropped to last two questions.
14. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain. Yes. Yes, well not exactly but they do study erosion. Student diff kinds of clues, like them
15. Would you recommend that we use these materials for ALL students in __4th grade__ across the district. Yes, amazing site.

Student Interview Protocol

Teacher #4
Unit Name: Earth's Changing Surface (Lesson 3)
Vendor: TCI

Questions:

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
    a. Is having conversations with your peers something new to this unit or something you regularly do in science?
2. Do you find it helpful to talk to your peers about the science you are doing in class and hear their ideas? Why or why not?

When we have conversations with other people, they might know more than you.

3. Did the unit have a clear puzzling situation, phenomenon (you might need to explain what you mean by a phenomenon) that you are trying to figure out or explain through the unit? Does a phenomenon help you understand the science ideas?

We are learning about animal parts, offspring and parents and what they do and don't have in common. Planting seeds and observing them, drawing in science packets.

4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?

Doesn't seem to be a question.

5. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? Explain.

We write about how our plants are getting every two days, because we want to know how plants grow and how tall and how long.

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?

No, but we do have a plant journal.

8. Did you start the unit by drawing your initial model? Did you revisit your model? IF so, why did we do that? Was it helpful?

We did an "I know" and "I wonder".

9. Were you able to ask your questions during the unit? To whom did you ask your questions?

Yes – asked questions to the teacher.

10. Did your teacher have students share their individual ideas before coming to class "consensus"?

She asked us questions like "what parts does a plant have" and she would call on us. If we disagree, we would share why we disagree and we could look at a plant and see.

11. Has your teacher checked to see if you understand the science ideas during the unit? What did that look like? Were the questions fair or tricky?

Teacher would walk around and look at our work. If we didn't really know the answer she would explain again to us.

12. Did this unit help you learn science ideas? Did you like the way it was organized? How is it different/the same as other units you have done?

Yes – I liked that we got to do a lot of experiments with the animal parts. It was teaching us stuff that we knew and didn't. We used things to represent other things.

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.

I think scientists actually test things out, but we were learning in packets.

14. Would you recommend that we use these materials for ALL students in 1st grade across the district?

Yes

Curriculum Specialist Impressions and Summary:

Attachment I.5: Field Test Panel Transcript
Elementary Amplify

Panel: KB, LR, KC, KO, ML, KK, KM, GP, AG

Everything applies to NGSS standards alignment

Standards alignment

DCIs

1st grade - structure and functions of plants and animals. Yes, students were able to learn

4th grade – how earths systems work and are formed. Yes, most students were able to learn. Another classroom - some were able to reach understanding

SEPs

1st grade – 1,2,6,7,8

4th grade – 1,2,3,4,7,8 (6- partial)

CCCs

1st grade – Structure and function, every lesson. Some cause and effect and modeling

4th – Stability and change, patterns

Puzzling situation - did it exits, did you revisit? Overall throughout unit

1st – Sea turtle in aquarium, rehabilitated – will it survived upon release? Revisited every lesson.

4th – Rocky outcrop – how did a fossil get there? Revisit – every lesson.

Stringing together to build a storyline

1st – Lessons built on each other. Anchor phenomenon mentioned more in passing. Story line not very coherent. Confusing.

4th – Lessons sequence, called chapters. Building on each other. No real solution formed. Tied to history

Chapters?

maybe a better word needed for each investigation.

Grade 4: Did the end of unit get back to the rocky outcrop phenomenon?

Phenomenon question answered early on in the unit. Not much at end.

<u>Category 2- Assessments</u>

Were the assessments more than factual recall?

1st – beginning – just getting ideas form students, formulative assessments though out the unit. Build a model at the end. Did not match up with what they did at the beginning

4th – not much factual recall. The applied what they learned forward in each lesson

Were questions accessible to all learners?

1st – 5 panel members: 3 spoke, hard to assess during turn and talk, very hard for new ELL students

4th – one teacher -summative all written response. Not accessible to all students. Formative – yes. Ell students needed sentence stems

Another teacher – yes overall,

Another teacher, not accessible to all

Formative assessments

1st – Some, but quite vague. More observing and looking at the students work.

4th – allowed to figure out how to deal with concepts that students were struggling with

Scoring assessment?

1st – a few notes, but no scoring

4th – in teacher guide there were possible responses for formative, for final assessment there was a rubric. Self-assessments after each lesson were helpful

Digital platform practical?

1st – none

4th – no online assessment. ON the fly assessments during simulations were a check in

4th grade: Getting ideas at the beginning of the unit? How did you do that?

Accountability chart at beginning and then revisit it

Misconceptions related to assessments?

The teachers guide addressed this. Tied to formative assessments (4ht grade)

Summative assessment – were there different ways to explain?

4th grade mostly written answers. At end a full CER write up

Category 3: Inclusive Educational Practices

Leverage prior knowledge

1st – Some had prior knowledge. Cultural inclusive – lessons were heavy on sitting and listening. Slow getting into the hands on. Difficult.

4th – YES, does leverage prior knowledge (HC group). No read flags on cultural inclusivity

Another teacher – a lot of background knowledge assumed. Not cultural inclusive for all students. Challenging

3rd teacher – dinosaurs going extinct. Different ideas on this by students

4th teacher – did try to bring in more of a world view

Balance of instructional materials?

1st – heavy on discussion and reading, most of evidence gathered from videos, some hands on activities (3-4), a few example of a simulation, modeling for animal defenses. LOTS of sitting

4th – On the whole – yes. Simulation that was repeated, modeling tools, hands on activities, reading, reference book lead to discussions

Career opportunities?

1st – not really. Should have gone more into biology etc

4th – one teacher -not directly. Highlighted a few geologists

Another teacher- excited about the geologist, park ranger, natural science artist

Cultural perspective? Communities impacted by science?

1st – not really at all. Images of plants and animals only

4th – no evidence of this. You had to really look for this. Japanese rock …

Differentiation?

1st – not a lot. On the fly assessments there were follow up questions. Science notebook – they had a writing planner where they made a sketch.

4th – “book” provided suggestions on how to modify lessons. Amazing books – but they do not come in a variety of levels

Were differentiation strategies helpful?

(4th) so used lip service didn’t pay much attention to this. Literacy heavy

<u>Category 4 – evaluation of bias content</u>

1st – no

4th – one book seemed more male predominant

Category 5 – Teacher planning

Constructed in a way to enact the 3 components?

1st – a lot of standard knowledge gained by teacher. Answer to question – "kind of"

4th – yes they are integrated. Each lesson has a 3-d statement attached to it.

Engage in puzzling phenomenon?

1st – already covered

4th –

Engage in discourse and sense making?

1st – Yes every lesson

4th – didn't capture during exchange

Teacher guidance….

1st – some guidance on how to unpack student discourse; comprehensive for this content, background know provided

4th – yes; ea chapter broken up, ea lesson had multiple activities, beginning of chapter had clear set up for success, could be tweaked of instead of at chapter start, could be lesson start. Alerts you of set up and computer time, ahead.

Teacher support materials- background knowledge

1st – background provided

4th – ea chapter had background

Common Problems, could you still teach if tech down?

4th sim: can do whole class, doable.

How long did it take to prep & teach whole lesson? Took a lot longer to teacher, setup reasonable: 1st; 4th: maybe two days had a lot of prep, very doable for my circumstance for an hour each day.

Would science be taught w/ a sub? 4th generally, yes; reading section yes but not sim & investigation; How many times was network down while piloting? None

Attachment I.5: Field Test Panel Transcript
Elementary HMH

Panel: EK, KC, GS, KR, TC

Everything applies to NGSS standards alignment

Standards alignment

DCIs

1st grade - not clear at first, became apparent afterwards

4th grade – laid out very clearly from the beginning

SEPs

1st grade – the practices were evident.

4th grade – 1,2,3,4,6,7,8 Basically all there. The students got a lot of this unit as it unfolded

CCCs

1st grade – yes. Structure and function and systems and models, cause and effect

4th – pointed out in manual, many included.

Puzzling situation - did it exist, did you revisit?

1st – at the beginning of each lesson, and an overall phenomenon

4th – YES, beginning of unit how water effects the earth (elaborated on), How the Earth has changed.

Stringing together to build a storyline

1st -strung together very well. Building on each other each time

4th – each lesson connected with the 1st lesson (anchoring phenomena) =

Was anything limited

"no"

Were there multiple ways for students to communicate?

4th grade YES. Details given

Was there any concern what they said was covered not covered

no

Did they revise their ideas around the anchoring phenomena?

4th and 1st -YES -within each lesson and at the end

Category 2- Assessments

Were the assessments more than factual recall?

1st – yes, they needed to think about what they learned

4st – yes, definitely.

Were questions accessible to all learners?

1st YES, pictures really helped

4th – questions engaged all students

Formative assessments?

1st – several lesson checks built in, journals, easy to reteach

4th – yes, plenty throughout

Scoring assessment?

1st – YES, assessment guide. Explained why it was correct and/or incorrect

4th same as above

Digital platform practical?

1st – too many logins

4th – not during assessments

Assessments in other languages?

Spanish

Students with disabilities?

Speaker on line

Did assessments match the fine motor skills of 1st graders?

yes

Any self-reflections for students?

Not explicitly stated

Guidelines for misconceptions?

1st – yes

Any performance assessments?

4th -end of unit

<u>Category 3: Inclusive Educational Practices</u>

Leverage prior knowledge?

1st – Yes. Although not much background knowledge among students. Kids found interesting

4th – Yes. Interesting. About as inclusive as it could be. Accessible to all students

Balance of instructional materials?

1st – online component, but also in book. Simulations – yes, hands on -yes, readings – yes, additional book set available, discussions, yes very rich

4th – online research, everything else above included in curriculum

Career opportunities?

1st – yes. Several examples

4th – yes. Examples given

Cultural perspective? Communities impacted by science?

1st – communities that lack clean water – solutions given

Differentiation?

1st - yes, scaffold up or down. Suggestions given. Tools available to do so

4th – suggestions, ELL modeling, extensions

Hands on – did you have everything you needed.

1st -YES. EASY access

4th - mostly

Response of underserved students

4th - easy to teach, engaging to all students every day.

<u>Category 4 – evaluation of bias content</u>

1st -none

4th – none

<u>Category 5 – Teacher planning</u>

Constructed in a way to enact the 3 components?

1st – YES

4th -YES

Engage in puzzling phenomenon?

1st – yes, plus fun optional materials, revise available

4th – yes, examples given

Engage in discourse and sense making?

1st – embedded

4th – turn and talks frequent, instructional guide suggestions

Teacher guidance….

1st – yes, examples given

4th – yes, examples given

Teacher support materials- background knowledge

1st -yes. Very easy. Everything there, accessible, guided

4th -Agree. To above

Books? A- leveled readers for students

1st and 4th - yes

How long did it take? Was it reasonable? Prep?

4th – All laid out very well

Digital side? Did you use? Online teacher materials?

1st – very easy to use. Gave examples.

Attachment I.5: Field Test Panel Transcript
Elementary TCI

Panel: TL, DB, HA, RG, LB, JC, KF

K Plants & Animal

a. TL : 4 concepts LS1 DC1 Structure & function
    a. We learn about animals
    b. How plants have different parts
    L1D
    Discussed and talked about plants and animals. Talked about offspring
    LSD1 Body parts
    LS3 animals are similar to parents by not exactly alike.

    Lessons helped students learn big ideas.
    First graders love plants and animals and come in with prior knowledge and already know a lot of the content.
    LB: - LSS! Ess3 Earth surfaces changing, fossils why earthquakes
    What can people do?
    Did IM help students engage – overall yes. Lisa

Science & Engineering Practices

DB – lots of questions to ask. Planning and carrying out investigations. Parts of a plant and mimic a plant with materials Make it stand up by itself with root structure. How do animals survive in different habitats. All kinds of stuff all over classroom all day. Job was to build a glove that would keep hands warm in cold water. And developing models, asking questions.

JC – Examples for 4th: planned and carried out investigations about water, acted and planned like engineers. Students planned & carried out investigations of wind and weathering and erosion.
KF – Patterns. How do adults care for their offspring?
Covered energy & matter with cycles.
CCC 4th grade cause & effect patterns looking at fossil records to support & explain things.
Stability & change over long period.
1 Plants & animals

Clear Puzzling Situations and Initial Ideas

HA – puzzling phenomena at beginning of unit, then each lessons that starts with video then a wondering students write in workbook. Revisit ideas at end of lesson. Struggled with most students didn't find phenomenon puzzling. Wonderings didn't address main idea. Gave example of different colored fish in same species. The lesson didn't go deep enough to cause wonderings or deepen understanding. There was a unit puzzling phenomenon, too. Students didn't find animals caring for babies to be puzzling. Video of bee that says bees are intended to smell and taste. Lesson didn't link back to this. Assessment asked specific question about bee, that wasn't covered in lesson l.
KF – Puzzling was more about teaching students to form questions. But questions not answered. Invigorating to her to watch kids come up with the wondering. She liked that kids had to develop their own questions.

4th grade Anchor Phenomenon – Appalachians low & rounded over time. Each lesson had own phenomenon.
The anchoring phenomenon wasn't explicitly threaded through. No guidance for this in lessons.
LB – revisited anchoring phenomena only once in assessment after lesson 5, kids had forgotten anchoring phenomenon by then. Sometimes the phenomena didn't correlate with lesson content.

5. Did lessons…
Story line? KF – by end of unit kids got it, but not best order of storyline. She'd do lessons in different order
LB – Y & N. Lessons built on one another, but storyline not obviously stated.

Do you mean that "not obvious" was for the students or the teacher?
LB said for the students. It wasn't obvious that lessons were building on each other or even tied together. Wasn't stated to connect together.
HA said 1st grade was similar. Started with Safari, but didn't return for a long time.
4th grade – how does water change our surface first thing, but never example of how that affects Appalachians – the primary phenomenon
JC disagrees with LB a little. At beginning, the kids were told how water wind & other things affect the earth's surface. She felt this was always in the back of students' minds as they progressed through.

Cat 2 – Assessments
Were assessments more than factual recall?
DB – informal assessment there was chance for kids to go deeper & apply
Other assessments were more factual recall – like labeling.
Parts of plant – roots, stems leaves, with only slight mention of fruit, then assessment asked about acorn. Only 1 of 17 got that right because there wasn't enough lesson support for them to understand,
Was guidance in teacher guide to go deeper in discussions?
DB said no.
LB – Pre & Post tests mostly factual recall. They created own pre & post by picking 14 of the 30 supplied. At least a third were never addressed in the unit. Would be better to give a pre or post that had answers in unit.
Performance assessments - two that did allow students to apply learning to novel situation.
Were they accessible to all?
TL – yes. Even struggling students had enough background knowledge to answer & feel confident.
Materials TB – not as accessible for struggling students. An audio version would be welcome.
JC – audio component of TB available and students of all types took advantage. Questions also access to all learners.

3. Formative assessment: Embedded? Informative for planning & mods?
HA – Yes options for assessment. A lot of questions were fairly surface level. Workbook allowed more depth. Matching games. Performance assessment in middle she didn't find useful.

TL – tricky for 1st year teachers because no modifications. She set up stations, but that wasn't suggested of offered – she thought of that.
4th – form assessment nicely embedded in workbook. She could tell if students making connections. Were modifications suggested for 4th grade. Clear differentiation. For fossil unit example – identify 6 or 7 instead of all 15
LB agrees with 1st grade – even though workbook showed learning as form assessment, but no guiding ?s for that.
Tools provided for scoring? LB said you had to dig to find answers. Rubric for perf assessment but hard to figure out, no logical order. Rubric order didn't match order of questions.
1st – answer key for scoring, but they changed 8 points to 10 points themselves. There was tool online to do that.
Digital access to assessments?
1st grade yet, but not practical. They don't have chromebooks, only iPads. Have each kid have to logon was a problem for inputting scores. Great for kids who can go online independently, but not for little. They printed out tests.
4th grade – yes for dig assessments Both performance & formative. Printed hers out so all kids could access.
Some questions were color-dependent, but they had only b/w. She had to tell students what color things were.

Questions:
To LB – Created own pre - post. Was that from stock question bank? Yes. Three on panel created from TCI provided
KF found that bank super friendly. What type, standards, level of thinking given. They could have created a test that allowed them to customize levels of thinking. Would do different questions now that they've done whole unit.
They thought all questions would be relevant from the bank, but that wasn't true.

To RG – Spanish language ACCESSIBLE to emerging only. Question bank not in Spanish. English only.

Questions that weren't in lessons – extensions possible?
LB said that's possible. She chose to do one extension for all 7 lessons she chose. Sometimes there were as many as 10 extensions

Cat 3 Inclusive Education practices:

1. **Leverage prior knowledge?**
   TL - Y & N Yes, because lots of games done with partners like matching. There were building & exploring. No, because lots of slides and questions, too long to be sitting for young kids.

   Culturally inclusive?
   Not most diverse, but it's animals. From lots of different continents/countries.

4th Did leverage prior knowledge. Yes. Yes, culturally inclusive, but could have been better. Definitely compelling and interesting quality photos and materials. Students engaged.
RG disagreed about prior knowledge. Her students didn't know about Appalachians and didn't seem to want to know. They just didn't connect with them. Do a couple of investigations and lots of expectation that they know about scientific process – assumes lots of knowledge. She felt like her students weren't able to access that. Felt dry to students. Lots of groaning moving through lesson.

HA – culturally inclusive – didn't see anything glaring that wasn't but there are ways to ask kids about what they already know, etc. Felt like curriculum had a diverse lens to bring in student background and culture. Kids were happy with lessons, which she hadn't seen before. Excited for science every day and engaged,

Balance of activities?

DB – nice variety with games and hand-on projects, workbook pages, videos, drawing. A long time for kids to sit and some games required going all the way around the circle and students lost interest.

4th grade – yes, simulations, discussions, hands on, readings in Resource book or online which could be read for student with highlights & definitions. Well-organized
Lacking – in readings, you weren't told when or if to do it. Resource book well written and full of info, but no guidance about when to do these things Needed to read every time to help solidify understanding
Time allotted in scope & sequence didn't include reading She just went ahead and had them always read first because it was super valuable. Included in her literacy block.
RG – Didn't have text to speech in Spanish.

Career explorations?
JC – Yes! Had connections
1st grade – not really. No connections to what people do. Students had to make own connections

Cultural perspectives?
LB – No, not really
1st – Big no in Safari there was a POC as guide, second scientist who was Asian female. That's it.
RG – 1st video has female geologist. Seems to be a dissonance between character and voice – voice sounded like older white woman.

K – wouldn't help novice teacher. "Send kids outside…" example given. Discussions – wished there had been questions to help guide those better. She was comfortable differentiating because that's her background.

4th grade – yes. Stamina needed for all the text so test to speech was good. LB felt differentiation button was just there for show.

Questions:
Clarify the video of young, college-age, Asian woman with voice-over that sounds like older white woman. Students caught that.

Cat 4
Bias content?
HA said that if we bought this we need to look at lessons about parents looking like offspring and how parents care for their young, because that can look different for families. Just to be sure that was done sensitively. For instance, this is what care looks like, which could be different.
Because of relationship between screen & kids, students with vision concerns would have hard time engaging with unit. Not many sound clips, but lots of slides and videos.
Sometimes whole lessons of looking at bright screen,
4th grade – agree with HA.
Nothing blatant, but in terms of culture, there was never any reference to areas in world where are greatly impacted by earthquake or climate change discussion,
LB felt one video clearly had evidence of bias – extension activity. 2 middle school kids looking at sand dunes White girl's parent was a scientist. The white girl had all knowledge Latina looked like assistant.

Cat 5
4th – Was unit constructed well? Yes, overall unit support was good. Easy to figure out what to do and when Yes specifically around CCC,

1st grade - yes

2. Did the teacher guide…
RG – felt like material that supported them through investigations was very heavy on information, then straight to assessment. No guidance through bringing all the ideas together.

3. Did IM identify…
HA – Sometimes she knows how to lead students in sense-making. She feels this curriculum doesn't provide that and teachers would need lots of support in this. In one of the lessons, students got wrong understandings and materials didn't guide in how to bring students away from those misunderstandings. Reference MM's visit to classroom.
1st. Lots of factual recall without much depth. Wanted more modification on lesson with dipping items in gloves into ice water, but lesson was superficial, not deep.

LB 4th – felt question development wasn't great. Not really all tied together. No instruction to teachers in tying all together.

4. KF: sometimes she needed more prompts, but liked that it's not scripted. She like being able to go with it where her kids went with it. Liked that there wasn't a sense of going off rails when students went down a strange thought line.

RG – thinks it would be hard for novice teacher to know that the reading had to be included and scheduled. TCI want to leave things open, but it doesn't offer clear ideas about when to break, pause, etc. Timing was really off from what was actually needed. More support in structuring timelines could be useful.

5. **Scientific content support?**
DB – new to science teaching, felt no, there wasn't enough info for teachers. Just found background knowledge and extra video tabs last night which would have been helpful, but she wanted something more obvious. Gave example of game with cards with animals. Ask kids to stand up when characteristics are called out. She didn't know some of the answers. She needed a chart with the answers!
KF – She enjoyed that she didn't know all the answers in that game so she could learn with the kids. The process of learning is great.

4^{th} grade – the content was there but too basic.

Questions
Did IM address potential misconceptions?
No

Clarify – A lot of reading, then bank was somewhat helpful, but not all questions related to pre and post test.
LB clarified that reading was useful, but the question bank had questions not covered in reading.
RG – questions were good, but application was too far a step to make the connection between text and question.

Were formative assessments clearly marked?
No, but things are in workbook. No explicit labeling as formative.

Was there enough time?
To teach content and reading. LB could because she teaches science 75 mins 3 x week. Others said no, they had to skip over things to get everything in. One student who went to pull-outs felt he was missing lots of content.

HA did reading as shared reading at times, some considered making it CCC station.

Workbook – did you find accessible?
KF: yes, but the writing was a little tough for 1^{st} grade. But lots of variety.

Attachment I.6: Field Test Panel Consensus Scores

Amplify Results

Team	**FT Teacher Panel Consensus Score**
Team A	75.0%
Team B	58.0%
Team C	60.5%
Team D	70.0%
Team E	42.9%
Team F	74.8% (reported as 59.8%)
Team G	45.5%
Average	**61.0%**

TCI Results

Team	**FT Teacher Panel Consensus Score**
Team A	40.0%
Team B	52.5%
Team C	20.0%
Team D	34.8%
Team E	40.0%
Team F	30.8%
Team G	45.0%
Average	**37.6%**

HMH Results

Team	FT Teacher Panel Consensus Score
Team A	60.0%
Team B	76.6%
Team C	65.3%
Team D	69.5%
Team E	94.5%
Team F	73.3% (reported as 58.6%)
Team G	72.3%
Average	**73.1%**

Attachment J: Analysis and Synthesis Summary of Feedback and Data

Explanation of how the scoring was conducted:

I see that you have some significant concerns and misunderstandings about what the scores represent at all levels, but in particular at the elementary level. The following is what the scores do and don't represent in the decision-making process.

Round 1:

Since the Adoption Committee was a diverse group of participants, most of whom did not have an understanding of our NGSS/Washington State Standards, it was imperative to give these members time to learn how to interpret and look for evidence of these standards in practice within the curriculum. We spent time calibrating and sharing ideas. In this round you might see discrepancies in the actual scores. But what you don't see are the rich conversations that included sense-making around what do we mean by not only the standards, but what each team meant by a score of 4, 3, 2, and 1 score. This was a challenge we faced throughout the process. The challenges were most profound at the elementary level. Because of limited funding to conduct professional development over the past 5 years since the adoption of NGSS, and due to the fact that we only have one elementary specialist to support 1,450 teachers, very little has been done to bring the elementary teachers up to speed. The task was significant. Therefore, each time we conducted scoring, we followed that scoring with a discussion of "what do we mean by." Instead of following up with another scoring round, we followed a different protocol, such as poster discussions to try to build toward consensus. These are not evident from the data you have in the BAR.

For round one, the scoring followed by consensus discussions helped us to finalize the three candidates we put into the field.

Field testing, 1/3 of the criteria for final determination:

We cannot understate how difficult it was to help our field test teachers be critical consumers and analysts. It was profoundly challenging to give each field test teacher enough background about what is required of our Standards to be critical consumers of the product. Not having quality curriculum for 15 years left test our teachers thinking everything looked good in comparison to what they have been using. Therefore, the evaluation tools, observations and interviews helped to give insights into the use of these instructional materials.

The field test evaluation component was comprised of three parts.

1. The panel interviews helped give us a glimpse into the classroom and teachers' impressions. The input here was diverse depending on the teachers on the panel. This component gave us 1/3 of the data that was used to come to a final field test score.
2. The pre/post assessment data gave us information about student growth in using this instructional material. Since the Standards are bundled differently between vendors, we could not write a standard assessment. Furthermore, our time limitations did not

allow for the development of a standard assessment. Therefore, we relied on student growth data measured by the pre/post-assessments provided by each vendor.

3. The classroom data collected was comprised of student interviews, teacher interview and most importantly surveys taken by teachers and students that helped us understand if the field test participants saw evidence of the NGSS standards in the materials. Please note, this also included questions about equitable practices that welcomed all learners into the science experience. This data helped provide very strong evidence from all students that participated and was very helpful to the committee members.

Round 2:

During this round the committee used three considerations to determine the finalist. Considerations were the evaluation using the Review Criteria, the Field test data (explained above) and the Community Input. Because of the limited community input, we weighted these three criteria. And again, in an effort to calibrate our scores, we followed the scoring with a significant consensus discussion. We did not transcribe the consensus discussions as it was not an established protocol from any other meeting discussions, but it was in these discussions that each committee member made their decision about the best candidate that they took to their vote. You have the data from each poster that was constructed to represent the small group's input on that particular candidate, but you do not have the presentations, the questions, and the deliberations all members made during the presentations of the posters. During the poster consensus discussion, we immediately eliminated TCI as it was significantly lower than the other two. Some highlights and information about that discussion included the following information:

- The protocol was not to use the field test Summary Score as the determinant for the recommendation but as a tool to guide discussion during the final deliberations.
- TCI was eliminated during deliberations due to low scores received during the poster session plus the insensitive nature of a 4th grade video and how it was a direct violation of the Anti-bias criteria. TCI posters were created but not part of the deeper deliberations.
- The Adoption Committee chose to look at the Amplify vs. HMH data more deeply.
  - Adoption Committee members asked how many of the field test teachers had experience with the state's standards. While most of the intermediate field test teachers had some prior experience with the current standards, the primary field test teachers mostly had no prior experience.
  - Concern was raised over the Viewlands field test primary teachers panel remarks that Amplify had the potential to exclude students with mobility issues. However, it was brought forward that all the vendors included movement activities in the primary-level lessons, and it was up to the teacher to differentiate the lesson to include all learners. This teacher feedback was in contrast to a field test observation made at Viewlands where one of the primary field test teachers conducted a successful mobility lesson and mobility constraints were not identified as a potential problem in the teacher interview. In Attachment I.4, 31-39, none of the primary field test teachers using Amplify noted mobility concerns,

despite it being a strong talking point against Amplify during the panel discussion.

- AC members also elevated student growth found in the pre- and post-assessment data. They felt this substantial difference, Primary Amplify 89.7% vs. HMH, 65.9%; Intermediate Amplify 73.6% vs. HMH 31.1%, was not represented enough in the Summary Scores of the field test. This made a strong case for further discussion during the deliberation process.
- The discussion returned to the constraint of novices using materials for the first time with only one day of support. It was decided that the weighting of the final considerations would put this in perspective. The committee came to a consensus agreement to weigh the Review Criteria Score 47.5%, the field test data 42.3%, and the Public Feedback 10.2%.
- Using all the data gathered and calculating a weighted summary score on their final posters, Amplify and HMH poster session scores fell within the margin of error, 64.7 and 65.5, respectively.
- Student Attribute Survey Data: The Primary and Intermediate data show how teachers diligently worked to provide engaging science experiences for their students. However, in the Intermediate data, the following scores had more than 20 points difference

Intermediate: % of Strongly Agree responses	Amplify%	HMH%
Opportunities to analyze/interpret data from a sci invest	61	14
Op to use data as evidence to support a claim	81	31
Op to put ideas together to comm them to others	60	24
Op to build a solution to a problem	38	16
I can break down complex problems into smaller parts	40	20
I can remove unneeded info from a problem	45	16
I can create sequence of logical steps	40	18
I was given op to share my ideas	68	41
Identify as student of color	27	41
Speak one or more languages at home	30	57
Get FRL	15	47

Aside from the demographic data, Amplify's data show that it best supports the NGSS Science and Engineering Practices.

Again, I want to stress, the scores on the poster gave us the foundation on which the members would ask questions, put forth their observations and debate on what each member saw and did not see in the candidate. The poster session was not the decision maker, it helped members think deeply about the best candidate. It was the vote that followed that determined the candidate that we moved forward. It is incorrect to assume the scores on the poster were our final analysis. They were not, the vote determined the candidate that the committee chose to move forward.

Voting:

Ballots were provided to each committee member for a vote on the recommendation to the School Board for adoption. The four options were: Amplify, HMH, TCI, and none of the above, which would be a recommendation for no adoption at this time. Members chose to vote anonymously, being able to detach their names from the ballots. The names would be tallied for the sole purpose of ensuring every member voted and only voted once, then the names would be destroyed. In the interest of ensuring integrity of the voting process, K-5 committee member and community representative Angie DiLoreto was asked to assist Brad Shigenaka in tallying the votes. DiLoreto and Shigenaka first accounted for the names against the attendance sheet, ensuring that every member of the committee cast one ballot. The names were then destroyed. They then tallied the votes, then checked each other's work for accuracy. They then signed the totals to certify the voting results.

Scoring Detail:

A. Stage 1: Committee determines finalists for field test
    a. Review Criteria Tool can be found in Attachment E
    b. Summary scores of 3 finalists:

Category	Weighting	Amplify	HMH	TCI
Category 1: Standards Alignment	0.22	**82.5**	**64.2**	**61.7**
Category 2: Assessments	0.17	**74.0**	**73.4**	**40.7**
Category 3: Inclusive Educational Practices	0.20	**60.3**	**50.0**	**33.8**
Category 4: Evaluation of Bias Content	0.20	**45.6**	**48.8**	**26.3**
Category 5: Instructional Planning and Support	0.21	**68.5**	**55.4**	**52.5**
Total, based on weighting		**66.3**	**58.0**	**43.5**

B. Field Test Data Collection found in Attachment I
C. Summary of Community and Family Input and Feedback found in Attachment G
D. Stage 2: Analysis based on:
    a. Review Criteria of Vendors (above)
    b. Consensus Scores for Field Test Components in Attachment I
    c. Summary of Community and Family Input and Feedback

Summary Posters of this analysis:

Team	**Amplify Score**	**HMH Score**	**TCI Score**
Team A	72.2	60.6	41.5
Team B	63.5	68.9	47.5
Team C	63.4	61.0	33.0
Team D	68.2	63.1	38.9
Team E	57.3	76.2	41.2
Team F	67.0	62.7	38.0
Team G	61.0	65.8	44.8
AVERAGE	**64.7**	**65.5**	**40.7**

Amplify K-5	Team A		**Score** **72.15**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**66.3**	**47.5**	**31.49**
Field Test Data	**75.0**	**42.3**	**31.73**
Public Feedback	**87.5**	**10.2**	**8.93**

Category 1: Standards

+ = SEPs well represented, strong phenomenon, clear
- = sometimes not completed or fully leveraged

Category 2: Assessments

+ = highest gains and formative assessments
- = Mostly written assessment (4th)

Category 3: Inclusive Educational Practices

+ = students highly engaged, range of activities, students felt they were doing science
- = insufficient EL support

Category 4: Evaluation of Bias Content

no glaring issues

Category 5: Instructional Planning and Support

+ = favorable surveys and interviews, ways to connect preconceptions, background support material, discourse moves
- = timing was off

HMH K-5	Team A		Score **60.6**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**58.0**	**47.5**	**27.5**
Field Test Data	**60.0**	**42.3**	**25.3**
Public Feedback	**75.0**	**10.2**	**7.65**

Category 1: Standards

+ = Saw a thread through phenomenon (some saw) and range of SEPs.
- = Not a true phenomenon.

Category 2: Assessments

+ = embedded formative
- = Weal pre/post

Category 3: Inclusive Educational Practices

+ = high engagement and cultural connections
- = lots of whole class discussion in first

Category 4: Evaluation of Bias Content

No evidence for or against.

Category 5: Instructional Planning and Support

+ = teachers found materials useful and friendly / favorable
- = some confusion, especially for novice.

<table>
<tr><td>TCI K-5</td><td colspan="2">Team A</td><td>Score
41.5</td></tr>
<tr><td></td><td>Consensus Score</td><td>Weight</td><td>Score x Weight</td></tr>
<tr><td>Review Criteria Score</td><td>43.5</td><td>47.5</td><td>20.67</td></tr>
<tr><td>Field Test Data</td><td>40</td><td>42.3</td><td>17</td></tr>
<tr><td>Public Feedback</td><td>37.5</td><td>10.2</td><td>3.83</td></tr>
<tr><td colspan="4">Category 1: Standards

+ = clear, aligns to standards, CCC clear for teachers
- = phenomenon unclear, lacks depth, weak attention to SEPs.</td></tr>
<tr><td colspan="4">Category 2: Assessments

+ = Rubrics for some, question bank
- = fact recall, instruction didn’t match assessments, no guiding questions</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

+ = Mix of activities, high quality test, kids were excited
- = not enough support for differentiation and hard to find cultural perspectives</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

- = omit problematic videos and content in just 2 units</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

+ = videos to demo lessons
- = reading not included in planning time, hard to navigate online, key discussion topics not included, not enough background.</td></tr>
</table>

<table>
<tr><td>Amplify K-5</td><td colspan="2">Team B</td><td>Score
63.54</td></tr>
<tr><td></td><td>Consensus Score</td><td>Weight</td><td>Score x Weight</td></tr>
<tr><td>Review Criteria Score</td><td>66.3</td><td>47.5</td><td>31.49</td></tr>
<tr><td>Field Test Data</td><td>57.7</td><td>42.3</td><td>24.40</td></tr>
<tr><td>Public Feedback</td><td>75</td><td>10.2</td><td>7.65</td></tr>
<tr><td colspan="4">Category 1: Standards

All 3Ds evident</td></tr>
<tr><td colspan="4">Category 2: Assessments

All written – 3D, same pre/post</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

Mostly literacy / online</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

None evident</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Lots of reading for teacher</td></tr>
</table>

HMH K-5	Team B		Score **68.85**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**58**	**47.5**	**27.55**
Field Test Data	**76.6**	**42.3**	**32.40**
Public Feedback	**83.5**	**10.2**	**8.90**

Category 1: Standards

All 3Ds were present

Category 2: Assessments

Lots of formative, easy to know when and what to reteach

Category 3: Inclusive Educational Practices

2 different learning paths, diversity of scientists

Category 4: Evaluation of Bias Content

No evidence of bias

Category 5: Instructional Planning and Support

Consistent statements about ease of use. No teacher script

<table>
<tr><td>TCI K-5</td><td colspan="2">Team B</td><td>Score
47.5</td></tr>
<tr><td></td><td>Consensus Score</td><td>Weight</td><td>Score x Weight</td></tr>
<tr><td>Review Criteria Score</td><td>43.5</td><td>47.5</td><td>20.66</td></tr>
<tr><td>Field Test Data</td><td>52.5</td><td>42.3</td><td>22.21</td></tr>
<tr><td>Public Feedback</td><td>45</td><td>10.2</td><td>4.59</td></tr>
<tr><td colspan="4">Category 1: Standards

All 3 dimensions are present, but not consistent and not a lot of explicit direction to use them.</td></tr>
<tr><td colspan="4">Category 2: Assessments</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

Read the text feature, opportunities for extensions. Modifiable features…</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support</td></tr>
</table>

Amplify K-5	Team C		**Score** **63.4**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**66.3**	**47.5**	**31.5**
Field Test Data	**61**	**42.3**	**25.8**
Public Feedback	**60**	**10.2**	**6.1**

Category 1: Standards

Engaging anchoring phenomenon and storyline
Standards and 3D statements present

Category 2: Assessments

Strong formative assessment
Summative assessments more challenging for teachers to manage

Category 3: Inclusive Educational Practices

Students are engaged and feel confident about science
Variety of ways to engage learners
Adequate time and small incremental steps

Category 4: Evaluation of Bias Content

Text in readers seemed male dominant

Category 5: Instructional Planning and Support

Differentiation supported
Packing is ambitious
Highly scripted

<table>
<tr><td colspan="2">HMH K-5</td><td colspan="2">Team C</td><td>Score
61</td></tr>
<tr><td></td><td>Consensus Score</td><td>Weight</td><td colspan="2">Score x Weight</td></tr>
<tr><td>Review Criteria Score</td><td>58.0</td><td>47.5</td><td colspan="2">28</td></tr>
<tr><td>Field Test Data</td><td>65</td><td>42.3</td><td colspan="2">27</td></tr>
<tr><td>Public Feedback</td><td>60</td><td>10.2</td><td colspan="2">6</td></tr>
<tr><td colspan="5">Category 1: Standards

Explicitly stated
No unit phenomenon, but lesson phenomenon</td></tr>
<tr><td colspan="5">Category 2: Assessments

Lesson checks had variety of questions
Formative assessments possible through student books</td></tr>
<tr><td colspan="5">Category 3: Inclusive Educational Practices

Students were engaged
Variety of activities</td></tr>
<tr><td colspan="5">Category 4: Evaluation of Bias Content

Some community members noted a lack of diverse narratives</td></tr>
<tr><td colspan="5">Category 5: Instructional Planning and Support

Easily accessible for most teachers
Some support needed to select lessons (lots of material)</td></tr>
</table>

<table>
<tr><td>TCI K-5</td><td colspan="2">Team C</td><td>Score
33</td></tr>
<tr><td></td><td>Consensus Score</td><td>Weight</td><td>Score x Weight</td></tr>
<tr><td>Review Criteria Score</td><td>43.5</td><td>47.5</td><td>20.6</td></tr>
<tr><td>Field Test Data</td><td>20</td><td>42.3</td><td>8</td></tr>
<tr><td>Public Feedback</td><td>35</td><td>10.2</td><td>4</td></tr>
<tr><td colspan="4">Category 1: Standards

Lack of scientific accuracy
Phenomenon not connected in lessons</td></tr>
<tr><td colspan="4">Category 2: Assessments

Minimal or vague formative assessments.</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

Not all students engaging in or accessing learning.</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

Reinforced stereotypes – questionable video</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Difficult to navigate
Onus on teacher to address misconceptions</td></tr>
</table>

Amplify K-5	Team D		**Score** **68.24**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**47.5**	**31.49**
Field Test Data		**42.3**	**29.61**
Public Feedback		**10.2**	**7.14**

Category 1: Standards

Standards all there
Strong unit phenomenon and storyline

Category 2: Assessments

Rigorous
Includes self-assessment
Higher student growth

Category 3: Inclusive Educational Practices

No red flag
No cultural perspective
Extensions
Heavy on discussion and writing

Category 4: Evaluation of Bias Content

Neutral
No bias present

Category 5: Instructional Planning and Support

Background knowledge provided
Each lesson has a 3D statement
Script provided for teachers (good/bad)
Misconceptions addressed

HMH K-5	Team D		**Score** **63.07**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**47.5**	**27.55**
Field Test Data		**42.3**	**29.4**
Public Feedback		**10.2**	**6.12**

Category 1: Standards

Question-based "phenomena"
+ response from panelists

Category 2: Assessments

variety/modality – text-to-speech
Available in Spanish
Accessible for most learners
No self-assessment

Category 3: Inclusive Educational Practices

More participation from students
Specific careers, diverse scientists
Leveled readers, differentiation ideas

Category 4: Evaluation of Bias Content

unfound
Community spiderweb +

Category 5: Instructional Planning and Support

Easy to follow and jump in
Core and comprehensive path
On and offline ability
Options for modification

TCI K-5	Team D		**Score** **38.93**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**47.5**	**20.66**
Field Test Data		**42.3**	**14.7**
Public Feedback		**10.2**	**3.57**

Category 1: Standards

No anchoring phenomena
SEPs, DCIs, and CCCs evident

Category 2: Assessments

Mostly factual recall
Low growth
Performance tasks

Category 3: Inclusive Educational Practices

Positive student feedback
Balance of type of activity – sims, discussion, hands-on
No/limited cultural perspectives

Category 4: Evaluation of Bias Content

2 instances of bias

Category 5: Instructional Planning and Support

Hard for novice/limited science background
Creating/perpetuating misconceptions
Limited background for teachers
Flexible assessment
Teachers appreciate “no script”

Amplify K-5	Team E		**Score** **57.28**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**66.3**	**47.5**	**31.49**
Field Test Data	**42.9**	**42.3**	**18.14**
Public Feedback	**75**	**10.2**	**7.65**

Category 1: Standards

Phenomenon answered early
Not coherent storyline

Category 2: Assessments

Regurgitation
Written response, not accessible for all

Category 3: Inclusive Educational Practices

+ = Students NB: Planner, sentence frames
+ = EL, differentiation,scaffolds
Student survey: does not connect to my life
Extensions = no added value
Reply on peer coaching

Category 4: Evaluation of Bias Content

Male dominant

Category 5: Instructional Planning and Support

V. scripted lesson plans
Could not get through content
Timing/pacing off
Reading/sitting
CS: script interferes w/student/teacher connection

HMH K-5	Team E		Score 76.2
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**58**	**47.5**	**27.55**
Field Test Data	**94.5**	**42.3**	**39.98**
Public Feedback	**85**	**10.2**	**8.67**

Category 1: Standards

Nothing missing. Connections and rigor.
Phenomenon?

Category 2: Assessments

Multiple modalities/populations

Category 3: Inclusive Educational Practices

Student survey connections to student life and world/human/global connections are strong.

Category 4: Evaluation of Bias Content

None found.

Category 5: Instructional Planning and Support

Planning is easy.

TCI K-5	Team E		**Score** **41.15**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**43.5**	**47.5**	**20.66**
Field Test Data	**40**	**42.3**	**16.92**
Public Feedback	**35**	**10.2**	**3.57**

Category 1: Standards

Category 2: Assessments

Category 3: Inclusive Educational Practices

Category 4: Evaluation of Bias Content

Category 5: Instructional Planning and Support

<table>
<tr><td>Amplify K-5</td><td colspan="2">Team F</td><td>Score
67</td></tr>
<tr><td></td><td>Consensus Score</td><td>Weight</td><td>Score x Weight</td></tr>
<tr><td>Review Criteria Score</td><td>66.3</td><td>47.5</td><td>31.5</td></tr>
<tr><td>Field Test Data</td><td>59.8</td><td>42.3</td><td>25.3</td></tr>
<tr><td>Public Feedback</td><td>100</td><td>10.2</td><td>10.2</td></tr>
<tr><td colspan="4">Category 1: Standards

Phenomenon that was revisited.
Aligned with standards.</td></tr>
<tr><td colspan="4">Category 2: Assessments

High student growth.
Assessment required explaining, thinking, and not just recall.
Rubric and self-assessment. Accountability checklist</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

Heavy on sitting and listening and reading.</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

Higher socioeconomic had advantage due to prior experiences.</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Background knowledge, easy to use, warns potential problems.</td></tr>
</table>

HMH K-5	Team F		**Score** **62.7**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**58**	**47.5**	**27.5**
Field Test Data	**58.6**	**42.3**	**25**
Public Feedback	**100**	**10.2**	**10.2**

Category 1: Standards

Phenomenon was more of a guiding question.
Covered all standards, concepts were evident.

Category 2: Assessments

Lesson checks and DOK chart.
Info on misconceptions.
* Low post-test scores.
Good accessibility.

Category 3: Inclusive Educational Practices

Connections to diverse scientists.
Intervention suggestions.
Student surveys had lower scores.

Category 4: Evaluation of Bias Content

Not evident in pilot program.

Category 5: Instructional Planning and Support

Science for efficient teaching.
Differentiated books.
Well laid out, similar to CCC.

<table>
<tr><td>TCI K-5</td><td colspan="2">Team F</td><td>Score

38</td></tr>
<tr><td></td><td>Consensus Score</td><td>Weight</td><td>Score x Weight</td></tr>
<tr><td>Review Criteria Score</td><td>43.5</td><td>47.5</td><td>21</td></tr>
<tr><td>Field Test Data</td><td>30.7</td><td>42.3</td><td>13</td></tr>
<tr><td>Public Feedback</td><td>40</td><td>10.2</td><td>4.08</td></tr>
<tr><td colspan="4">Category 1: Standards

Storyline disjointed, not clearly held together.</td></tr>
<tr><td colspan="4">Category 2: Assessments

Questions not linked to unit, recall, confusing rubric.</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

Questions not relevant to lessons, online materials not practical.</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

Alarming videos.</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Did not provide discourse moves, differentiation.</td></tr>
</table>

<table>
<tr><td colspan="2">Amplify K-5</td><td colspan="2">Team G</td><td>Score
61</td></tr>
<tr><td></td><td>Consensus Score</td><td>Weight</td><td colspan="2">Score x Weight</td></tr>
<tr><td>Review Criteria Score</td><td></td><td>47.5</td><td colspan="2">31.5</td></tr>
<tr><td>Field Test Data</td><td></td><td>42.3</td><td colspan="2">19.25</td></tr>
<tr><td>Public Feedback</td><td></td><td>10.2</td><td colspan="2">10.2</td></tr>
<tr><td colspan="5">Category 1: Standards

+ = 3D standards and overarching phenomenon revisited often.
- = … sometimes to the point of boredom</td></tr>
<tr><td colspan="5">Category 2: Assessments

+ = Lots of formative and student self-assessment opportunities built in
- = mostly written, hard for ELL students to access</td></tr>
<tr><td colspan="5">Category 3: Inclusive Educational Practices
+ = leverages prior knowledge
- = no differentiation for reading; lots of time sitting @ carpet; lack of real-world cultural perspectives; assessment highlighted an opportunity gap</td></tr>
<tr><td colspan="5">Category 4: Evaluation of Bias Content

- = students did not feel a connection to their lives</td></tr>
<tr><td colspan="5">Category 5: Instructional Planning and Support

+ = integrates 3D in each lesson; lots of materials…
- = … but too much to navigate and confusing
lessons were way too long</td></tr>
</table>

HMH K-5	Team G		**Score** **65.8**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**47.5**	**27.5**
Field Test Data		**42.3**	**30.5**
Public Feedback		**10.2**	**7.7**

Category 1: Standards

+ = Covers DCI, SEP, & CCC
- = no unit phenomenon

Category 2: Assessments

+ = Closed captioning and pictures = accessible
+ = DOK chart and useful assessment guide

Category 3: Inclusive Educational Practices

+ = Variety of activities and offered cultural perspectives
- = Lack of storyline/wonder/student-led activities

Category 4: Evaluation of Bias Content

- = Lots of white, old, dead men ☹

Category 5: Instructional Planning and Support

+ = easy to teach and leave for subs
lesson times manageable
easily laid out
- = lots of paper (for students)

TCI K-5	Team G		**Score** **44.79**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**47.5**	**20.66**
Field Test Data		**42.3**	**19.03**
Public Feedback		**10.2**	**5.1**

Category 1: Standards

+ = Addresses DCI, SEP, & CCC
- = Phenomenon wasn’t puzzling or consistently revisited

Category 2: Assessments

+ = Formative assessments embedded in workbooks; can choose questions from bank
- = Questions not aligned w/unit; no guidance on addressing misconceptions; mostly DOK 1 (recall)

Category 3: Inclusive Educational Practices

+ = variety of activities; text-to-speech; engaging
- = Lacked diverse cultural perspectives; differentiation lacking; few extensions

Category 4: Evaluation of Bias Content

+ = Some science career examples
- = Problematic language in workbook; people of color represented in subordinate positions

Category 5: Instructional Planning and Support

+ = Allows for flexibility; easy to find NGSS info
- = Little to no background knowledge; no guidance for addressing misconceptions

Attachment K

Racial Equity Analysis Tool

It is the moral and ethical responsibility and a top priority for Seattle Public Schools to provide Equity Access and Opportunity for every student, and to eliminate racial inequity in our educational and administrative system.

Research indicates that racial disparities exist in virtually every key indicator of child, family, and community well-being. Individual, institutional and structural impacts of race and racism are pervasive and significantly affect key life indicators of success. The **Racial Equity Analysis Tool** lays out a clear process and a set of questions to guide the development, implementation and evaluation of significant policies, initiatives, professional development, programs, instructional practices and budget issues to address the impacts on racial equity. To do this requires ending **individual racism**, **institutional racism** and **structural racism**.

The concept of **racial equity** goes beyond formal racial equality — where all students are treated the same — to fostering a barrier-free environment where all students, regardless of their race have the opportunity to achieve. This means differentiating resource allocations, within budgetary limitations, to serve students with the support and opportunities **they need** to succeed academically.

Why and when should I use it?

- ***Use*** this tool to create an equity lens for educational leaders:

  The Racial Equity Analysis Toolkit provides a set of guiding questions to determine if existing and proposed policies, budgetary decisions, programs, professional development and instructional practices are likely to close the opportunity gap for specific racial groups in Seattle Public Schools.
- ***Apply*** the tool to decrease the opportunity gap, and increase positive outcomes for students of color.

Department/Region/School: **Science/All District/K-12 Schools**

Facilitator: **MaryMargaret Welch** Date: **April 2015 - Present**

Committee/Community members: **MaryMargaret Welch, Alisha Taylor, Brad Shigenaka, Christine Benita, Christine Boyll, K-8 Adoption Committee members, and future 9-12 Adoption Committee membership, which will be finalized by October 15, 2018.**

Decision/Policy: **K-12 Science Instructional Materials Adoption**

Making a new decision? **Yes, the Committee will recommend instructional materials for adoption.**

Expected Outcomes: **Equitable access for all students to current, high quality, standards-aligned science instructional materials.**

Have you had any Equity Training from SPS? **SPS Race & Equity Team training series**

How many times have you used the Analysis Tool? **Science Alignment Team work 2016-17**

Please mark the type of decision below:

Applicable Policy: No	Procedure: No
Program: Yes	Budget Issue: No
Professional Development: No	Hiring and Staffing: No

SEATTLE PUBLIC SCHOOLS

Racial Equity Analysis Tool

Glossary:

Race: Race is a powerful social idea that gives people different access to opportunities and resources. Race is not biological but is real. Race affects everyone, whether we are aware of it or not.

Individual racism: Pre-judgment, bias, stereotypes about an individual or group based on race. The impacts of racism on individuals include members of certain racial groups internalizing privilege and people of color internalizing oppression.

Institutional racism: When organizational programs or policies work to the benefit of certain racial groups and to the detriment of people of color, usually unintentionally or inadvertently.

Structural racism: The interplay of policies, practices, and programs of multiple institutions which leads to adverse outcomes and conditions for people of color compared to members of other racial groups. This occurs within the context of racialized historical and cultural conditions.

Accountable: Responsive to the needs and concerns of those most impacted by the issues you are working on, particularly to communities of color and those historically underrepresented in the civic process.

Educational and Racial Equity: Providing equitable access to opportunities, resources and support for each and every child by intentionally recognizing and eliminating historical barriers, as well as the predictability of personal and academic success based on race, background and/or circumstance.

Racial Inequity: When communities of color do not have access to opportunities and a person's race can predict their social, economic and political opportunities and outcomes.

Stakeholders: Those student, families and community groups impacted by proposed policy, program or budget issue who have potential concerns or issue expertise. Examples might include: specific racial/ ethnic groups, other institutions like Seattle Housing Authority, schools, community-based organizations, staff and families.

Culture: The ways that we each live our lives; including values, language, customs, behaviors, expectations, ideals governing childrearing, the nature of friendship, patterns of handling emotions, social interaction rate, notions of leadership, etc.

Expected Outcomes: A measurable result that is planned for, using the racial equity tool.

SEATTLE PUBLIC SCHOOLS

Racial Equity Analysis Tool

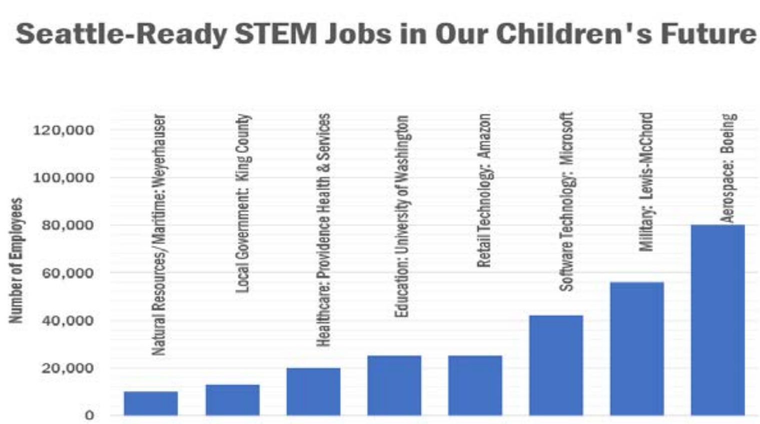
STEP 1: Set Outcomes, Identify and Engage Stakeholders
Leadership sets key racially equitable outcomes and engages stakeholders (SPS staff and community members.)

1. What does your department/division/school define as racially equitable outcomes related to this issue?

Seattle Public Schools Science Departments has used this tool to ensure that the Science Materials Adoption Committee members represent Seattle's diverse population. This tool was also used to ensure the Adoption Committee evaluates materials using a racial equity lens. Our goal is to improve accessibility for all students to culturally relevant, rigorous science learning called for by Next Generation Science Standards which the state adopted in 2013, known as the Washington State Science Learning Standards, WSSLS, in order to eliminate the opportunity gap for students of color in regards to STEM careers so that our students are college and career ready.

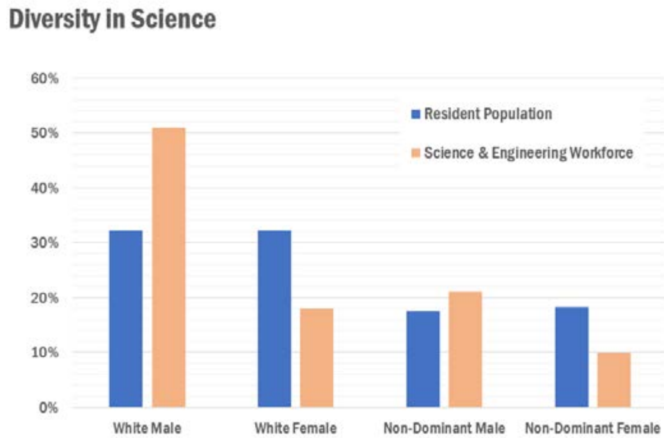
The WSSLS calls for students to learn science and engineering practices through engaging, culturally relevant content. We have defined racially equitable outcomes for students of color, English language learners, and students with special needs as the increased participation and success in science of these students. Historically, K-12 science has focused on direct instruction, observation and an overemphasis on the scientific method, making it difficult for many learners to access the content. In fact, nationally, we have a crisis in equity in STEM fields, and in our state of Washington there is great disparity between the concentration of STEM-related jobs and a prepared labor pool. The data below quantifies the manifestation of the opportunity gap for students of color locally and nationally at both K-12 and in the workforce:

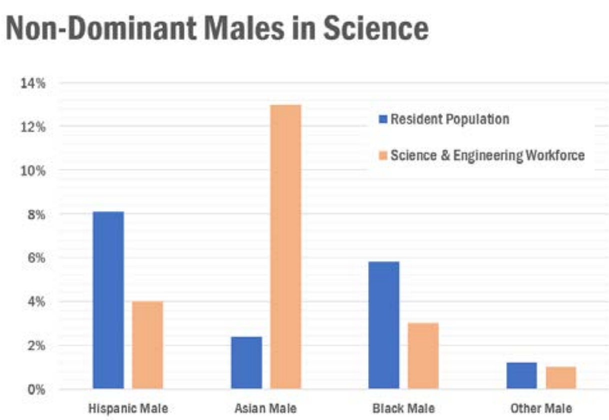
- Washington 4th grade African American and Hispanic students, respectively, score 31 and 29 points lower on the National Assessment of Educational Progress in Science. (*2015 National Assessment of Educational Progress (NEAP) Nation's Report Card - http://nces. ed.gov/nationsreportcard/states/*.)
- Washington's achievement gaps in math and science have not improved in over a decade and are the 12th largest in the nation. If we continue to address the achievement gap at this current glacial rate, it would take 150 years for our African American students to realize the same level of achievement as their peers. (*Center for Education Policy, The Achievement Gap: Slow and Uneven Progress for Students, 2010*.)

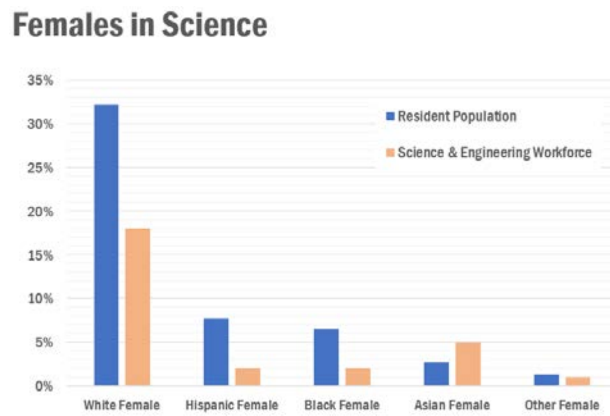


Source: Washington STEM, www.washingtonstem.org, 2016.

- In 2014, only 43 percent of U.S. high school graduates were ready for college work in math; 37 percent were ready in science. (*The Condition of College & Career Readiness. Iowa City, IA: ACT, Inc., 2014 < http://www.act. org/research/policymakers/cccr14/readiness.html*>)







Source: Guterl, Fred. "Diversity in Science: Where Are the Data?" Scientific American, 1 Oct. 2014, www.scientificamerican.com/article/diversity-in-science-where-are-the-data/.

The Adoption Committee will select instructional materials that are aligned to the WSSLS. The adopted materials will increase equitable access to all K-12 students and prepare them for success in core science courses in high school and college preparatory science courses (AP/IB). Moreover, the shift in science pedagogy embedded within this alignment provides all students with 21st century skills not previously embedded within science coursework, as described in Appendix D of the Next Generation Science Standards. This appendix highlights how these standards have been developed for all students, how these standards can be met and exceeded by students of color, students with disabilities, economically disadvantaged students, and English language learners.

2. How will leadership communicate key outcomes to stakeholders for racial equity to guide analysis?

In order to diversify communication channels and reach the maximum number of stakeholders, channels for communication with stakeholders will include the district Science Adoption webpage, district social media accounts, district newsletters, and printed materials be available in school offices. The SPS Science Program and Adoption Committee will communicate throughout the adoption process key outcomes to all stakeholders to be impacted by the adoption, including racial and ethnic communities as well as families of ELL, Special Ed, and HCC students.

- Application materials for the Science Adoption Committee for staff/teachers and for family/community members will be available to stakeholders through the communication channels above and will be available in four languages on Schoology and will be translatable into district languages on the SPS website. Adoption application deadline will be included on application.
- Selected K-8 Adoption Committee applicants were identified, confirmed, and committee membership was announced on June 13; 9-12 Adoption Committee applicants will be identified, confirmed, and committee membership will be announced on October 22.
- To ensure input and feedback from all racial and ethnic groups to be impacted by the adoption, as well as families of ELL, Special Ed, and HCC students, the Adoption Committee will engage stakeholder through the completion of a survey that will be communicated through the channels outlined above to elicit qualitative and quantitative data about their perceptions, attitudes, needs, and concerns as they relate to the adoption of science materials. The Adoption Committee will use this data in conjunction with the Race & Equity Analysis Tool and Instructional Materials Evaluation Criteria tool to inform their review and evaluate Instructional Materials for field-testing.
- The Adoption Committee will select and announce the candidate Instructional Materials for field-testing. Field test instructional materials will be on display for public viewing in multiple locations across the district. The Adoption Committee will elicit feedback from families and community members through both electronic and paper channels.
- Input and feedback from teachers about this experience with instruction, assessment, management, and preparation of the candidate instructional materials will be systematically collected throughout the field test and shared at a public hearing. Student feedback, input, and attitudes about engaging in shifts in science practice will be captured throughout the field test process to ensure student voice.
- Adoption Committee synthesizes and analyzes all input and feedback from all stakeholders on candidate instructional materials, including the field-test, and announces their recommendation for adoption to stakeholders via the communication channels outlined above.

3. How will leadership identify and engage stakeholders: racial/ethnic groups potentially impacted by this decision, especially communities of color, including students who are English language learners and students who have special needs?

The Adoption Committee will engage stakeholders, including administrators, teachers, families and the community in the instructional materials adoption with a Needs Assessment Survey to assess their needs, attitudes and concerns related to the selection of science instructional materials. To ensure equitable access to the input survey, it will be translated into the district's top four languages, be available in paper form, and open throughout the year so the community has multiple opportunities to access the survey either in paper form or electronically.

Administration, teachers, Seattle Public Schools Communications Team as well as community members will ensure our racial/ethnic groups, including communities of color, impacted by the adoption of new science materials receive and engage with the survey.

Racial Equity Analysis Tool

STEP 2: Engage Stakeholders in Analyzing Data

Stakeholders (SPS staff and community members) gather and review quantitative and qualitative disaggregated data and specific information to determine impacts or consequences.

1. How will you collect specific information about the school, program and community conditions to help you determine if this decision will create racial inequities that would increase the opportunity gap?

The application process will ensure that the Adoption Committee membership includes representation from Seattle's diverse racial and ethnic communities. The work sessions will be held when the committee members are available to meet. At the first meeting, the newly formed committee will determine future dates and locations to ensure the majority are able to attend. We will work with the ELL Department to have translators and transportation for committee members. The Adoption Committee will analyze qualitative and quantitative data and engage in sense making of patterns and trends from the input survey in order to ensure racially equitable outcomes for the selection of science instructional materials. The evaluation tool used by the Adoption Committee has criteria addressing racial equity to help screen materials; this criterion was developed using multiple resources including Washington Models for the Evaluation of Bias Content in Instructional Materials.

According to a 2017 statewide data survey from Washington STEM, 94% WA voters believe that every child in the state should have access to a high-quality STEM education in Washington's K-12 public schools. 83% believe that a high-quality STEM education is a "necessary part" of the state's obligation to provide "basic education". 88% of WA state residents agree that children who live in poverty have a better chance to break the cycle of poverty if they have a strong STEM education.

2. Are there negative impacts for specific student demographic groups, including English language learners and students with special needs?

Currently not all students receive equitable access to science instruction and materials. This is particularly impactful to our underserved populations of students, including English language learners and students with special needs. The adoption of new science materials will address the need to provide science learning that will include multiple modalities in both instruction and assessment.

Chapter 11 of the NRC Framework for K-12 Science Education acknowledges that in schools serving the most academically at-risk students, there is "today an almost total absence of science in the early elementary grades. This is particularly problematic, given the emerging consensus that opportunities for science learning and personal identification with science—as exemplified in this framework—are long-term developmental processes that need sustained cultivation. In other words, the lack of science instruction in early elementary school grades may mean that only students with sources of support for science learning outside school are being brought into that long-term developmental process; this gap initiates inequalities that are difficult to remediate in later schooling."

According to a study published in 2013 by the ASPIRES Project, a student's science aspirations and views of science are formed during the primary years and solidified by the age of 14. The study concludes that efforts to broaden students' aspirations in relation to science and engineering should begin in the primary grades, and that "the current focus of most activities and interventions – at secondary school – is likely to be too little too late". The research is clear: a strong cradle to career STEM education prepares students for high-demand jobs and contributes to the vitality of their families, communities, and local economies.

STEP 3: Ensuring educational and racial equity /Determine Benefit or Burden

Stakeholders (SPS staff and community members) collaborate to analyze how this policy/ decision/proposal/initiative/budget issue will increase or decrease educational and racial equity.

The Adoption Committee will be comprised of a diverse representation of stakeholders who will engage consistently throughout the adoption process to collaboratively analyze the potential outcomes of decision-making to ensure equity, including:

- The Race Equity Analysis Tool serves to guide the adoption process from communication, evaluation, selection and onto implementation of adopted instructional materials.
- Analyze data collected from the family and community stakeholder input survey.
- Analyze instructional materials using the Instructional Materials Evaluation Criteria Tool, which includes category #3: *Accessibility for Diverse Learners* and category #4: *Evaluation of Bias Content.*
- Analyze feedback data from teachers, students, families, and community members about the candidate instructional materials used in the field-test.

1. What are the potential benefits or unintended consequences?

The adoption of instructional materials will provide a common scope and sequence of instructional units across the grade levels, across the district. The impact of transient students, who are more often students of color, English language learners, and students with lower socio-economic status, will be minimized; therefore, the impact of student learning will be minimized. The adoption of science materials will also ensure, regardless of the schools' demographics, all schools will receive equitable distribution of the same materials. By providing students with aligned core science units in all buildings, students who move schools have less "catching up" to do while already experiencing the significant life change of moving. Teaching a common scope and sequence of units will maximize the teacher's ability to participate in a professional learning community focused on analyzing student work to improve instruction and to shift their practice to align with the new state standards thus providing more equitable outcome for students. As students continue to experience the pedagogical shift of the WSSLS, new instructional materials in K-12 will provide the foundation of science learning for all students to be successful in high school and to be college ready.

To ensure that this adoption does not result in the unintended consequence of perpetuating the current educational and racial inequities in our district, the adoption committee must analyze how the adoption process and implementation of the adopted materials will:

- Include sustainability of teacher supports, including materials, technology, instruction, and pedagogy.
- Provide continued ongoing professional learning for teachers around shifting classroom instruction and pedagogy to equitable teaching practices, including learning opportunities that support teachers in developing and maintaining a growth mindset.
- Include an ongoing data collection from students, teachers, and other stakeholders about attitudes and perceptions of science learning and teaching as a result of the adoption. Analysis and evaluation of this data must be used for ongoing modification and optimization of the adopted instructional materials to ensure equitable learning outcomes for all students over time.

2. What would it look like if this policy/decision/initiative/proposal ensured educational and racial equity for every student?

By increasing access of all students to science, particularly students of color, English language learners, and students with special needs to science, Seattle Public Schools will continue to prepare students for STEM fields. As previously mentioned in Step #1: students of color have inequitable STEM field and college preparatory classes. The adoption of high quality, culturally responsive, standards-aligned instructional materials, that feature culturally relevant science phenomena and engineering design opportunities, will empower students to see themselves in a potential STEM-field career. The pedagogical methods embedded in the aligned instructional materials will support students in “thinking like a scientist/engineer” as they learn how to “figure out/problem solve” instead of simply “learning about”. Accordingly, this can increase the educational opportunities of these students, including increased access to college preparatory science classes (AP/IB), as well as increased opportunities to colleges, universities and STEM fields.

STEP 4: Evaluate Success Indicators and/or Mitigation Plans

Stakeholders (SPS staff and community members) identify ongoing measures of success or mitigation plans for negative impacts

1. How will you evaluate and be accountable for making sure that the proposed solution ensures educational equity for all students, families and staff?

   The Science Program, as well as individual teachers and schools will continue to assess the successes of all students in science learning. The completion of science summative assessments of student learning from each unit will provide quarterly student growth data and can be disaggregated for racial and ethnic groups, English language learners, and other underserved student groups. The WCAS high-stakes assessment also provides an opportunity for teachers, schools, and Seattle Public Schools to evaluate the performance of different student groups on an WSSLS-based test. This data will inform teacher professional development learning in which teachers work together to refine, and improve shared pedagogy, instruction and materials through collaboration.

2. What are specific steps you will take to address impacts (including unintended consequences), and how will you continue to partner with stakeholders to ensure educational equity for every student?

   To continue to improve learning for all students, particularly the impact on students of color, English language learners, students with disabilities, and other student populations, the SPS Science Program, teachers, and schools will continue to qualitatively and quantitatively monitor the science achievements of all students using the formative and summative assessment systems provided by the instructional materials programs. The SPS Science Program will engage Special Education and ELL teachers through professional learning resources and opportunities in increasing embedded strategies to support students served in these programs and to engage in the aligned science coursework.

   To continue to improve science education in Seattle Public Schools for all students, the SPS Science Program will implement data driven gap-closing measurable outcomes such as

   - implementation of science discourse strategies to increase student voice for sense-making and development of academic language
   - launching units with culturally relevant science phenomena to provide equitable pathways to learn science content in the unit
   - embedded formation assessments providing frequent feedback for both students and teachers.

   The SPS Science Program will continue to seek resources for equitable teacher supports to implement the adopted science instructional materials, and maintain a robust student data gathering system to inform any optimization of materials. We will continue to elicit feedback from our stakeholders on student learning and attitudes to ensure equitable outcomes for students in our highly impacted communities before, during, and after implementation of the adoption of materials.

Attachment L: Consent Decree Compliance

To ensure maximal accessibility of all products purchased by Seattle Public Schools, and to comply with a 2015 Consent Decree relating to all electronic resources purchased by Seattle Public Schools, completion of the most recent version of the Voluntary Product Accessibility Template (VPAT) was required of vendors submitting materials for review by the middle school science textbook adoption committee.

In January 2019, at the request of the science content area and the purchasing office, Shaun Serena, Seattle Public Schools Accessibility Coordinator, reviewed the VPATs for the three finalist products. Below are the results of this review:

Curriculum	VPAT Status	Notes
Amplify Science	Passed	
TCI	Passed	
HMH Science	Did not pass	Vendor provided limited detail and stated their product “Does not support. Remediation in progress” with no timeline to resolution for WCAG 2.0 AA.

The program manager was informed that any vendor product selected must pass the VPAT review to meet WCAG 2.0 AA requirements prior to implementation of their product.

Attachment M

MEMO: 2019 Curriculum Adoption Teacher Survey: K-12 Science Adoption
TO: Curriculum, Assessment and Instruction
FROM: Research & Evaluation
DATE: March 22, 2019

Overview

A critical part of the district's process for adopting and implementing new curriculum materials is learning how to best support teachers, for example by providing professional development, support, and resources where they are most needed. Accordingly, the SPS Research & Evaluation (R&E), in partnership with the Curriculum, Assessment and Instruction (CAI) department administered a survey in February 2019 to certificated classroom teachers regarding their experiences with new or planned curriculum materials. The survey included question panels on K-5 English Language Arts, Middle School Math, and K-12 Science. This memo shares findings related to the K-12 science instructional materials adoption.

Response rates for science are detailed in the table below.

Table 1. Response rates

	Number of Responses	Response Rate
Elementary	437	20%*
Middle School	81	84%
High School	83	57%
TOTAL	**601**	**24%***

*Conservative estimate, as the anonymous survey was administered to all elementary teachers, and not all elementary teachers teach science.

Because there are three concurrent science adoption processes underway, this memo provides overall findings (i.e. aggregated across all respondents) as well as breakouts for **elementary**, **middle school**, and **high school** grades.

Current State

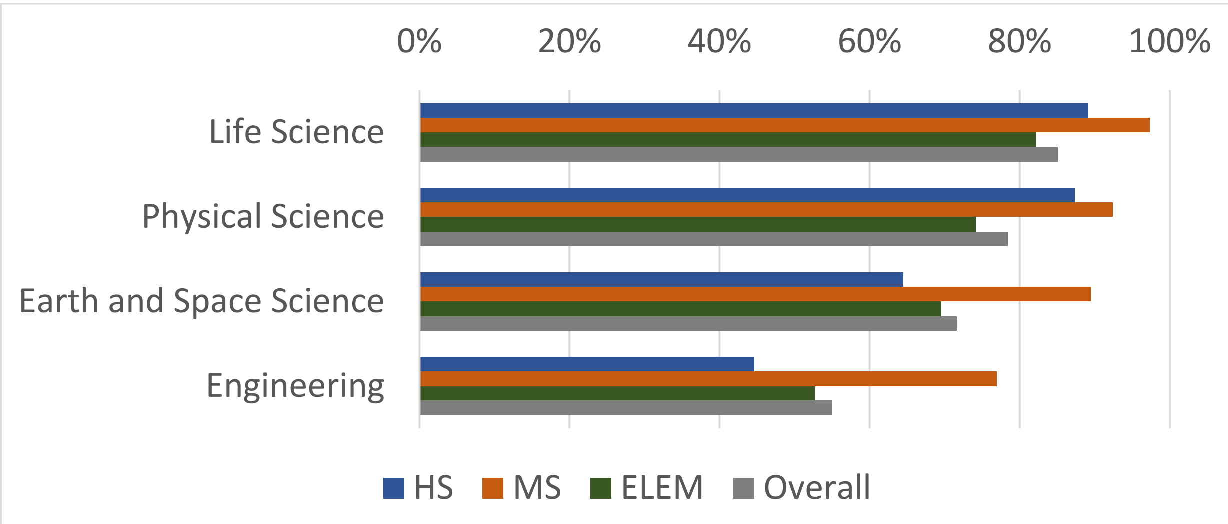
To calibrate the supports teachers need moving forward with NGSS-aligned instructional materials, it is first necessary to understand the supports that teachers currently use in the classroom.

- **Elementary**: Approximately two-thirds of elementary teachers (69%, n=435) report using the District FOSS/STC kits. The remaining one-third report using "other" materials, which are mainly materials being piloted through the adoption process, including AmplifyScience, HMH, McGraw Hill, STEMScopes, and TCI. However, some teachers also note that they teach Mystery Science, an online program, or use various other resources to teach science in elementary grades.
- **Middle School**: 17% of respondents report using District FOSS/STC kits, 30% report using waiver materials, and 53% report using "Other" materials. In the "other" category were mainly AmplifyScience users (28 teachers) and teacher-sourced materials (12 teachers).
- **High School**: The vast majority of high school teachers (89%, n=79) report using "Other" materials. Commonly mentioned materials include PEER (for physics), CarbonTime (for biology) Living by Chemistry (for chemistry), and International Baccalaureate materials.

Looking across the grade bands, relatively few teachers (7%, n=595) report using Superintendent-approved waiver materials. However, 43% of teachers overall (n=596) mention that they "moderately" or "extremely" modify the curriculum currently in place. These percentages are approximately the same across all grade bands.

Additionally, we asked teachers about their current level of confidence in their content knowledge across the sciences. Looking across the grade bands, middle school teachers report higher levels of confidence than do their elementary and high school colleagues. Looking across the content areas, life science is the area with the highest level of confidence overall, and engineering is the lowest.

Figure 1. Confidence in science content



Finally, we asked about the extent to which teachers currently use formative assessments to inform their science instruction. Overall, 84% (n=572) of respondents report that they use formative assessments to inform instruction at least "a couple of times per unit." The reported rates of assessment use are higher in middle school (100%, n=79) and high school (89%, n=83) than they are in elementary school (78%, n=410).

NGSS Readiness

The Next Generation Science Standards (NGSS) were adopted by Washington state in 2013. The SPS CAI department describes the shift as following:

> *"Historically, science teaching has been focused primarily on content, but NGSS recognizes that 21st century skills involve a deep understanding of Science and Engineering Practices, Disciplinary Core Ideas (content), and Crosscutting Concepts that apply to all scientific disciplines. This shift in practice moves us towards a pedagogy that focuses on 'figuring out instead of telling about.'"*

The NGSS contain eight approved practices of science and engineering that are considered essential for students to learn. Accordingly, we asked teachers the degree to which they feel confident in that their current instructional practices prepare students for these eight practices. Results, disaggregated by grade band, are in Table 2 below.

Table 2. Confidence by NGSS practice standard

	ELEM	MS	HS	Overall
Ask questions (for science) and define problems (for engineering)	68%	91%	80%	73%
Develop and use conceptual models	60%	92%	93%	69%
Plan and carry out investigations	71%	78%	75%	73%
Analyze and interpret data	66%	95%	90%	74%
Use mathematics and computational thinking	63%	74%	77%	66%
Construct explanations (for science) and design solutions (for engineering)	53%	92%	84%	63%
Engage in arguments from evidence	63%	96%	92%	72%
Obtain, evaluate, and communicate information	69%	92%	93%	75%

In addition to the eight practice standards, we probed on teachers' confidence in two areas of specific interest to Seattle Public Schools: technology usage and engaging students in scientific discourse with their peers. Results from these two questions are in Table 3 below. Similar to the previous findings, teachers in middle school report the highest levels of confidence (Table 3). High school teachers follow close behind, but elementary teachers report much lower levels of confidence in these areas.

Table 3. Confidence with technology and student discourse

	ELEM	MS	HS	Overall
I feel confident having my students use technology in the service of gathering scientific evidence	46%	96%	87%	61%
I feel confident that my students can engage in scientific discourse with their peers to make sense of complex scientific ideas	56%	89%	81%	64%

Professional Development

A key district strategy to increase teachers' confidence in science content and the NGSS practice standards is to provide targeted professional development. Accordingly, we asked teachers both about the professional development they have already received, as well as the professional development they would like to receive in the future.

Data indicate that a high proportion of teachers in high school (98%, n=83) and middle school (89%, n=81) have received specific NGSS professional development. Elementary teachers report lower PD participation rates on the NGSS (44%, n=436).

When we asked about the NGSS-aligned PD that teachers would like to receive in the future, we find that the types of PD vary quite a bit by grade band. Top areas for **elementary teachers** are developing student-centered units, developing assessments and analyzing student data, and deepening their content knowledge. Top areas for **middle school teachers** are developing student-centered units and navigating and understanding the curriculum resources. And top areas for **high school teachers** are developing student-centered units, navigating and understanding curriculum resources, and incorporating instructional technology.

	ELEM	MS	HS	Overall
Developing student-centered unit that follow clear storylines to explain anchoring phenomenon	71%	54%	54%	67%
Navigating and understanding the curriculum resources	38%	47%	42%	53%
Deepening my content knowledge	48%	29%	23%	42%
Incorporating instructional technology	45%	20%	38%	41%
Developing assessments and analyzing student data	59%	39%	37%	40%
Other	14%	18%	26%	16%

As shown above, 16% of teachers (90 in total) indicate they would like "other" types of professional development. We analyzed open-ended responses about these other types of professional development and found some unifying themes:

- **Elementary teachers** want access to quality, NGSS-aligned materials that incorporates hands-on laboratory experiences for students. They also want more time to incorporate NGSS-aligned strategies and materials, including time for PD, time for collaboration with peers, and time to study the standards themselves.
- **Middle school teachers** want access to quality, NGSS-aligned materials as well. They also want guidance on facilitating culturally responsive student discourse in the classroom, for example by focusing on talk moves.
- **High school teachers** want access to high quality laboratory equipment, as well as specific PD on engineering and design content and problem-based learning (PBL). They also want to better understand how to differentiate science instruction within the context of NGSS.

Equity-Focused Open-Ended Responses

To conclude the survey, we asked teachers an open-ended question (no word limit) about the equity moves that a K-12 science adoption would bring. The question was:

> *"In 2018, Seattle Public Schools initiated an adoption process for instructional materials to support science in grades K through 12. Please tell us how the adoption of NGSS-aligned materials will influence your ability to offer equitable opportunities for all students to become scientifically literate."*

We systematically coded and analyzed open-ended responses, and three key themes emerged about teachers' hopes for the future science adoption: system-wide benefits, instructional quality, and student engagement and achievement. We detail the findings below, including quotes from **elementary teachers**, **middle school teachers**, and **high school teachers**.

System-wide Benefits

Teachers hope that a K-12 NGSS-focused science adoption will elevate the role and importance of science education in the district, enabling teachers to teach high quality science curriculum in all schools to all students. Elementary teachers believe that a common approach is an equity move particularly for high mobility students, as they will experience continuity in their science learning. And middle and high school teachers stressed the importance of having students enter secondary with common learning experiences and exposure to science instruction. Additionally, teachers anticipate that collaboration with peers, both within and across schools, will increase as well. However, teachers caution that system-wide benefits are only realized if the selected curriculum is high quality, if materials are distributed equitably, if meaningful professional development is delivered by the district office, and if the district and schools explicitly carve out time for teachers to teach science.

ELEM	*"It will prioritize and place a sense of urgency in science instruction, which currently is lacking due to our outdated materials."* *"If all classrooms are teaching a rigorous and engaging science curriculum in SPS and teachers are given excellent training, then I feel like this will provide an equitable opportunity for all students to become scientifically literate."* *"I am hoping more resources given to science at a district level will actually show teachers and students that the district cares about science instruction"* *"An adoption cannot influence equity without deep commitment from downtown to offer support, including opportunities for multisensory hands-on science activities and project-based science learning for all learners."*
MS	*"All students will have access to the process of doing science rather than only students at schools with outside funding. Students will learn current science rather than patchy obsolete topics."* *"I think NGSS aligned materials ensure that every student has access to the same content regardless of school. But really engaging puzzling phenomena are what makes equitable opportunities."* *"Based on the harsh reality that elementary schools do not consistently provide students with science learning the hope is that students would be moving to middle school with a better foundation of science so that literacy would be scaffolded providing more opportunities for science teachers to propel students' science learning."* *"As it stands, many teachers are doing different things or repeating topics with students over their time in Seattle Public Schools. A unified adoption will allow us to examine the trajectory of learning for students in the district and build on scientific thinking skills each year."*

HS	*"As a south Seattle teacher, I feel the adoption will greatly help my students. Students being able to move from one school another, but expect the same standards and classes helps our students be successful across the entire district. It also allows me to find support from other teachers and share expertise. This adoption is only good. I see no negative impacts."* *"The adoption process will allow us to work collaboratively across the district to identify the best resources and strategies for our students. It will allow students who move from one school to another to have an equitable experience. It will ensure that everyone is teaching with high quality, standards-aligned instructional materials."* *"It will help new and struggling teachers to make sure their expectations and content are aligned with other schools."* *"It allows us to know what instruction and opportunities are offered to students district-wide, so that we can ensure that our students at an underresourced high school have access to that same level of rigor and opportunity. If budgeted for, NGSS materials will also offer our students access to physical resources like lab materials that we currently struggle to purchase."*

Instructional Quality

Teachers hope that high quality, NGSS-aligned materials – combined with culturally responsive teaching practices – will allow them to engage *all* students in rigorous and engaging science content. Teachers mentioned both high quality, carefully scoped content, as well as the physical materials (e.g. kits and laboratory equipment) that will help them to achieve this goal, allowing them to focus on students' learning instead of curriculum development. Many teachers expressed frustration with their existing curriculum and science kits, saying they hope that newer materials will be better, easier to use, and more engaging for students.

ELEM	*"I am looking forward to teaching science with a curriculum that is well aligned to the standards. This is equitable because students across the district will have the opportunity to participate in high quality science instruction with high quality materials."* *"I teach at a Title I school with limited access to STEM experiences (although many of my students are very interested in engineering and scientific design). It is very apparent that equitable opportunities for all students are not currently a district priority as it relates to scientific literacy, and I would love to have the materials and resources needed to provide my students with 21st-century learning."* *"When I have provided materials and curriculum I am able to spend my time planning from formative assessment and thinking about how my questioning practices can support students; without materials and curriculum I do not have time to plan instruction in a deep and meaningful way."* *"I am hoping it will provide updated content that will engage students to think deeper about science. It would be nice to have a lot of hands on opportunities, provides culturally relevant examples and makes students think critically and design and communicate solutions to problems."*

	"Adopting a new curriculum based on NGSS will help our students learn the skills real-world scientists use. Hands-on exploration combined with digital models, constructive conversations, and opportunities to analyze and synthesize evidence gives opportunity for all students to access the content."
MS	*"If the curriculum that we adopt has clear storylines and anchoring phenomena, with opportunities for students to construct explanations and argue from evidence, then all students will be able to learn deeply, instead of just the students who are able to memorize a lot of facts out of a textbook."* *"I am a first year teacher who has no access to NGSS aligned curriculum from the district. Creating my own lessons and designing them or even just modifying them from the old kits is very time consuming and I do think it has weakened my teaching in the sense that not everything is mapped out and much of it is happening for the first time. Having a road map that was based on NGSS and some tried and tested units within that would give me a more solid base to fall back on and build from, rather that struggling to work with. This would create a more cohesive education for my students and therefore help increase their scientific literacy."* *"If the curriculum we adopt is truly aligned with NGSS, then it will engage students from all cultures and ability levels by engaging them in solving problems and answering questions that are relevant to them and guided by phenomena and storylines meaningful to all. It will be rigorous but well scaffolded and differentiated to meet the needs of ELL and learners of diverse abilities."*
HS	*"Having a reliable source of curriculum will allow me to spend more time on the students thinking and less on preparing materials."* *"Model based instruction based on phenomenon and real-life projects offers opportunities for all students to access scientific ideas and concepts as scientists, no matter their race, gender, ability or socioeconomic status. Discourse pushes all students to work at their level and build on their understanding, whatever that might be."* *"Teaching with a storyline is equitable because it provides all my students with a common starting point of understanding. The shared experience at the beginning of a new unit gives students common ground."* *"I will be able to focus much less on adapting materials and more on analyzing the work my students do."*

Student Engagement and Achievement

Teachers hope that new NGSS-aligned materials will help to engage students in authentic, hands-on learning experiences that center around a scientific phenomenon that students can relate to their own lives. This, they said, will help students who might typically not have enjoyed science become enthusiastic science learners. Teachers also asserted that interest and skills in science are necessary to succeed in the highly scientific and STEM-based economy into which they will graduate.

ELEM	*"The NGSS align with the currently STEM world that we are living in and that our students will be growing up to be working in. It's important to be stretching our students' thinking in the way that the standards ask and that the materials we are providing to teach are fun, engaging and accessible to all students."* *"By having layers of ways to explore a phenomenon, students take control of their own learning and have context upon which they can attach new learning. Without this, students already see themselves as "not scientists" by middle school."* *"The adoption of NGSS aligned units should provide a common entry point for students nationwide, and allow schools to access a common body of knowledge for equitable assessment."* *"STEM fields are where growth and profitability are in our economy right now so providing a curriculum that provides these skills will allow ALL students to have access to these careers in the future."* *"The NGSS-aligned materials will prepare students to perform well on the science portion of SMA. The NGSS standards have been in effect since 2013 and the district has not adapted a science curriculum to meet this standards. Students are not prepared to take take tests based on these standards, if they do not have the curriculum or materials available to them."* *"I believe a curriculum that is NGSS aligned will prepare my students for a world where science is everywhere. It will also better prepare them for high stakes testing that will ask them questions regarding modern science standards, not antiquated science kits that are older than some teachers at our school."*
MS	*"New NGSS-aligned curriculum needs to offer students an entry-point that is socially relevant to their lives. Students need to see why science matters to them."* *"The adopted curriculum NEEDS to have an interesting phenomena that ends in a casual, evidence based, explanation that students are invested in sharing and writing. Otherwise I worry that the difficult concepts and vocabulary heavy field of science will remain inaccessible to many."* *"We need to develop good strong, PBL, phenomenon driven projects kids can DO and feel proud in other to become scientifically literate."*
HS	*"If the materials are interesting, rigorous, and straight-forward to follow, then I will be able to inspire and motivate all students in my classes to understand how science connects to their lives and to engage in real science in the classroom."* *"Having aligned materials will help me collaborate with others to implement best practices, engineering practices, and relate phenomena that teach science in a way that allows students to be in the driver's seat and curious about what they are learning."* *"The NGSS requires students to act like scientists, rather than passively learning about others' discoveries. This is more engaging than the traditional approach and gives students all students the skills required to succeed in STEM fields."*

More Information

For more information about the survey content, administration, or findings, please contact the Research & Evaluation Department at research@seattleschools.org.