School Board Action Report

Middle School Science Instructional Materials Adoption, April 2019

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This Board Action will approve the recommendation of the Middle School Science Instructional Materials Adoption committee for instructional materials for all middle school science classrooms in grades 6-8. 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
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For Introduction: ~~May 1,~~ May 15, 2019
For Action: ~~May 15,~~ May 29, 2019

1. TITLE

Middle School Science Instructional Materials Adoption

2. PURPOSE

This Board Action will approve the recommendation of the Middle School Science Instructional Materials Adoption committee for instructional materials for all middle school science classrooms in grades 6-8.

3. RECOMMENDED MOTION

I move that the Seattle School Board approve the Middle School Science Adoption Committee's recommendation to adopt AmplifyScience for instructional materials for all grade 6-8 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 6-8 Seattle Public Schools' science classrooms for an amount not to exceed $2,069,686, covering licensing from school year 2019-20 to 2027-28, and an amount not to exceed $565,857 for in-house professional development and collaboration and a 1.0 FTE Curriculum Specialist.

4. BACKGROUND INFORMATION

A. Background

1. Previous Adopted Middle School Science Instructional Materials, 2002-Present
The most recent middle school science instructional materials adoption in Seattle Public was in 2001-2002. Science units were adopted "piecemeal" from the three different vendor programs that were included in the adoption: STC (Science and Technology Corporation), FOSS (Full Option Science System), and Lab-Aids by SEPUP (Science Education for Public Understanding) instead of adopting a comprehensive program from

a single vendor. This resulted in a unit scope and sequence that included both redundancies and several critical content gaps. Nearly all have been discontinued, and the cost to purchase updated versions from the publishers has been cost-prohibitive. This has resulted in text-based resources that are woefully outdated and/or inaccurate.

Current, relevant, and important science topics such as global climate change, space science, engineering, and genetics 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 only lightly touched upon. The lesson activities are primarily “cookbook” labs in which students follow an experimental procedure with no embedded opportunities for sense-making, which 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
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 focused 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 engineering design, both in practice and in the context of science content.

3. Washington Comprehensive Assessment of Science (WCAS)
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 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.

4. Middle School Science Standards Alignment Team & Professional Development, 2015-2017
In 2015, the district articulated that standards alignment and common curricular scope and sequence for all students in all schools was one of the highest priorities for the Curriculum, Assessment, and Instruction department. In response to this important

initiative, the Science department convened a Middle School Science Alignment Team to develop a strategic plan to align with the state's adopted science standards. Concurrently, middle school teachers across the district were participating in a 4-year Science Partnership grant, from the State Office of Superintendent of Public Instruction (OSPI), which funded a professional development experience for all middle school science teachers, which resulted in a high awareness and enactment of the pedagogy and instructional shifts of the Next Generation Science Standards. The professional development was designed and implemented in partnership with the Institute for Systems Biology and the University of Washington Institute for Science and Math Education.

In spring of 2017, with no funds earmarked for a 6-8 science adoption, a majority of middle schools opted to apply for the 3-year waiver to use instructional materials developed for the new science standards by Lawrence Hall of Science for Amplify as an alternative to teaching with the 2001-2002 adopted materials.

5. Middle School Science Adoption Process & Committee Work: Instructional Materials Review & Field Test, May 2018-Present

The School Board instructed the science team of Curriculum, Assessment, and Instruction to launch a middle 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 Stage2. (see Attachment E)

5a. Stage 1: Committee Determines Finalists for Field Test, June 2018-Decemeber 2018

A middle school Science Adoption Committee comprised of teachers, school leaders, parents, professionals in STEM fields, and other community members were 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 (EQuIP) Rubric 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 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 as voted by the MS Adoption Committee were:

- 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%)

Ten curriculum vendors responded to the District's Procurement Department's Request for Proposal (RFP).

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 ten vendor instructional programs using the Science Instructional Materials Review Criteria.

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 and were not for consideration.

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). Based on the average scores, the Adoption Committee members eliminated six of the ten candidate vendor programs from consideration. The committee then focused its efforts on reexamining the four remaining programs in depth using the following guiding question: What would it look like from the vantage point of a teacher?

Based on this reexamination 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 round of the Middle School Science Adoption process as finalist candidates:

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

5b. Field Test, January 2019-March 2019

All SPS science teachers of grades 6-8 were invited to apply to participate in the Middle School Science Adoption field test pending principal approval and demonstration of understanding of the 2013 Washington State Science Learning Standards. Twelve 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 1000 students from 6 SPS middle 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 twelve field test teachers were instructed to implement and instruct 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 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 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 survey collaboratively developed in April 2018 by a national team of science educators including the SPS Science Department Manager and an existing research practice partnership with the University of Washington Department of Education and was approved by SPS Research and Evaluation. Students self-reported on the following attributes through their responses:
    - 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 and accuracy of content for 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

5c. 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 the categories of data collected during the adoption process should be weighted (see Attachment J) when synthesizing the data to assign a final overall score for each candidate program. 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 - 42.5%
- Public Display and Open House Community Input Forms – 10.7%

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, 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 small review 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 (see Attachment I).

Committee members then reviewed input from the public. Input was received from members of school communities and the public who reviewed instructional materials from each vendor program under consideration for adoption. In total, 10 Community Input Forms were submitted: 4 for *Amplify Science*, 3 for *HMH*, and 3 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). The score for each category was weighted and then tallied and reported as a consensus score.

6. Data Collection Results (see Attachment I)

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 and from teacher and student input collected during the public display of the instructional materials.

6a. Science Instructional Materials Review Criteria Scoring (Stage 1)
At the end of Stage 1, the Adoption Committee members completed their evaluation and scoring review of the three finalist program's instructional materials, TCI, Amplify, and HMH, using the Science Instructional Materials Review Criteria described above in Section A 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 was as follows:

- Amplify, *AmplifyScience – 56.0*
- Houghton Mifflin Harcourt, *HMH Science Dimensions – 38.0*
- Teachers' Curriculum Institute (TCI), *Bring Science Alive! – 53.5*

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 criterium. Although HMH scored above 61 and 62 in Categories 1 (Standards Alignment) and 2 (and Assessment), respectively, it received relatively low scores in Category 3 (Inclusive Educational Practices) and Category 4 (Anti-Bias) and Category 5 (Teacher Instructional Supports), resulting in a total average score of only 38.

Amplify and TCI received the highest total average scores for all ten programs submitted for consideration at 56 and 53.5 respectively. While the two programs received relatively comparable scores in the Categories 1 (Standards Alignment), 3 (Inclusive Educational Practices), and Category 4 (Anti-Bias), TCI scored 9 points higher in Category 2 (Assessments) while Amplify scored 22 points higher in Category 5 (Teacher instructional Supports).

6b. Field Test Data Results and Synthesis Summary (see Attachment J)
The field test portion of the adoption provided an opportunity to see the candidate programs enacted in the classroom and to collect data around 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.

6bi.) 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. Using the category weights from the Review Criteria, the review teams calculated a weighted score for each candidate program and then all total scores were averaged.

Amplify received an average Field Test Teacher Interview Panel score of 68.5, HMH received an average Field Test Teacher Interview Panel score of 24.2, and TCI received an average Field Test Teacher Interview Panel score of 33.6.

6bii.) 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. The data analysis of the TCI classroom observation and teacher interview data showed "strong evidence" for 2 of the 10 characteristics, and data analysis of the Amplify classroom observation and teacher interview data showed "strong evidence" for 8 of the 10 characteristics.

6biii.) Student Growth Data: All teachers participating in the field test of the three candidate vendor programs were asked to administer the provided pre-unit assessment at the beginning of the field test and an 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 average student growth scores for each vendor were as follows:

- Amplify, *AmplifyScience – 66.8%*
- Houghton Mifflin Harcourt, *HMH Science Dimensions – 8.8%*
- Teachers' Curriculum Institute (TCI), *Bring Science Alive! – 28.9%*

6biv.) Student End-of-Unit Attribute Survey: All students who participated in the field test were asked to complete an end-of unit attribute survey that asked them to reflect on their learning and engagement during the field test unit. Survey questions asked students to self-report about their learning over the course of the field test instruction and their attitudes about their experience with the unit and included questions about:

- Students' 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

The committee identified the following trends in the quantitative data collected from the end-of unit student attribute survey data. 1001 students in total completed the survey and responses were tallied an aggregated.

- Amplify responses: n = 407
- HMH responses: n = 306
- TCI responses: n = 290

Most students participating in the field test reported that they were provided with opportunities to participate in standards-based science practices “sometimes” or “often” during the field test, regardless of the program being field tested.

In the Amplify field test, 68% of students reported collecting data for investigations, 69% reported analyzing data, and 80% reported using data often as evidence to support a claim. In the TCI field test, only 48% of students reported collecting data for investigations, only 44% reported analyzing data, and only 48% reported using data often as evidence to support a claim. HMH students reported nearly the same as TCI, however, students who reported using data to support evidence often was 11% higher.

80% of students in the Amplify field test reported that the organization of the lessons in the unit helped them to understand the main ideas of the unit, which was 11% greater than what was reported by TCI field test students and 22% greater than what was reported by HMH students.

Amplify field test students also reported greater engagement in the work they did during the field test. The percentage of students reporting that the work they did in science class was interesting to them was 14% and 18% greater than what was reported for TCI and HMH, respectively. Further, when students were asked to indicate agreement with the questions about alignment of the work they did in the field test unit with their interests, connections to their lives, and if that work was like that of real scientists and engineers, students in the Amplify field test consistently reported at least 13% higher agreement with every statement in this attribute category when compared with TCI and HMH.

The student data from the Identity, Position, and Learning attribute category had the greatest impact on the final field test scores assigned to each program by the committee. While students from each of the vendor program field tests reported in similar numbers that they were “learning science,” the percentage of students from the Amplify field test reporting that they “felt confident they could do science” was 8% greater than students in the HMH field test and 10% greater than students in the TCI field test. Similarly, the percentage of students from the Amplify field test reporting that they “like doing science” was 16% greater than students in the HMH field test and 10% greater than students in the TCI field test.

Over 50% of all student respondents in all field tests identified as students of color, which the committee believed suggested important implications for improving the opportunity gap for middle school students in science through improved learning outcomes.

6bv.) 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 9 characteristics that closely aligned with the interview questions: discourse for sense-making, consensus building, phenomenon present and helpful, elicitation of initial models, evidence collected helped understand the phenomenon, tools to track ideas through the unit, assessments were fair and helped know if you were learning, the unit helped you learn science, would you recommend these materials.

Data analysis of the HMH student focus group interview data showed "strong evidence" for 0 of the 9 characteristics, the data analysis of the TCI data showed "strong evidence" for 2 of the 9 characteristics and Amplify showed "strong evidence" for 8 of the 9 characteristics.

6bvi.) Field Test Data Synthesis and Analysis: Committee members collaborated in their teams to collectively review and synthesize all Field Test data collected for each program. The review teams worked to reach consensus on an overall score for each program in each of the five categories detailed in the Science Instructional Materials Review Criteria (see Attachment E) using the 0-4 scoring rubric. Once the scores were assigned and weighted using the Review Criteria weightings, they were tallied and reported as a consensus Field Test score for each candidate program. The consensus Field Test scores reported by the committee review teams ranged between 42.5 and 94 for Amplify, between 15.5 and 42.5 for HMH, and between 27 and 42.5 for TCI. The average overall Field test score earned by each candidate program was:

- Amplify – 60.2
- HMH – 26.9
- TCI – 33.9

6c. Community Input Collected from Instructional Materials Public Displays and Adoption Information Sessions (see Attachment G)

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.

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 SPS website. In addition, two “open house” public information and material review sessions were held in the north end 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 and at the five public display locations and the open house events for community members to review the three candidate programs and provide feedback. Translated versions of the Community Input Form in the district’s top five languages, Spanish, Chinese, Somali, Tagalog, and Vietnamese, were also available.

In total, 10 Community Input Forms, 4 for Amplify, 3 for HMH, and 3 for TCI, were collected from community members from the instructional materials public display sites, open house information sessions, and online via the SPS website.

The 3 community input forms received for TCI were generally more positive, than Amplify or HMH, with the overall results from public reviewers indicating “yes” a total of 66 times and “no” a total of 13 times. The 4 Amplify forms and 3 HMH forms received showed nearly identical results overall with a total of 48 and 46 “yes” indicators, respectively and 30 and 32 “no” indicators respectively.

The 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 were invalid and therefore the data could not be compared reliably with data collected legitimately from the Community Input Forms. The committee concluded that the extremely small sample size of public feedback data required that input from this category be weighted proportionately to reflect the fact that this input data reflect the opinions of only 10 community members in a district that includes nearly 12,000 middle school students.

Committee review teams analyzed all 10 of the Community Input Forms and assigned a consensus score to each candidate program based on this analysis. The score was weighted based on the committee’s recommendation at the outset of stage 2 prior to reviewing the data.

7. Synthesis of All Data Collection Results and (see Attachment J)
Each committee review team applied the weighting formula developed by the committee at the outset of Stage 2 to the scores below for each of the three candidate programs:

- Review Criteria Average Score (Stage 1)
- Field Test Data Review Team Consensus Score

- Public Input Data Review Team Consensus Score

The weights assigned by the committee to each data set prior to beginning data analysis were: Review Criteria Average Score - 46.7%, Field Test Data - 42.5%, Public Display and Open House Community Input Forms – 10.7%

After calculating the weighted scores for the three data sets, the committee review teams recorded their scores before adding them together to achieve a Final Overall Score for each candidate program. (Attachment J). Each committee review team reported out their consensus scores, along with supporting annotated evidence, as well as their Final Overall Score for each candidate program.

During the teams' data reporting, a pattern emerged in the scoring in which all committee review teams assigned the highest scores for the Field Test performance to Amplify over HMH and TCI (see Attachment J). Committee members specifically cited evidence from the Student End-of-Unit Attribute survey data about student engagement and interest reported by students in the Amplify field test as well as the significantly higher student growth scores based on the assessment data reposted by Amplify field test teachers. Although Amplify and TCI's Review Criteria from Stage 1 scores were comparable, 56 and 53.5 respectively, the committee concluded that Amplify's composite field test score elevated the overall final score and therefore Amplify emerged as the top candidate.

The range and average of the Final Overall Scores reported by the review teams for Amplify were:

- **Range: 57.7 - 70.0**
- **Average Score: 60.7**

The range and average of the Final Overall Scores reported by the review teams for HMH were:

- **Range: 28.0 – 34.0**
- **Average Score: 31.2**

The range and average of the Final Overall Scores reported by the review teams for TCI were:

- **Range: 40.5 - 48.0**
- **Average Score: 44.2**

An analysis of the scores assigned by the Adoption Committee show that Amplify received an average Final Overall Score of 60.7, which is 16.5 points higher than the next closest average Final Overall Score of 44.2 assigned to TCI, and 29.5 points higher than the average Final Overall Score of 31.2 assigned to HMH.

To determine the final score each committee review team calculated their weighted consensus scores for the Review Criteria scores from Stage 1, tabulated the Field Test data, and analyzed 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. Based on the synthesis and summary of all data reviewed by the committee and the final scores reported, Amplify emerged as the top candidate.

The Adoption Committee then proceeded to the decision-making phase. Adoption Committee members agreed to an anonymous vote to identify a single finalist for recommendation for adoption to the School Board. The Middle School Science Adoption committee voted unanimously to recommend Amplify for adoption, with the exception of a single member who voted for no 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 28, 2019.

B. Research

1. 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, 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 related to the K-12 science instructional materials adoption.

84% of science teachers at grades 6-8 responded to the survey. Survey data showed that over 75% of middle school teachers reported that they felt confident in engaging students in each of the eight science practices in NGSS instructional practices, and 96% reported that they felt confident having their students use technology in the service of gathering scientific evidence. Further questions were asked of 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 indicated that a high proportion of teachers in middle school (89%, n=81) have received specific NGSS professional development. An analysis of open-ended responses about types of professional development found some unifying themes, specifically that 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.

This timely data collected directly from middle school science teachers by the SPS R&E Department underscores teacher need for high-quality instructional science materials and science instructional practices at middle school to support alignment to standards.

2. EdReports.org Middle School Science Instructional Materials Review, February 2019

EdReports.org is a nonprofit that provides free reviews of instructional materials in multiple academic content areas. An EdReports.org report released on February 28, 2019 announced the results of its first round of science instructional materials program reviews for grades 6-8. Content Review Teams, comprised of expert science educators from across the country, analyzed six instructional materials programs for standards alignment and usability, including supports for educators, multiple strategies for meeting the needs of a range of learners, strong student assessment practices, and effective use of technology.

Of the 6 programs reviewed, the report determined that only AmplifyScience (Amplify), fully met expectations for alignment to NGSS. HMH Science Dimensions Grades 6-8 (Houghton Mifflin Harcourt) partially met expectations for alignment to NGSS, and Bring Science Alive! Program (Teachers' Curriculum Institute - TCI) did not meet expectations for alignment to NGSS.

3. SPS Middle School Science Student and Teacher Survey, May 2018

Following the commitment by the School Board to fund a middle school science instructional materials adoption, the Science Department, with approval from SPS Research and Evaluation, leveraged their existing research practice partnership with the University of Washington Department of Education to develop and implement a survey of middle school science students and teachers. Between April and May 2018, 4486 students in grades 6-8 and 61 middle school science teachers in the district responded to the survey to provide a robust set of baseline data around students' engagement in critical standards-aligned science practices, including: constructing explanations for scientific phenomena, developing and using explanatory models, participating in student-to-student discourse for sensemaking, and conducting science investigations. Questions were also asked about checking for student understanding, effective use of assessments, and attitudes about equity in science learning, identity, and disposition. The data was also disaggregated for Seattle Public Schools' diverse demographics, including gender, race, socioeconomic status, English Language Learners, Special Education, and Highly Capable.

This data will allow the SPS Science Department to: 1) effectively and efficiently identify specific areas of science pedagogy and teacher practice to target for professional development following the instructional materials adoption in order to maximize effectiveness of a standards-aligned curriculum; 2) provide pre-adoption data to measure teacher and student growth as part of a data-based evaluation plan following implementation of the adopted instructional materials in addition to the analysis of student growth data and teacher/student/community input and feedback.

C. Alternatives

1. Maintain the current middle school science kits (FOSS, STC and SEPUP) adopted in 2001-2002

This alternative is ***not recommended*** by the adoption committee who is comprised of middle school instructional materials experts who have spent over 60 hours engaged in professional development around the Next Generation Science Standards, evaluation of middle school instructional materials, and analysis of teacher and student data collected from the field test of these materials.

a. Pros:

- Many teachers are familiar with the existing kit systems

b. Cons:

- The current SPS adopted middle school science materials are not aligned, even minimally, to the 2013 WA State Science and Engineering Standards. These materials were developed to align to the 1996 National Science Learning Standards.
- The adopted kits were created by 3 different vendors, STC (Science and Technology Corporation), FOSS (Full Option Science System), and SEPUP (Science Education for Public Understanding) with no consistency in sequence within or across grade levels
- Publication dates range from 1988 to 2000 - most of these titles are out of print and replacement equipment is no longer available for purchase or is prohibitively expensive.
- Inconsistent and inequitable supplementation of outdated curriculum across the district to achieve standards-alignment and/or ongoing completion and approval of instructional materials waivers
- Kits are provided in large plastic crates ranging from 2 to 8 crates per kit. The Science Materials Center does not own or maintain a sufficient number of these kits to supply the 80+ middle schools science teachers in our district, even with a rotation delivery model
- The rotation pattern creates a minimum 3-week black-out time during which all middle school teachers are without science materials while the semester 1 kits are being refurbished for semester 2 delivery.
- There are 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 instructional materials
- Lack of standards-alignment does not prepare middle school students for high school science coursework or the WCAS State high stakes science assessment in grade 8

5. FISCAL IMPACT/REVENUE SOURCE

The nine-year cost of this adoption is $2,069,686, which includes $1,503,829 in curriculum and science kits, which would be purchased from the vendor, another $437,331 for related professional development, and $128,526 for a 1.0 FTE Science Curriculum Specialist. All costs are over a nine-year period.

The vendor was asked to provide pricing that included science kits and a price without science kits. Based on an analysis of the most recent budgets for the Science Materials Center, it would be most cost effective to purchase the science kits from the vendor.

The cost comparison below shows a conservative estimate of current annual middle school kits using the Science Materials Center, where only kit materials were compared, and no costs for facilities/transportation or staffing was included:

Use Vendor Kits	**Year 1**	**Years 2-9**	**Total All Years 1-9**
Amplify 6-8 – Includes Vendor Kits	$ 1,317,846	$ 185,983	**$ 1,503,829**
In-House PD	$ 141,490	$ 295,841	**$ 437,331**
1.0 FTE Curriculum Specialist	$ -	$ 128,526	**$ 128,526**
Total – Option A	**$ 1,459,336**	**$ 610,650**	**$ 2,069,686**

No Vendor Kits, Use SMC	**Year 1**	**Years 2-9**	**Total All Years 1-9**
Amplify 6-8 – No Vendor Kits	$ 1,317,846	$ -	**$ 1,317,846**
In-House PD	$ 141,490	$ 295,841	**$ 437,331**
1.0 FTE Curriculum Specialist	$ -	$ 128,526	**$ 128,526**
SMC Kits	$ -	$ 239,673	**$ 239,673**
SMC Facilities/Transportation	$ -	$ -	**$ -**
SMC Staffing Costs	$ -	$ -	**$ -**
Total – Option B	**$ 1,459,336**	**$ 664,041**	**$ 2,123,376**

The fiscal impact to this action can be broken down to following costs:

1. $1,317,846 – 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. $185,983 – Purchase of Refill Kits from Amplify Education, Inc. to support the replenishment of consumable science materials for each classroom over the nine-year period, at an estimated cost of $26,569 per year, for years three through nine of the contract.

3. $437,331 – In-house professional development and collaboration.

4. $128,526 – 1.0 FTE Science Curriculum Specialist to implement the Adoption.

The revenue source for Middle School science costs is 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 and participate in the process, including:

- Apply to serve on the Adoption Committee
- Submit 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
- Review the instructional materials for the three finalist candidates online or in person at one of the five public display locations across the district and submit a Community Input Form with their feedback
- Attend an open house Science Adoption information session to review instructional materials and ask questions of Science Dept. staff and the Adoption Committee
- Follow the outcomes of all Adoption Committee meetings on the SPS Science Adoption webpages through publication of meeting notes
- Updates and announcements via SPS Communications on the SPS website and via emails to SPS families and staff
- 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 SPS website and SPS social media, a robust website presence providing links to online versions of the finalists candidate materials, communications to SPS middle school principals and middle school science teachers, and family letters and curriculum night/open house announcements. The Science Department also provided community engagement touch-points to reach stakeholders including speaking engagements with community organizations, such as the South Seattle Education Coalition, and hosting two full-day open house information 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 and 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

All stakeholders were provided with an opportunity to participate collaboratively during the adoption process through the following pathways:

- Serve as a member of the adoption committee as a teacher, administrator, or community member in the review, evaluation, data collection, analysis, and decision-making to select a final candidate for recommendation for adoption to the board
- Review the three candidate vendor programs online, at an open house event, or at the public display locations and offer feedback data about the materials using the Community Input Form, which was considered by the adoption committee members in their evaluation and scoring of the adoption candidate finalists and used as evidence in the selection process
- All middle school science teachers were invited to participate in the teacher field test of one of the finalist candidate programs to provide data in the form report at outcomes and feedback for the adoption committee to use as evidence in the selection process
- Students participating in the field test participated in student focus group interviews to provide data to the committee about their experience with the field test unit, which was used as evidence to support the selection of a finalist candidate for recommendation for adoption to the board

7. EQUITY ANALYSIS

"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*)*

Prior to beginning the Middle School Science Adoption process, a Racial Equity Analysis of the adoption process and expected outcomes was completed by the Adoption Coordinator and the SPS Science Department and reviewed and approved by the Instructional Materials Committee to ensure the promotion of racial equity as a result of this initiative. (See Attachment K). The Science Department 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 evaluated materials using a racial equity lens.

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 middle school science adoption in Seattle Public Schools was in 2001-2002. 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 high-school level science courses, as evidenced by the achievement gaps in SPS between white students and students of color reported for grade 8.

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 middle school 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 2020 will be the first for whom passing the new statewide science assessment, the WCAS, will be a requirement.

By increasing access to quality science instructional materials and instruction for all students to science, particularly students of color, English language learners, and students with special needs to science, Seattle Public Schools will be able to successfully prepare ALL students for STEM fields.

In order to help ameliorate the gender, racial, cultural, religious, and/or sexual orientation bias frequently experienced by students, all materials 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 Screening 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. <u>STUDENT BENEFIT</u>

Based on all the evidence gathered during the course of the12-month adoption process, the Adoption Committee's recommendation to adopt the Amplify instructional materials for all middle school science classrooms in Seattle Public Schools 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 page 8 of this BAR details the benefit to student learning and student engagement provided by the Amplify Science Program. A summary of these benefits are outlined below.

- **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 sequence and will be held to common expectations for learning outcomes for the first time in the history if Seattle Public Schools. Having common science instructional materials and assessments in all grades 6-8 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 *Board Policy #0030 - Ensuring Racial and Educational Equity* that 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.

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 this policy.

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 6th, 7th, and 8th 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 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 Science* 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 middle 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 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 6-8.

- July-August 2019: Amplify will work with the SPS Science Department and Department of Technology to establish systems for creating teacher and student online accounts and responding to ongoing needs for technical support.

- August 2019: All SPS science teachers who teach grades 6-8 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.

- 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: Science teachers in grades 6-8 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 middle school science teachers and ongoing supplemental professional development for all middle school science teachers to continue to maximize the science teaching and learning using Amplify in grades 6-8 in SPS. Continue to implement a robust data collection plan that includes the collection and analysis of student growth data and teacher/student/community input and feedback.

13. ATTACHMENTS

- Attachment A: Final Candidate Vendor Proposal (Partial report, full report available upon request)
- Attachment B: Middle School Science Adoption Communications Plan
- Attachment C: Middle School Science Adoption Community Engagement Plan
- Attachment D: Middle School Science Adoption Committee Membership
- Attachment E: Middle School Science Adoption Instructional Materials Review Criteria
- Attachment F: Middle School 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
- 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 of Feedback & Data Collected
- Attachment K: Racial Equity Analysis Tool
- Attachment L: ADA/Consent Decree Compliance Ratings

- Attachment M: SPS Research & Evaluation Teacher Adoption Survey, February 2019
- Attachment N: EdReports.org MS Science Instructional Materials Review, 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

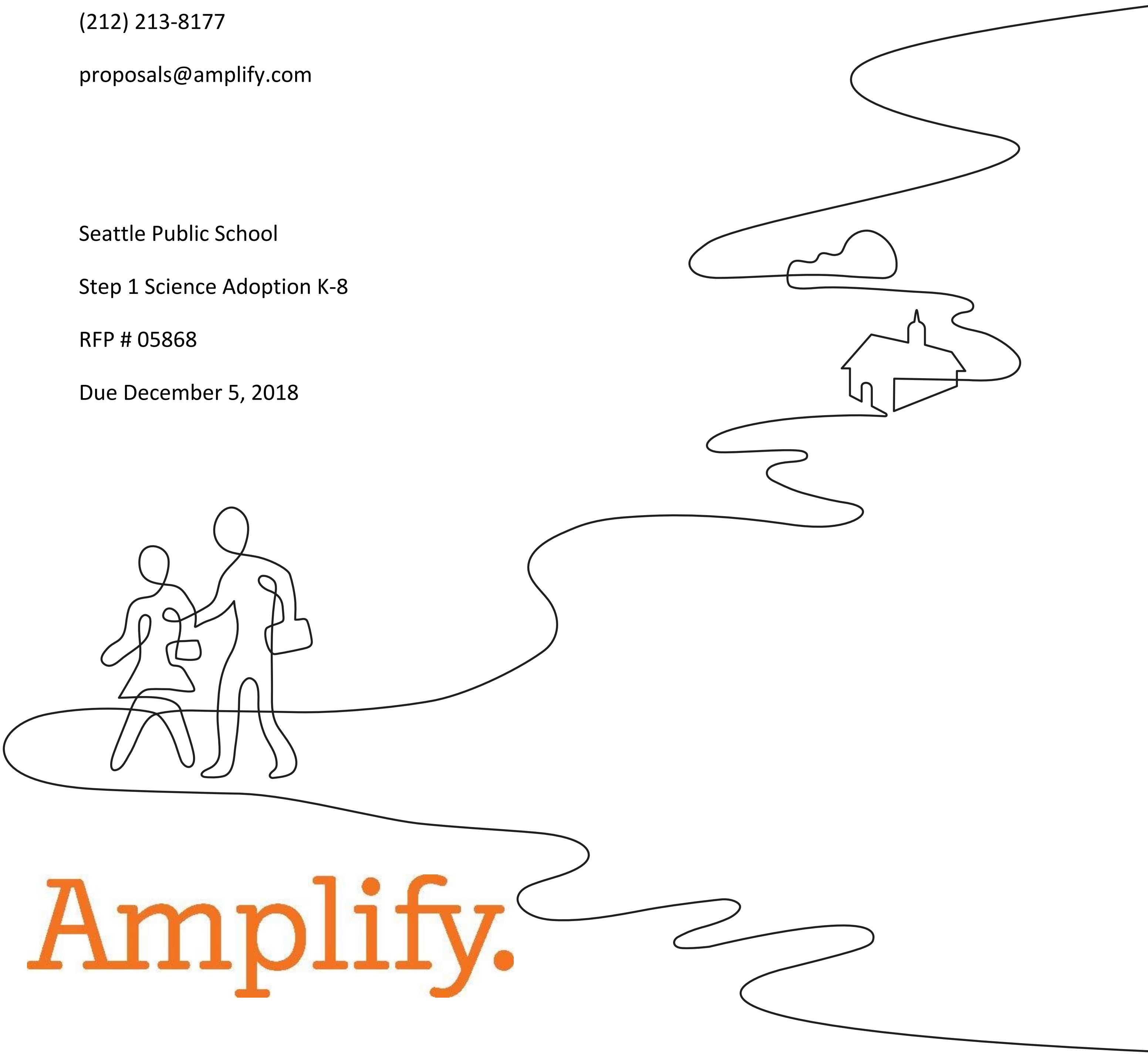
proposals@amplify.com

Seattle Public School

Step 1 Science Adoption K-8

RFP # 05868

Due December 5, 2018



Amplify.

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.

Amplify.

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.

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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

- **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.

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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**

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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**
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**
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**

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**

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
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**

QUANTITY	TITLE	DETAIL	PRICE PER STUDENT OR TEACHER	EXTENDED PRICING
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**

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**
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**
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**

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.

Amplify.

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.

Amplify.

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.

Amplify.

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.

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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.

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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

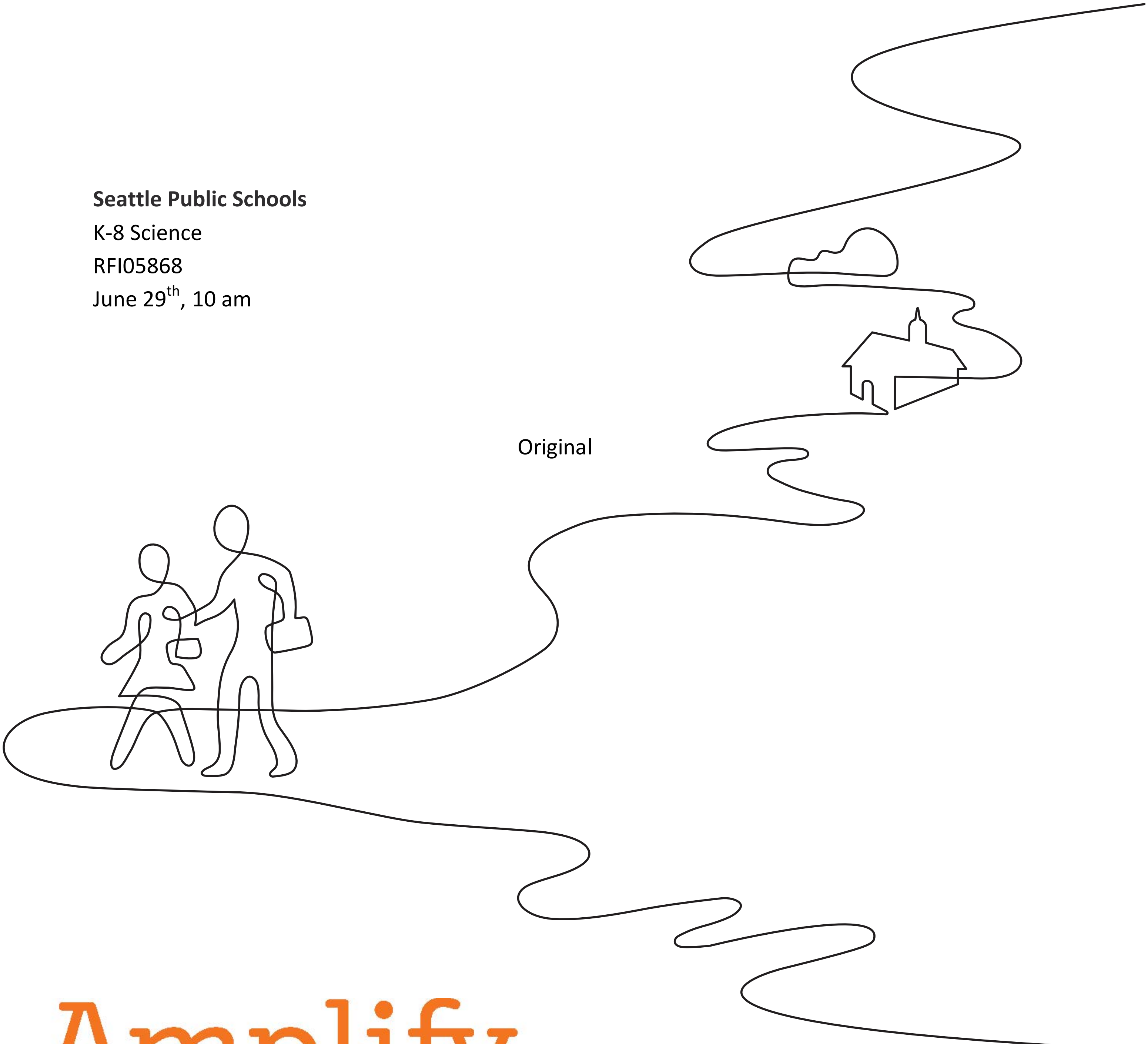

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Table of Contents

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:

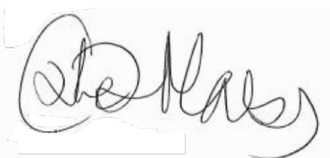
- **Authorship:** Amplify Science was authored by the industry-leading science curriculum team at UC Berkeley's Lawrence Hall of Science, who have more than 40 years of experience in K-12 science education, and who will continue to enhance and update the program for years to come.
- **Next Generation 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:

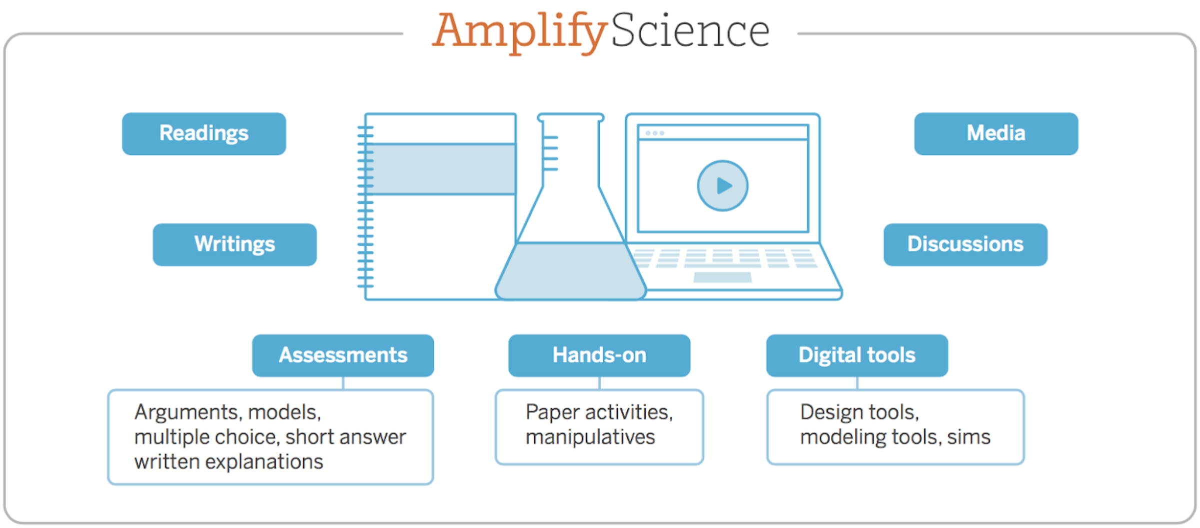
- **Emphasis on coherence.** Each Amplify Science unit is designed around a unit-specific learning progression (called a Progress Build) that describes the increasingly complex explanations of the unit's anchoring scientific phenomena that students should be able to make over the course of the unit. 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.

Amplify.

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 RESPONSE - Submitted 6/29/18

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 RESPONSE - Submitted 6/29/18

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

RFI RESPONSE - Submitted 6/29/18

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.

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)

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
6-8 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 at John Stanford Ctr		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		
Field Test Teachers Implement Candidate Programs in Schools			X	X		
Instructional Materials Public Display in 5 SPS locations and Community Input *(translations of forms available)*		X			X	
Student Field Test participants submit student attribute surveys in reflection of their field test experience with the finalist candidate program in collaboration with Adoption Committee's evidence collection and decision-making						
Community members review displayed instructional materials and submit Community Input Forms in collaboration with			X			X

Adoption Committee's evidence collection and decision-making						
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
6-8 Science Adoption Committee Membership Roster
Staff Membership

Name	**Title**	**School**	**Years in Education**	**Children attending SPS**
Jolene Anderson	Asst. Principal	Eckstein MS	21	
Megan Batty	Teacher (7th)	Hamilton MS	2	
Bruce Bishop	Teacher (8th)	McClure MS	20	
Matthew Brewer	Teacher (7th)	Washington MS	13	
Marni Campbell	Principal	Robert Eagle Staff MS		
Chris Carter	Principal	Mercer MS	22	
Emily Elasky	Teacher (7th)	Mercer MS	10	
Charles Ellis	Teacher (7th/8th)	Aki Kurose MS	5	
Sara Hoofnagle	Teacher (6th/7th)	Eckstein MS	7	Wedgwood (3rd, 1st)
David Ketter	Teacher (6th – 8th)	Hazel Wolf MS	21	
Katie Koressel	Teacher (8th)	Denny MS	2	
Girard Montejo-Thompson	Teacher (8th)	Denny MS	4	
Anastasia Sanchez	Teacher (8th)	Denny MS	12	
Julia Ward	Teacher (6th)	Jane Addams MS	12	Nathan Hale (10th), Roosevelt (12th)
Karen White	Teacher (6-8)	Robert Eagle Staff MS	12	

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

- 9 identify as female (60.0%)
- 6 identify as male (40.0%)
- 10 identify as White (66.7%)
- 5 identify as non-White (33.3%)
- 5 represent Title I schools (33.3%)
- 5 represent HCC schools (33.3%)
- 3 carry an ELL endorsement (20.0%)
- 0 carry a Special Ed endorsement (0.0%)

Attachment D
6-8 Science Adoption Committee Membership Roster
Community Membership

Name	**Professional Affiliations**	**Children attending SPS**
Kristen Bergsman	PhD Candidate, UW Education	BF Day (K)
Meredith Bush	PhD in Geological Science, MS Science Teacher in Renton School District	
Belinda Chin	Former MS Science Teacher, McClure MS	Roosevelt (12th)
Mark Collins	PhD, Educational Technology in Higher Ed.	Licton Springs (4th)
~~Burhan Farah~~	Parent Coordinator and Interventionist, Denny MS	Chief Sealth (2016)
~~Tamara Field~~	Physics, Chief Sealth High School	
Eric Fisk	Software Engineering, Microsoft	Hamilton (8th), Garfield (12th)
~~Terri Gilbert~~	AAAS, Society for Neuroscience	Garfield (11th)
Aimée Hall	MS Math Teacher, Orca K-8, former science educator	
Casey Johnson	CTE Teacher, Denny MS	Denny (8th)
AJ Katzaroff	PhD Molecular & Cellular Biology	Gatewood (1st, 2nd)
James Lai	UW Bioengineering	Whitman (7th), Whittier (4th)
Dana Nelson	UW Psychology	Nathan Hale (11th)
Brandie Nordstrum	Tutor, Coalition for Refugees from Burma	
Marjorie Olmstead	UW Undergraduate Faculty Advisor for Physics	
Alder Strange	UW Biochemistry Student	
Brad Street	IslandWood	Graham Hill (2nd)

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

- 9 identify as female (60.0%)
  5 identify as male (33.3%)
- 1 identifies as genderqueer (6.7%)
- 11 identify as White (73.3%)
- 4 identify as non-White (26.7%)
- 3 represent Title I schools (20.0%)
- 1 represents HCC schools (6.7%)

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:

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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:

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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:

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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:

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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:**

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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:

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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:

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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:**

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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:

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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:

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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:

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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:

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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:
Middle School 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 middle school 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 a middle 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).

In June of 2018, a middle 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 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
Activate Learning, LLC	IQWST
Amplify Education, Inc.	AmplifyScience
Carolina Biological Supply Company	Smithsonian Science Program
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!

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 (%)**
Activate Learning, LLC	IQWST	**34.2**
Carolina Biological Supply Company	Smithsonian Science Program	**10.3**
Delta Education	FOSS Program	**7.7**
Discovery Education, Inc.	Discovery Science	**9.4**
Houghton Mifflin Harcourt (HMH)	HMH Science Dimensions	**38.0**
McGraw-Hill Education	Inspire Science	**32.6**
Pearson Education, Inc.	Elevate Science	**27.2**

During a review of the eliminated programs, the 6-8 Committee voted to return HMH to consideration.

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	**56.0**
Teachers' Curriculum Institute (TCI)	Bring Science Alive!	**53.5**
Accelerate Learning, Inc.	STEMScopes	**34.4**
Houghton Mifflin Harcourt (HMH)	HMH Science Dimensions	**38.0**

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 Middle School Science Adoption process as finalist candidates:

Company	**Program**	**Review Score (%)**
Amplify Education, Inc.	AmplifyScience	**56.0**
Houghton Mifflin Harcourt (HMH)	HMH Science Dimensions	**38.0**
Teachers' Curriculum Institute (TCI)	Bring Science Alive!	**53.5**

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 science teachers of grades 6-8 were invited to apply to participate in the Middle School Science Adoption field test pending principal approval and demonstration of understanding of the 2013 Washington State Science Learning Standards. Twelve 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 1000 students from 6 SPS middle 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 twelve 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	7	Phase Change	4
HMH Science Dimensions	7	Changes of State	4
TCI Bring Science Alive!	7	States of Matter	4

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)
Denny International Middle School	Amplify – 7th Grade (2)
Eckstein Middle School	Amplify, HMH, TCI – 6th Grade*
Hamilton International Middle School	Amplify – 7th Grade
Jane Addams Middle School	HMH – 7th Grade
Mercer International Middle School	HMH (2), TCI (2) – 7th Grade
Washington Middle School	TCI – 7th Grade

*The Field Test at Eckstein Middle School took place in 6th grade classrooms to align with this school's unique scope and sequence.

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 – 46.7%
- Field Test Data - 42.5%
- Public Display and Open House Community Input Forms – 10.7%

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, 4 were completed for AmplifyScience, 3 for HMH, and 3 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 = 4

Amplify 6 8

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 (6-8)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	2	6	0
2: Assessments (6 criteria)	1	5	0
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?			Very Poorly
What did we not ask that you feel is important in the decision-making process?			
This is a very boring science program. My two children experiencing it now hate science. The "big" questions are either too vague or too easy. It is nearly impossible to extend the lesson for kids who already get it or for kids who are behind. Scrap it, please.			

Vendor:	**Amplify (6-8)**		
	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	3	0
4: Evaluation of Bias Content (7 criteria)	0	7	0
5: Instructional Planning & Support (10 criteria)	9	1	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?			Adequately
What did we not ask that you feel is important in the decision-making process?			
Not enough cultural mirror and specificity, but some support for Spanish ELLs, not much on IEP. Student handbook is very text-heavy, few pictures that allow students cultural mirrors and minimal on cultural specificity. Homework feels thin in terms of supporting new connections to applications or enough support to offer deep answers. Some recommendations assume ELL are less competent than the non-ELL students, unfortunately. ELL students bring more than language skills and teachers not offered support on bringing in cultural assets or support for non-Spanish ELL considerations – which for Seattle presents a big equity problem. Absence of cultural mirrors or cultural specificity in terms of race, gender, queerness is disappointing. I love the content is focused more on applications to real-world, broadly. I feel it's better than HMH. I worry that so little is focused on equitable and culturally rootedness because that's harder to do and makes a huge difference in how students prepare. The heavy emphasis on tech worries me a lot, too – for the non-internship lessons. The unplugged versions sometimes still require a computer – which worries me when not all schools have 1:1 access for every student. Some schools require students share or more laptops physically from room to room to make it work. How do IEP students get accommodated – no details provided.			

Vendor:	Amplify (6-8)		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	8	0	0
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?			N/A
What did we not ask that you feel is important in the decision-making process?			N/A

Vendor:	Amplify (6-8)		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	6	2	0
2: Assessments (6 criteria)	0	0	6
3: Inclusive Educational Practices (6 criteria)	3	1	2
4: Evaluation of Bias Content (7 criteria)	2	5	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?			

I found the 6-8 curriculum better than the K-5 curriculum, in that it included humans and the relationship between scientific phenomena and human well-being, which is so important. That said, I still feel uninspired -- as both a working scientist and mom of curious kids -- about the relative lack in breadth of the material in the Amplify curriculum relative to the others. Maybe it's just my own bias as a human and scientist - I view myself as a dot connector and integrator, rather than a person focused on the nitty gritty, which I'll admit can be super important. However, for educating people who won't all be scientists,

I'm not sure that the choices Amplify has made about focusing on a limited range of topics and diving deeper is the most engaging/effective approach to educating kids about science. I'll readily tell you that I have no background in pedagogy or deep familiarity with NGSS (although from my own work with the Seattle Aquarium, as a featured scientist in one of their middle school education modules, I did develop a fair bit of familiarity with its structure), so it's possible I'm missing the forest for the trees. But my gut tells me that, while Amplify may tick the most boxes with respect to NGSS alignment (per this study: https://www.edreports.org.compare/), it is not the right curriculum for the Seattle school district, with the absolutely great social justice criteria for this curriculum decision process. I do appreciate Amplify being the least material-intensive option. Two things that particularly bugged me about the Amplify curriculum:

1) Depends on having enough and fast enough computers for all students - as a mom at a very diverse largely English language learners K-5 school, which feeds to a middle school with similar demographics, I wonder if this is realistic. While I don't have a feel for the 6-8 graders at Washington Middle School yet personally, if there are the same number of ELL students there, the language level may be too technical.

2) The organization of the samples we evaluated was a bit hodge podge. Perhaps teachers get better guidance on how it all ties together so the student experience would be better, but I found it disjointed.

Also (3) - the only "internships" I saw were for engineering, rather than science. Why?!

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 = 3

HMH 6 8

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 (6-8)		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	5	3	0
2: Assessments (6 criteria)	2	0	4
3: Inclusive Educational Practices (6 criteria)	4	0	2
4: Evaluation of Bias Content (7 criteria)	0	0	7
5: Instructional Planning & Support (10 criteria)	5	0	5
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?			N/A
What did we not ask that you feel is important in the decision-making process?			N/A

Vendor:	HMH (6-8)		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	8	0	0
2: Assessments (6 criteria)	0	0	6
3: Inclusive Educational Practices (6 criteria)	5	1	0
4: Evaluation of Bias Content (7 criteria)	3	4	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?			

As for the K-5 curricula, this was hands-down my favorite curriculum after the in-person viewing I attended at Nathan Hale HS. While it doesn't do as well as the TCI curriculum in reflecting real-world diversity (voices in lessons are male and sound white, except where a female voice reads text, but "she" sounds like a computer voice, and is not to be confused with representing a scientist in the narrative).

So HMH can/should be encouraged to do better on diversity next time! For this selection process, I think the HMH curriculum is significantly better than the alternatives. I say this because there seems to be a good balance of reading, writing, drawing, and hand-on material, as well as the best diversity of online activities.

I am pretty certain, though it was a while ago, that the HMH books had the historical figures who were NOT just white men in boxes throughout the books, which was very cool and perhaps makes up to some extent for the lack of diversity online. Both the HMH and TCI curricula were worlds more exciting than whatever I had growing up, and reflected real-world, current problems and information, but the HMH to my mind delivered it in a much more engaging way. As a scientist who is so fortunate to have her dream job, I will say that I really appreciate HMH including the message that science is fun!

I also found this curriculum to be the best organized.

Vendor:	**HMH (6-8)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	4	4	0
2: Assessments (6 criteria)	3	3	0
3: Inclusive Educational Practices (6 criteria)	0	6	0
4: Evaluation of Bias Content (7 criteria)	0	7	0
5: Instructional Planning & Support (10 criteria)	6	4	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 Poorly
What did we not ask that you feel is important in the decision-making process?			

The tech component was unavailable for the review, even though other modules were for HMH.

I would be severely disappointed if my children's schools used these materials.

- Few or absent cultural mirrors for my POC, queer, trans youth
- Sequencing issues in storylines
- Few details to support what details drawing exercises important to include.
- ELL support focuses just on vocabulary and does not include cultural anchors or examples outside of Eurocentric scientists and backgrounds

I think this curriculum would probably allow teachers to prepare okay for general science adoption, but not for engaging kids in authentic and equitable exploration of science.

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 = 3

TCI 6 8

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 (6-8)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	4	0	4
2: Assessments (6 criteria)	0	0	6
3: Inclusive Educational Practices (6 criteria)	4	0	2
4: Evaluation of Bias Content (7 criteria)	3	2	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?			
I think the TCI 6-8 curriculum may be better than the K-5 TCI curriculum, in all respects, but I still prefer the HMH one for the simple reason that between the two, TCI seems to operate more on the read-and-regurgitate level than HMH. It IS better on diversity representation, however, than the HMH curriculum, as is the K-5 TCI curriculum.			

Vendor:	**TCI (6-8)**		
	Yes	**No**	**Blank**
1: Standards Alignment (8 criteria)	8	0	0
2: Assessments (6 criteria)	3	0	3
3: Inclusive Educational Practices (6 criteria)	1	0	5
4: Evaluation of Bias Content (7 criteria)	6	0	1
5: Instructional Planning & Support (10 criteria)	9	1	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?			
The games and activities look well-designed to teach concepts in a fun way. We liked the relevance and concreteness of the lesson context.			

Vendor:	TCI (6-8)		
	Yes	No	Blank
1: Standards Alignment (8 criteria)	8	0	0
2: Assessments (6 criteria)	6	0	0
3: Inclusive Educational Practices (6 criteria)	4	2	0
4: Evaluation of Bias Content (7 criteria)	4	3	0
5: Instructional Planning & Support (10 criteria)	5	5	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?			Well
What did we not ask that you feel is important in the decision-making process?			
Needs more equitable focus but this is best of pack for producing cultural mirrors, showing values and connections of ELLs besides language and of showing POC as active participants. The science felt oversimplified in multiple instances and I'd have loved more applications that resonate either with current Seattle experiences or future-focused applications (like solving contemporary problems). I do appreciate how little requires each student have at-home access to internet and computers as well as not requiring each student have in-class computers. I worry that each teacher needs computer access – though and there's no backup plan if tech fails (as it often does) or is unavailable. Best of 3 for this grade.			

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 <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?	
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
6-8 Science Adoption
Field Test Schools & Teachers

Vendor: AmplifyScience

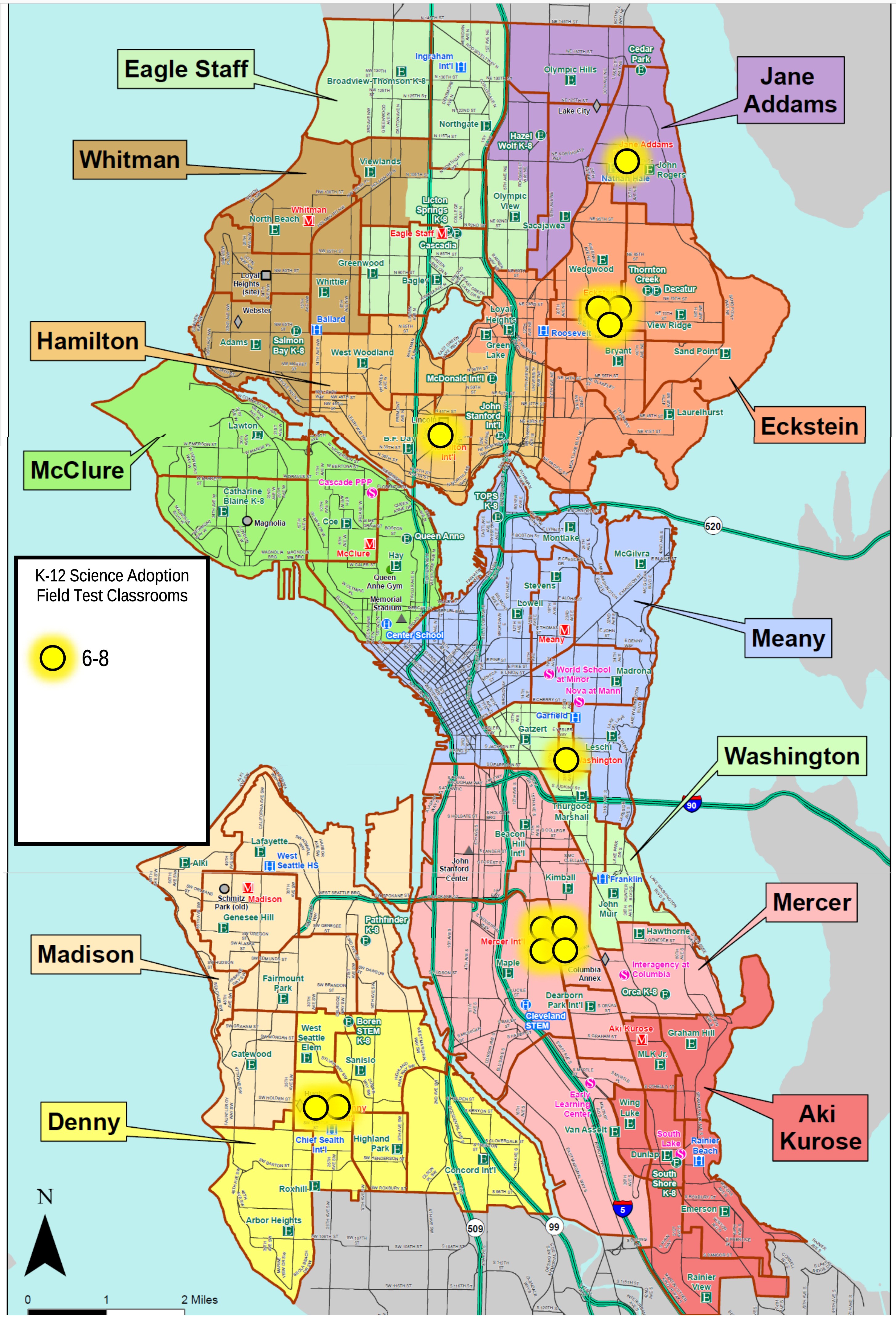
School	Demographics	Grade	# of Students
Denny MS	21%white 69%low income 19%EL	7	137
Denny MS	21%white 69%low income 19%EL	7	137
Eckstein MS	68%white 12%low income 2.4%EL	6	90
Hamilton MS	71%white 9%low income 1.4%EL	7	120

Vendor: HMH

School	Demographics	Grade	# of Students
Eckstein MS	68%white 12%low income 2.4%EL	6	157
Jane Addams MS	56.5%white 24%low income 7.3%EL	7	60
Mercer MS	13%white 60%low income 17%EL	7	115
Mercer MS	13%white 60%low income 17%EL	7	65

Vendor: TCI

School	Demographics	Grade	# of Students
Eckstein MS	68%white 12%low income 2.4%EL	6	125
Mercer MS	13%white 60%low income 17%EL	7	70
Mercer MS	13%white 60%low income 17%EL	7	110
Washington MS	39%white 36.3%low income 9.5%EL	7	96



Eagle Staff
Jane Addams
Whitman
Hamilton
Eckstein
McClure
Meany
Washington
Mercer
Madison
Denny
Aki Kurose
K-12 Science Adoption
Field Test Classrooms
6-8
N
0
1
2 Miles
Ingraham Int'l
Broadview-Thomson K-8
Olympic Hills
Cedar Park
Lake City
Northgate
Hazel Wolf K-8
Jane Addams
John Rogers
Nathan Hale
Viewlands
Licton Springs K-8
Olympic View
Sacajawea
Whitman
North Beach
Eagle Staff
Cascadia
Greenwood
Loyal Heights (site)
Whittier
Bagley
Wedgwood
Thornton Creek
Decatur
Webster
Ballard
Loyal Heights
Eckstein
Adams
Salmon Bay K-8
Roosevelt
View Ridge
West Woodland
Green Lake
Bryant
Sand Point
McDonald Int'l
Lawton
John Stanford Int'l
Laurelhurst
Lincoln
B.F. Day
Hamilton Int'l
Cascade PPP
Catharine Blaine K-8
TOPS K-8
Magnolia
Coe
Queen Anne
Montlake
McClure
Hay
McGilvra
Queen Anne Gym
Stevens
Memorial Stadium
Lowell
Center School
Meany
World School at Minor
Madrona
Nova at Mann
Garfield
Gatzert
Leschi
Washington
Thurgood Marshall
Beacon Hill Int'l
Lafayette
West Seattle HS
Alki
John Stanford Center
Kimball
Franklin
Madison
Schmitz Park (old)
Genesee Hill
John Muir
Pathfinder K-8
Hawthorne
Mercer Int'l
Interagency at Columbia
Maple
Columbia Annex
Fairmount Park
Orca K-8
Dearborn Park Int'l
Cleveland STEM
Boren STEM K-8
West Seattle Elem
Aki Kurose
Graham Hill
Gatewood
Sanislo
MLK Jr.
Early Learning Center
Wing Luke
Chief Sealth Int'l
Highland Park
Van Asselt
South Lake
Rainier Beach
Dunlap
Concord Int'l
South Shore K-8
Roxhill
Emerson
Arbor Heights
Rainier View
520
90
5
509
99

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	63.0
Team B	71.0
Team C	94.0
Team D	42.5
Team E	58.4
Team F	50.0
Team G	42.5
Average	**60.2**

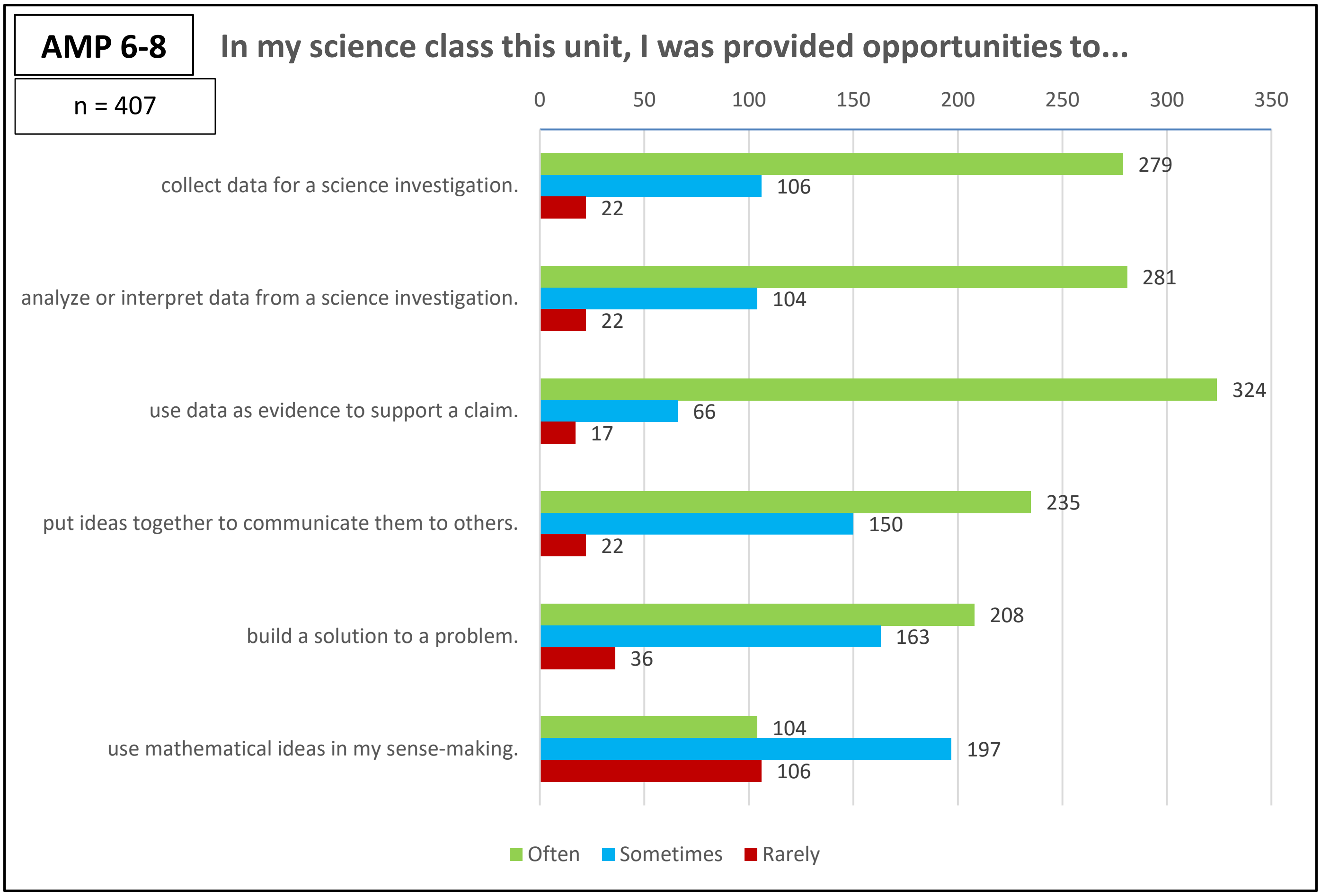
Results: HMH Field Test

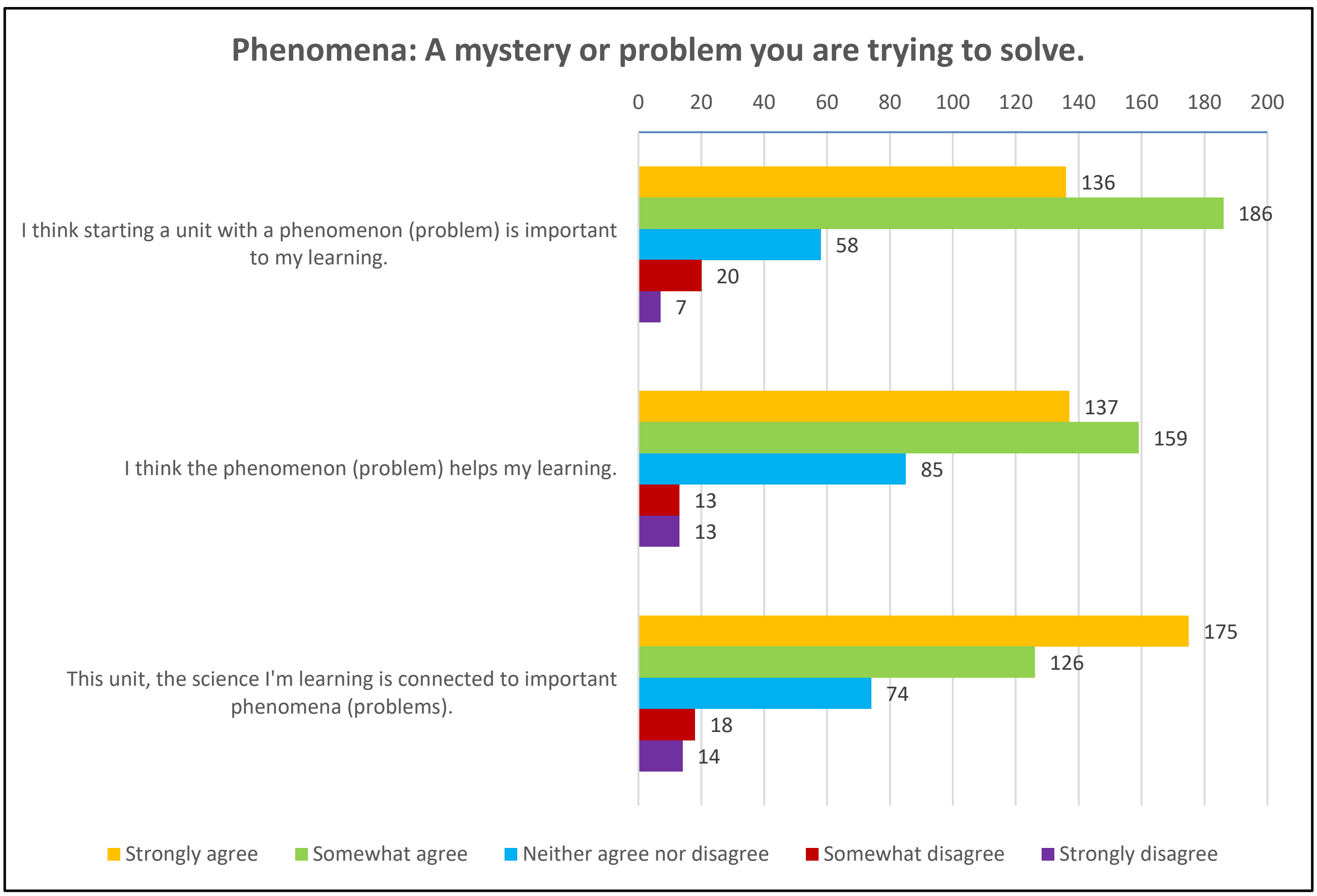
Team	**Consensus Score**
Team A	24.0
Team B	22.0
Team C	15.5
Team D	42.5
Team E	20.0
Team F	30.3
Team G	34.0
Average	**26.9**

Results: TCI Field Test

Team	**Consensus Score**
Team A	27.0
Team B	40.0
Team C	30.5
Team D	42.5
Team E	27.4
Team F	27.4
Team G	42.5
Average	**33.9**

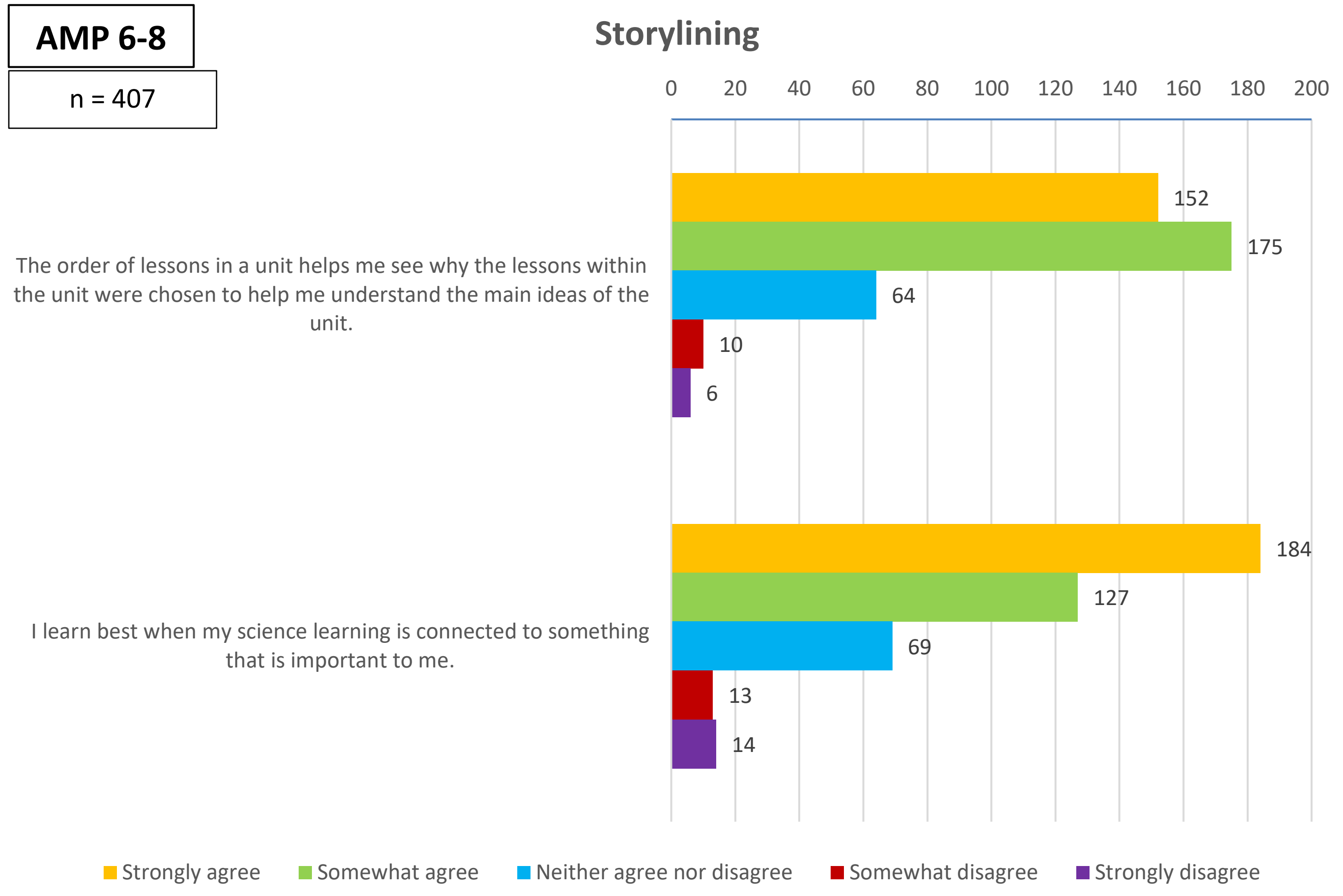
Attachment I.2: Student Post-Unit Attribute Survey



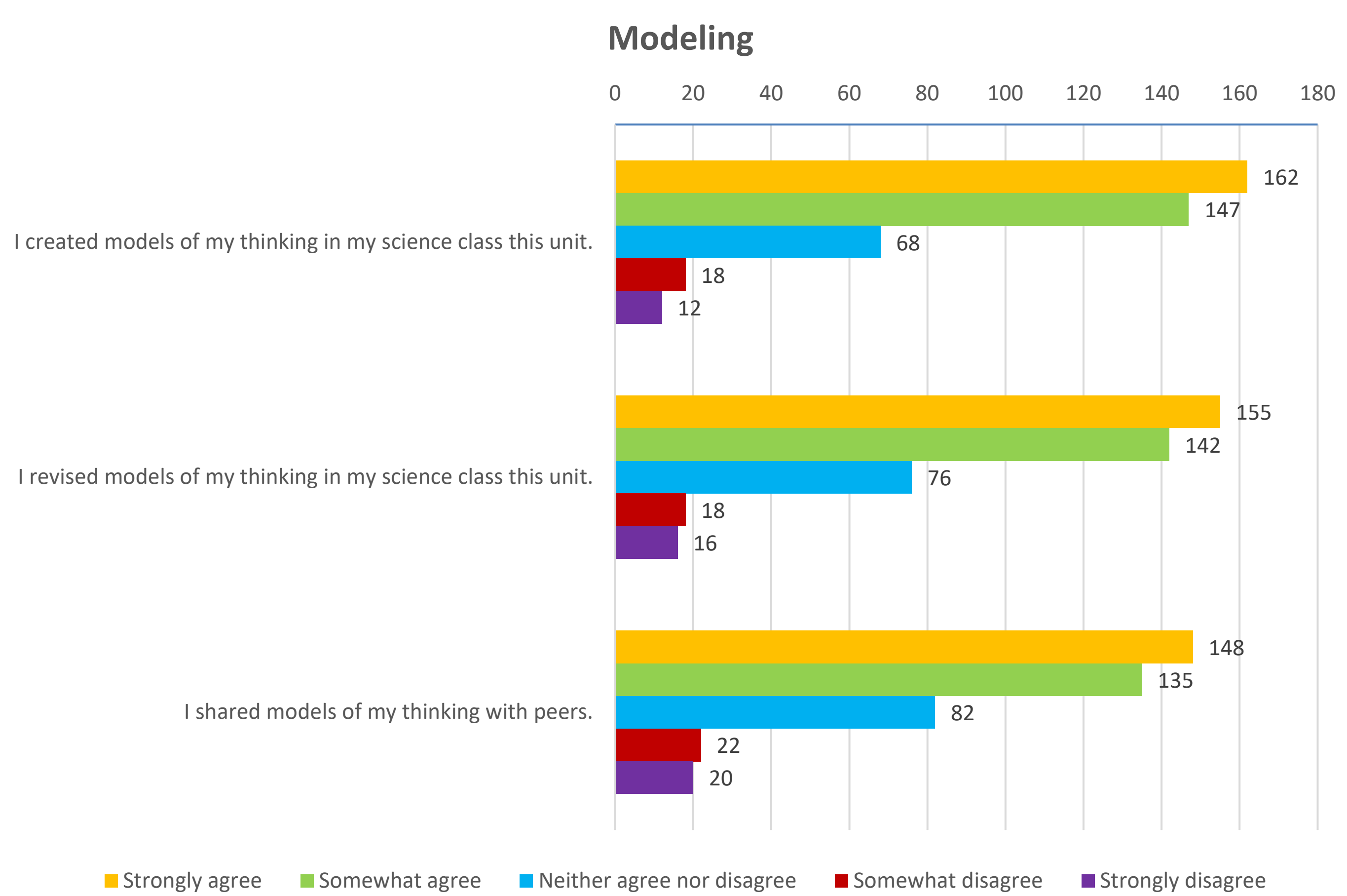


AMP 6-8

n = 407



Storylining
0
20
40
60
80
100
120
140
160
180
200
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.
152
175
64
10
6
I learn best when my science learning is connected to something that is important to me.
184
127
69
13
14
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

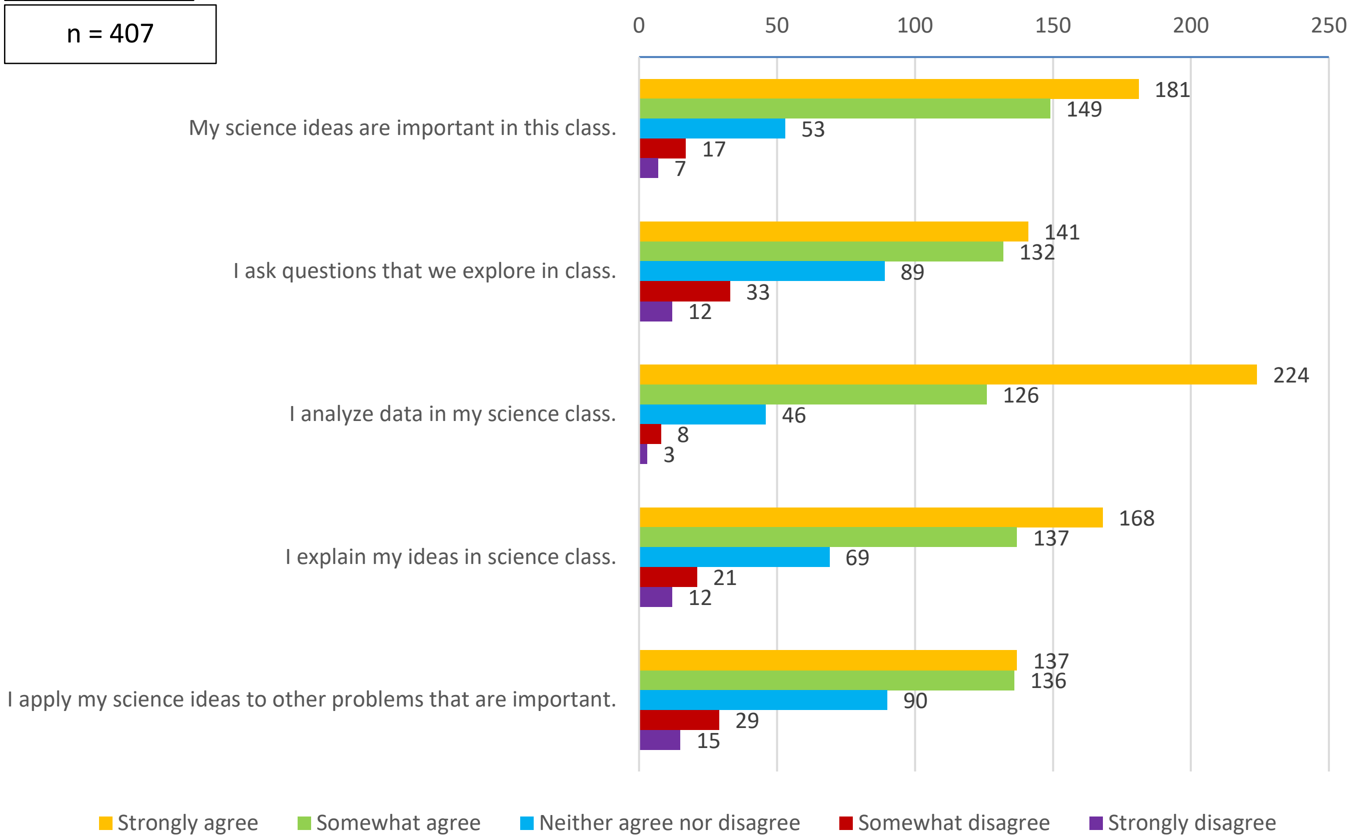


Modeling
0
20
40
60
80
100
120
140
160
180
I created models of my thinking in my science class this unit.
162
147
68
18
12
I revised models of my thinking in my science class this unit.
155
142
76
18
16
I shared models of my thinking with peers.
148
135
82
22
20
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

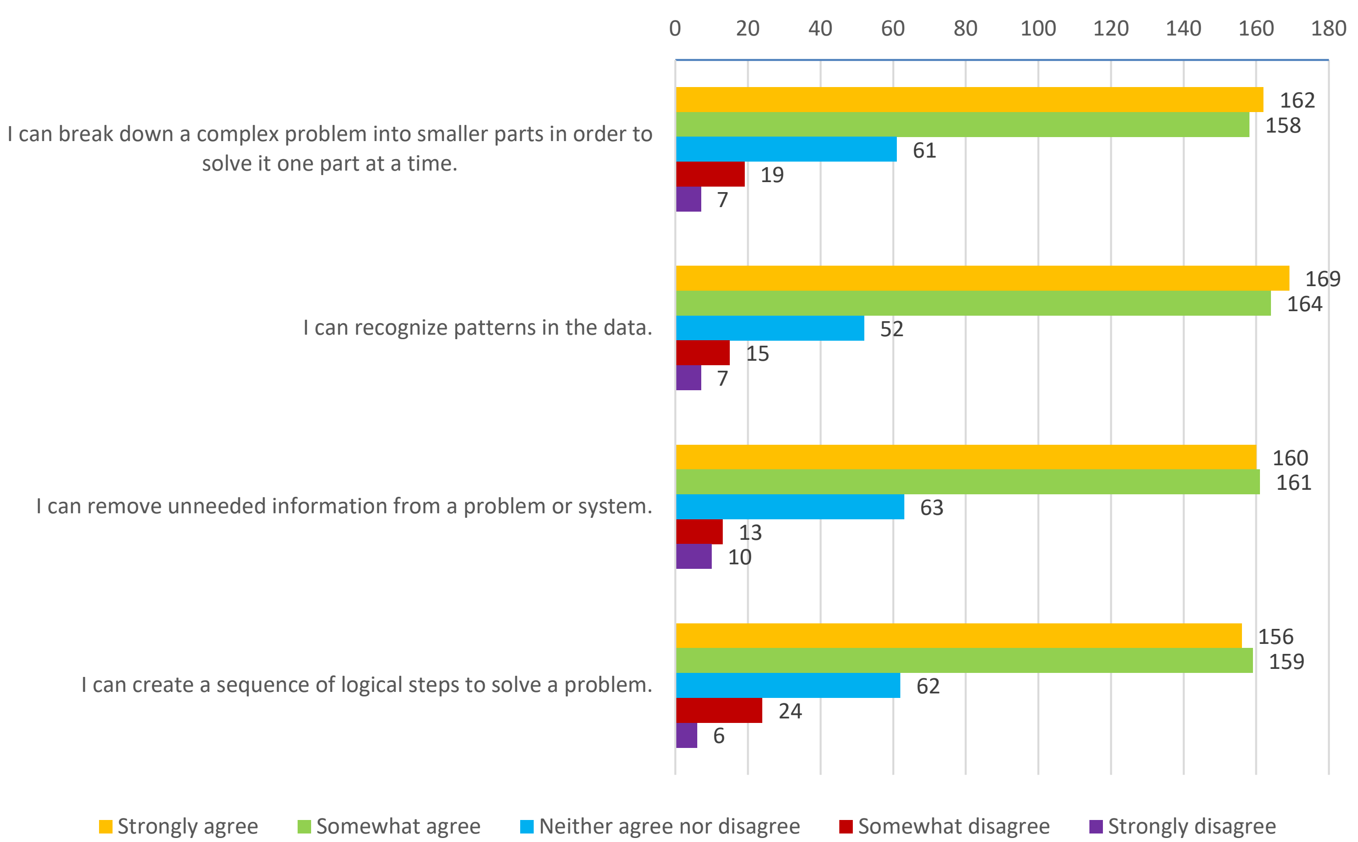
AMP 6-8

n = 407

Science Ideas & Doing Science

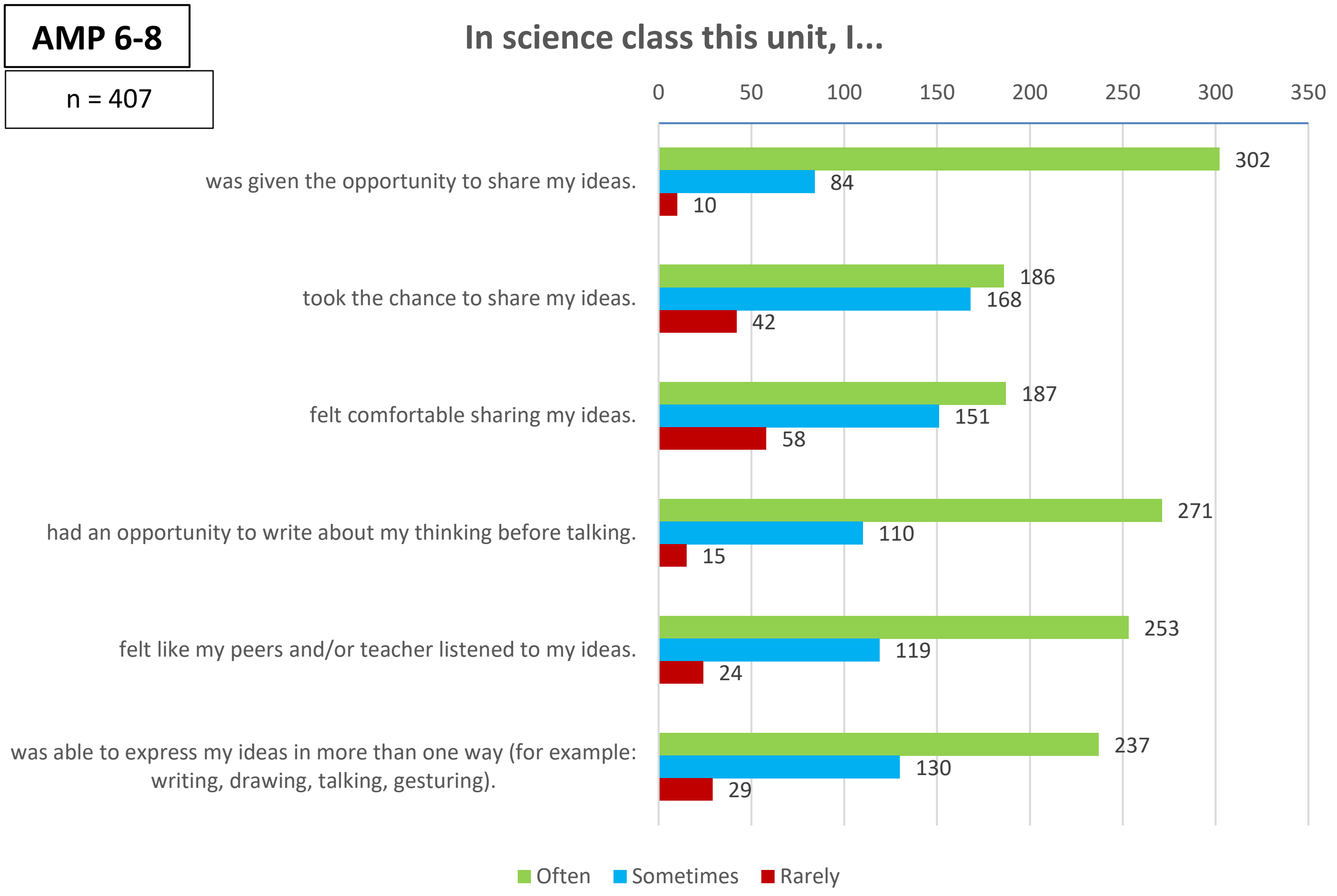


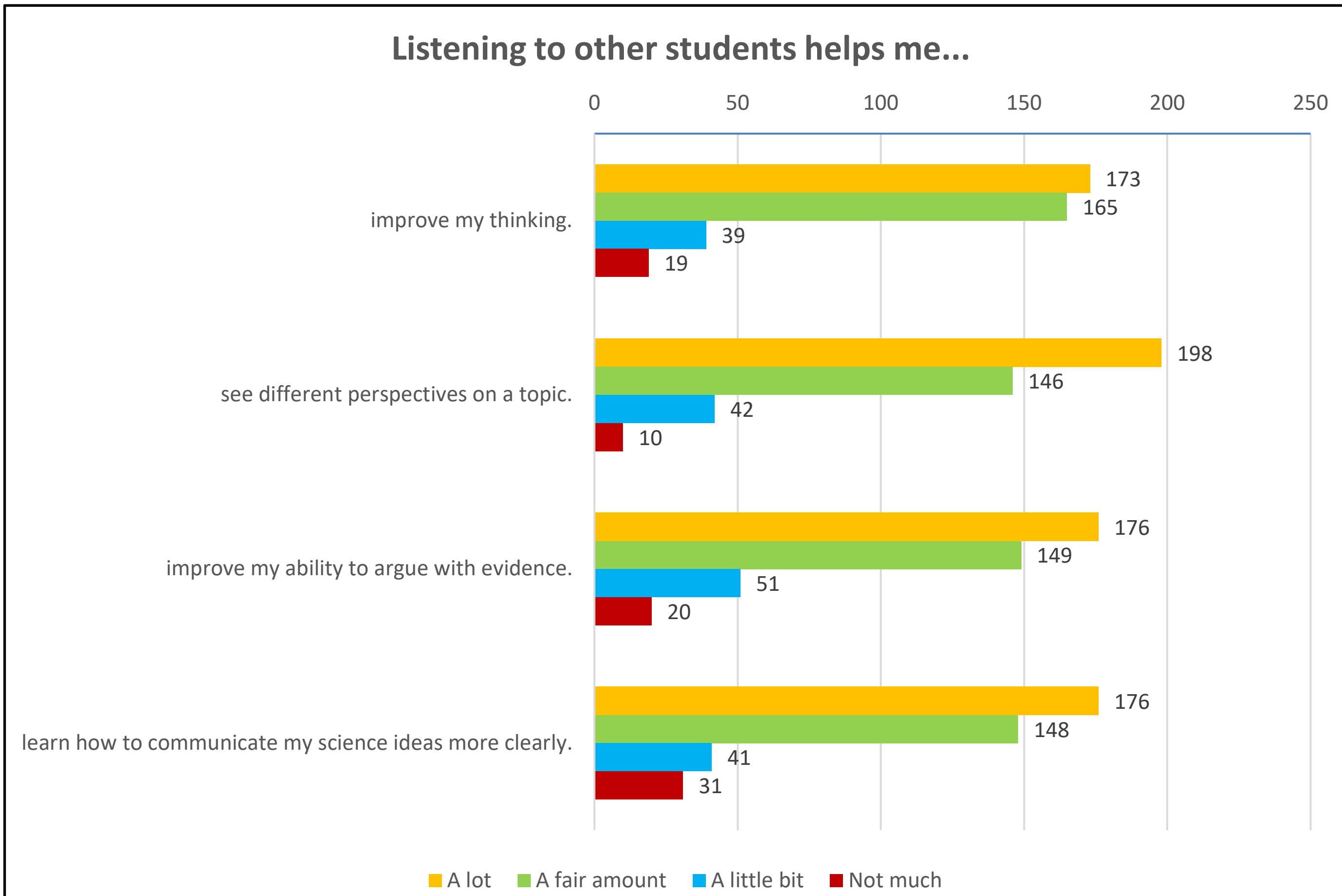
Computational Thinking

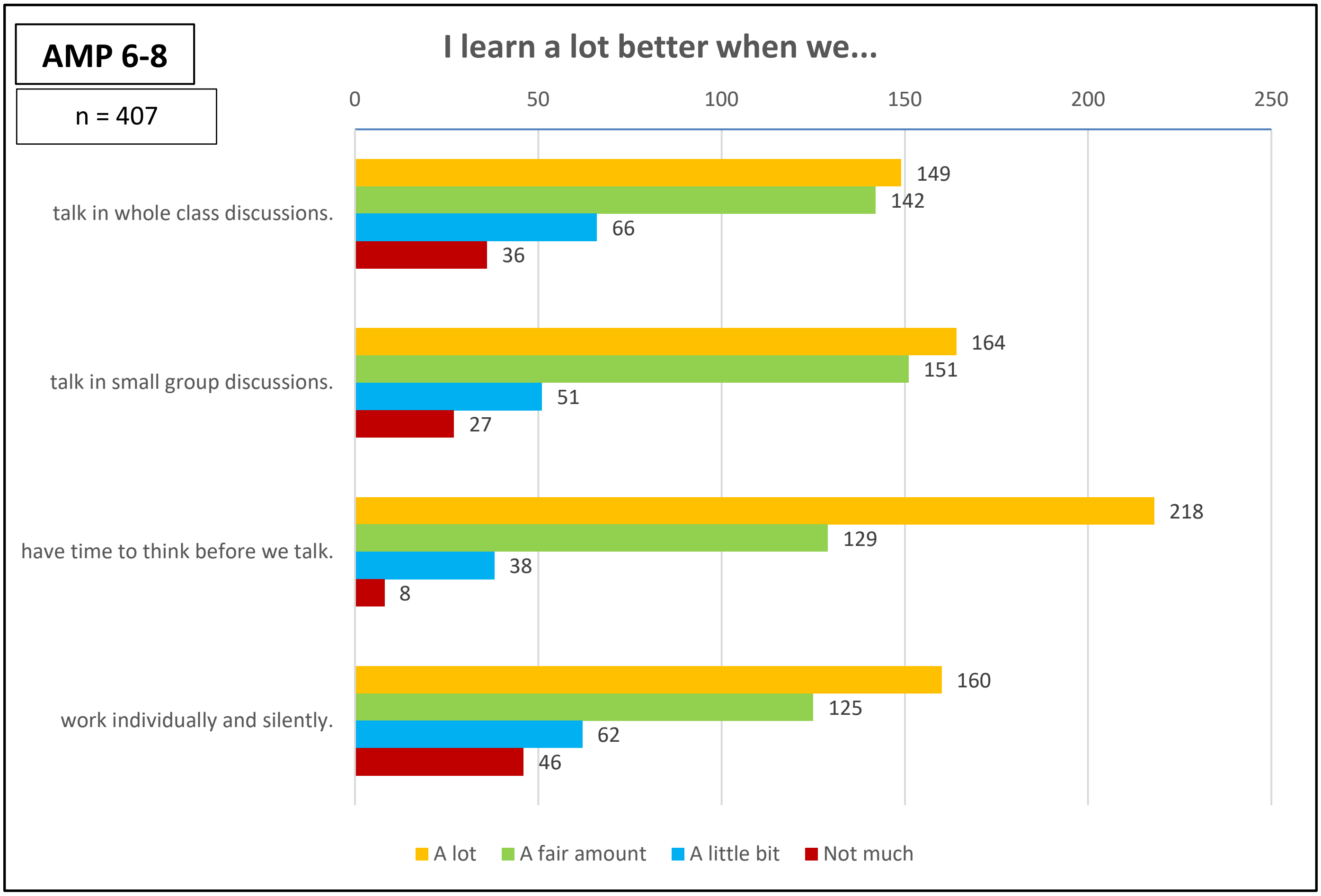


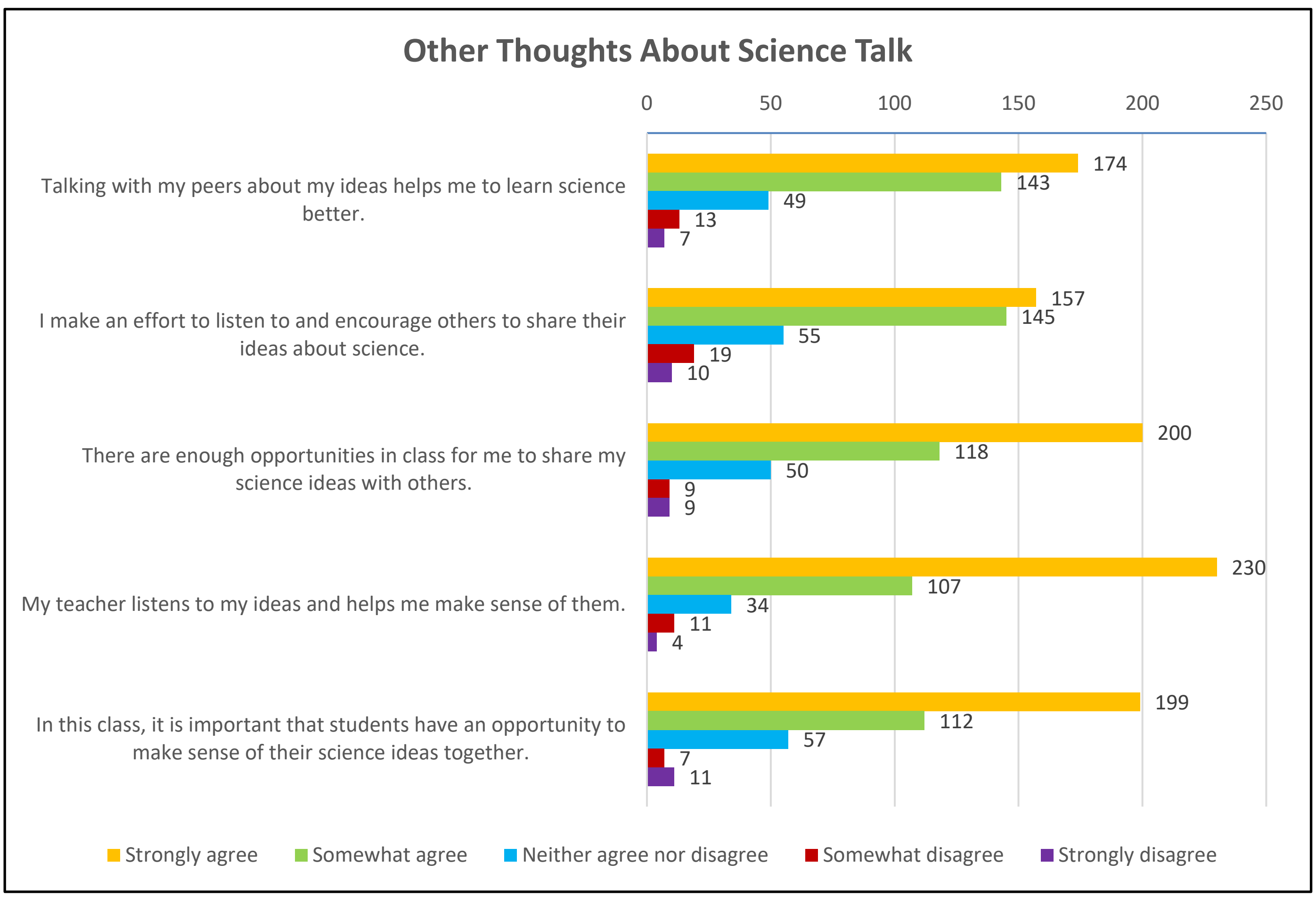
AMP 6-8

n = 407


In science class this unit, I...
0 50 100 150 200 250 300 350
was given the opportunity to share my ideas.
302
84
10
took the chance to share my ideas.
186
168
42
felt comfortable sharing my ideas.
187
151
58
had an opportunity to write about my thinking before talking.
271
110
15
felt like my peers and/or teacher listened to my ideas.
253
119
24
was able to express my ideas in more than one way (for example: writing, drawing, talking, gesturing).
237
130
29
Often
Sometimes
Rarely

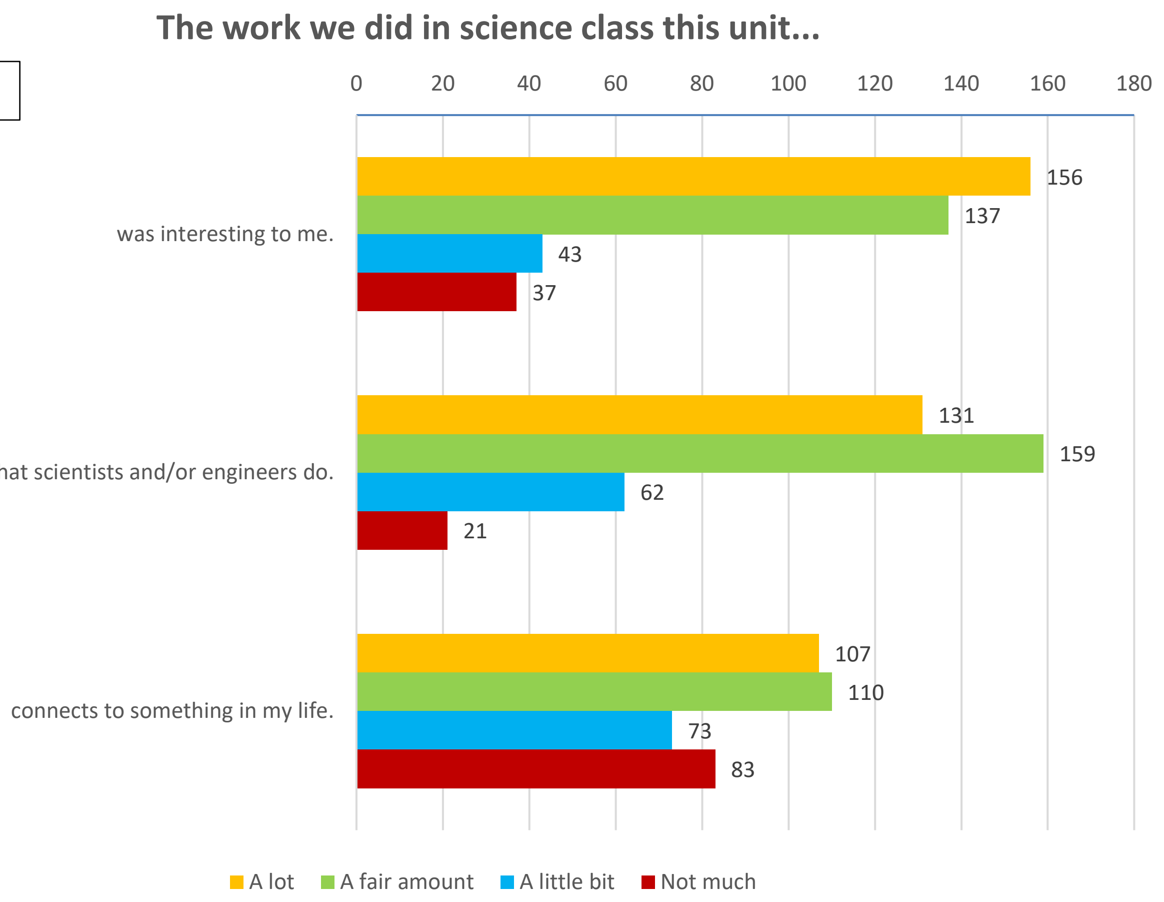

Listening to other students helps me...
0 50 100 150 200 250
improve my thinking.
173
165
39
19
see different perspectives on a topic.
198
146
42
10
improve my ability to argue with evidence.
176
149
51
20
learn how to communicate my science ideas more clearly.
176
148
41
31
A lot
A fair amount
A little bit
Not much

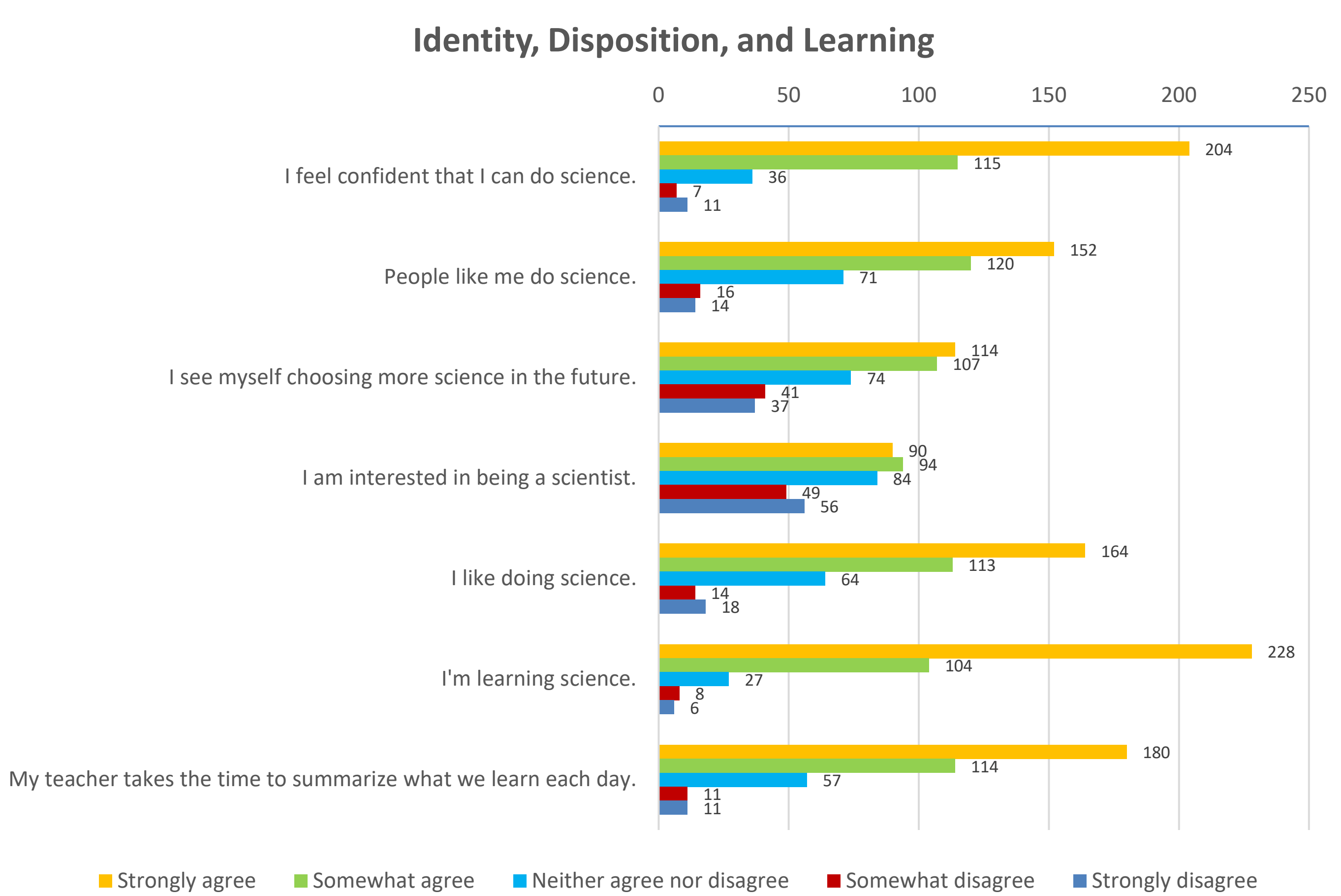

AMP 6-8
n = 407
I learn a lot better when we...
0
50
100
150
200
250
talk in whole class discussions.
149
142
66
36
talk in small group discussions.
164
151
51
27
have time to think before we talk.
218
129
38
8
work individually and silently.
160
125
62
46
A lot
A fair amount
A little bit
Not much


Other Thoughts About Science Talk
0
50
100
150
200
250
Talking with my peers about my ideas helps me to learn science better.
174
143
49
13
7
I make an effort to listen to and encourage others to share their ideas about science.
157
145
55
19
10
There are enough opportunities in class for me to share my science ideas with others.
200
118
50
9
9
My teacher listens to my ideas and helps me make sense of them.
230
107
34
11
4
In this class, it is important that students have an opportunity to make sense of their science ideas together.
199
112
57
7
11
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

AMP 6-8

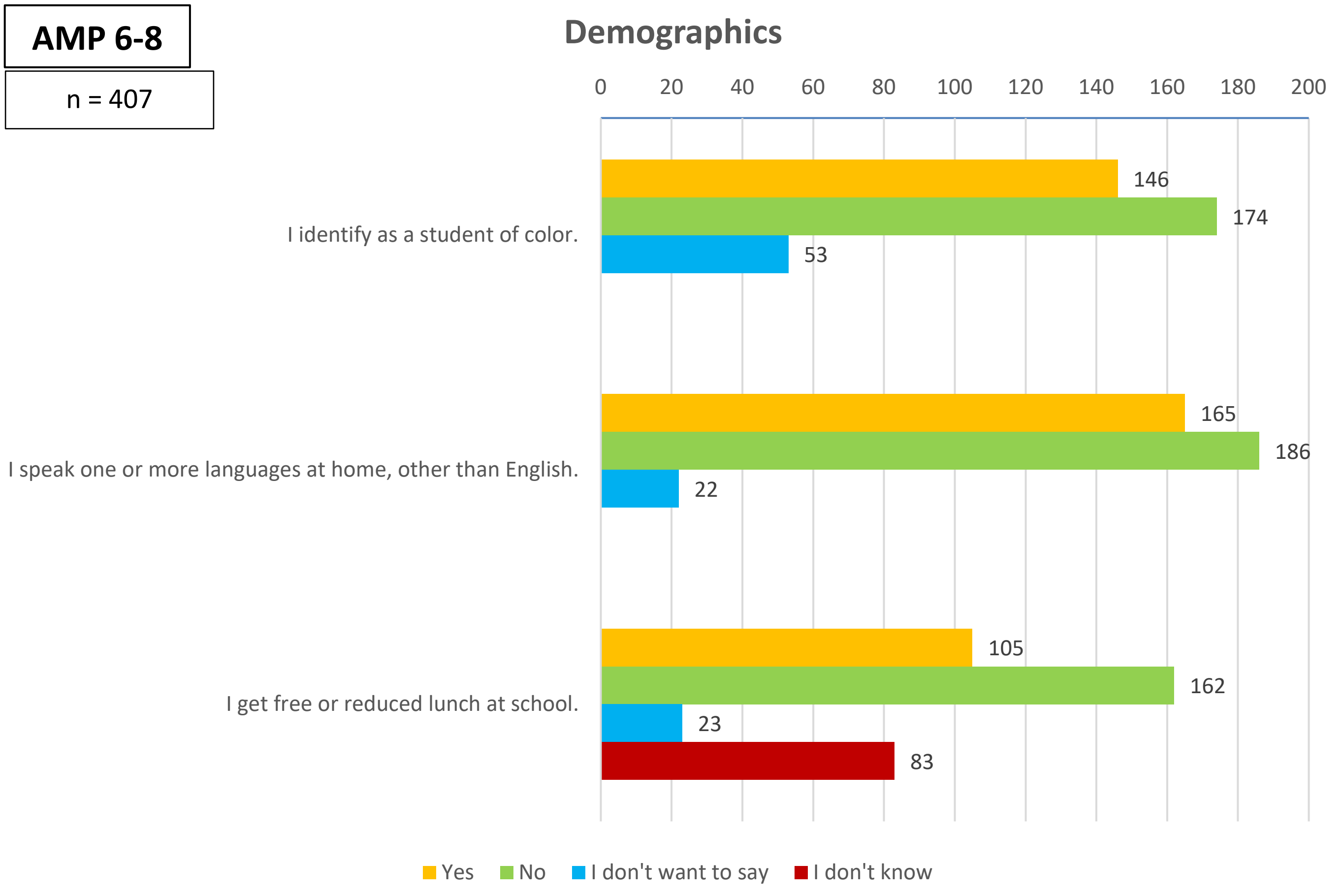
n = 407


The work we did in science class this unit...
0
20
40
60
80
100
120
140
160
180
was interesting to me.
156
137
43
37
was like the work that scientists and/or engineers do.
131
159
62
21
connects to something in my life.
107
110
73
83
A lot
A fair amount
A little bit
Not much

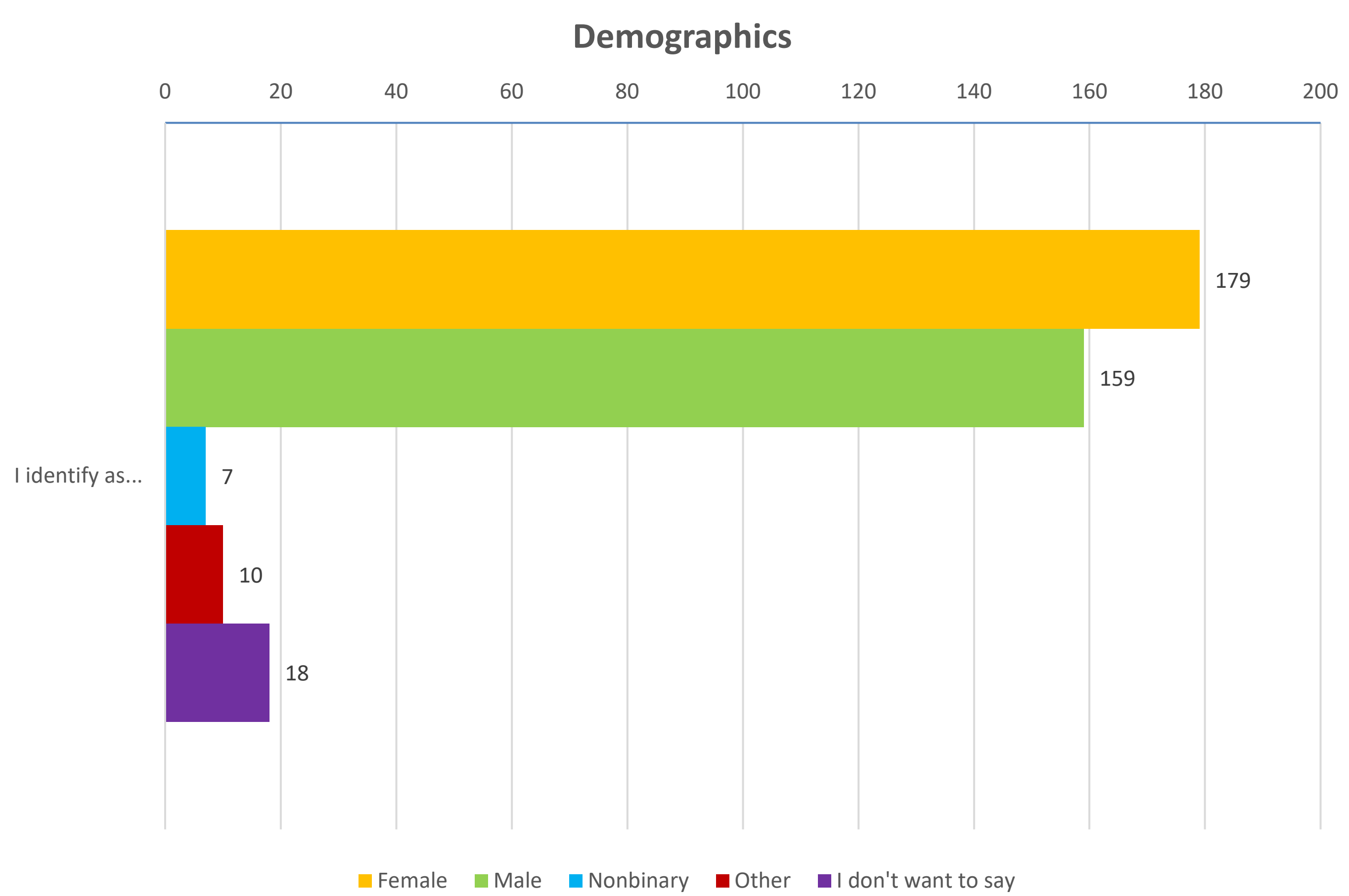

Identity, Disposition, and Learning
0
50
100
150
200
250
I feel confident that I can do science.
204
115
36
7
11
People like me do science.
152
120
71
16
14
I see myself choosing more science in the future.
114
107
74
41
37
I am interested in being a scientist.
90
94
84
49
56
I like doing science.
164
113
64
14
18
I'm learning science.
228
104
27
8
6
My teacher takes the time to summarize what we learn each day.
180
114
57
11
11
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

AMP 6-8

n = 407



Demographics
0
20
40
60
80
100
120
140
160
180
200
I identify as a student of color.
146
174
53
I speak one or more languages at home, other than English.
165
186
22
I get free or reduced lunch at school.
105
162
23
83
Yes
No
I don't want to say
I don't know

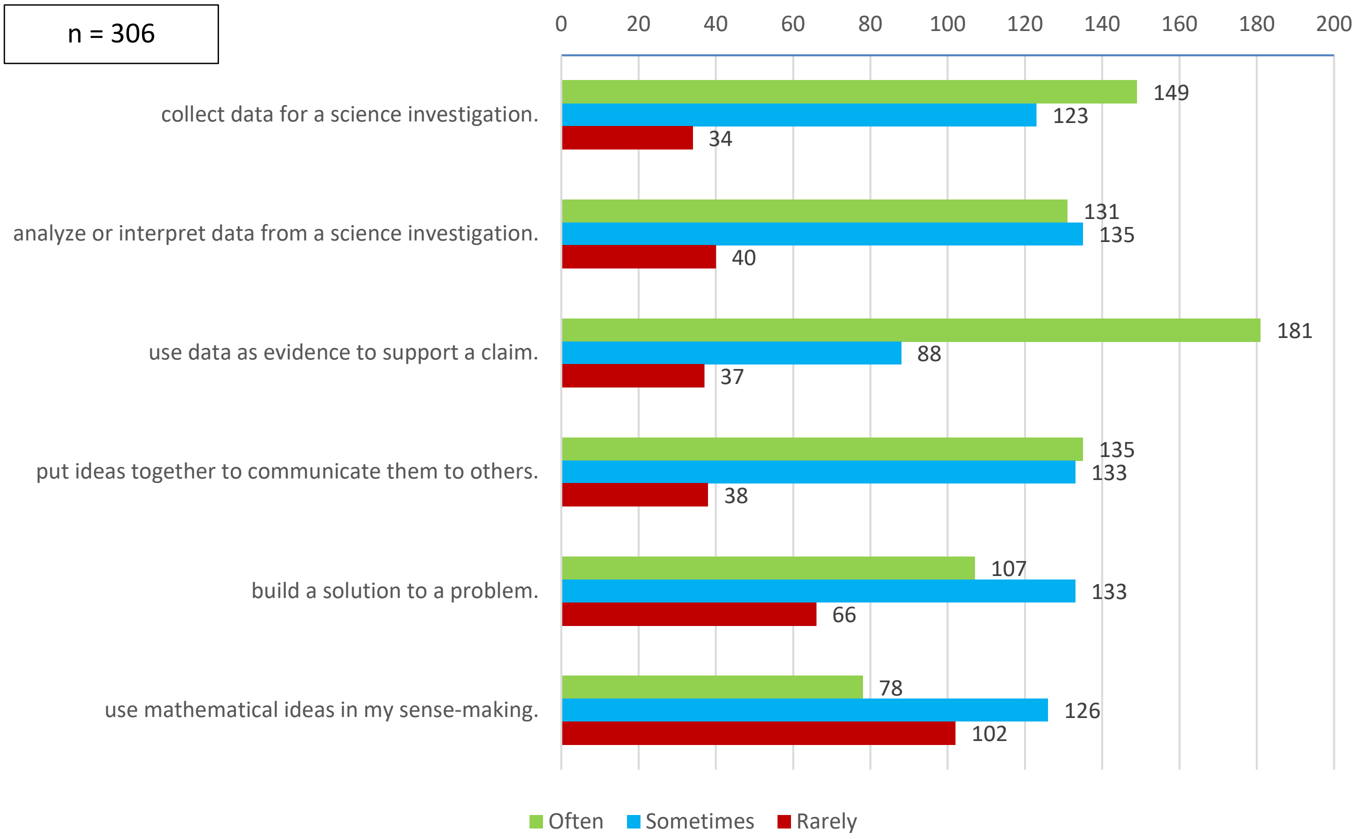


Demographics
0
20
40
60
80
100
120
140
160
180
200
I identify as...
179
159
7
10
18
Female
Male
Nonbinary
Other
I don't want to say

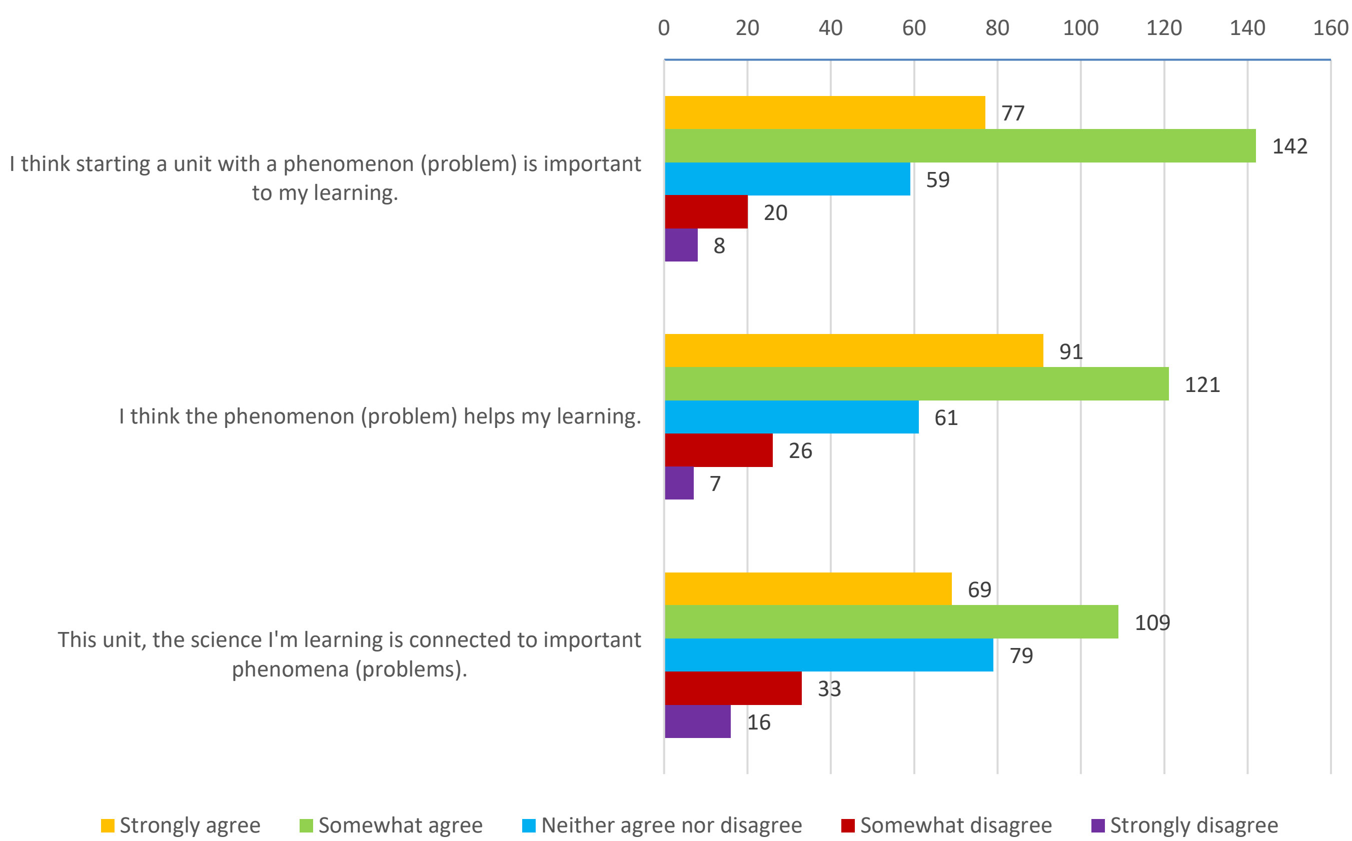
HMH 6-8

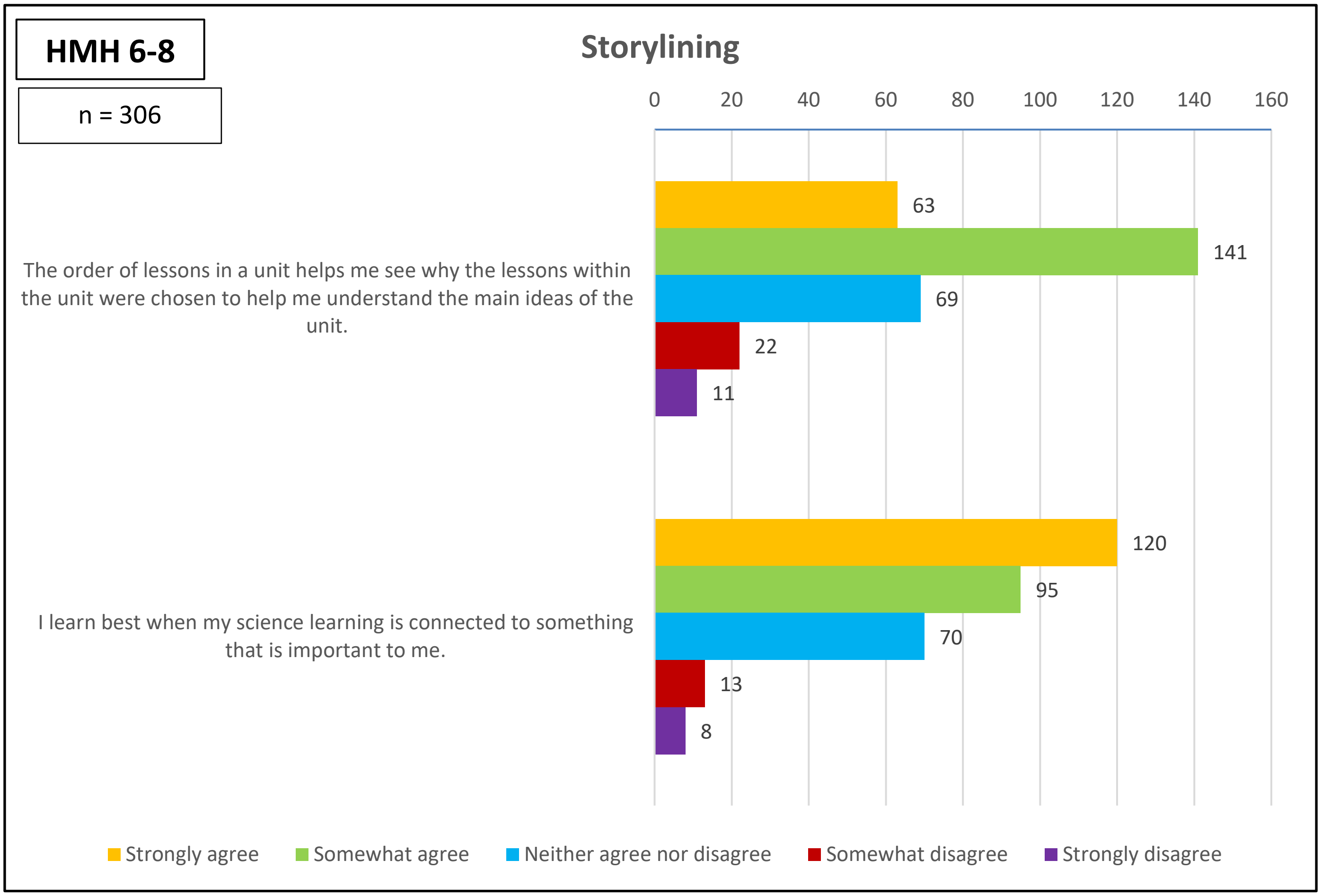
n = 306

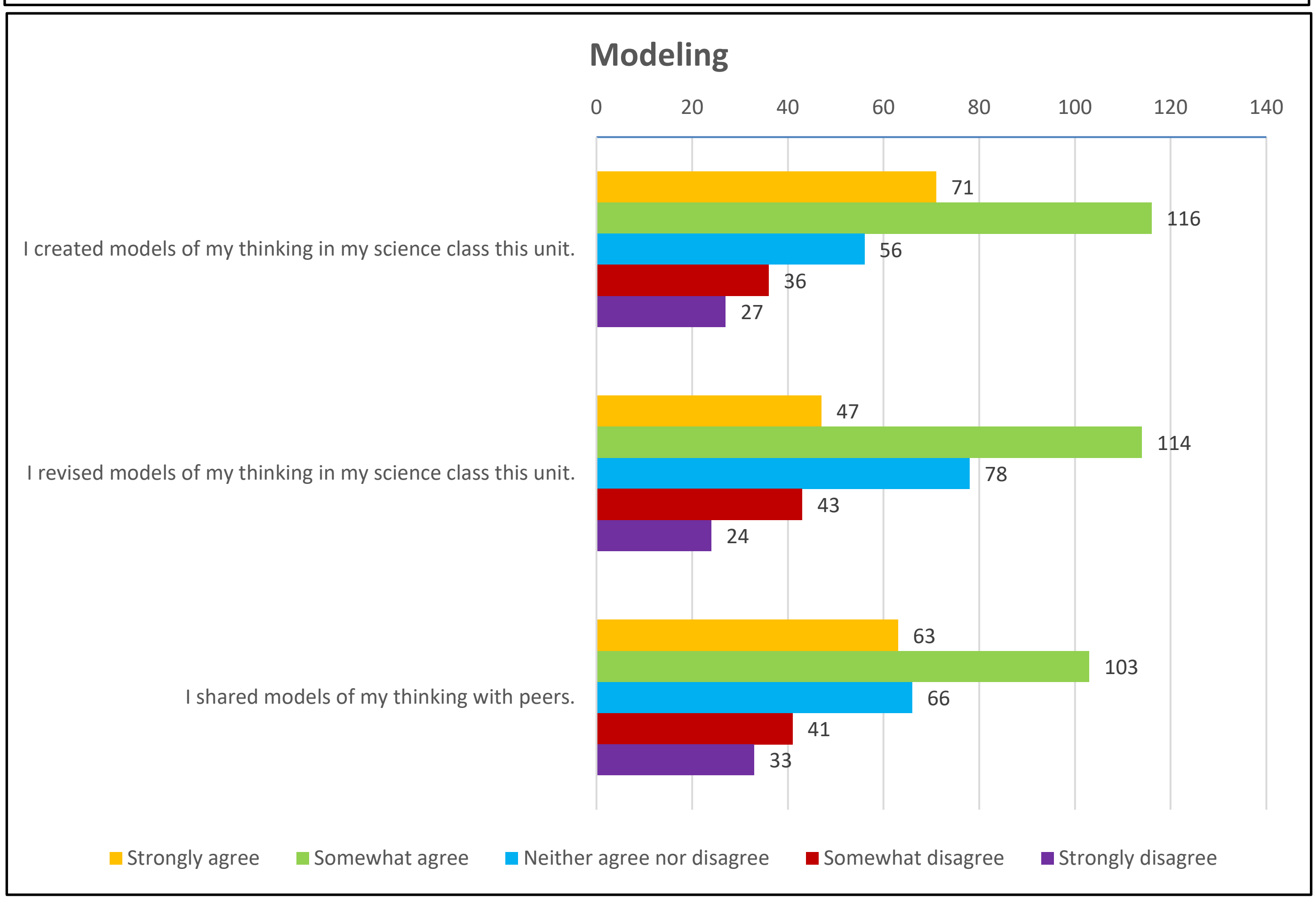
In my science class this unit, I was provided opportunities to...



Phenomena: A mystery or problem you are trying to solve.

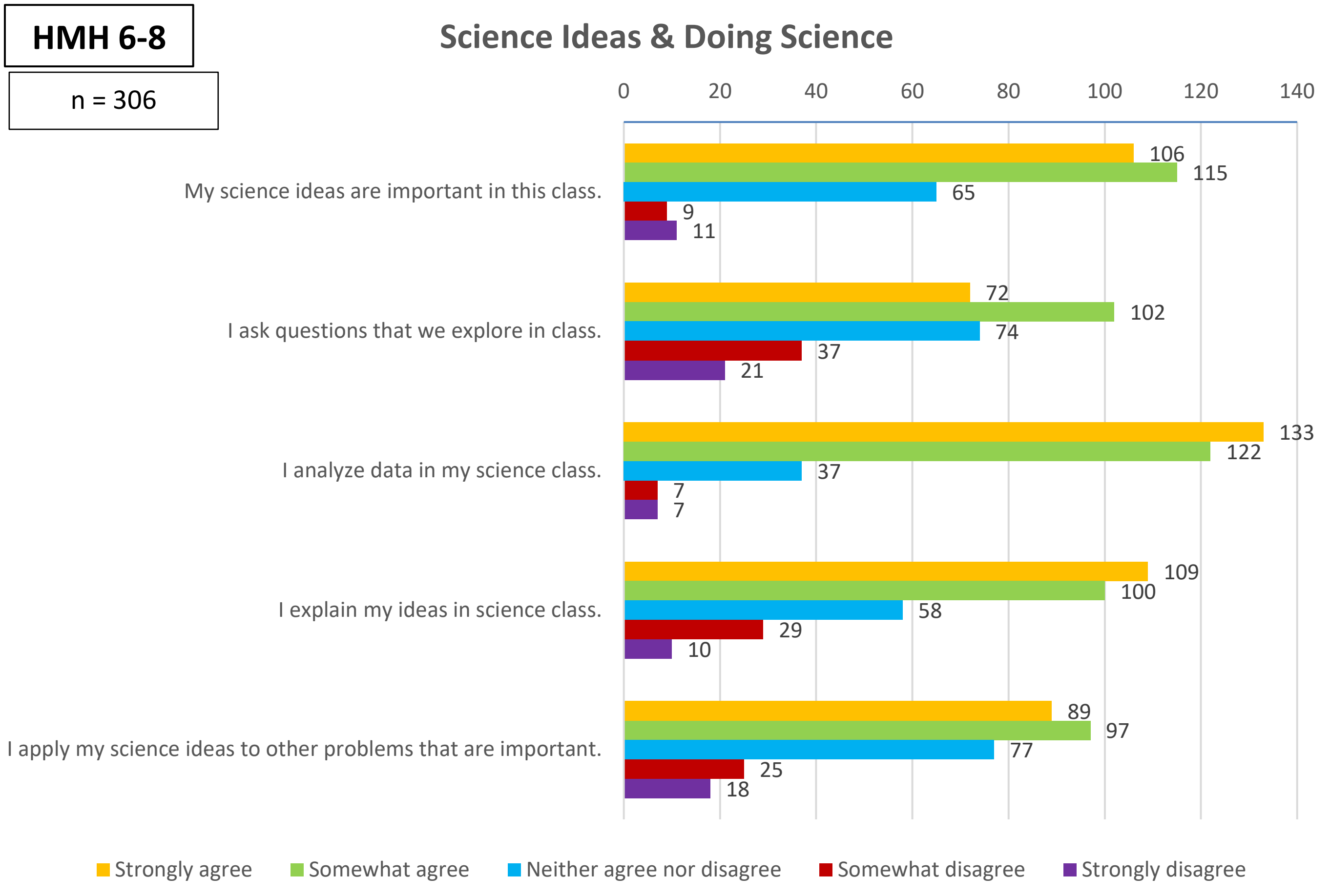


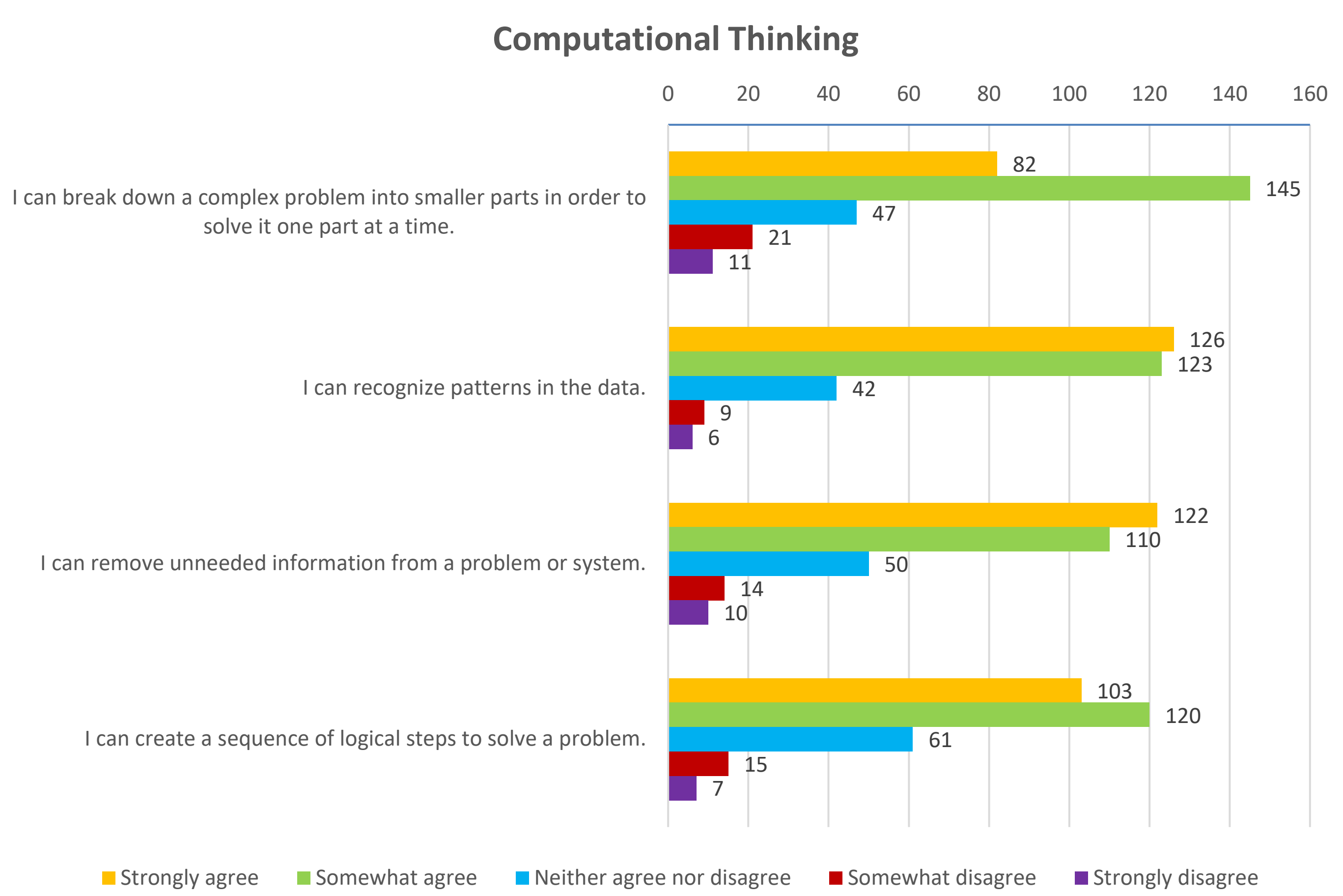

HMH 6-8
n = 306
Storylining
0 20 40 60 80 100 120 140 160
The order of lessons in a unit helps me see why the lessons within the unit were chosen to help me understand the main ideas of the unit.
63
141
69
22
11
I learn best when my science learning is connected to something that is important to me.
120
95
70
13
8
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


Modeling
0 20 40 60 80 100 120 140
I created models of my thinking in my science class this unit.
71
116
56
36
27
I revised models of my thinking in my science class this unit.
47
114
78
43
24
I shared models of my thinking with peers.
63
103
66
41
33
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

HMH 6-8

n = 306

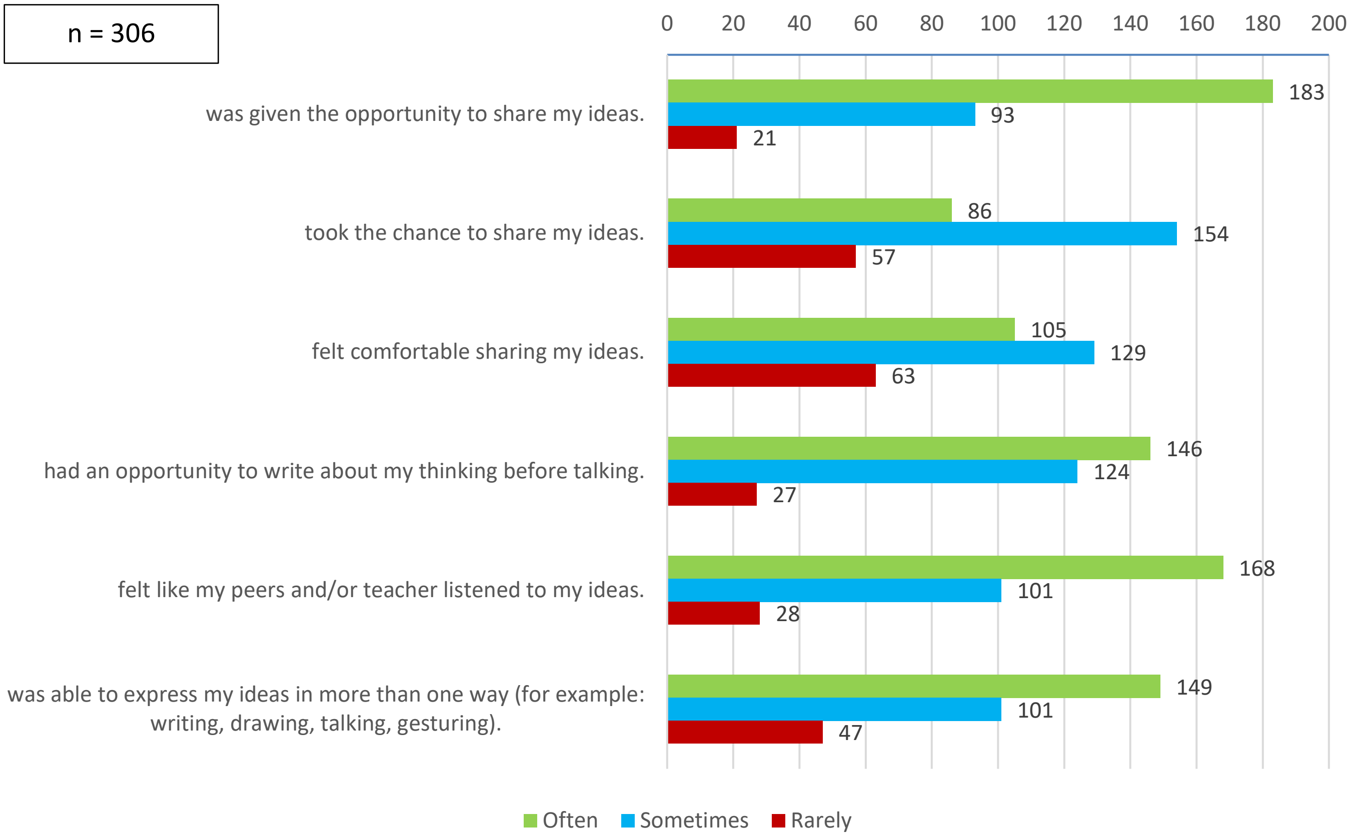

Science Ideas & Doing Science
0 20 40 60 80 100 120 140
My science ideas are important in this class.
106
115
65
9
11
I ask questions that we explore in class.
72
102
74
37
21
I analyze data in my science class.
133
122
37
7
7
I explain my ideas in science class.
109
100
58
29
10
I apply my science ideas to other problems that are important.
89
97
77
25
18
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


Computational Thinking
0 20 40 60 80 100 120 140 160
I can break down a complex problem into smaller parts in order to solve it one part at a time.
82
145
47
21
11
I can recognize patterns in the data.
126
123
42
9
6
I can remove unneeded information from a problem or system.
122
110
50
14
10
I can create a sequence of logical steps to solve a problem.
103
120
61
15
7
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

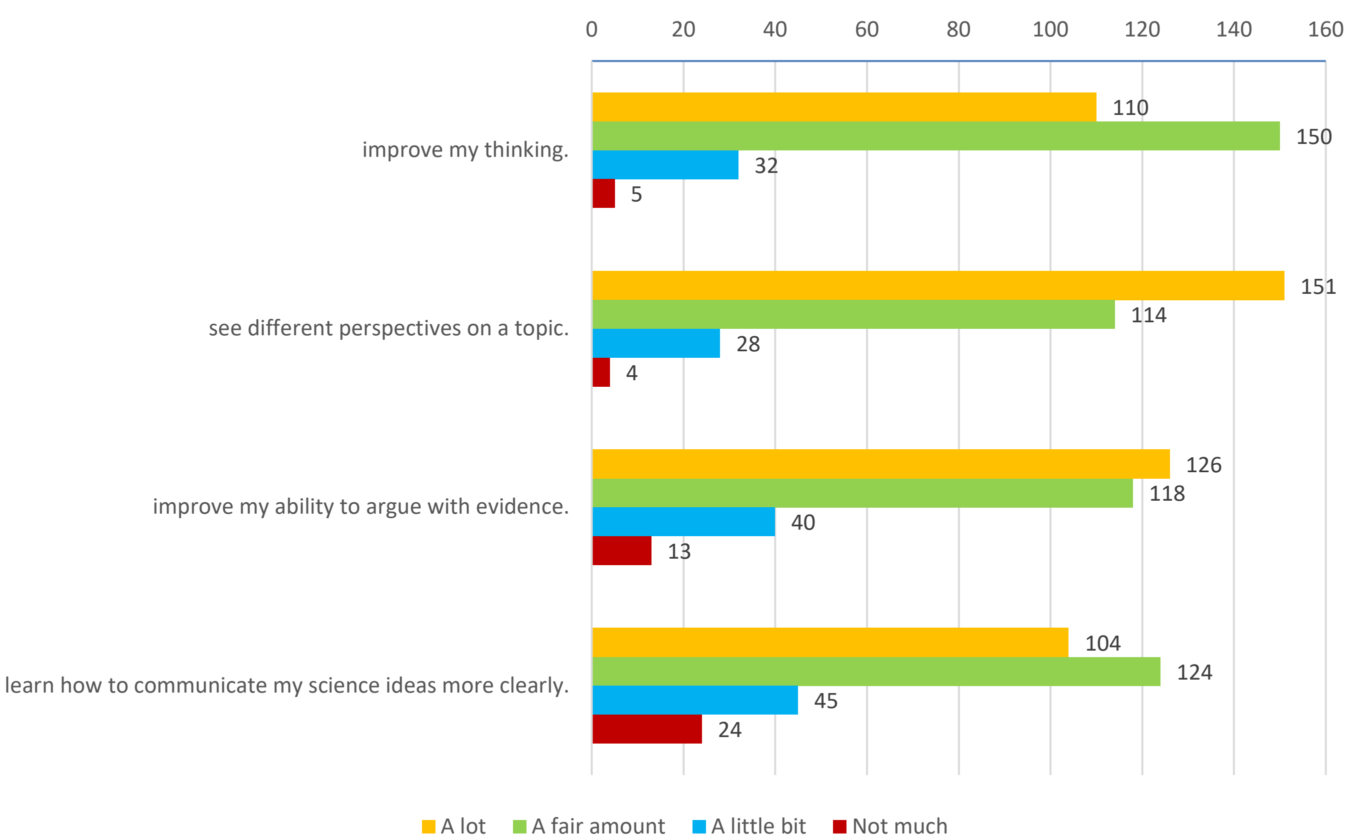
HMH 6-8

n = 306

In science class this unit, I...

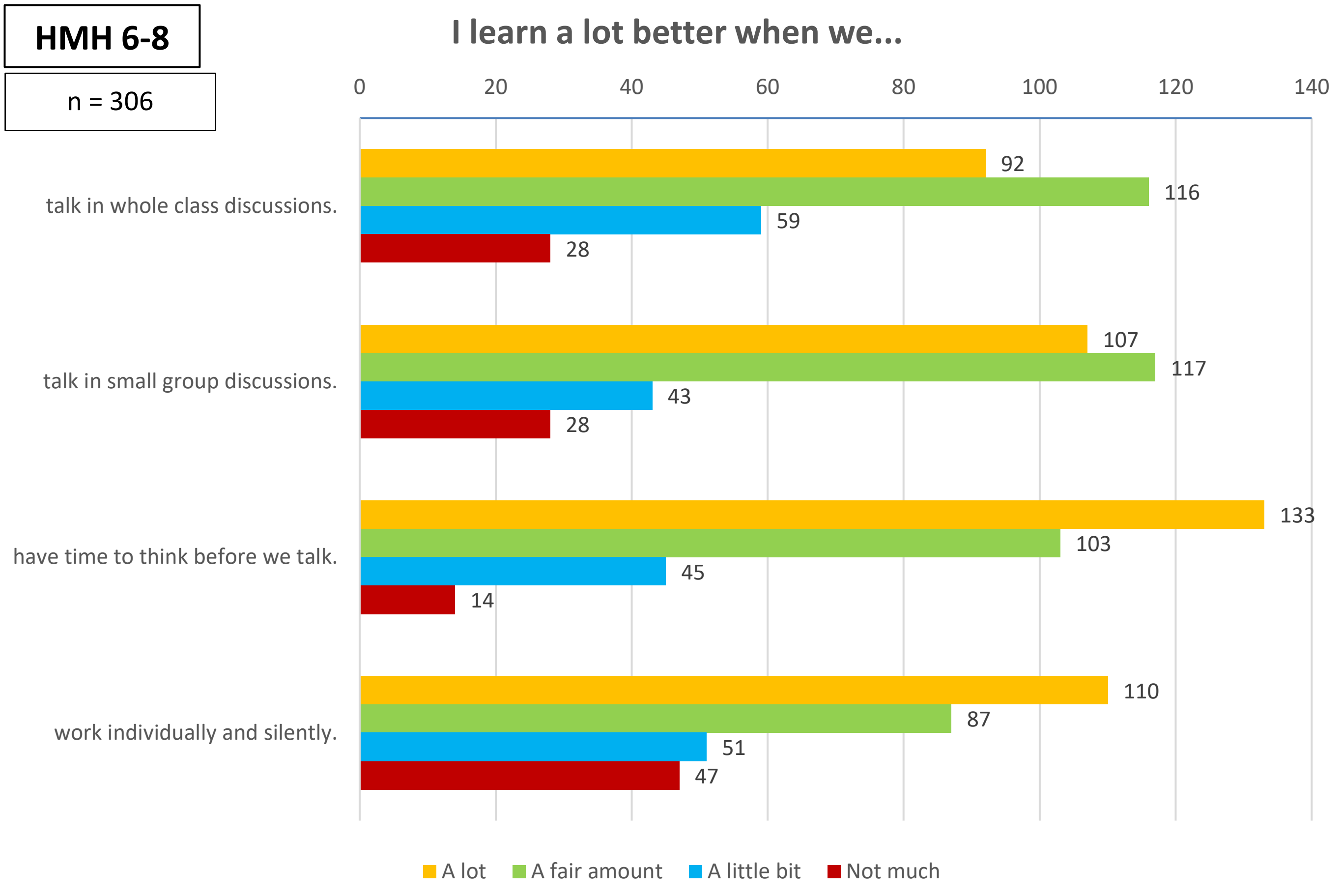


Listening to other students helps me...

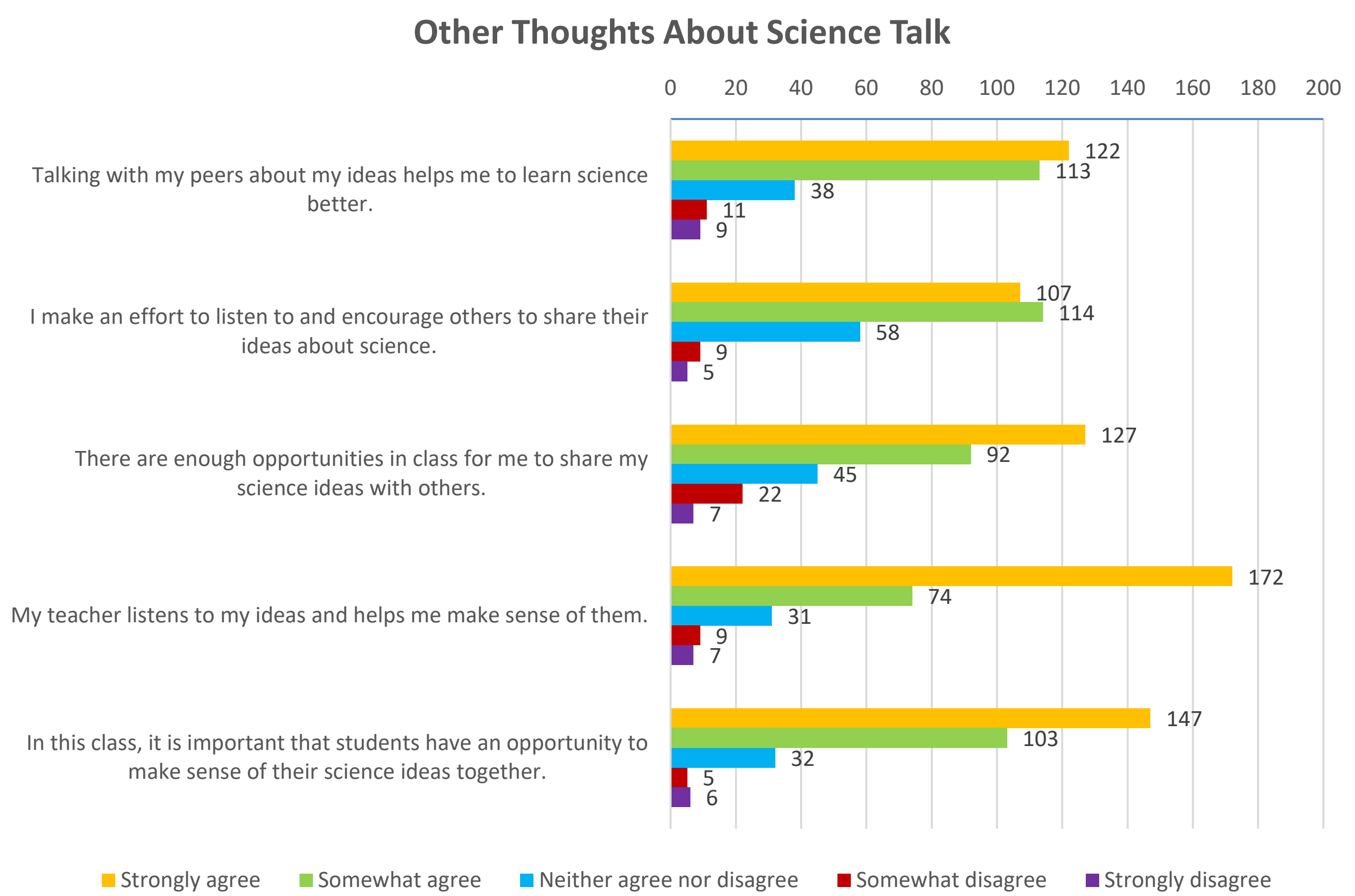


HMH 6-8

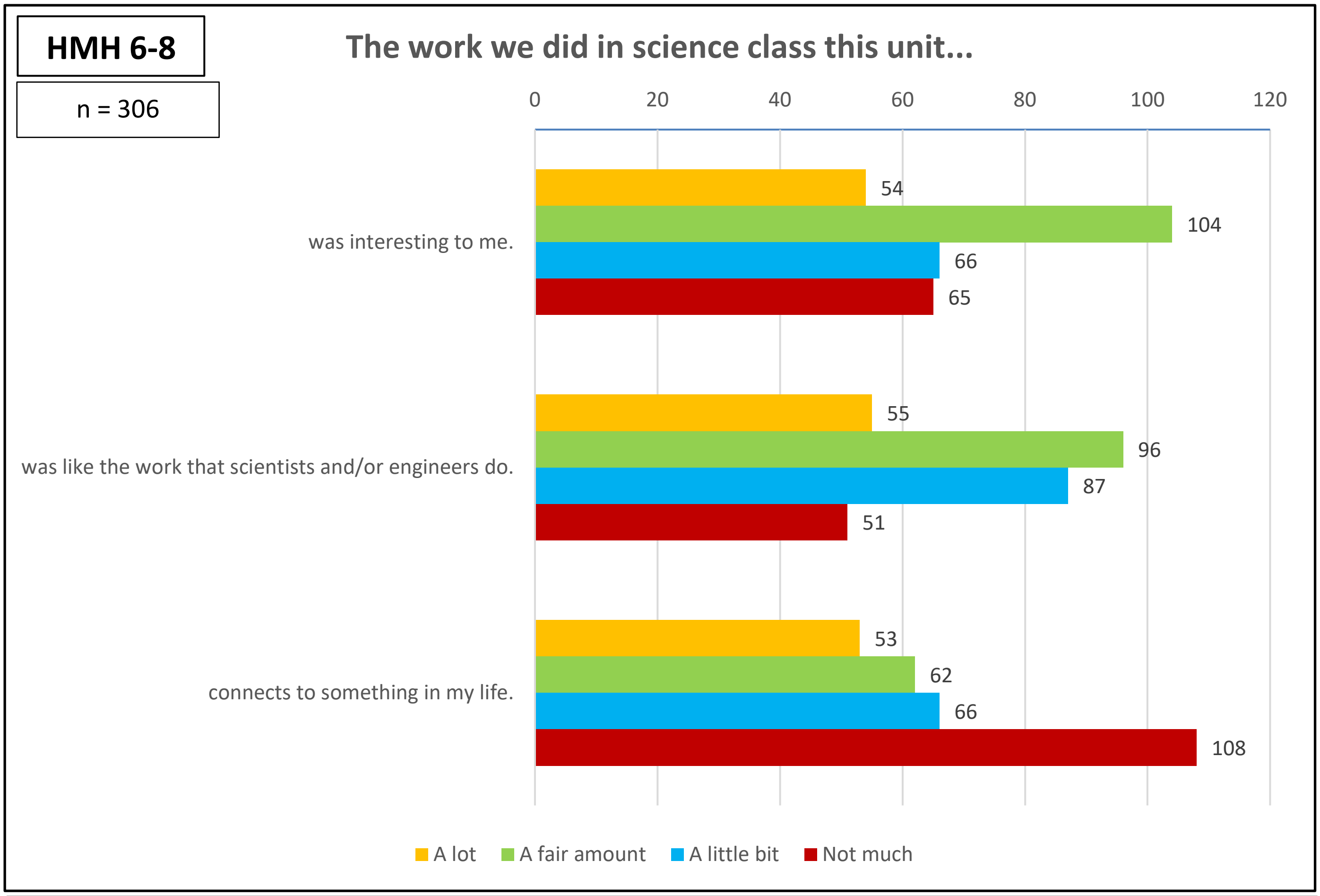
n = 306



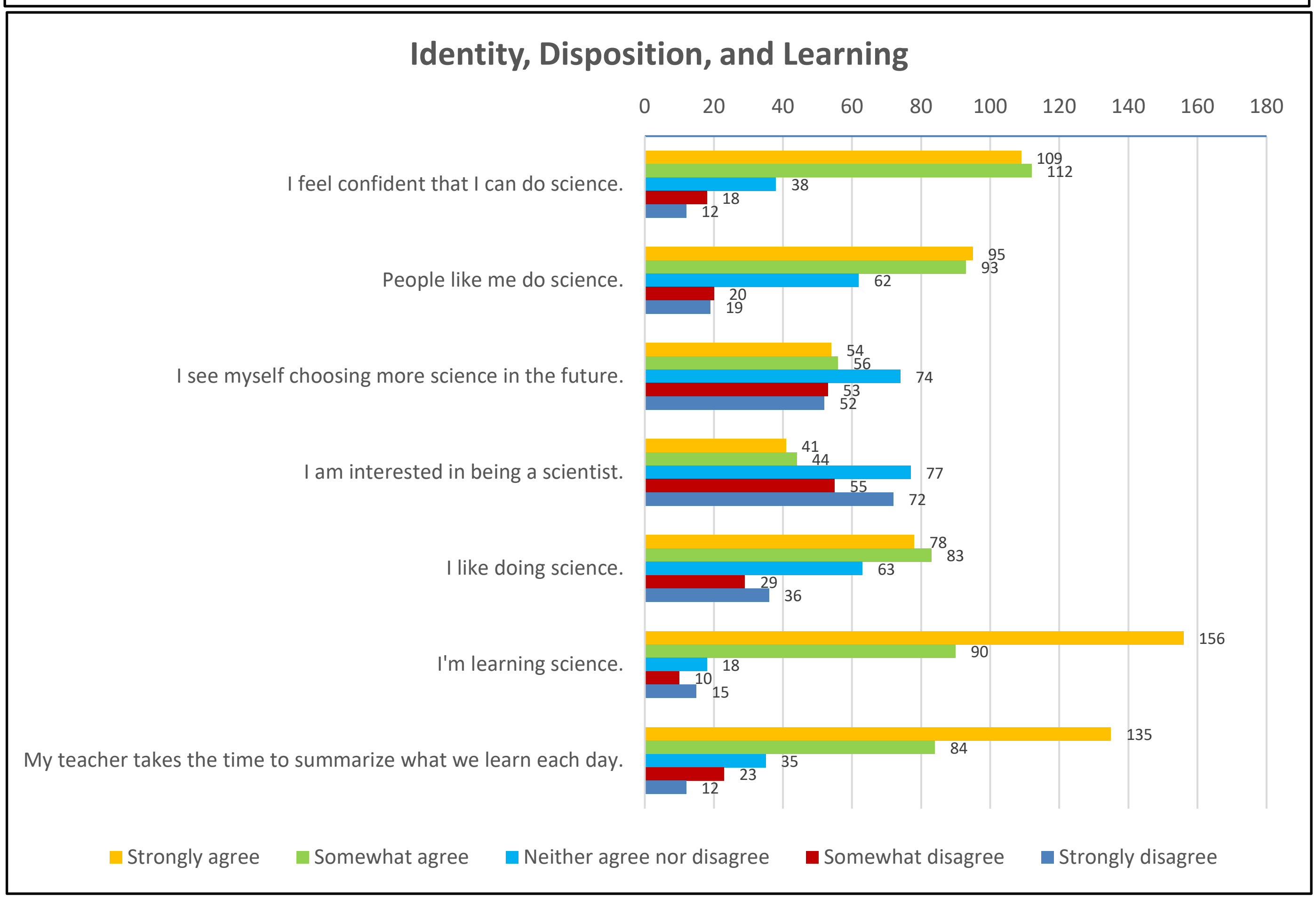
I learn a lot better when we...
0
20
40
60
80
100
120
140
talk in whole class discussions.
92
116
59
28
talk in small group discussions.
107
117
43
28
have time to think before we talk.
133
103
45
14
work individually and silently.
110
87
51
47
A lot
A fair amount
A little bit
Not much



Other Thoughts About Science Talk
0
20
40
60
80
100
120
140
160
180
200
Talking with my peers about my ideas helps me to learn science better.
122
113
38
11
9
I make an effort to listen to and encourage others to share their ideas about science.
107
114
58
9
5
There are enough opportunities in class for me to share my science ideas with others.
127
92
45
22
7
My teacher listens to my ideas and helps me make sense of them.
172
74
31
9
7
In this class, it is important that students have an opportunity to make sense of their science ideas together.
147
103
32
5
6
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree



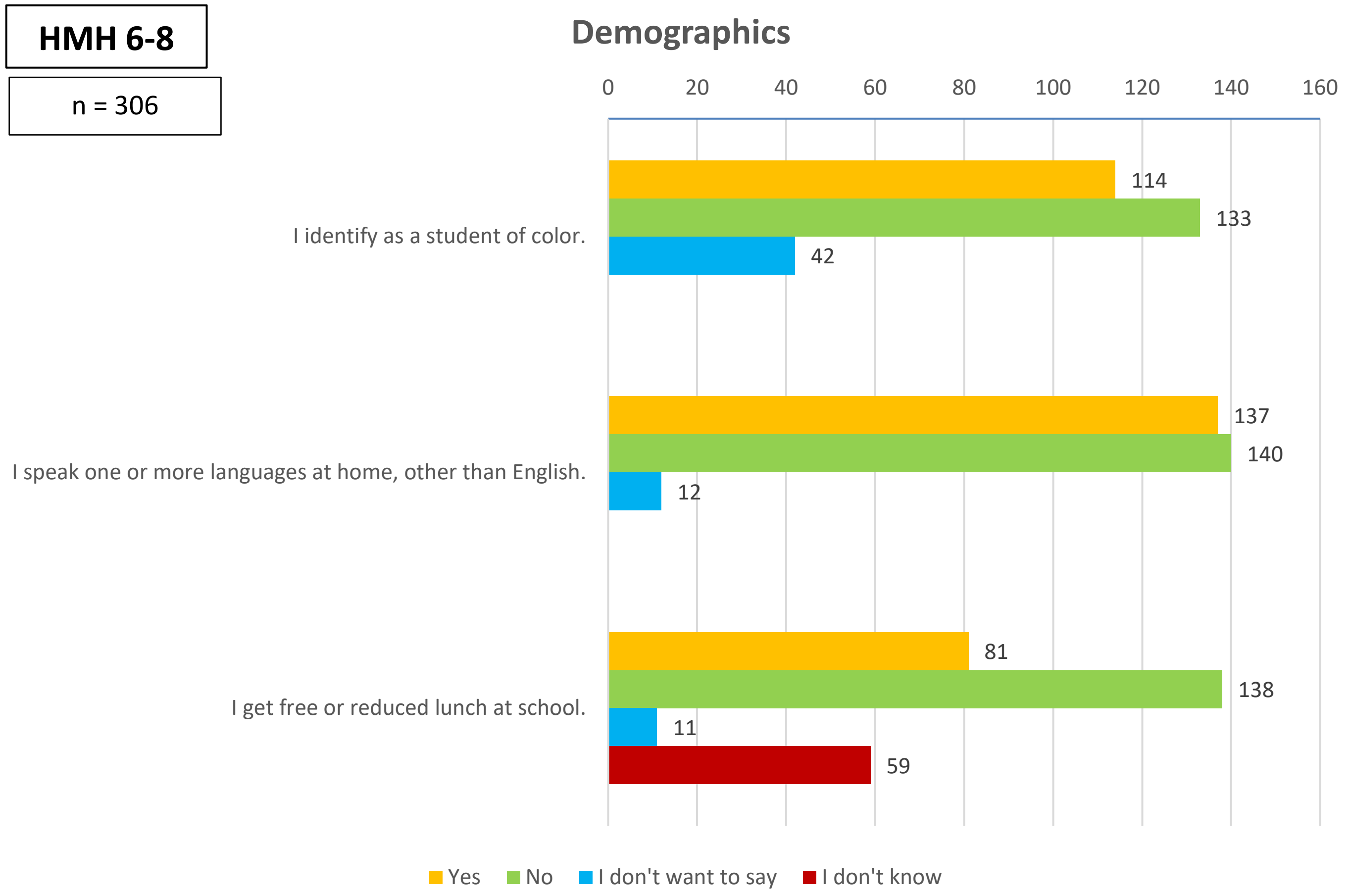
HMH 6-8
n = 306
The work we did in science class this unit...
was interesting to me.
54
104
66
65
was like the work that scientists and/or engineers do.
55
96
87
51
connects to something in my life.
53
62
66
108
A lot
A fair amount
A little bit
Not much



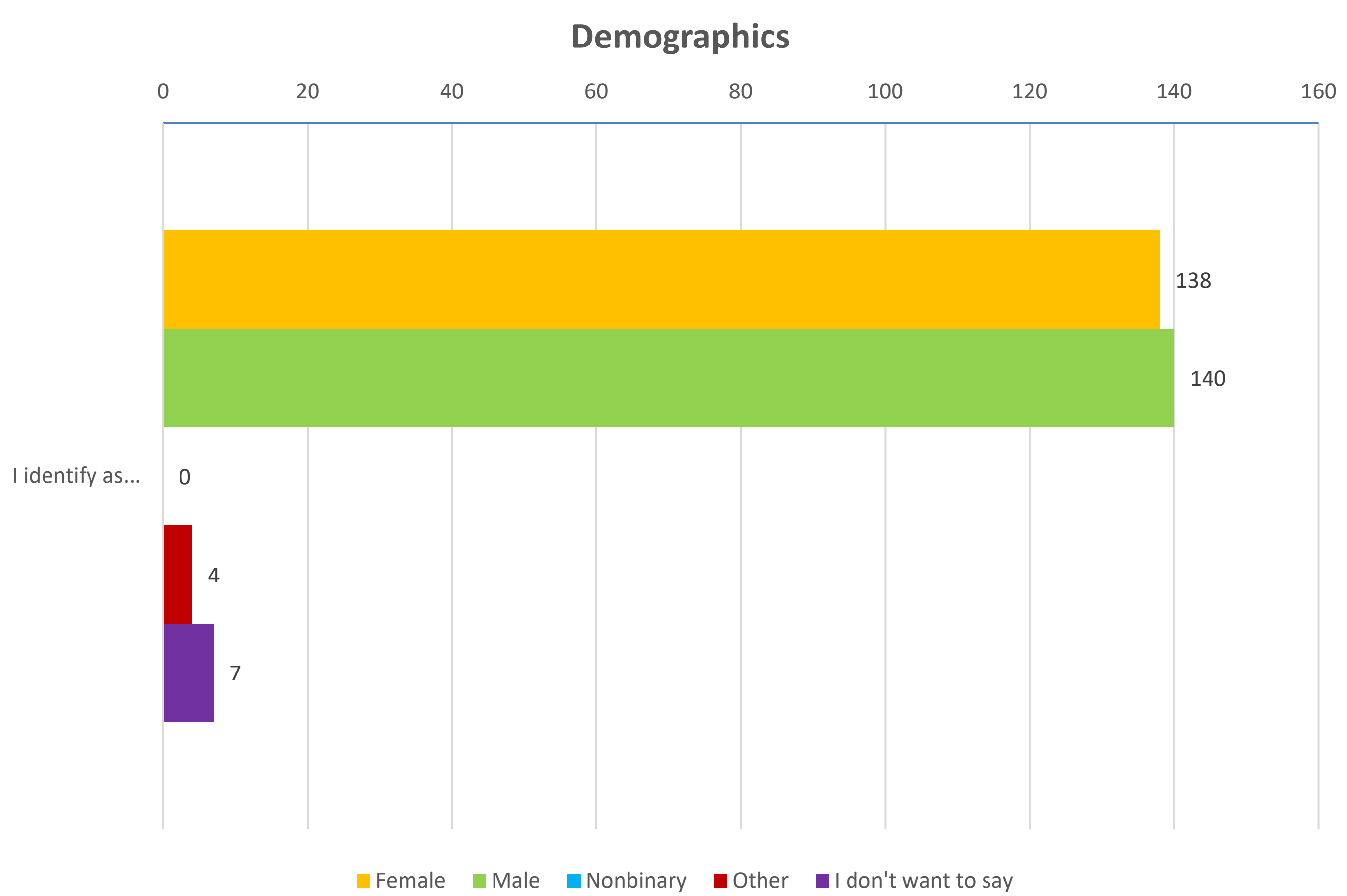
Identity, Disposition, and Learning
I feel confident that I can do science.
109
112
38
18
12
People like me do science.
95
93
62
20
19
I see myself choosing more science in the future.
54
56
74
53
52
I am interested in being a scientist.
41
44
77
55
72
I like doing science.
78
83
63
29
36
I'm learning science.
156
90
18
10
15
My teacher takes the time to summarize what we learn each day.
135
84
35
23
12
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

HMH 6-8

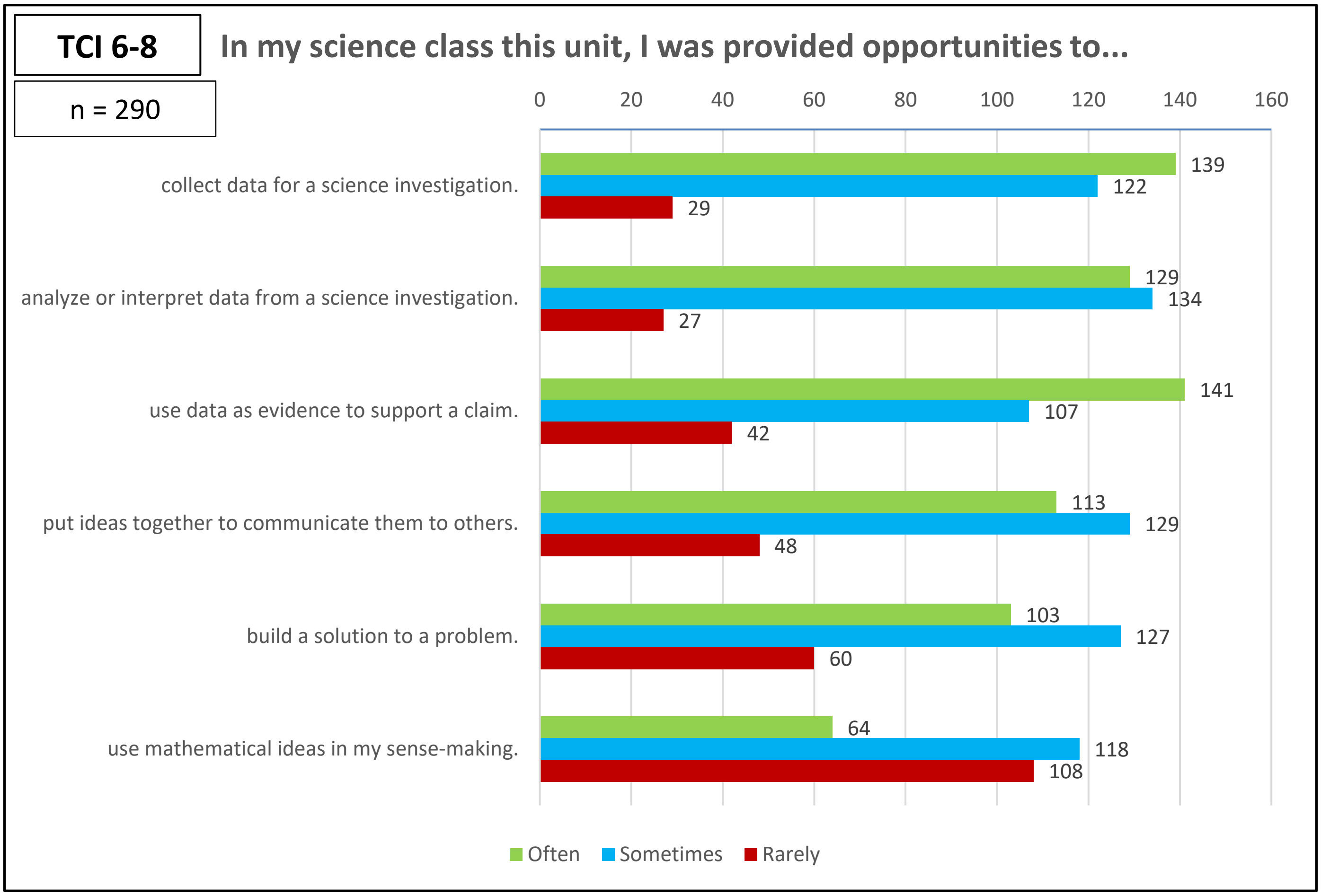
n = 306

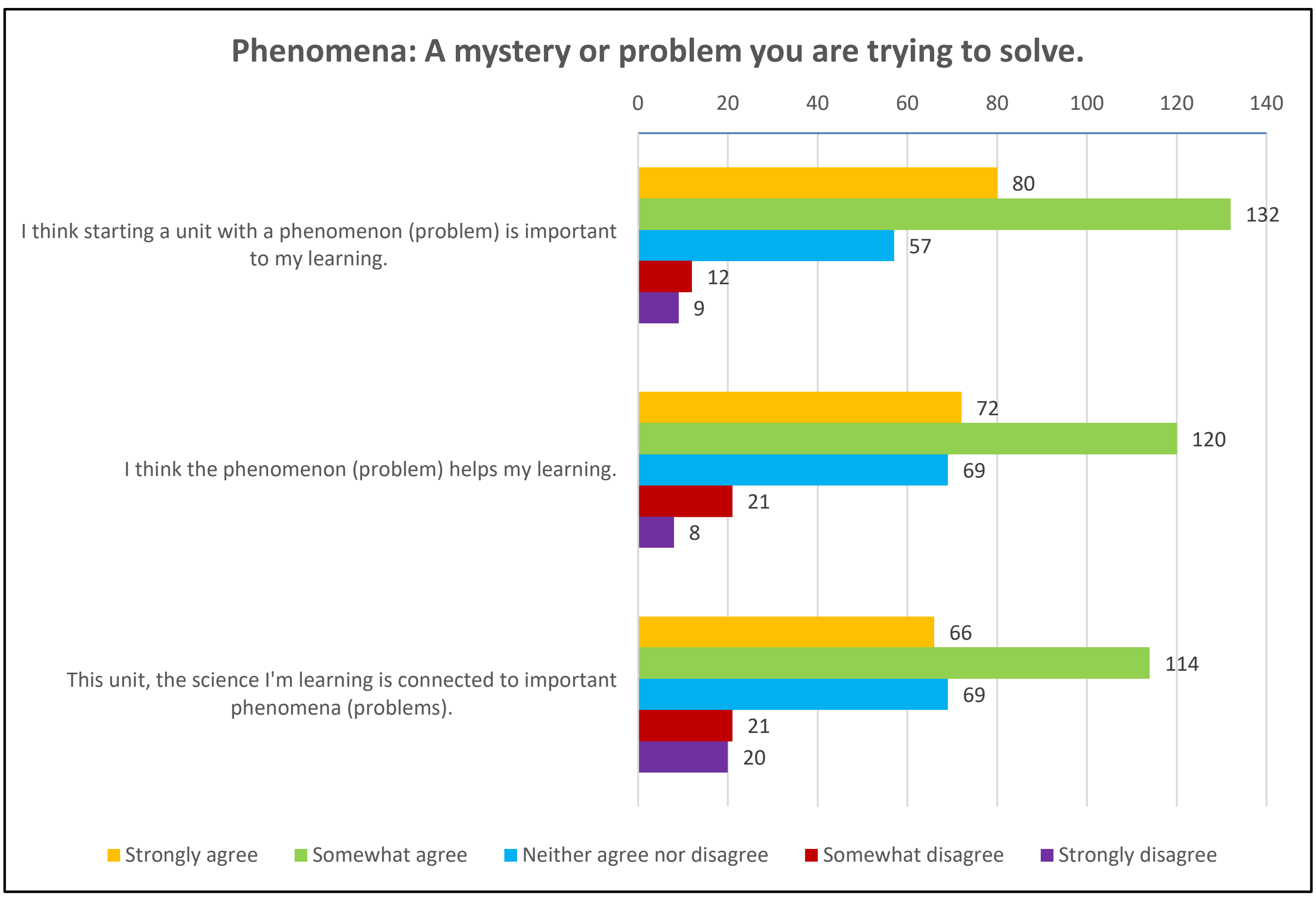


Demographics
0
20
40
60
80
100
120
140
160
I identify as a student of color.
114
133
42
I speak one or more languages at home, other than English.
137
140
12
I get free or reduced lunch at school.
81
138
11
59
Yes
No
I don't want to say
I don't know



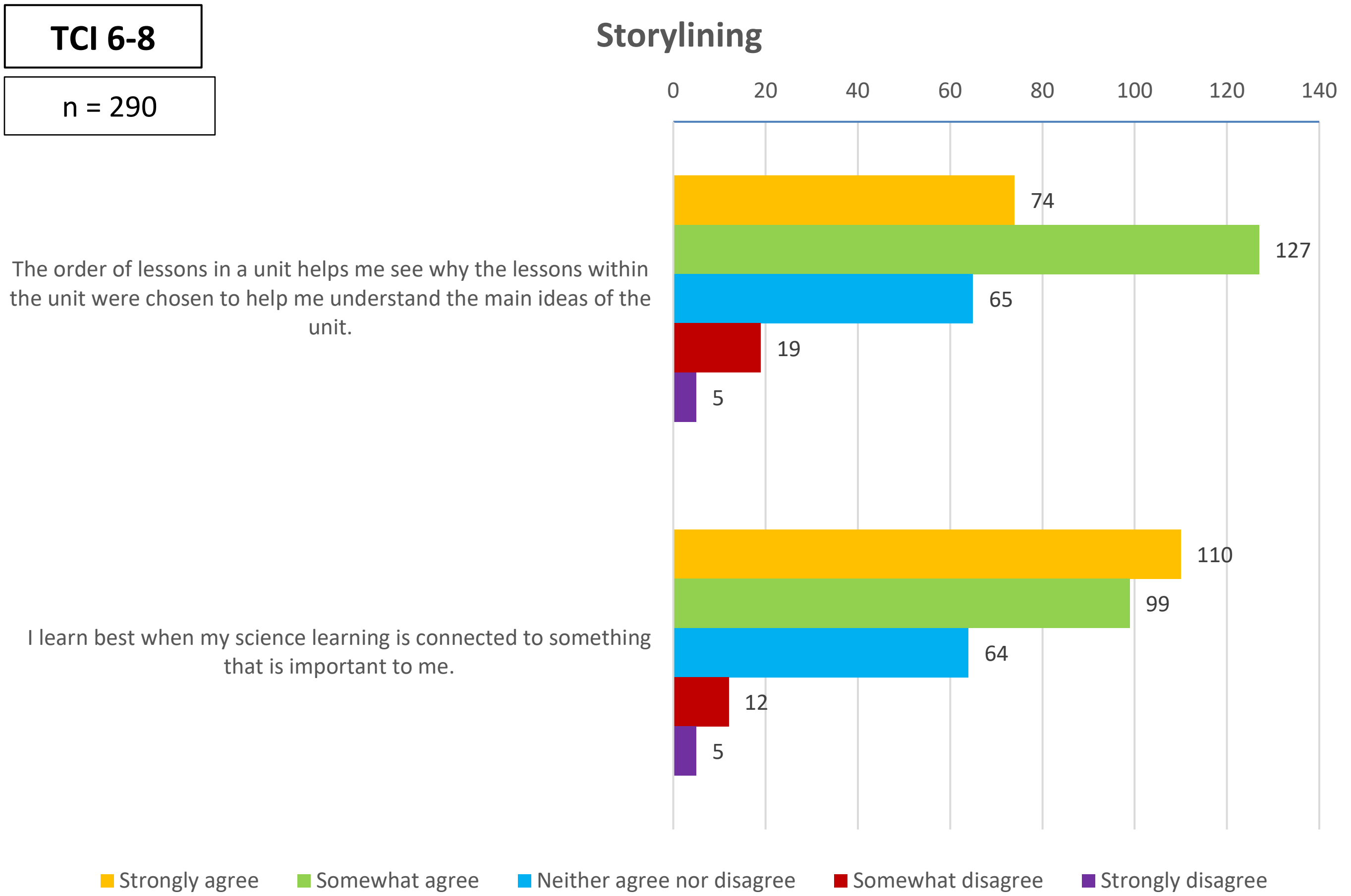
Demographics
0
20
40
60
80
100
120
140
160
I identify as...
138
140
0
4
7
Female
Male
Nonbinary
Other
I don't want to say


TCI 6-8
n = 290
In my science class this unit, I was provided opportunities to...
0
20
40
60
80
100
120
140
160
collect data for a science investigation.
139
122
29
analyze or interpret data from a science investigation.
129
134
27
use data as evidence to support a claim.
141
107
42
put ideas together to communicate them to others.
113
129
48
build a solution to a problem.
103
127
60
use mathematical ideas in my sense-making.
64
118
108
Often
Sometimes
Rarely

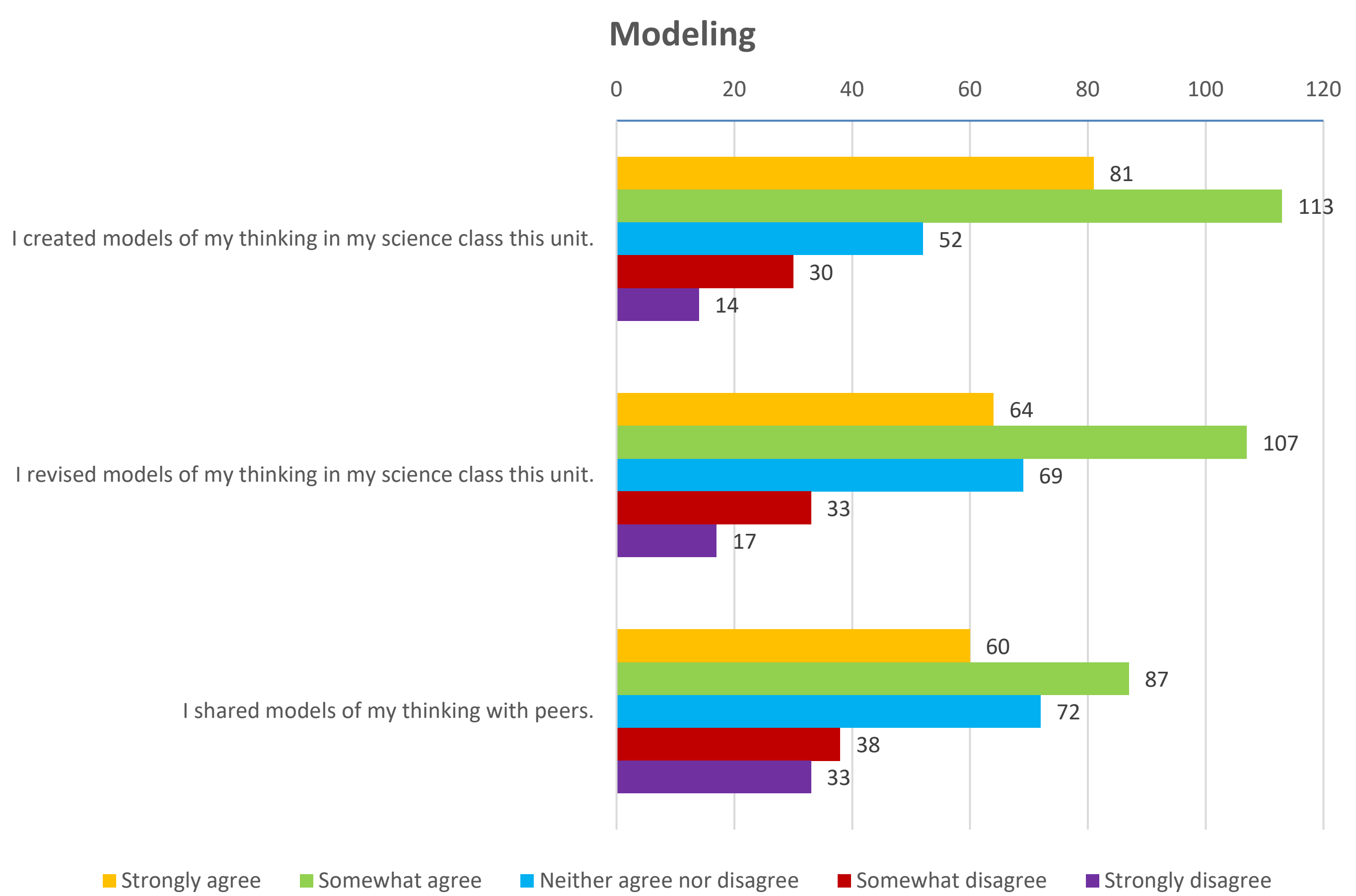

Phenomena: A mystery or problem you are trying to solve.
0
20
40
60
80
100
120
140
I think starting a unit with a phenomenon (problem) is important to my learning.
80
132
57
12
9
I think the phenomenon (problem) helps my learning.
72
120
69
21
8
This unit, the science I'm learning is connected to important phenomena (problems).
66
114
69
21
20
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

TCI 6-8

n = 290



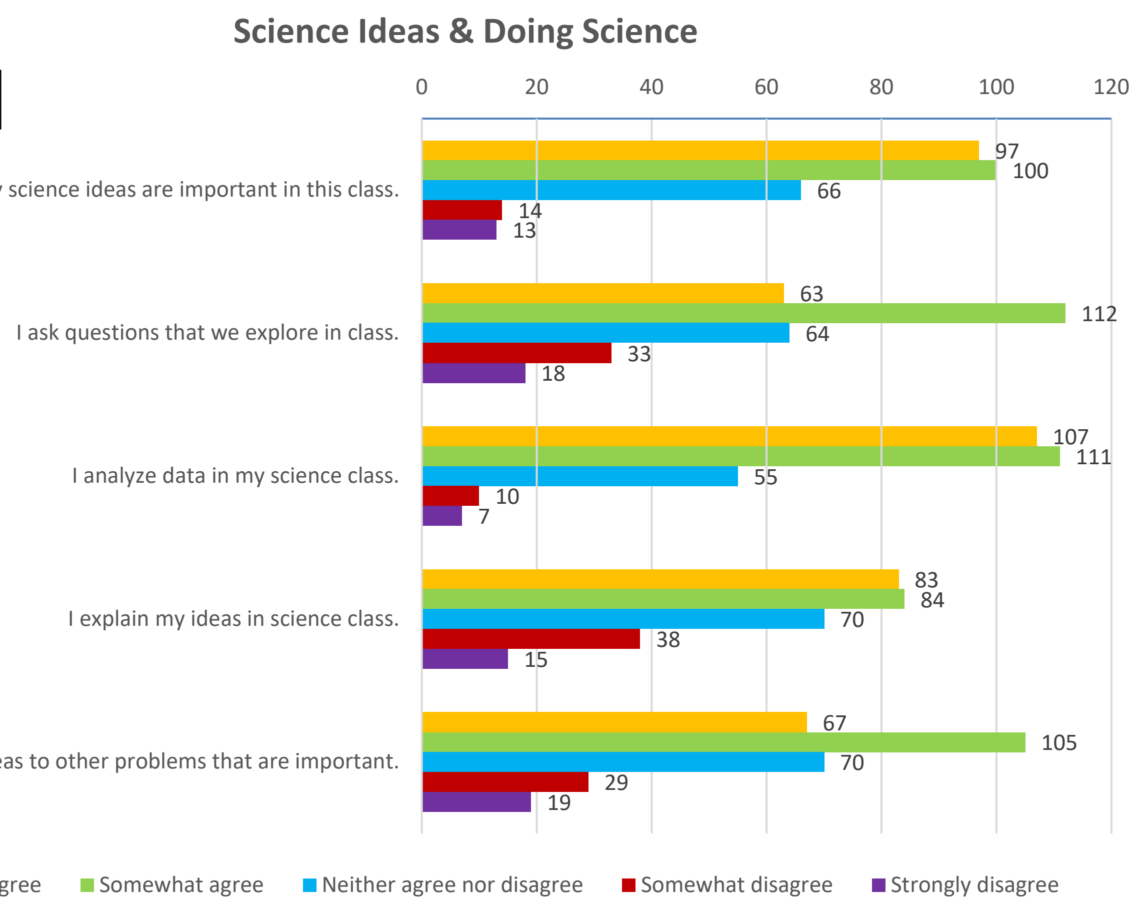
Storylining
0
20
40
60
80
100
120
140
The order of lessons in a unit helps me see why the lessons within the unit were chosen to help me understand the main ideas of the unit.
74
127
65
19
5
I learn best when my science learning is connected to something that is important to me.
110
99
64
12
5
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

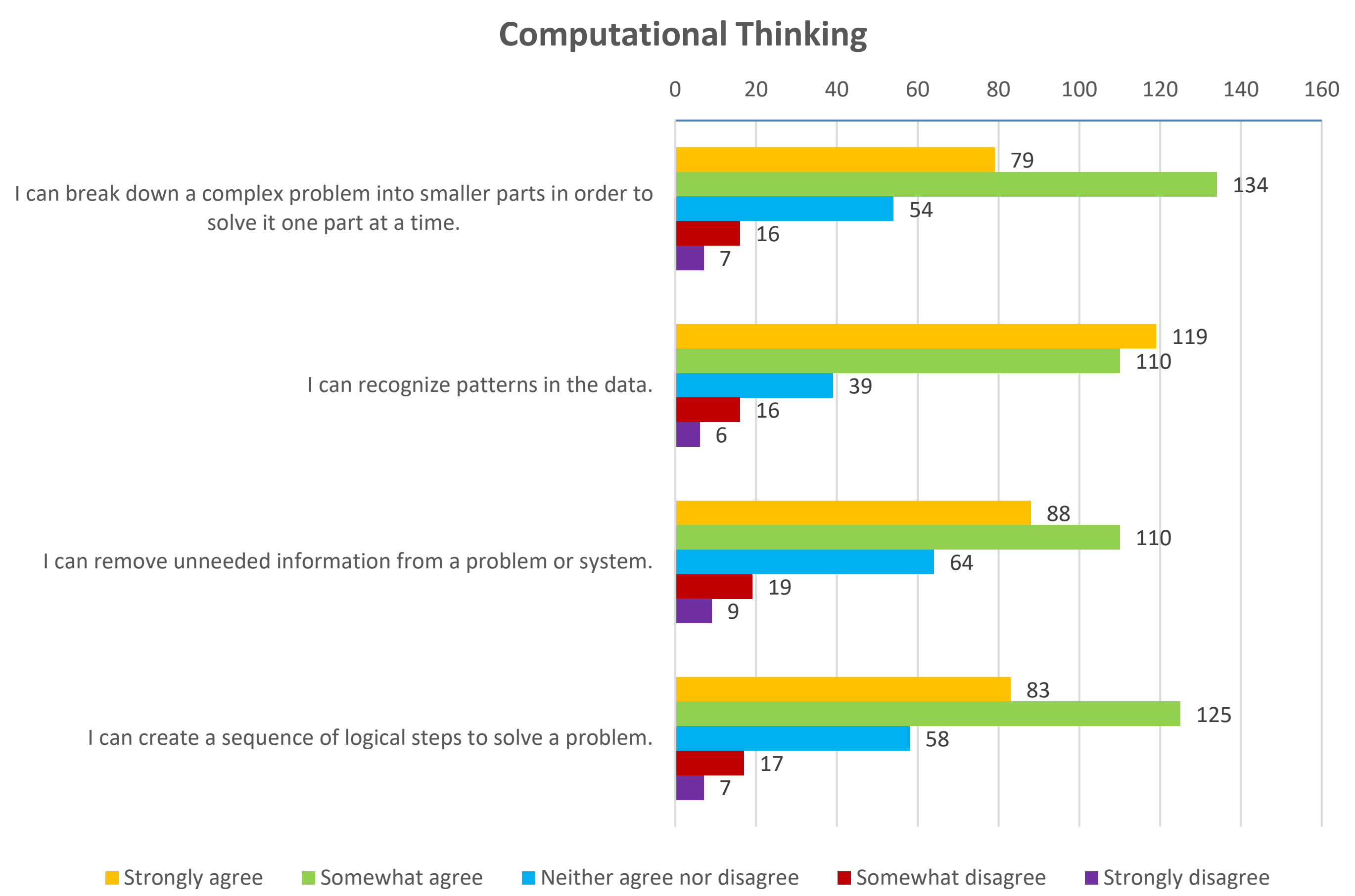


Modeling
0
20
40
60
80
100
120
I created models of my thinking in my science class this unit.
81
113
52
30
14
I revised models of my thinking in my science class this unit.
64
107
69
33
17
I shared models of my thinking with peers.
60
87
72
38
33
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

TCI 6-8

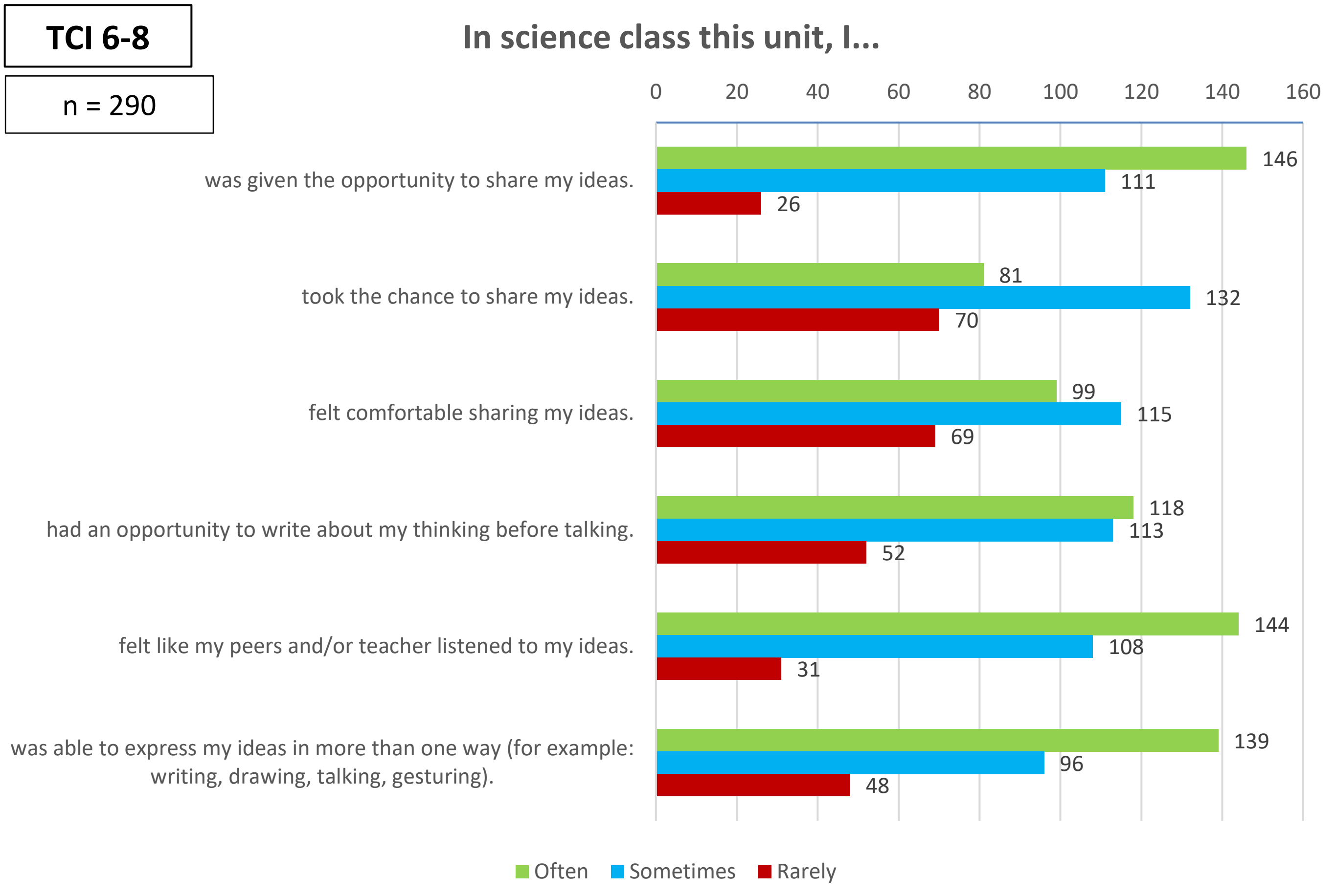
n = 290

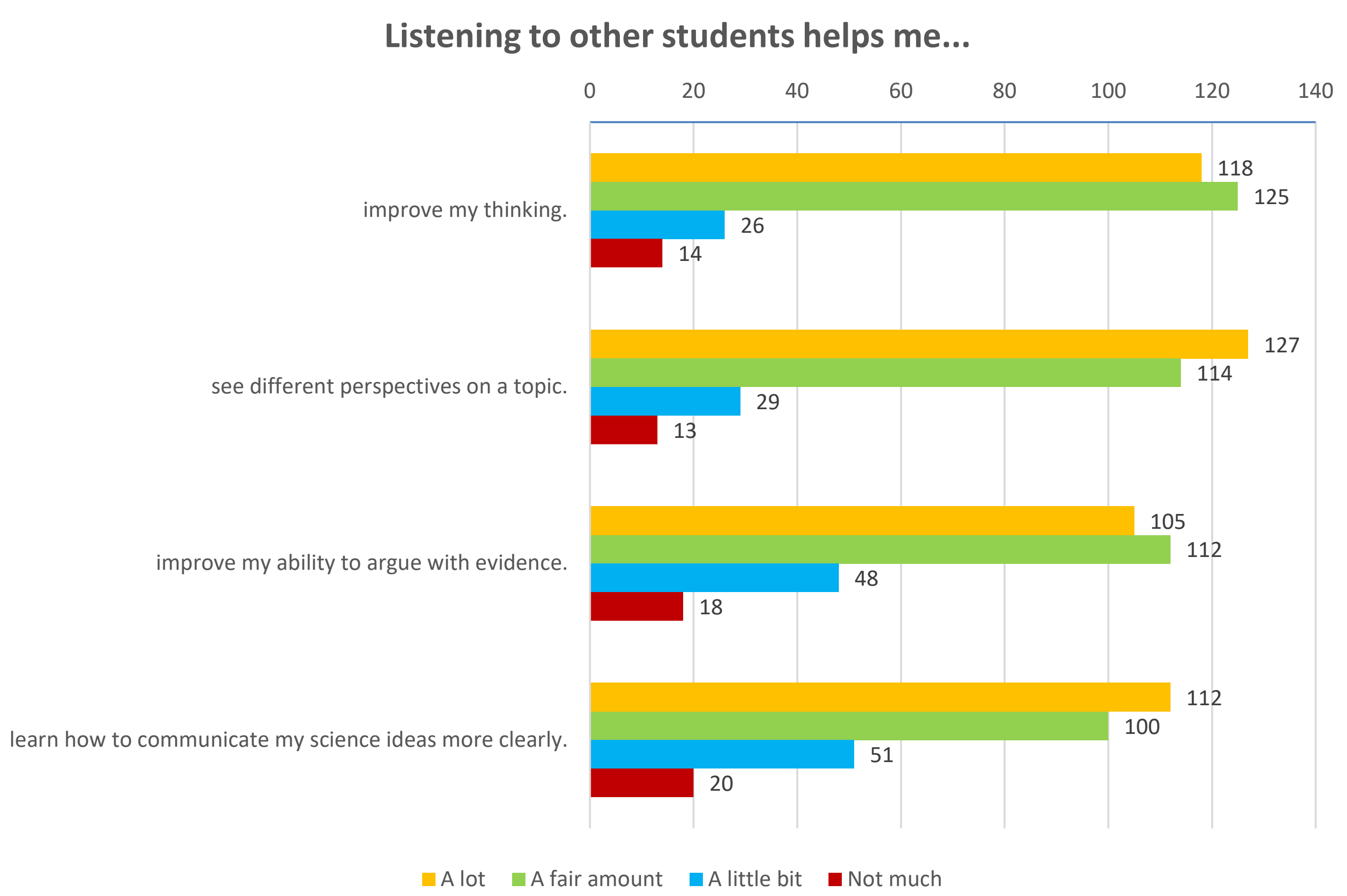

Science Ideas & Doing Science
0
20
40
60
80
100
120
My science ideas are important in this class.
97
100
66
14
13
I ask questions that we explore in class.
63
112
64
33
18
I analyze data in my science class.
107
111
55
10
7
I explain my ideas in science class.
83
84
70
38
15
I apply my science ideas to other problems that are important.
67
105
70
29
19
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree


Computational Thinking
0
20
40
60
80
100
120
140
160
I can break down a complex problem into smaller parts in order to solve it one part at a time.
79
134
54
16
7
I can recognize patterns in the data.
119
110
39
16
6
I can remove unneeded information from a problem or system.
88
110
64
19
9
I can create a sequence of logical steps to solve a problem.
83
125
58
17
7
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

TCI 6-8

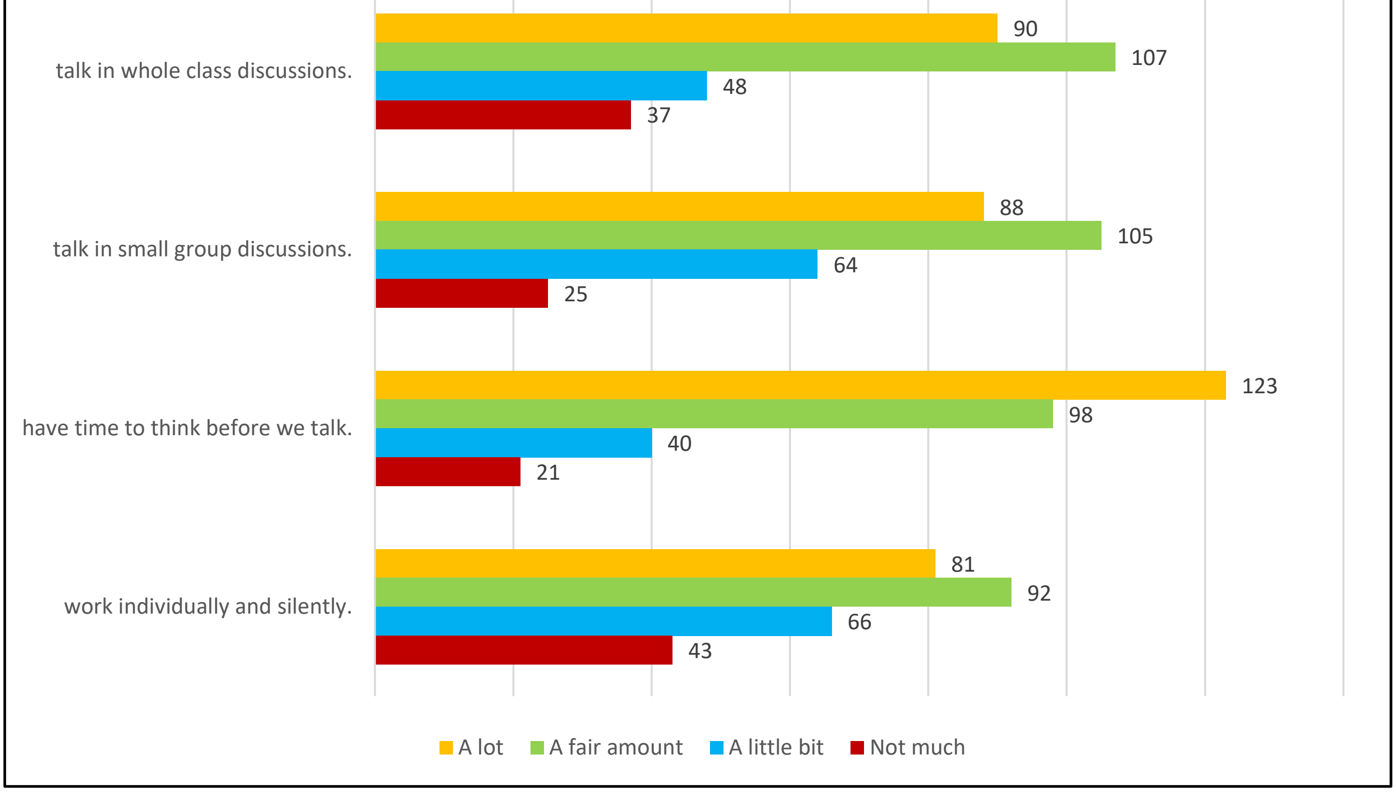
n = 290

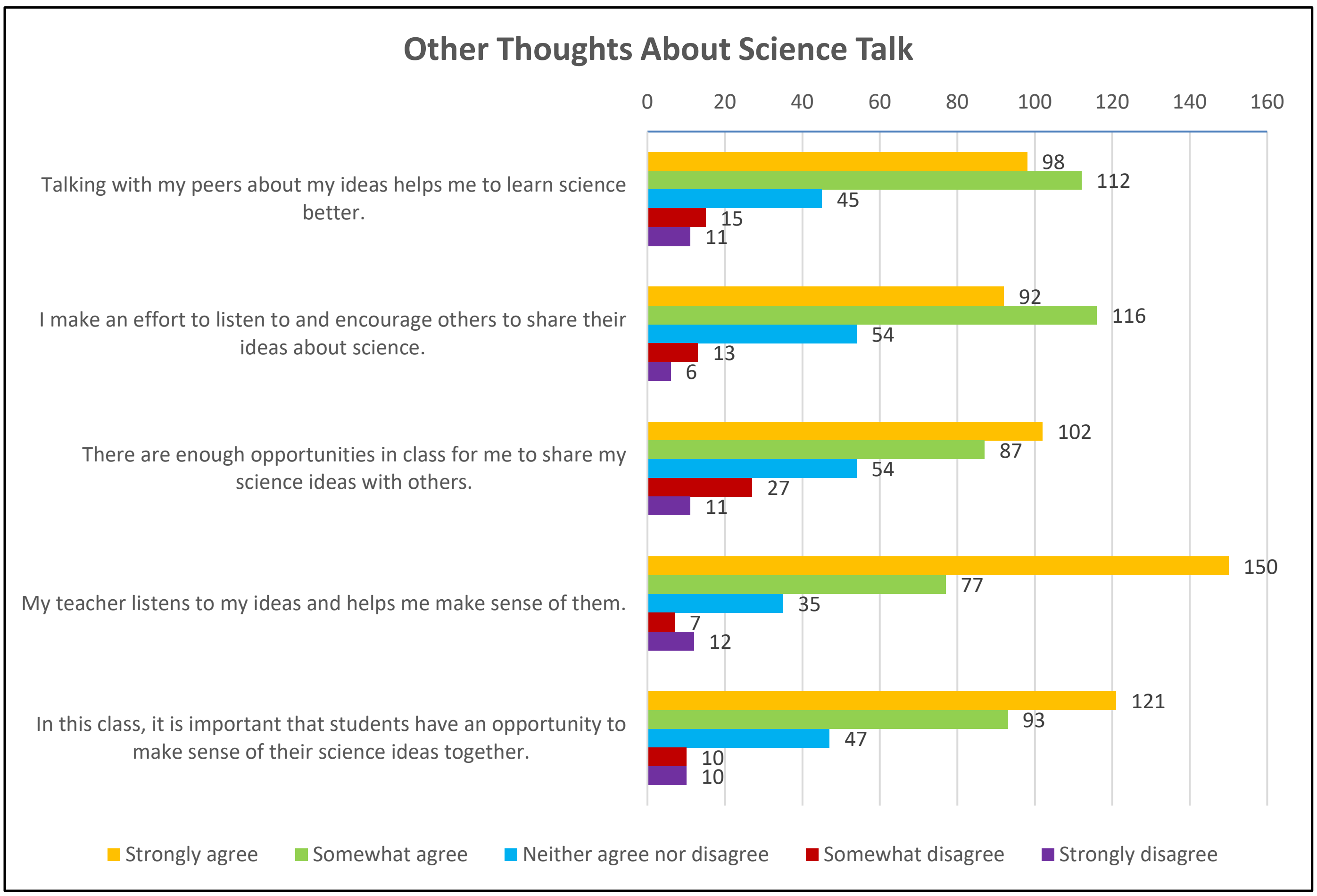

In science class this unit, I...
0
20
40
60
80
100
120
140
160
was given the opportunity to share my ideas.
146
111
26
took the chance to share my ideas.
81
132
70
felt comfortable sharing my ideas.
99
115
69
had an opportunity to write about my thinking before talking.
118
113
52
felt like my peers and/or teacher listened to my ideas.
144
108
31
was able to express my ideas in more than one way (for example: writing, drawing, talking, gesturing).
139
96
48
Often
Sometimes
Rarely


Listening to other students helps me...
0
20
40
60
80
100
120
140
improve my thinking.
118
125
26
14
see different perspectives on a topic.
127
114
29
13
improve my ability to argue with evidence.
105
112
48
18
learn how to communicate my science ideas more clearly.
112
100
51
20
A lot
A fair amount
A little bit
Not much

TCI 6-8

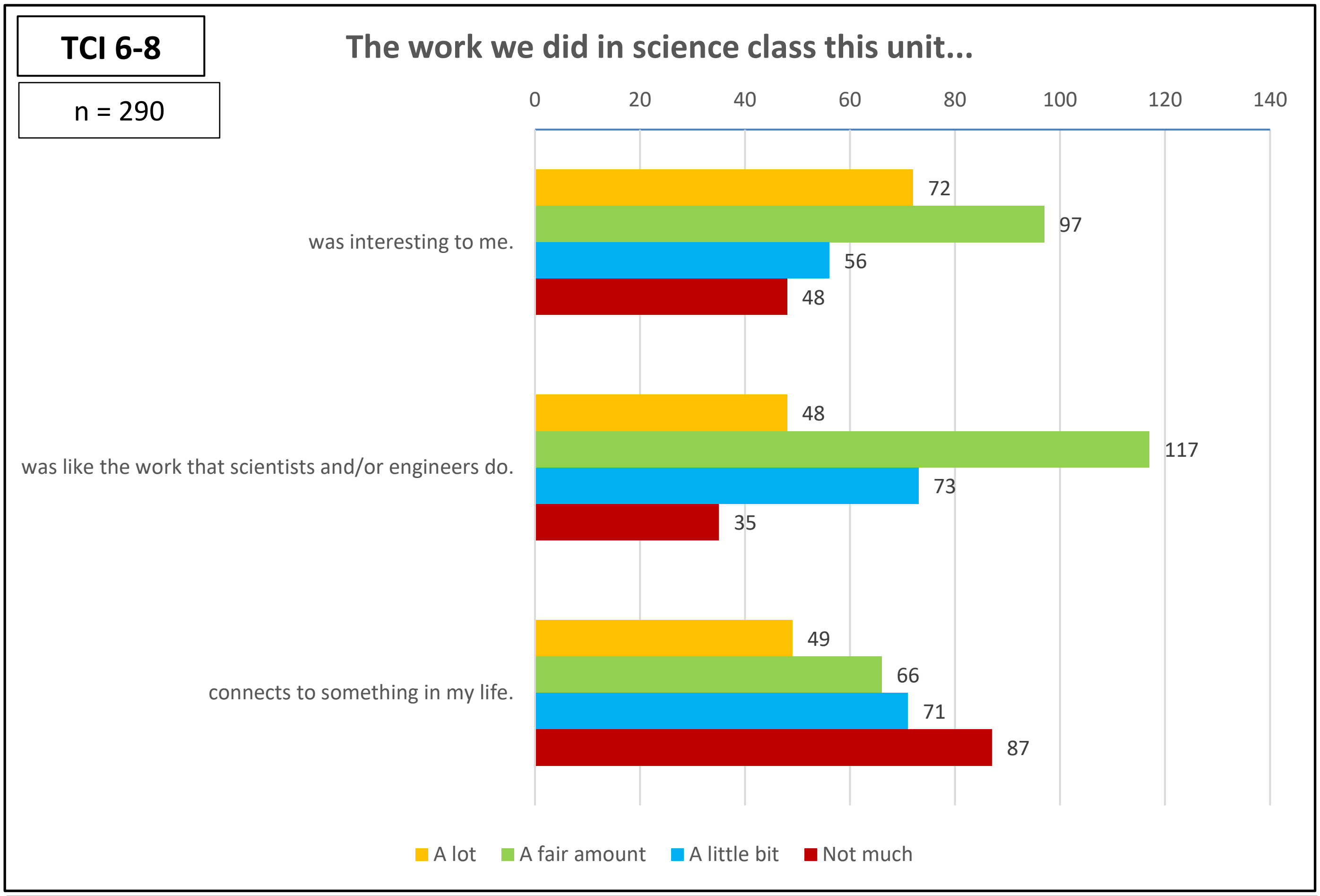
n = 290

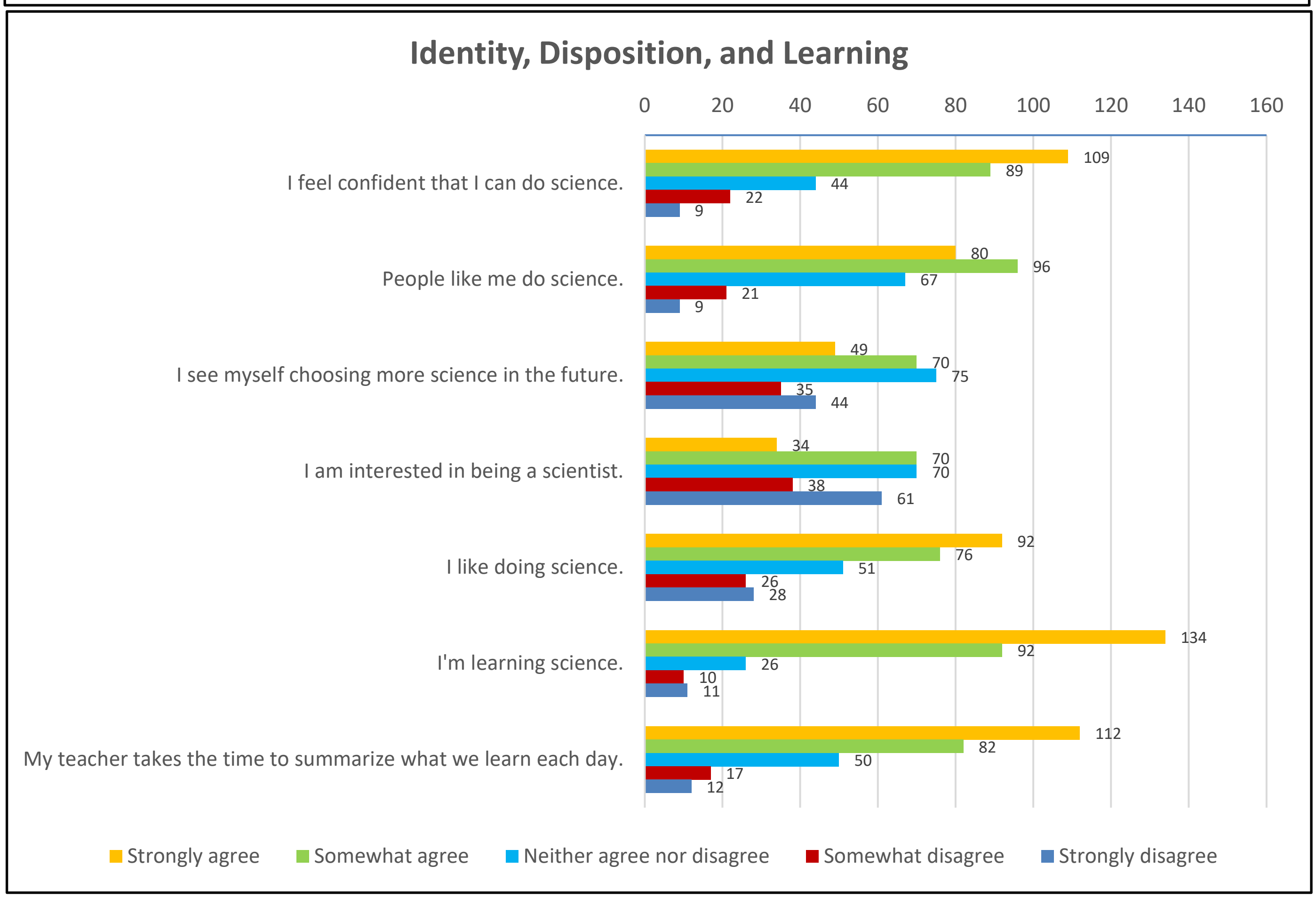

I learn a lot better when we...
0
20
40
60
80
100
120
140
talk in whole class discussions.
90
107
48
37
talk in small group discussions.
88
105
64
25
have time to think before we talk.
123
98
40
21
work individually and silently.
81
92
66
43
A lot
A fair amount
A little bit
Not much


Other Thoughts About Science Talk
0
20
40
60
80
100
120
140
160
Talking with my peers about my ideas helps me to learn science better.
98
112
45
15
11
I make an effort to listen to and encourage others to share their ideas about science.
92
116
54
13
6
There are enough opportunities in class for me to share my science ideas with others.
102
87
54
27
11
My teacher listens to my ideas and helps me make sense of them.
150
77
35
7
12
In this class, it is important that students have an opportunity to make sense of their science ideas together.
121
93
47
10
10
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

TCI 6-8

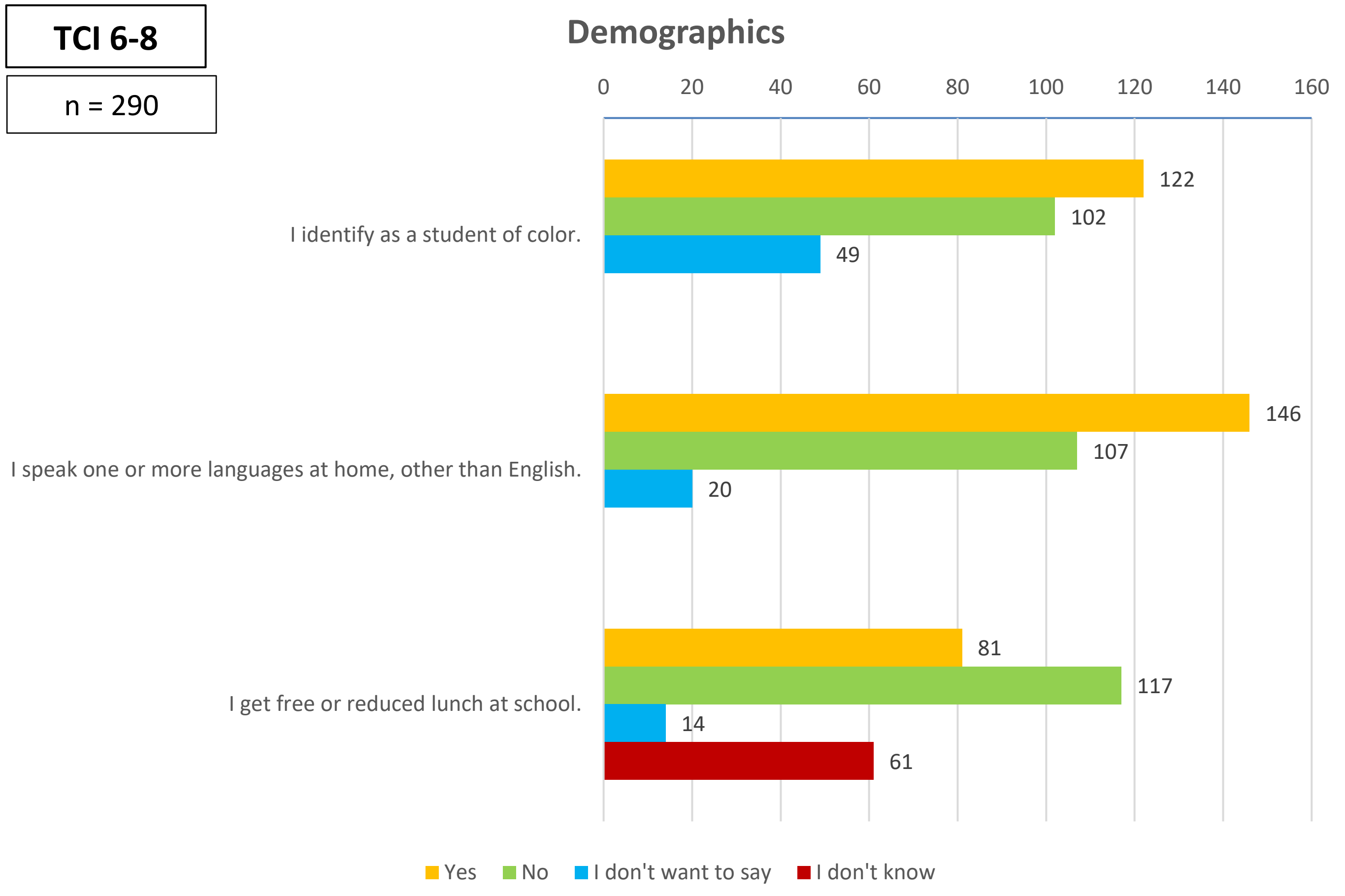
n = 290

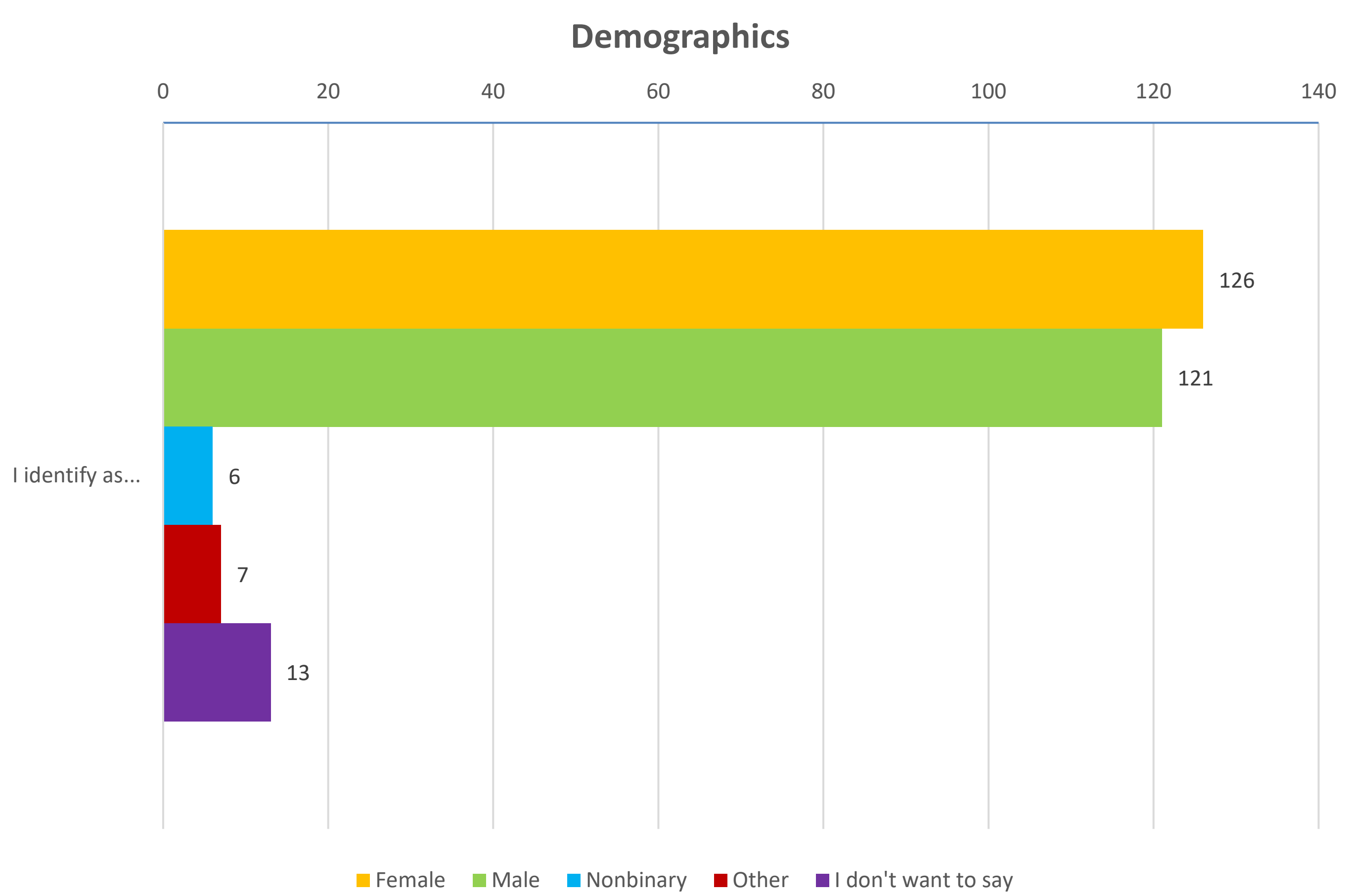

The work we did in science class this unit...
was interesting to me.
72
97
56
48
was like the work that scientists and/or engineers do.
48
117
73
35
connects to something in my life.
49
66
71
87
0 20 40 60 80 100 120 140
A lot
A fair amount
A little bit
Not much


Identity, Disposition, and Learning
0 20 40 60 80 100 120 140 160
I feel confident that I can do science.
109
89
44
22
9
People like me do science.
80
96
67
21
9
I see myself choosing more science in the future.
49
70
75
35
44
I am interested in being a scientist.
34
70
70
38
61
I like doing science.
92
76
51
26
28
I'm learning science.
134
92
26
10
11
My teacher takes the time to summarize what we learn each day.
112
82
50
17
12
Strongly agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Strongly disagree

TCI 6-8

n = 290


Demographics
0
20
40
60
80
100
120
140
160
I identify as a student of color.
122
102
49
I speak one or more languages at home, other than English.
146
107
20
I get free or reduced lunch at school.
81
117
14
61
Yes
No
I don't want to say
I don't know


Demographics
0
20
40
60
80
100
120
140
I identify as...
126
121
6
7
13
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

Program	**# of Classrooms / # of Students**	**Pre-Unit Average (%)**	**Post-Unit Average (%)**	**Average Student Growth (%)**
AmplifyScience	4 / 413	22.8%	74.4%	**66.8%**
HMH	4 / 210*	44.0%	49.0%	**8.8%**
TCI	4 / 338	21.3	44.0%	**28.9%**

* One HMH Field Test teacher elected to give a different post-unit assessment than the rest of the teachers, invalidating the data collected with the exception of one class period.

Attachment I.4: Field Test Teacher and Student Summary and Detail Reports

MIDDLE SCHOOL SCIENCE: AMPLIFY SCIENCE
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: PROPERTIES OF MATTER

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	2	2	3
Phenomenon				
• Presence of	3	3	3	3
• Revisiting	3	3	2	3
• Engaging	3	3	2	3
Evidence Gathered				
• Multiple types	3	3	2	3
• Student engagement	3	3	2	3
Student Discourse for sense-making	3	3	1	3
Students tracking their progress (self-assessment)	-	2	-	2
Student Explanations	3	3	2	3
Usefulness of Materials	3	3	2	3

Comments to Note:

Teacher #1

- The jigsaws are good. The readings are good. I actually like the Annotation Tracker. I can use it to listen for questions and connections. The Phase Change SIM that came before helped them start making some connections between molecules movement and energy. After the reading discussion they went back to the Melting Ice Pop and modeled what happened to the molecules in the popsicle. The flow was good. The students started to make connection between what was happening to the molecules in the phases as the popsicle melted as they drew it out and explained it.
- Has this phenomenon helped them to expand their thinking about this topic? – Having heated debates. Yes, its expanded their thinking and made them develop arguments w=from the evidence cards. Just tell me the answer they say but tell them they have to figure it out. They say just tell me mth evaporation of freezing point an that tells me they are really learning! They come back to it every day and then construct their final explanation at end of chapter 3
- They loved the "evidence gradient" - they love debating which evidence is most effective. Maybe too much redundancy though. Probably could skip the reasoning tools

Teacher #2

- Students are understanding phase change at the molecular level in terms of what the molecules are doing. they also can describe how energy affects things during the phase change. Students are at different places with their understanding, and that is okay. Some students still are working through attraction and how this added layer can affect whether a phase change occurs or not.
- Students continue to return to the phenomena throughout the unit and reflected on how their thinking changed over time. The phenomena serves as a great way to ground them in just how much they have learned.
- CS: I observed students using the model to explain phase changes, add additional evidence to their model and revise their model based on the new evidence. The lesson was well organized, students were engaged and on-task. The teacher was an integral part of the lesson flow, making sure all the students understood their task and were meeting the expectations during the small group discussion when they were adding to their model. Lastly, I should note that during this lesson, no student computers were used.

Teacher #3:

- Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
  No. Now after having taught this lesson I would need to provide my Special Education and ELL students a much more scaffolded Reasoning Tool, perhaps one that is written in with some fill-in-the-blanks spaces. It was very difficult for them to identify evidence, why it matters, and what it tells us (support or refute), so the process needs to be made more clear.

- Students have gathered evidence that solids, liquids, and gases have varying degrees of freedom of motion. They have also gathered evidence to specifically describe molecular motion in the three different phases. Yes, students have been able to make sense of the evidence they've gathered.
- The Phase Change Simulation is an effective tool that students can manipulate to see the effects of temperature on different substances in different phases. I think it would benefit students if the curriculum engaged them for a longer time when the simulation is first introduced, it is a great time to capitalize on their interest. The second "simulation" is not nearly as engaging. In fact, I found there to be no "value-added" to the experience, a paper/pencil version would work just as well because the on-line version is just a checklist (no motion, no self-correcting, etc.).

Teacher #4

- Flextension is great but make it a standard activity and put it in a lesson. Right now there is a hands-on activity once a week in this unit. Flextensions provide a better balance and an additional evidence collection opportunity and a really good lesson level phenomena. It would bring in sublimation! Just make it standard. I love where they suggest you do it!
- They really get that molecules move in place, around, or away depending on phase. The freedom of movement dance-the kinesthetic really helped them. I can always "model" it again with a student to remind them. Struggling with the idea that different substances change phases at different temperatures. That's why its cool but also challenging for them to see something that is not water on titan. But as soon as I remind them it's not water it helps. The unit provides lots of example in the 3rd chapter about why different substances have different melting and freezing points
- Yes. They talk to each other about what they saw in a SIM or lab or a reading. Always says "answer these Qs with your partner". They do more scaffolded talk too, where each partner has to share answers to specific questions. Helps them make sense about it before they have to write written responses in the book.

Field Test Observations

Teacher #1
Vendor: Amplify
Unit: Amplify Phase Change

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   I think our students do better with reading the hard copies. They definitely get how to do the annotations. They'll use this to help them sort their evidence about claims about the lake on Titan.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   Yes. I like that I could print the PDF easily an have them use two color highlighters.
3. Was there something that you would have liked to see that didn't happen?
   I would have liked for them to get a chance to talk about the separate article on the back. The jigsaw. Each student a ta table gets a different part of the article then they all share out their biggest or best piece of evidence from the article and collect all of their ideas.
4. What are your comments on the materials that you used today/ this week?
   The jigsaws are good. The readings are good. I actually like the Annotation Tracker. I can use it to listen for questions and connections. The Phase Change SIM that came before helped them start making some connections between molecules movement and energy. After the reading discussion they went back to the Melting Ice Pop and modeled what happened to the molecules in the popsicle. The flow was good. The students started to make connection between what was happening to the molecules in the phases as the popsicle melted as they drew it out and explained it.

Overall:

5. What are your students understanding or not understanding?
   Different freedom of movement for different phases. I just started adding how temperature and energy factors in with the SIM and the popsicle model. They struggled with the concept at first but they're getting it more. It's hard for them to understand where its coming from – thermal energy – but the warm-up today helped clear it up - to see the arrows on the picture showing the scale of energy - very explicit for them!

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? – Having heated debates. Yes, its expanded their thinking and made them develop arguments w=from the evidence cards. Just tell me the answer they say but tell them they have to figure it out. They say just tell me mth evaporation of freezing point an that tells me they are really learning! They come back to it every day and then construct their final explanation at end of chapter 3 – every t

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?
   Every time there is an evidence collection opportunity - like a SIM or developing the model or a video - we remind them WHY they are collecting evidence. And that they will write their final argument at end of chapter 3 after they get information about when (season) the lake change happened. The evaporation lab helped them actually observe phase changes. Alcohol vs. Water evaporation speed reinforced how different substances change phase at different temps.

8. Have student to student discussions focused on sense-making around evidence collected? Always says "answer these Qs with your partner". Some are more specific questions or prompts. Helps them make sense about it before they have to give a written response in their notebooks.

9. How would you rate the explanations student generate using the tools from this unit?
   They have to do a lot of explaining. They loved the "evidence gradient" - they love debating which evidence is most effective. Maybe too much redundancy though. Probably could skip the reasoning tools – they're really good but sometimes redundant after writing the Chapter 3 final written argument.

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

SECTION 4: Curriculum Lead's Reflections

Teacher seems to grasp the pedagogical moves in the unit and how they advance student learning.

***Field Test* Classroom Observation**

Teacher #2

Vendor: Amplify Science

Unit: Phase Change

Post-Observation Notes

Curriculum Specialist: Ask the Field Test teacher these questions during a post-observation session. Record his/her responses.

Focus on Today:

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

Students seemed to be successful at discussing evidence and analyzing what it could mean. They related this back to their understanding of the concepts that they learned so far.

2. Was there something that you would have liked to see that didn't happen?
   Not really
3. What are your comments on the materials that you used today/ this week?

The problem is complex and challenging for students because there are multiple "right" answers. Each group of students picks up on different parts of the model so it can be challenging for each student in a different way.

Overall:

4. What are your students understanding or not understanding?

   Students are understanding phase change at the molecular level in terms of what the molecules are doing. they also can describe how energy affects things during the phase change. Students are at different places with their understanding, and that is okay. Some students still are working through attraction and how this added layer can affect whether a phase change occurs or not.
5. How have your students engaged with the phenomena? Has this phenomenon helped them to expand their thinking about this topic?

Students continue to return to the phenomena throughout the unit and reflected on how their thinking changed over time. The phenomena serves as a great way to ground them in just how much they have learned.

6. 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?

Lots of evidence - Simulation, text, investigations (evaporating alcohol vs. water, condensation on a cup) and physical models (magnetic marbles)

7. Have student to student discussions focused on discussing evidence to make substantiate their claims?

Yes- evidence is key in this unit and all of the discussions are framed around what new ideas students can get from what the evidence is telling them, a big focus on evidence in this unit.

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

At this point students can create an explanation of the phenomena and use evidence to support their ideas.

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

This curriculum can easily be taught very wrong where students come in and get on a computer each day – it could be very isolating. There are some missed opportunities where students could do some more hands-on experiences. If teachers are trained correctly the curriculum can be meaningful for students and engaging to them. Students have not complained about being on the computer too much or they don't do anything in class. Students seem to realize that science is more than just a lab and have to talk, discuss with others as part of their science learning. However, there is a need for a little more experimenting in this curriculum, which might be easy to supplement.

SECTION 4: Curriculum Lead’s Reflections

Overall, I was impressed with the level of engagement and student-student discussions during the class observation. It was clear the teacher established a safe learning environment with high expectations for students to discuss with each other and with the whole class. I was fortunate to observe how this curricular resource used a model to help explain a phenomenon. The lesson was nearly a direct link to the modeling standard for this grade band:

“In science, **models** are used to represent a system (or parts of a system) under study, to aid in the development of questions and explanations, to generate data that can be used to make predictions, and to communicate ideas to others.”

I observed students using the model to explain phase changes, add additional evidence to their model and revise their model based on the new evidence. The lesson was well organized, students were engaged and on-task. The teacher was an integral part of the lesson flow, making sure all the students understood their task and were meeting the expectations during the small group discussion when they were adding to their model. She had specific criteria to look for as she went around the room to talk to small groups. She pressed students to think deeper for themselves, rather than give them the answer. This was truly a lesson where they students were figuring out how the model worked based on new evidence, rather than the teacher telling them what to notice.

Lastly, I should note that during this lesson, no student computers were used.

***Field Test* Classroom Observation**

Teacher: #3
Vendor: Amplify
Unit: Phase Change

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   I tried incorporating the simulation into the completion of the "Reading About Molecular Movement" segment of the lesson and it worked well. It was good for students to look at the sim while completing the table (page 24 of the student notebook), as it gave them something concrete to comment on (and discuss with partners as they completed that portion of the lesson).
   Additionally, in the "Reasoning about Freedom of Movement" evidence/reasoning tool I asked students in later periods to skip the Quotation from the Article row of the table and we focused solely on the Describe an important observation from the sim. This seemed to work well for a variety of reasons: 1) time allotted, 2) the same article quote was used repetitively and not identified by the student.
   Lastly, I used the last page (page 28 of the student notebook) as a warm-up the following day and continued with "Modeling a Phase Change". There are too many transitions in that one lesson and too much to accomplish, with any degree of quality, for one 55-minute class period as identified by the curriculum.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   No. Now after having taught this lesson I would need to provide my Special Education and ELL students a much more scaffolded Reasoning Tool, perhaps one that is written in with some fill-in-the-blanks spaces. It was very difficult for them to identify evidence, why it matters, and what it tells us (support or refute), so the process needs to be made more clear.

3. Was there something that you would have liked to see that didn't happen?
   I would have liked students to look for evidence (using the reasoning tool) with the Weird Water articles the very first time they read them. I do not think coming back to them the next day/lesson adds anything to their understanding. They could be annotating for evidence as well, the first time. Obviously, a longer time is required for this approach. Or perhaps just a shuffle in the order of Lesson 1.4 and Lesson 1.5 segments would address this concern – have students work on articles (annotating, then identifying evidence) back to back. Have students complete the table on page 24 (reading about molecular movement) while they are introduced to the sim the very first time. The focus of the table while poking around the sim would provide good structure to students as they investigate what is going on, then they could revisit and revise those descriptions later if needed.

4. What are your comments on the materials that you used today/ this week?
   Overall, I would move parts of lessons around a bit or merge them to create better flow. (See also #4 for example.)

Overall:

5. What are your students understanding or not understanding?
   My students are understanding the idea of "freedom of movement" and what that means in terms of solid, liquid, and gas phases. They can describe molecular motion in each of the three phases and connect the molecular scale to the macro scale.
   Some of my students do not understand the process of identifying evidence from text.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
   No, not much. Students were introduced to the phenomenon, then 5 lessons later they are "modeling" the freezing and evaporating claims introduced in Lesson 1.2.

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?
   Students have gathered evidence that solids, liquids, and gases have varying degrees of freedom of motion. They have also gathered evidence to specifically describe molecular motion in the three different phases. Yes, students have been able to make sense of the evidence they've gathered.

8. Have student to student discussions focused on sense-making around evidence collected?
   I hear students talking with each other to make sense of what they are seeing in the simulation to try to articulate their thoughts. There have been no opportunities, yet, to use collected evidence to make sense of the phenomenon per se.

9. How would you rate the explanations student generate using the tools from this unit?
   Okay. Because we have revisited the molecular motion and freedom of movement ideas several times in the last 3-4 lessons, I believe students are generating solid explanations that they understand.

10. Is there anything that we should know that I haven't asked you?
   The Phase Change Simulation is an effective tool that students can manipulate to see the effects of temperature on different substances in different phases. I think it would benefit students if the curriculum engaged them for a longer time when the simulation is first introduced, it is a great time to capitalize on their interest. The second "simulation" is not nearly as engaging. In fact, I found there to be no "value-added" to the experience, a paper/pencil version would work just as well because the on-line version is just a checklist (no motion, no self-correcting, etc.).

SECTION 4: Curriculum Lead's Reflections

Summary: Unfortunately, this activity highlights one of Amplify's weaknesses, which is a lack of variety in methods of student-to-student discourse. While this is easily supplemented, in its unmodified form, it left the teacher to rely on "whole-class discussions" to the point that students began to understandably check out. The teacher identifies one of the challenges with using the online modeling tool, which again has been addressed through modification by the MS teacher teams. The teacher also identifies the lack of scaffolds for students needing support – in the form of pre-filled or partially-filled forms. Again, most of the issues with this lesson may be addressed through modifications or teacher-developed supports, but in its current format, it creates a bottleneck in the momentum of the unit, and some students strugglead to give their full attention to the process.

***Field Test* Classroom Observation**

Teacher #4
Vendor: Amplify
Unit: Phase Change

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   They really seemed to like the anchoring phenomenon and that it was about one of Saturn's moons. They communicated their initial ideas well. The video of the really scientists who study Titan in the space pictures and the in the lab were authentic and the kids connected to it.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   The labs are simple but super effective. I like the student notebooks. Students love that its all there and not papers to lose in a folder. It scaffold organization. The chapter overview and key concepts and vocab are in there but I don't find myself using it that much because they give us the wall charts, but they can see new vocab words and write definitions. They can refer back to it which is great. But didn't need to include HW in the notebook. If they were provided every unit, that would be great but you can print out from the PDFs pretty easily and customize it. I don't have to go to each lesson, I just go to the to the student notebook in the unit overview and select what I want and print it in a packet. I can print the whole thing out for my IAs. SIMS are great too. Teacher guide is great – especially printed version! It makes collaboration easily and everything is in their like possible responses and back pocket questions and pacing. Its good for me – I don't have to log-in if I don't want to.

3. Was there something that you would have liked to see that didn't happen?
   Flextension is great but make it a standard activity and put it in a lesson. Right now there is a hands-on activity once a week in this unit. If the Flextension became a standard part of a lesson that would be great because then it would provide a better balance and an additional evidence collection opportunity and a really good lesson level phenomena. It would bring in sublimation! Just make it standard. I love where they suggest you do it!
4. What are your comments on the materials that you used today/ this week?
   The kinesthetic activity where they physically model the molecules and the magnetic ball lab in the box were great - really helped students understand what the molecules are dong - kinetic energy – when heat is added or removed. The marble lab and the Flextension were really excellent. The hands-on was exciting for the students and showed them phase change in action - the Flextension - and the magnet ball lab helped them understand the movement of the molecules in different phases. They were easy to set up too.

Overall:

5. What are your students understanding or not understanding?
   -They really get that molecules move in place, around, or away depending on phase. The freedom of movement dance- the kinesthetic really helped them. I can always "model" it again with a student to remind them. Struggling with the idea that different substances change phases at different temperatures. That's why its cool but also challenging for them to see something that is not water on titan. But as soon as I remind them it's not water it helps. The unit provides lots of example in the 3rd chapter about why different substances have different melting and freezing points
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
   Titan's lakes phenomenon. I'm surprised at how happy and curious there are to talk about this. They were actually arguing excitedly about their explanation of the phenomenon. I had to help get them to used to the evidence cards. Sometimes when the students who understand the explanation share their evidence to support a claim it acts as a scaffold for students that aren't there yet.

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?

Magnetic marbles – a hands-on activity on macro scale then the next activity was the Sim to see what was happening at the micro level and manipulate it. Modeling tools are helpful too because too the Amplify reading are really intense but they are excellent evidence gathering opportunities. The videos - showing the zoom-in of the model. Recreated them in the SIM and seen them in the hands-on. Evidence cards to apply to argumentation...

8. Have student to student discussions focused on sense-making around evidence collected?
   Yes. They talk to each other about what they saw in a SIM or lab or a reading. Always says "answer these Qs with your partner". They do more scaffolded talk too, where each partner has to share answers to specific questions. Helps them make sense about it before they have to write written responses in the book.

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

The argument writing we did today went well. The reasoning tool start with their evidence and they think about which claim it can support. They do the analysis about what science concepts or key concepts connect that evidence to the claim. They have them elaborate on that to provide additional reasoning - like provide examples of where they saw applications of the phenomenon or how they knew it was the best argument.

10. Is there anything that we should know that I haven't asked you? Evidence gradient is awesome. Scaffold the reasoning tool.

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

Teacher was able to make good use of the many evidence collection opportunities to support student understanding.

MIDDLE SCHOOL SCIENCE: AMPLIFY SCIENCE
SUMMARY OF EVIDENCE GATHERED DURING STUDENT INTERVIEW
UNIT: PROPERTIES OF MATTER

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

<u>Comments to Note:</u>

<u>Teacher #1:</u>

1. Yes! How did the lake on Titan disappear. In 2007 image you can see it was there the liquid in different colors, in 2009 it was gone. We had to do so much learning to figure it out! We did though. It evaporated!
2. A lot of readings and annotations they really help for our notes for later. We did models and labs. I love the labs. It gives us things that we know . We put things in our notebooks too. Like with the marble activity, it shows us how energy has to go in and out to change the phase and that was evidence I could use.
3. The models things on the SIM were like a quiz so she know what we know. We submitted it. There were fours or five we submitted. I don't think the'yre tricky but sometimes you really have to think about it.

<u>Teacher #2</u>

- There are a lot of group activities, time to discuss and time to mull over ideas. There is alone time to think before we share our ideas. I like the turn and talk so we can talk to each other first. If we are confused it allows us to talk to each other so we all know what is going on.
- Phenomena: Machine creates liquid o2, how does the space ship use fuel? We get a scenario at the beginning and while we go along in the unit we try to figure out the why the scenario works the ways it does. Modeling, hands-on, computers to help show us how things work.
- We are using a book as part of the field test and we really like it. The simulation is good bc we can't see stuff or do many of the things in our classroom. When we can we do a hands-on activity.
- CS: In previous classes the teacher had a goal and they did experiments to get to the teachers' goal. Now, they feel like they are contributing to their learning, not just their teacher. I should also mention that the students were very vocal about a previous experience with the field-tested materials (Amplify). After having two different teachers using Amplify they said there is a right and wrong way to teach Amplify. Last year with Amplify they said they did a lesson each day on the computers and filled out a bunch of worksheets with little interactions/discussion with their peers. During the field test they are still completing the worksheets but interacting a lot more with each other, developing a model in groups and sharing ideas with each other. They said the computer is a resource for simulations and some work but not the only thing they do each day.

Teacher #3:

- Re Phenomenon: I think having that extra little fun piece, for me, it made it a lot more interesting, and I kind of wanted to know more. Wow, a disappearing lake, how could that happen? And I wanted to know more about it. So I learned about phase change – I knew a little bit about it, but I wasn't that interested in it, but then I heard about Titan's lake and I got a lot more interested. M: I think it's cool to have a main question, and then you work around it and you have this interesting phenomenon to do the science around. It keeps me paying attention.
- Today, we got to use a simulation. It was VERY useful. I was kind of confused about how the molecules moved, like, wouldn't a gas move in place? And then I looked at the simulation, then I thought, wait, if the gas move in place, then why isn't it higher? Then I realized it was a solid. (moves hands). You can actually move the box in the simulation, which is really cool because you can see how the molecules react.
    - Re Would you recommend: Yes. I like it. I like the notebook part of it. There are warm-ups built into it, which I think helps kids who didn't get exactly what we did the day before. It helps them learn it. I like how you can look back on what you did the days before. If I was doing it on the computer, I might not be able to go back, I don't know, but I know I can do it in the notebook, I can look back. I also do like the computer aspect of it as well.
    - E: I would recommend it. It still brings back – it's not all just technology. I agree with Maddy, sometimes it's hard to find where it was, but with the notebook you can go back and learn it again if you are still confused with the concept. It's just easy, right there. With the computer, if you want to go a little forward, and see what aspects are involved, for example the simulation, to go back to the simulation, I think it's very good to see it in full motion. On the computer. So I think I would definitely recommend it.
    - M: I especially liked the sim. I liked how you got to play around, and because we can't see anything in the micro scale, the molecular scale, and you were able to clearly see how molecules moved in solids, liquids, and gases.

Teacher #4

- Yes. There's a focus question and do a lot on it then at the end we write an essay and tie it all up. Every time we pick up evidence teacher reminds me how this related to Titan's lake. Thinking about how methane might have a different temp. to go from liquid to solid. Titan's lake and disappearing liquid.
- Hands-on things like the balls in the box to show molecules freedom; labs we do teacher connects it. We do SIMS. Sometimes we do it on our own computers and sometimes together as a class. Hep me understand how energy affects the substance and movement of molecules. Freedom of molecules. I can change things in the Sim and learn about it.
- Drew the way the molecules move. We drew arrows to show direction molecules moved in. We explained do they move in place or move around. We came back to it yesterday . Went back and see if we thought the same as before. We can change stuff on the drawing and add colors and other things.
- Probably yeah. I personally like it. I like it way more than what I used to understand. The SIMS and labs help me. I like it because the SIM shows you more than just what they tell us. I can test things by myself so I understand better.

<u>Student Interview Protocol</u>

Unit Name: Phase Change
Vendor: Amplify
Teacher #1
Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain. **Yes, after warm-ups we talk in our table groups and say our ideas. f asks us to tell our main ideas that we get to the whole to class all so it's our ideas. Wed do it before we write in our notebook, after we do alab or watch the videos.**
   a. Is having conversations with your peers something new to this unit or something you regularly do in science? **This year we did and kind of last year. In 5th grade No. In our old science we didn't do warm-ups. All we did was "try and figure this out" but we didn't brainstorm or anything.**
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 because you get ideas from other people. If you didn't think of something you can hear ideas from other people and go "oh, now I get that ."**

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! How did the lake on Titan disappear. In 2007 image you can see it was there the liquid in different colors, in 2009 it was gone. We had to do so much learning to figure it out! We did though. It evaporated!**

4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? **We had to talk to our table and give our ideas why it disappeared even though we didn't know anything about phase change.**

5. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? **A lot of readings and annotations they really help for our notes for later. We did models and labs. I love the labs. It gives us things that we know . We put things in our notebooks too. Like with the marble activity, it shows us how energy has to go in and out to change the phase and that was evidence I could use**.

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me? **There were all these things we did and read and all of it came together. now we know it evaporated. Photos were taken in 2007 in summer. We had to order the evidence and rank it in order. No evidence that Titan was cold enough for the liquid to freeze, be a solid, so it must have evaporated.**

7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?

   It all goes in the notebook. It was really helpful because I can look back at what I wrote and use it later like when I'm making a claim about something and need to know if it's right. In the notebook workbook. Really helps especially when we have to do the make the claim and evidence .

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 drawings in the notebook of the molecules attraction. With the melting ice pop model. We drew how the molecules changed as it went from being solid to melted. We got to write it later ,again. Our ideas changed. We did it on the computer too.

9. Were you able to ask your questions during the unit? To whom did you ask your questions? **Talk in or groups or ask out teacher. Always table first then we can ask Teacher**

10. Did your teacher have students share their individual ideas before coming to class "consensus"? **We all, in our class, all agreed about the titan answer but I bet there was debate in other classes. We're a smart class sometimes! We talk too much though!**

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? **Comes around and checks answers. When we share out at our table after warms ups she's listening. The models things on the SIM were like a quiz so she know what we know. We submitted it. There were fours or five we submitted. I don't think the'yre tricky but sometimes you really have to think about it.**

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? **I had no idea what phase change was before so that means we've learned this. I learned so much stuff. In the pre test I was like what was kinetic energy? I like the pretest because at the end you can see how much you learned. You don't know anything but then bit by bit you figure it our until you know it.**

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain. **Yes, I didn't even know Titan existed before this. I make connections a lot now. Like why water evaporated. Scientists do test on things like that. I don't know if they would SIMS, but I think they study their own SIMS. I think they have to read too.**

14. Would you recommend that we use these materials for ALL students in ____ across the district.

Yes. It makes sense to me. Its organized really good. It doesn't just go oh here's the answer like more kinetic means less attraction, if it did then I wouldn't learn anything. Then I would just forget it in a week.

Curriculum Specialist Impressions and Summary:
These students were very confident about their learning and were able to really articulate what they had learned. They all agreed that they like how the unit was organized because they could see how al of the pieces they were learning “fit together” to help them explain what happened to Titan’s Lake.

<u>Student Interview Protocol</u>

Vendor: Amplify Science
Unit: Phase Change
Teacher #2

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
   There are a lot of group activities, time to discuss and time to mull over ideas. There is alone time to think before we share our ideas. I like the turn and talk so we can talk to each other first. If we are confused it allows us to talk to each other so we all know what is going on.
   Observation – When students are talking to me they are using their sentence stems or talk norms.
   I agree with…
   Like X and Y said….

   a. Is having conversations with your peers something new to this unit or something you regularly do in science?
   Conversations are always done in science, not so much in elementary science. I feel like we are asked to talk more now than in previous science classes. In elementary school we did lots of experiments, did prediction, and the teachers guided the conversation much more, and they had an idea where they wanted the conversation to go. The questions now are broader so lots of ideas are shared and I feel like am contributing. We used to just listen and write down but now we are doing more in science.

   b. 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?
   The questions seem more broad and open to a lot of conversations compared to other science classes. Gets you to think more, multiple ways to think about a problem.
   I like that we have time to talk to our peers because…If you don't understand something it gives you a chance to learn it from your peers, also if you are embarrassed to say what you think you can just say it in the group, hear different perspectives.
2. Did the unit have a clear phenomenon (you might need to explain what you mean by a phenomena)? Does a phenomenon help you understand the science ideas by giving you a reason to study the science?

Phenomena: Machine creates liquid o2, how does the space ship use fuel? We get a scenario at the beginning and while we go along in the unit we try to figure out the why the scenario works the ways it does. Modeling, hands-on, computers to help show us how things work.

3. At the beginning of the unit, did your teacher ask you your ideas about the phenomena even before you began studying the topic?
   Yes, this happens in each of the units, we had time to share our initial ideas, we looked at a model, we hear about what others think about it. Sometimes we draw a model or try to explain the model using different evidence pieces.
4. What kinds of evidence have you gathered in this unit? Did that evidence help you answer the unit question? Explain
   Temperature, energy transfers, type of evaluation, attractions., models show how it works. We also get evidence cards that we use to add to our model. We use these cards to help explain the model.
5. Did the lessons link together to help you explain the phenomena? Do you think you can explain it to me? No Time

6. Were you able to ask questions to get clarification during the unit? To whom did you ask your questions? No Time
7. Did your teacher have students share their different ideas before coming to class consensus? NO Time
8. 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?
9. 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?

   We are using a book as part of the field test and we really like it. The simulation is good bc we can't see stuff or do many of the things in our classroom. When we can we do a hands-on activity.

Amyplify could be boring but this this unit we are doing more discussions and hands-on activities.

Curriculum Specialist Impressions and Summary:

In summary, the students notice a difference between the field-tested curricula to previous curricula in science. During the field test unit students expressed that they have several opportunities to think about their ideas, share with their peers and discuss science concepts with the entire class. They feel their ideas are valued and welcomed in the class. They reflected on their previous science class experiences and noticed there was a big difference between the old science classes and now in terms of opportunities to discuss ideas, share ideas and think about science concepts on their own. In previous classes the teacher had a goal and they did experiments to get to the teachers' goal. Now, they feel like they are contributing to their learning, not just their teacher. I should also mention that the students were very vocal about a previous experience with the field-tested materials (Amplify). After having two different teachers using Amplify they said there is a right and wrong way to teach Amplify. Last year with Amplify they said they did a lesson each day on the computers and filled out a bunch of worksheets with little interactions/discussion with their peers. During the field test they are still completing the worksheets but interacting a lot more with each other, developing a model in groups and sharing ideas with each other. They said the computer is a resource for simulations and some work but not the only thing they do each day.

Student Interview Protocol

Unit Name: Phase Change
Vendor: Amplify
Teacher #3

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.

   M: Yes – definitely. If someone is a little more confused and the other person gives them an example, they can see it another way, or if they are stuck or have their own opinion that may not be very correct, maybe they can see how the other opinion could actually work.

   E: Also, I think it's nice because if you think something, or you don't understand, you can just ask the person next to you. You can get a second voice on the question that we are getting.

   a. Is having conversations with your peers something new to this unit or something you regularly do in science?

      Sometimes.

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?

   [See response to #1]

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?

   E: I think having that extra little fun piece, for me, it made it a lot more interesting, and I kind of wanted to know more. Wow, a disappearing lake, how could that happen? And I wanted to know more about it. So I learned about phase change – I knew a little bit about it, but I wasn't that interested in it, but then I heard about Titan's lake and I got a lot more interested.

   M: I think it's cool to have a main question, and then you work around it and you have this interesting phenomenon to do the science around. It keeps me paying attention.

   [Titan is a long way away. Finding the answer to this question isn't exactly going to change your life. But you say you're still interested in it?]

   M: Oh yes!

   E: Well, when scientists figure it out, it will help us figure out a lot of other confusing things. Phenomenon.

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. We did.

   [Did you find out anything that has changed your initial ideas about the lake?]

   I: Well, no… not as much, because – so, originally, I thought it could be one of two things, it either was evaporated or frozen. Now we've learned about how things freeze and how things evaporate, but we don't yet know the conditions on Titan that we could say which it was.

   E: I think that it's nice to have – well, it's this big idea, you're learning little things about it, but using this big concept.

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

E: Today, we got to use a simulation. It was VERY useful. I was kind of confused about how the molecules moved, like, wouldn't a gas move in place? And then I looked at the simulation, then I thought, wait, if the gas move in place, then why isn't it higher? Then I realized it was a solid. (moves hands). You can actually move the box in the simulation, which is really cool because you can see how the molecules react.

M: Yes, like, you can see the molecules taking the container's shape, which would be a liquid, or sometimes you could even see the solid molecules slide as a whole solid inside the container. So that's how you can tell what phase the molecules are in, based on how they move. Because in the simulation, you can see them.

[When you are working on the computer, do you work alone or in groups?]

E: We usually work with our table pod. Usually we have our own computers to do that.

[What if you had to share a computer with someone when you looked at the simulation?]

M: I think that would work. We talk to each other anyway.

E: I sit next to Stella, and whenever I see something interesting or important, I will turn my computer towards her, and say, "hey, look at this, now we can tell this is a solid because they are jiggly and in place."

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?

   All: Yes. It's all interesting.

   E: It's very information-filled. You can look back on information; my table partner was very confused on what to do today. I told her to look back a few days ago on what we did and it might give you an idea of what to do. It's laid out pretty good. And it's pretty fun so far.

7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?

   M: Well, we have this calendar on the wall. We have all the things we have learned on past days for the past two weeks.

   I: We have the Key Concepts. That helps us remember.

   E: We have the notebook. That kind of helps us remember. We can look back on and remember what we learned.

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?

   Yeah – we have these boxes on the pages in our notebooks, where we write the descriptions of what we see, like today we wrote down the definitions of what we saw the molecules doing, and then we drew pictures, and put arrows on them to show how they were moving.

   I: The pictures really help because sometimes when we describe what we see, we don't do as good of a job describing it as a picture would. So drawing the picture sometimes saves us a lot of words that may not be as good anyway.

9. Were you able to ask your questions during the unit? To whom did you ask your questions?

   E: I will sometimes ask my tablemates, and if they don't know, I will ask Ms. Hoofnagle. Sometimes they will have some good ideas, but then if I am not sure, I will ask Ms. Hoofnagle so that it is clear.

   M: I will ask my peers if we are having a discussion. But if we are all listening to Ms. Hoofnagle and having a class discussion, I will raise my hand and ask Ms. Hoofnagle and then she will answer it, using evidence that we've learned from the sim, or the articles or something else we have learned.

10. Did your teacher have students share their individual ideas before coming to class "consensus"?

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?

    [Were you learning these things in an order that made sense?]

M: Yes. So far, but we haven't gotten very far.

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.

    I: I am assuming that whatever we conclude it will be based on information that was already given to us, so it won't really be our conclusion, it will be something someone else came up with, and we would just be concluding what someone else has already come up with, and so it doesn't seem it's important to learn it's important to learn all this; but only if we're given information that someone else put together for us to come to the right conclusion.

    [So you feel that you're being led to a specific conclusion?]

    I: Yes. If we are given some information, someone else has been given that information first.

    [What if I said that you had to use the information you've learned to prove the conclusion at the end? If you had to use evidence to support every piece of the explanation. Would that make a difference?]

    I: Yes. Then it would feel more important. It would be better if there wasn't just one answer, too. [Related to authenticity] I think there would be less of the "learning" part – how all of it works. They would probably know all that already. Someone who studies this probably already knows how molecules move around each other. What temperature would change the phase.

    M: I think all of what we have learned so far has been important, and it has been interesting. I hadn't thought about this stuff that is all around us like this before.

14. Would you recommend that we use these materials for ALL students in middle school across the district?

    M: Yes. I like it. I like the notebook part of it. There are warm-ups built into it, which I think helps kids who didn't get exactly what we did the day before. It helps them learn it. I like how you can look back on what you did the days before. If I was doing it on the computer, I might not be able to go back, I don't know, but I know I can do it in the notebook, I can look back. I also do like the computer aspect of it as well.

    E: I would recommend it. It still brings back – it's not all just technology. I agree with Maddy, sometimes it's hard to find where it was, but with the notebook you can go back and learn it again if you are still confused with the concept. It's just easy, right there. With the computer, if you want to go a little forward, and see what aspects are involved, for example the simulation, to go back to the simulation, I think it's very good to see it in full motion. On the computer. So I think I would definitely recommend it.

    I: Well, I do like the computer part – but, I would recommend it for the other schools, but not all schools have a bunch of computers…

    [What if I said that if we were to go with this program, every classroom would get at least enough computers to share with a partner?]

    I: Oh, then yes! I would definitely recommend it!

    E: It's pretty easy to use the computers, even if they are in partners. It's not like you have to do it all by yourself. There's no "click this, go here", "let's do this by myself because it's so fun", but it's not so fun that you'd want it all to yourself. You could share it with a partner and learn together.

    M: I especially liked the sim. I liked how you got to play around, and because we can't see anything in the micro scale, the molecular scale, and you were able to clearly see how molecules moved in solids, liquids, and gases.

Student Interview Protocol

Unit Name: Phase Change
Vendor: Amplify
Teacher # 4

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,. Talk as a table group. Talk about we observed. Sometimes goes deeper to conversation. Like claims and is supported with evidence.**
    a. Is having conversations with your peers something new to this unit or something you regularly do in science? **Yes,. We do it almost everyday not when we do readings**.
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. You can hear from more than one perspective. If I'm confused about how does this make sense,. My peers ay this is how it works. Help me understand better. Changes my ideas if they're wrong.
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. There's a focus question and do a lot on it then at the end we write an essay and tie it all up. Every time we pick up evidence teacher reminds me how this related to Titan's lake. Thinking about how methane might have a different temp. to go from liquid to solid. Titan's lake and disappearing liquid.

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. Had to say if it evaporated or just froze. Used what we kind of already knew about evaporation and guessed about it with our table. We wrote about it.

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
Hands-on things like the balls in the box to show molecules freedom; labs we do teacher connects it. We do SIMS. Sometimes we do it on our own computers and sometimes together as a class. Hep me understand how energy affects the substance and movement of molecules. Freedom of molecules. I can change things in the Sim and learn about it.
6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me? **Sort of. Sometimes it goes off topic but helping us understanding something we need to understand the next piece. Put it all together at the end. SO yes.**
7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?
Put all our notes form the things into together. We write I n the notebooks. We sometimes go back in notebook to look at our ides.
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?
Drew the way the molecules move. We drew arrows to show direction molecules moved in. We explained do they move in place or move around. We came back to it yesterday . Went back and see if we thought the same as before. We can change stuff on the drawing and add colors and other things.
9. Were you able to ask your questions during the unit? To whom did you ask your questions?
Our table groups.
10. Did your teacher have students share their individual ideas before coming to class "consensus"?
She asks people what they think and as a table come to one answer. The best answer. And share with the teacher. And the class.

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?
    Did a thing on the computer that was multiple choice at the beginning and again near the middle. We do worksheets. They are like the tests. Sometimes we hand them in.
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's more organized than the some other units because everything connects. One day we read and next day do a SIM that adds on to that. That's evidence to create one claim and support it.
13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain. **At home, I think about it more. Like the molecules more.**
    Yes because when we saw Titan lake pictures and videos real scientists were talking about and researching it. They probably do it more advanced than us but yes. Yes.
14. Would you recommend that we use these materials for ALL students in ____ across the district.

Probably yeah. I personally like it. I like it way more than what I used to understand. The SIMS and labs help me. I like it because the SIM shows you more than just what they tell us. I can test things by myself so I understand better.

MIDDLE SCHOOL SCIENCE: HMH
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: PROPERTIES OF MATTER

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	3	2	2	3
Phenomenon				
• Presence of	1	1	1	2
• Revisiting	1	1	1	2
• Engaging	2	2	1	2
Evidence Gathered				
• Multiple types	2	2	2	2
• Student engagement	2	2	2	2
Student Discourse for sense-making	1	2	1	2
Students tracking their progress (self-assessment)	1	-	1	-
Student Explanations	2	-	-	2
Usefulness of Materials	2	1	1	2

Comments to Note:

Teacher #1:

- They were given the model. They were not given the opportunity to create the model and revise it. Great animations that fed them but not figured out or revised. No mention of the phenomenon in the subsequent lessons
- Re types of lessons: Readings lots of readings. Stuff is given to them. Then they answer questions or fill in a table or put words in a drop down menu. Books has pictures. Computers have animations. Sat passively and watched the video, not interactive. Reading and filling out a workbook
- Not a good way to monitor their work while going through this curriculum. I would make modifications if we owned this. Not easy to check student work on the computer or give feedback. Not laid out in a logical way.
- There are things I like. I like the book. For absent kids it is good for them to make missed work up. One advantage of computer is to update. I don't' see HMH able to update their online materials. The consumables create more of a stagnant curriculum.

Teacher #2:

- The power point and the built-in turn and talks are not included. I need to get them to talk more. I talked to them about the words they need to use.
- This lab encouraged each group to come up with their own ideas to try. That is a nightmare so I constricted that.
- I thought the evidence notebook was on line. Disappointed this wasn't true so I made my own notebook.
- They love the hands on. Engagement is high.

Teacher #3:

- The lesson plan does not provide opportunities to answer the inevitable questions that kids have. There's stuff in the Lesson Plan about misconceptions, but nothing that addresses connections to the real world or students' interests.
- The curriculum is also missing a clarification about the addition of thermal energy being responsible for pulling apart the attraction between the molecules and how that relates to changing the phase and the temperature. There's just once sentence that brings it up and two questions on the post test.
- Overall, in the general sense, things are only mentioned once. That's what a textbook does – a true curriculum would have multiple opportunities to practice each concept. I don't see that in HMH.
- I have a lot of content knowledge, and I am super sad that this could be going out to people who may not have content knowledge. This program will not support them

Teacher #4:

- Clear what was the purpose of the lab. Later lab was really unclear why we were doing it, the melting ice lab, where they saw where ice melts faster or slower. Fun but didn’t elicit much new science understanding from students.
- Pretty basic & short unless I was w/ that group to force them to discuss & explain more. For a lot of students, they just wanted to finish the questions and not fully add depth. These explanations written in their notebooks, notebooks didn’t have prompts for probing deeper. Sometimes questions had multiple questions requiring deeper thought, but most didn’t. A lot of fill in the blank or circle between two options.
- I noticed general lack of scaffolding for students to think more deeply. A lot of work happened over the summer w/ modification, modifying HMH would be more difficult because the notebook. Students kept saying they missed the sims, they wanted them to help them learn. Some found sims on their own.

***Field Test* Classroom Observation**

Teacher #1
Unit: Properties of Matter
Vendor: HMH

Post-Observation Notes

Focus on Today:

1. What did you try during the HMH unit that seemed successful? Why would you call it successful?
    a. Moving between the strength of the book and the laptops. Tried all day in books and then laptops all day. But better to use a combination of the two. Books to get information. HMH feeds them. HMH tells them. Good animations and little questions in reading to check their understanding. Computer gives them instant feedback. Use as class discussion.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
    a. No. Really not really clear to get done in a set period of time. Some of the pages were 20 minutes of work but main ideas were not stressed to teachers. Not good for an inexperienced teacher. Little lost as to what the main ideas you want them to get out of the day.
3. Was there something that you would have liked to see that didn't happen in this lesson?
    a. More student driven discovery. Being given a phenomenon to try to explain. Simulations, work and discussion to build evidence to come up with themselves. There were really important ideas that there was not enough support to the students. Key idea might be one question on a page.
    b. IN the phase change, kinetic energy is a big idea but works against molecular attraction. And I know kids struggle with molecular attraction the most and there was a gigantic hole in core knowledge that HMH did not support.
    c. They were given the model. They were not given the opportunity to create the model and revise it. Great animations that fed them but not figured out or revised.
4. What are your comments on the materials that you used in this unit?
    a. There was not enough time to explore all of the materials. Didn't dive in to all of the materials. Sims were more Phet animations. Not able to get data from the sims. Don't like the way it is laid out. Might become more fluid in finding stuff in the teacher guide but I found by accident. Stuff there but not stressed what the teacher should hammer home.

Overall:

5. What are your students understanding or not understanding?
    a. Not understanding molecular attraction. I knew this was a struggle, but I find opportunities to point this out.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
    a. They are talking about phase change as a phenomenon. Not a phenomenon in a storyline. Made the melting arctic sea ice as the phenom. We made the melting arctic sea ice as the anchor. This was a project in HMH, 6 question project.
    b. Not mention about sea ice in the subsequent lessons. After lesson one, we defined the project, and gave them some options. They researched it. We are making the unit project the overarching phenom.
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. A couple of hands on things they have done. Mixture of student discussion and whole class discussion. Melting ice in different parts of the room.
        i. Kids got in to this
    b. Readings lots of readings. Stuff is given to them. Then they answer questions or fill in a table or put words in a drop down menu. Books has pictures. Computers have animations. Sat passively and watched the video, not interactive. Reading and filling out a workbook
    c. Really early on: took syringes to discover properties of different states to understand gas, did this with water and then marbles.
8. Have student to student discussions focused on sense-making around evidence collected?
    a. Only occasionally. Sometimes, it says discuss with your group. Read, watch, write and then discuss.
    b. Not much to call out having a discussion. No prompts to do so. We are adding it.

9. How would you rate the explanations student generate using the tools from this unit?
    a. My top tier students are able to construct thorough explanation. 80% of them, the explanations are thin. Not being asked to do extensive explanation. I am prompting them to do more.
    b. About the same as in the past. Hard to say. Not spent a lot of time figuring this out. Not a good way to monitor their work while going through this curriculum. I would make modifications if we owned this. Not easy to check student work on the computer or give feedback. Not laid out in a logical way.
10. Is there anything that we should know that I haven't asked you?
    a. There are things I like. I like the book. For absent kids it is good for them to make missed work up. One advantage of computer is to update. I don't' see HMH able to update their online materials. The consumables create more of a stagnant curriculum.

***Field Test* Classroom Observation**

Teacher: #2
Vendor: HMH
Unit: States of Matter

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
    a. They love the hands on. Engagement is high. I wanted to look at their evidence notebook. Comments were pretty good.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
    a. No. The power point and the built-in turn and talks are not included. I need to get them to talk more. I talked to them about the words they need to use.
3. Was there something that you would have liked to see that didn't happen?
    a. No vocab in here. Not apparent
4. What are your comments on the materials that you used today/ this week?
    a. This lab encouraged each group to come up with their own ideas to try. That is a nightmare so I constricted that.
    b. I thought the evidence notebook was on line. Disappointed this wasn't true so I made my own notebook.

Overall:

5. What are your students understanding or not understanding?
    a. More of understanding of kinetic energy and phase change and that will get stronger as they go on. Pretty good understanding of physical changes.
    b. Added a model to help them see the invisible
    c. Attraction is a hard concept. Page 79 very limited information. They are supposed to figure it out by themselves
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
    a. It's the melting ice but only in the unit project
    b. Not at all. They don't see 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. Melting ice
    b. Did another hands on, explored liquids, solids and gases.
    c. That is it.
8. Have student to student discussions focused on sense-making around evidence collected?
    a. There is a "discuss' but not enough structure to get kids to talk to each other.
    b. Talk to each other about everything but science.
9. How would you rate the explanations student generate using the tools from this unit?
    a. Haven't evaluated them yet. Lesson phenomena, need to look at the CER from this…
10. Is there anything that we should know that I haven't asked you?
    a. Given that this whole unit is 17 total and 5 are project days. That is crazy to do every 3 weeks.

***Field Test* Classroom Observation**

Teacher #3
Vendor: HMH
Unit: States of Matter

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful?
   My humor – and I had the content knowledge to interpret the graphs with them. It went successfully for both – it was in context of what they were going to do the next day.

   That said – the lab for the next day wasn't supposed to happen within the scope and sequence as presented. It is one of the extension labs.

2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   No. I went looking for stuff – apparently HMH has some PD videos, but I don't know where they are, and the content is not in the Teacher Edition. I didn't get what I needed from HMH. I had it from my previous experience and educational background.

3. Was there something that you would have liked to see that didn't happen?
   I think I changed the lesson a little, so they were annotating the graph. The lesson as written doesn't ask kids to do that. Also, the graph as it is written is generic, and has no numbers in it. Students have been working with ice and there are some anomalies in there – the students have been working with ice and there's something in the text about different materials. But using the graph to represent ice would be appropriate for the students, so why not add the numbers for the melting point and boiling point?

   The lesson plan does not provide opportunities to answer the inevitable questions that kids have. There's stuff in the Lesson Plan about misconceptions, but nothing that addresses connections to the real world or students' interests.

   The curriculum is also missing a clarification about the addition of thermal energy being responsible for pulling apart the attraction between the molecules and how that relates to changing the phase and the temperature. There's just once sentence that brings it up and two questions on the post test.

   Overall, in the general sense, things are only mentioned once. That's what a textbook does – a true curriculum would have multiple opportunities to practice each concept. I don't see that in HMH.

4. What are your comments on the materials that you used today/ this week?
   I did not use the materials as offered or required. It offered six alcohol thermometers, which are notoriously difficult to read. It asked us to put the thermometers in beakers… I used my own materials for the experiments.

Overall:

5. What are your students understanding or not understanding?
   The students are doing a fine job talking about particles. The curriculum talks about particle motion, but there is no supporting model for that – at least, no "modeling" as we have been looking at during PSEP [re: model-based instruction]. The lesson coming up on Monday has an image that has motion lines drawn for the first time and that's how they're introducing that modeling component to the students.

6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
   The text never uses the word "phenomenon." I found it once on materials I downloaded for the Unit Project – a worksheet mentions it once. The lessons don't return to the sea ice, if that's what we're calling the phenomenon. The video from NASA I showed during the lesson actually came from a student conversation in first period. It wasn't planned in the lesson. The student made a connection, and so I used it. That's how we go back to the phenomenon – there's no place in any of the lessons that tells you to go back to the phenomenon. What it does ask us to go back to: an image of the three states of bromine and one on gallium. Neither of which they provide in the kit. Gallium was provided in the TCI kit, so I went across the hall and looked at it [with that teacher].

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?

Well, there's no real stated phenomenon. So we can't call any of the work their doing "evidence", because it would be evidence for what? It's not connected back to anything.

One of the hallmarks of Amplify is, you're going to post these things on the wall, connecting questions and concepts, and we have none of that. They're gathering evidence for what?

8. Have student to student discussions focused on sense-making around evidence collected?
No, the only discussions suggested in the lesson plans are some pair-share. The discourse in class was based on my teacher moves, not HMH.

It's colorful – it's novel to work out of a textbook. Some kids are always compliant at school no matter what, but they're bored to death, and they'll work happily out of the textbook. The other piece that's clunky – since my projector has been down – I can't model with the document camera [it was not connected to the replacement projector at the time of this interview]. But sometimes I use the computer and it's not updated – the e-book doesn't match what's in the student workbook. The kids can't follow along if it doesn't match up. The kids can check their work online, which is cool, some kids can work ahead at home – we can't stop them from doing that – and they end up further ahead than the other students.

The computer is clunky to navigate from the teacher's perspective. When I was trying to navigate to the quiz stuff, I didn't know there were quizzes available because I couldn't find them. And it wasn't listed in the scope and sequence, it's not integrated into the lesson plans, so it's not apparent they're even available. To a novice teacher, this would be a challenge!

Answers are given in the lesson plans, but there are no answer keys. So the kids were filling out a grid, and in the teacher guide didn't provide an answer grid. Instead, it describes the answers: "from top to bottom, the answers are, etc." I had to make my own grid, so I could walk around and check student work during class. If the goal of having a curriculum is to make confident teachers, but they have to put a lot of effort into making an answer key in a grid, it's not doing it's job.

Having three curricula being tested in our building is unique, so the three of us have been able to observe each other teaching the other programs. And see what the lesson prep is like in each of them. Hands down, I am teaching out of a textbook.

aa.

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

Student Interview

Unit Name: States of Matter
Vendor: HMH
Teacher #4

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain. Yeah, Teacher does this anyways, he's a good teacher.
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, you can get a better understanding. It helps you. The website is too complicated.
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? Yes, on the website.
5. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? Forgot, kinda, did we have a pre-assessment. We had a big discussion.
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. Diff types of gas/liquids can take shape in container but solids can't. Yes. How can we explain about matter, don't remember the question. How can we explain the states of matter?.
7. Did the lessons link together to help you explain the phenomenon? ~~Do you think you can explain it to me?~~ Yes, picture helped explain it. Diff lessons about diff states of matter and how they relate to each other.
8. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so? Teacher made an idea journal for us. Didn't really do anything with it.
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, used the workbooks. Haven't gotten very far because of all the snow days.
10. Were you able to ask your questions during the unit? To whom did you ask your questions? Yes, table group, or teacher.
11. Did your teacher have students share their individual ideas before coming to class "consensus"? Yes. We haven't come to a class consensus don't. Table groups but not whole class yet.
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? Yes, he asked us. The questions seem fair to me. Some tests put more words in it to try to trick you. Teacher doesn't do that, he explains things to 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? Yes, was confusing, website didn't use very much. Didn't get how to work the website. I liked the website but haven't used it a lot, Ayala.
14. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain. Yes, if you don't like school it's not interesting to you. Madden, they (scientists) already know this, they don't use workbooks. Ayala: they probably do better experiments.
15. Would you recommend that we use these materials for ALL students in __Middle schools__ across the district. Madden: Amplify is better. Shows you more the bigger idea. Jade: easier set up, chapter & lesson. Teacher adds on and switches around. Might be easier for him, to see all our work. A lot more fun & understandable. Directions on Amplify much clearer & easier to follow. HMH is not bad but it's not as captivating. Amplify is easier to log onto and search than HMH, get lost in it. Can get on anywhere. Ayala about Amplify: Helps me to visualize more so when we're taking a test, I can remember what we did. Taylor: probably will be able to log in to HMH.
16. Worksheet: Jade, want our own paper, too loose. Want the whole book. Like the worksheets because you get to work w/ your table group more. Jade: like the mix. Ayayla: like Amp because there's more reading Jade: get more learning out of it.

Curriculum Specialist Impressions and Summary:
Students are getting more out of how Teacher navigates the lessons and probes for understanding than they are getting from the HMH lessons. They talked more about Amplify than what they're doing with HMH. Snow days seem to erase their short term memory but not their long term one.

MIDDLE SCHOOL SCIENCE: HMH
SUMMARY OF EVIDENCE GATHERED DURING STUDENT INTERVIEW
UNIT: PROPERTIES OF MATTER

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

Characteristic	Teacher 1	Teacher 2	Teacher 3	Teacher 4
	Students of both teachers interviewed together			
Discourse for sense-making	1		2	2
Consensus building	1		-	2
Phenomenon present and helpful	1		2	2
Elicitation / Initial Model	1		-	2
Evidence helped understand the phenomenon	1		2	2
Way to track ideas through the unit	0		-	1
Assessments fair and helped know where you are	-		2	2
Does the unit help you learn science	1		2	2
Would you recommend these materials	1		2	1

Comments to Note:

Teacher 1& 2

- Re Discourse: More like the teacher talking, fill in the blank,, do our own work. No hands activity. The way it explains put you in individual mode. High level vocabulary. I think we need more vocab explanation. You have to pay attention to it. They don't explain it much. You go immediately into a writing.
- Not really. It talks about one idea. Doesn't have a main question. More minor little question. From one idea to another but not a main idea. Diff between AS and HMS, in AS we had something to focus on. HMS more for an older kid. Not kid friendly.
- Not obvious what I am try to learn. We didn't even talk about it. Want us to remember.

Teacher 3

- I feel like we're learning from it, but I feel like we could learn from it in a more, funner way than just reading and writing.
- For me, I don't know if this was part of the curriculum, but we were instructed to get our book and our computer. They pretty much have the same information on them. So I was wondering to myself, why am I logging into this computer right now? I didn't like the HMH computer system. it was – I don't know. It was kind of confusing. I thought the book was more useful. Oh, and the online version is different than the one in the book. Like, it's basically the same thing, but sometimes on the computer it will have more.
- I think this curriculum is a little boring for me, because we listen to a huge, long paragraph about something, and we're like [eye roll] and now I get to write about this huge paragraph. There's an audio file online.
- I agree, I think it's overall a good curriculum. I think it's good. But if I were to change it, I would put in a few more hands-on labs. And a lot less writing! Because that makes it shorter, and you could maybe change a lot of the reading from one large paragraph into smaller snippets like just a sentence. So, then you could maybe focus on more important things.
- Honestly, I wouldn't recommend it, because it's not the kind of learning that we even learn from. When something is boring for kids, they kind of block it out. That's what I was doing. So when we were reading in class, I was kind of reading it but not paying attention to it. Because it was just droning on and on. I feel like if things are like more fun or actually have maybe questions while you're actually listening in class, it makes it more fun.

Teacher #4

- HMH is not bad but it's not as captivating.
- CS: Students are getting more out of how the teacher navigates the lessons and probes for understanding than they are getting from the HMH lessons. They talked more about Amplify than what they're doing with HMH.

Student Interview

Unit Name: Properties of Matter
Vendor: HMH
Teacher 1&2

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
    a. More like the teacher talking, fill in the blank,, do our own work. No hands activity. The way it explains put you in individual. High level vocabulary. I think we need more vocab explanation. You have to pay attention to it. They don't explain it much. You go immediately into a writing.
    b. Is having conversations with your peers something new to this unit or something you regularly do in science?
        i. We need to learn to work together. Sometimes it doesn make any sense for me alone. My partners ask for help but I don't think I should do that. One person might understand it well and we can help each other. In the real world people work together. Doing individual work to cram in more work in one day. Too much in one day
        ii. Talking to others helps to see different ways of doing it.
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?
    a. Helps us to communicate our ideas. More of the currilcumm takng over and the teacher follows that. New to our teachers they rely on the materials.
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?
    a. Not really. It talks about one idea. Doesn't have a main question. More minor little question. From one idea to another but not a main idea. Diff between AS and HMS, in AS we had something to focus on. HMS more for an older kid. Not kid friendly.
    b. In a nut shell. HMS is more informative but presents fast. AS easier to comprehend and kid friendly. Glass worker wasn't realistic. AS videos are more informative.
    c. Less hands on in AS
    d. Relationship between glass and water .
    e. Connect to real life to build on that.
    f. The way HMH is organized, you click on the last thing
    g. The login is a bit long to get to! A bit more of a hassle. Not easy to navigate.
4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?
    a. Just jumped in. HMH is about the teacher explaining.
    b. It is important for me to share my prior knowledge.
    c. Movie theatre was supposed to do that.
    d. HMH is more elaboration. When they just could say something
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
    a. HMH: Reading and summary
    b. A lot of the answers are fill in the blank. Pick one answer or another. But this is guessing.
    c. We did a page in our notebook and fill answers in the computer but they looked different on the computer.
6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
    a. Not obvious what I am try to learn
    b. Everything is made of particles, all particles have kinetic energy, depend on those amount means if it was solid, liquid or gas.
    c. We didn't even talk about it. Want us to remember.
    d. I was gone one day and I missed a lot. Big jumps in the learning.
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?
    a. Not in HMH! No follow up on it.
    b. I like drawing my ideas
    c. We don't use our workbooks
9. Were you able to ask your questions during the unit? To whom did you ask your questions?
10. Did your teacher have students share their individual ideas before coming to class "consensus"?
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?
13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.
14. Would you recommend that we use these materials for ALL students in ____ across the district.
    a. 7 maybe
    b. 1 no

<u>Student Interview</u>

Unit Name: States of Matter
Vendor: HMH
Teacher #3

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.
   [Our teacher] is just at her desk, and then with our friends we can discuss different questions because we have different thoughts about it, and we like to see what our different thoughts are. It can help us make a better answer from it.

   I feel like we're learning from it, but I feel like we could learn from it in a more, funner way than just reading and writing.

2. Is having conversations with your peers something new to this unit or something you regularly do in science?

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?

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?
   Yes, we were looking at how sea ice is melting.

   We drew a diagram and wrote a claim paragraph about it.

   Well, we haven't gotten back to it. Right after we did it, a big snowstorm hit, and we weren't in school for a while. I am not sure if that is why, but we really haven't gone back to it.

   We did this worksheet, but we didn't go back to it.

   [Does it help your learning to have a phenomenon at the beginning of the unit?]

   Yes.

   I think it gives you a good idea.

   I think we should have stayed with it, instead of just spending a day on it –

   It says it's the Unit Project, but we really only did it for a week. it was kind of fun doing it, but also we really didn't learn that much. I learned a little about how when it's melting, it's making more melt as it's happening.

   Even though it was the Unit Project, though, I thought it was a good way to start the unit.

   Yes, because it keeps you interested. When you have something interesting, it helps – I mean, I thought it was fine the way it was.

5. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic?
   [See above]

   I kind of feel like we knew the general reasons why it was melting – global climate change, warming, that kind of stuff. But I don't think I really knew the reasons why it was melting.

   I knew the basic idea, but…

   I knew a lot about it because my mom is an environmentalist, so… But I don't think everyone knew about it like I did, because their moms or dads aren't environmentalists. They probably learned some more stuff from it than I did.

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.

We went onto the internet and searched the internet to research the sea ice.

For me, I don't know if this was part of the curriculum, but we were instructed to get our book and our computer. They pretty much have the same information on them. So I was wondering to myself, why am I logging into this computer right now?

I didn't like the HMH computer system. it was – I don't know. It was kind of confusing. I thought the book was more useful.

I don't understand why – so on the computer, they had all these multiple-choice questions, but in the book they just had these blank spaces for the answers. They expected you to know the exact answer.

Oh, and the online version is different than the one in the book. Like, it's basically the same thing, but sometimes on the computer it will have more.

Also, what I experienced on the computer was, it had a chart, and it went, "solids, liquids, and gas", but in the book it was "gas, liquids, and solids"!

I felt the opposite of [previous student]. I felt they should just do the computer. Because the computer had videos which made it easier to understand. And the computer let you check your work, which made it easier to understand. "Hmmm, I'm not really sure about this – let me mark these answers and then I'll check it", and if it's wrong, then you can redo it without checking with the teacher first, which makes me more independent. Like, you're helping yourself then.

And you don't have to wait for the teacher to help you then.

If you just used the book, and you had to write out the answer, how could you check your answer? Maybe put the answer upside down in the book or something? I don't know, it works better on the computer.

I also remember from one of the labs we were doing, we hadn't gotten our headphones, and there were closed captions, so it was showing particles in a solid, liquids, and a gas, but there were only captions on the first video, so we were kind of like, yeah.

I noticed that too, in that video. Then I marked the wrong answer because I thought liquid particles were vibrating, too, because the video said that solid particles were vibrating in place. And in the liquid video, it looked really similar but there were no captions, so I figured it was probably the same thing. I feel like they should add the captions, or, maybe a little sentence below the video.

7. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
   [All] Yes.

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?
   So we wrote about the sea ice, the book always tells us to write it, but she always tells us we should draw too.

   You can draw out your ideas.

   It's sometimes better to draw out your ideas, so if the book was instead like, "write about this or draw a picture", it would maybe spark more ideas, I guess?

   It's easier for me to understand it drawn and not written. There are some things in the book I don't understand what they're saying, but when it's drawn out I understand it. So I understand what they're asking but not how they put it.

   If someone's not a strong writer, drawing gives them another way of understanding what's going on.

   With writing, you don't always want to read a bunch of your notes, sometimes you just want to look at the picture you drew and say, "oh, yeah, I remember what was going on there."

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?
Kind of. It was in the middle of the first one with the sea ice – I felt like I didn't know enough about it to say much about it. But we were supposed to be searching on our own, and I didn't know enough about it to understand the research I was getting. If I went back now, I would know more about why it was happening – the particles are moving faster, and stuff.

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.
I think this curriculum is a little boring for me, because we listen to a huge, long paragraph about something, and we're like [eye roll] and now I get to write about this huge paragraph. There's an audio file online.

    It would be better if there were shorter ones, and then we could do a hands-on experiment about it. Or just a shorter one with fewer questions, so it doesn't just feel like this huge thing of text all the time.

    I wish we switched it around so it's not the same thing every time.

    Two days ago, we did this lab, with the ice in a cup. I thought it was fun, because it wasn't just the writing, the "do this, do that" kind of thing. Because you could do more stuff. You had to find three different ways to make it melt faster.

    It gave us evidence, and it also went back to the sea ice thing –

    I just realized that it was like the sea ice thing.

    I think when you do hands-on labs, you get your mind working more about the phenomenon, because you're trying to find ways that you, yourself – when you read something, and then do something based on that, it's already been figured out. But on the hands-on lab, you kind of have to figure it out for yourself.

    [Agrees that it is important to design the experiment, not just follow "cookbook" instructions.] So like here, it said, you have this piece of ice in a cup, figure out how to get it to melt in X amount of time. And then you actually had to figure it out.

    The book said, use things around your classroom to try to melt the ice, and we had a heat lamp over there, and hot water, and magnifying glasses, different kinds of cups. So we could do a bunch of different things to try to melt the ice.

    What I liked about it was that we started with writing things down, not knowing which one was going to go faster. And then we did the experiment, and then we revised in the end how it went. I like that process a lot.

    I kind of feel like we know some of this stuff already? I think it keeps asking the same kind of thing but in different ways.

    This workbook is saying like, we've never encountered anything like this before, and we've never heard of states of matter --

    Today, we had this picture of a hill, and it asked, what would happen if this ice melted? And I was like – uhhhh, and then it had these random answers, like, "if it melted, it would turn into ice." I think it would be better to have the questions be something more challenging, something we don't know, so we could actually learn something.

    Like, maybe we'd have this question, and then Ms. Teacher would teach us something, and then we'd be able to answer the question. Well, wait – first, we'd guess the answer, and then she'd teach us something. And then we could go back to it and we could answer the question. That would feel more like we learned something.

15. Would you recommend that we use these materials for ALL students in ____ across the district.
I thought it was overall a good curriculum. I know they were asking questions that were like, well, um… but some kids don't know anything about this content -- and so overall, I think I would recommend it.

    I agree, I think it's overall a good curriculum. I think it's good. But if I were to change it, I would put in a few more hands-on labs. And a lot less writing! Because that makes it shorter, and you could maybe change a lot of the reading from one large paragraph into smaller snippets like just a sentence. So, then you could maybe focus on more important things.

I agree that there should be – overall, it was a good unit, but I wish there could be more hands-on learning. And I wish it could be more fun and interactive.

Honestly, I wouldn't recommend it, because it's not the kind of learning that we even learn from. When something is boring for kids, they kind of block it out. That's what I was doing. So when we were reading in class, I was kind of reading it but not paying attention to it. Because it was just droning on and on. I feel like if things are like more fun or actually have maybe questions while you're actually listening in class, it makes it more fun.

I would not really recommend it. I think it's a good idea – the books are colorful, the color is good. But I don't feel like I'm being challenged enough. [Two others verbally agree.] I don't feel there are enough hands-on labs. Yeah, there's a lot of words, not enough – it gets boring.

[Does it matter that the books are in color?]

Yes, you can tell the different substances because of the color.

Like, if they just printed out a bunch of worksheets from this, they wouldn't be in color. And that happened in elementary school, and the teacher would have to show it up on the board.

The computer has color.

Yeah, I know, but then you have to look at it in two different places. Up and down, looking at two places. Inconvenient.

[But if you had a laptop on your table with the image, instead of up on the screen, would that be okay?]

[Thinks for a moment] Yeah, I guess so. I mean, it would be better to have it on the page, but it would be fine to look on a screen to see the color.

I agree with all of you guys. Well, yes, I wouldn't really recommend this because I was thinking at the beginning of this, I wonder how many hands-on labs there were, and it's like there were only two so far. And the ones we did so far weren't very good. They weren't very controlled. We used hot water, and when we did it, the water could have been different temperatures.

We also did a lot of reading, and there are a lot of questions, but the answers are very easy. They're so obvious that you would know the answer even if you didn't do the reading. I mean they just make us feel dumb.

Field Test Observation

Teacher: #4
Vendor: HMH
Unit: Properties of Matter

Post-Observation Notes

Focus on Today:

1. What did you try today that seemed successful? Why would you call it successful? Previously had them rip pages out of the books, this day gave them the notebooks. Didn't have to worry about loose pages, appreciated having their own books. Usually a bit more clear w/ labs basically gave them a loose overview and sent them off to figure it out. So much of HMH is reading directions and prompts. This period really struggles w/ this, reading & discussing directions.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson? Think so, it was clear what was the set-up. Do now: questions from the teacher manual (entry task). Clear what was the purpose of the lab. Later lab was really unclear why we were doing it, the melting ice lab, where they saw where ice melts faster or slower. Fun but didn't elicit much new science understanding from students.
3. Was there something that you would have liked to see that didn't happen? That lab said would take 25 min but took up most of the period, 40 min, discussion about what we learned had to happen the next day. Would have preferred to do all of it in one day but wonder if it was because I'm new at it.
4. What are your comments on the materials that you used today/ this week? In terms of lab, not a lot of materials, or prep. Students understand the books. Steps of lab straight forward but to students, they had hard time understanding was it was saying. Table to fill made it clear what they needed to get at. Appreciated that.

Overall:

5. What are your students understanding or not understanding? Good understanding what energy has to do w/ phase change. CCC about energy very prominent. All students can explain what's happening w/ phase change & energy. The visuals…they haven't done much modeling in this unit but the book provides a lot of visuals of what molecules look like in diff phases. Would help if they did the modeling as they explained, on paper or physically.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? Interesting phen: week of thinking about artic sea ice melting, over the course of the unit, students brought up the idea of ice melting, lessons had their mini-phen. Putting gas in a container not interesting, students didn't bring it up in conversation, what's a salt, what's a gas, phen just turned into questions I had to ask. 2nd lesson phen of metal gallium melting in someone's hand was more interesting but lesson took a week, only 2 days related to that phen unable to connect other 3 days to phen very well.
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? Syringe lab good example of gathering evidence of difference btwn phases of matter. Phase change: from reading & thinking about the reading. Evidence notebooks, at end of ea investigation asked how does this relate/explain the lesson phen, that lead to good class discussions about what we actually learned these past couple of days.
8. Have student to student discussions focused on sense-making around evidence collected? Some of that, end of ea exploration required student-to-student discussion. Depending on focus, had to turn into class discussion. They did have to use what learn to answer discussions.
9. How would you rate the explanations student generate using the tools from this unit? Pretty basic & short unless I was w/ that group to force them to discuss & explain more. For a lot of students, they just wanted to finish the questions and not fully add depth. These explanations written in their notebooks, notebooks didn't have prompts for probing deeper. Sometimes questions had multiple questions requiring deeper thought, but most didn't. A lot of fill in the blank or circle between two options.
10. Is there anything that we should know that I haven't asked you?

SECTION 4: Curriculum Lead's Reflections

The notebook was a lot of fill-in-the-blank; although students really liked that and were tasked to read it themselves for understanding, teacher needs to make sure students are taking their thinking to a deeper level.

MIDDLE SCHOOL SCIENCE: TCi
SUMMARY OF EVIDENCE GATHERED DURING TEACHER OBSERVATION AND INTERVIEW
UNIT: PROPERTIES OF MATTER

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	2	3	2
Phenomenon				
• Presence of	1	1	2	2
• Revisiting	1	1	2	1
• Engaging	1	1	3	2
Evidence Gathered				
• Multiple types	2	1	3	2
• Student engagement	2	1	3	3
Student Discourse for sense-making	1	1	3	2
Students tracking their progress (self-assessment)	-	-	-	-
Student Explanations	2	1	3	2
Usefulness of Materials	2	2	3	3

Comments to Note:

Teacher #1:
- The assessments are poorly worded. The amount of words is fine. But the way they are worded, shuts kids down. Even I have trouble.
- The phenomenon is not very good. Not woven in. Each investigation has its own phenomena. Not a story.

Teacher #2:
- All of the things so far have been reading or demo. No discourse built in. Just says "discuss this". No modeling tool. No hands-on. Directions in the ppt to draw model but not scaffolds. No teacher resources to know what the model should look like especially the final model. No storyline. Supposed to be phenomenon but not clear, never really come back to
- Student to student discussions limited. Discuss with your team these questions after a demo. They don't understand the demo and there is no strategy in the materials about what I do with that when kids say "x". Someone without background would not know what to do.
- The explanations are awful. The questions do not help them explain things. The questions are too confusing.

Teacher #3
- I have really liked the simplicity of the teacher presentation materials. Everything you need is embedded in the presentation and it makes it very easy to plan. If I were using the curriculum (not as part of a field test) it would be very simple to see what you needed to include and emphasize and what you could skip or assign to students who need more help.
- Yes, they were really fascinated with the simulation. There were lots of interesting discussions while they explored what would happen if….?
- Explanations are very clear, especially because they are using models. I think this slows them down so they really have to think about what is really happening at the macro/micro level, so their understanding and explanations are more complete and detailed.
- CS: The teacher's pedagogical skills are clearly compensating for some of the lesson's shortfalls, perhaps without her realizing it. I am left to wonder how this lesson would have gone in a classroom with a first-year teacher or one with a less-developed skillset.

Teacher #4

- I like it. Good hands-on opportunities for investigations. Engages students, Captures interest. But the labs are for demos or groups. With modifications it could be done at tables. But you'd need more materials to do that – for each group. The slides provided for the teacher presentation station don't always correspond with student notebook. Slides don't tell kids which page in textbook to go to, neither does student notebook. Makes a lot more work for me and students to hunt for where students are supposed to in their books – doesn't say in teacher materials either. The teacher presentation slides should already have that info on it to streamline and keep kids moving. Lessons are created for a 160 minutes, so I don't know how to manage the activities for a 50 minute period. Also the readings, they don't tell you when to insert the reading in the 60 minute lessons. There's a "menu" of readings and extras but I would like some more guidance about where to insert these optimally for learning. The student notebook is all online too and it's good. Kids can draw on it but activities weren't clearly sequenced.
- CS: Although students interacted with the materials very few accurately made conceptual connections between what they observed in the lab and the particle models that corresponded with that phase in their notebooks.

***Field Test* Classroom Observation**

<u>Teacher</u> #1
<u>Vendor: TCI</u>
<u>Unit</u>: Properties of Matter

<u>Post-Observation Notes</u>

1. What did you try today that seemed successful? Why would you call it successful?
    a. When I do the demos. Interesting that the notebooks were more engaging that I thought they would be.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
    a. Yes and no. It gives me the bare bones but it depends on how much time I have to prep. If I have more time to prep, I can weave it together. AS gave me more to work with. TCI order is different than I would construct.
3. Was there something that you would have liked to see that didn't happen?
    a. TCI needs to provide me moments when kids need to discuss. There is no place to do that in TCI. By 6th period I can kinda figure it out.
4. What are your comments on the materials that you used today/ this week?
    a. Materials are fine but they don't provide enough materials. They make suggestions, but they don't provide what they suggestion. So far no group labs but just demos by me.

<u>Overall</u>:

5. What are your students understanding or not understanding?
    a. Confusing substance and state.
    b. This unit, they drew their model, direct lecture, act it out, read about it, drew in notebook.
    c. Reading: Says molecules touch each other. Readings don't seem relatable.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
    a. The phenomenon is not very good. Not woven in. Each investigation has its own phenomena. Not a story.
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. See above.
8. Have student to student discussions focused on sense-making around evidence collected?
    a. Not a lot unless I put it there. I need to be mindful. If I follow TCI they would never talk to each other.
    b. Very open for me to do whatever I want to do.
9. How would you rate the explanations student generate using the tools from this unit?
    a. Haven't looked yet. When I look at their drawings, they are pretty good.
10. Assessments?
    a. Poorly worded. The amount of words is fine. Way they are worded, shuts kids down. Even I have trouble.
    b. Questions are good but not for MS.
11. Is there anything that we should know that I haven't asked you?
    a. Tools on the computer are difficult to manipulate. Too much time to figure out the tools to make their ideas clear. Some is hard to do without a mouse.
    b. I hate the font on their ppt. Way too small. I can't leave my teacher station. Wording on ppt is very difficult to understand. Really restrictive right now….

***Field Test* Classroom Observation**

Teacher #2
Vendor: TCi
Unit: Properties of Matter

Post-Observation Notes

1. What did you try in this unit that seemed successful? Why would you call it successful?
    a.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful unit?
    a. No. There isn't very much information. All of the things so far have been reading or demo. No discourse built in. Just says "discuss this". No modeling tool. No hands-on. Directions in the ppt to draw model but not scaffolds. No teacher resources to know what the model should look like especially the final model. No storyline. Supposed to be phenomenon but not clear, never really come back to it. Phenom in lesson 4, didn't need 1/3 of the lessons to explain the phenomenon. Phenom was not complex enough to incorporate all of the lesson. Question wording is complex not in a challenging way but in a confusing way,, redundant and confusing and unclear. Used big words and just too many words. Same question 4 times. Looks fancy but not coherent. Text has a lot of good information but the questions about that text does not help them synthesize or gather the key points.
3. Was there something that you would have liked to see that didn't happen?
    a. Clear phenomenon, storyline, clear check back with the phenomenon. They have fake things like can with condensation, no actual building to the explanation. They have graphs for melting/boiling point and then look at another graph but no practice.
4. What are your comments on the materials that you used today so far?
    a. More student examples. What the student work should look like. Quiz is just a rubric, uses words correctly but no indicator of what is correctly. Don't know what they are looking for in that question.

Overall:

5. What are your students understanding or not understanding?
    a. Understanding that molecules are always moving, move differently in different states.
    b. Some are still convinced that that the molecules stop moving and nothing to target that.
    c. They did not understand pressure. Less than ½ understood
    d. Understood melting, freezing and evaporating. But not at the molecular level.
    e. In the past they did understand these.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
    a. There was KWL chart, then mentioned one other time. Other than that no.
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. Can crush. Supposed to gather evidence about air pressure. Most kids did not get it
    b. Phet in one day, movement in 3 states.
    c. Mostly been reading
8. Have student to student discussions focused on sense-making around evidence collected?
    a. No. Student to student discussions limited. Discuss with your team these questions after a demo. They don't understand the demo and there is no strategy in the materials about what I do with that when kids say "x". Someone without background would not know what to do.
9. How would you rate the explanations student generate using the tools from this unit?
    a. They are awful. The questions do not help them explain things. The questions are too confusing.
10. Is there anything that we should know that I haven't asked you?
    a. The connections to student's lives are pretty weak. There was one "quench your thirst on a hot day". Kids were so what. Not a MS hook. So many opportunities to connect to everyday life that they miss.

***Field Test* Classroom Observation**

Teacher #3
Vendor: TCI
Unit: Properties of Matter

Post-Observation Notes

1. What did you try today that seemed successful? Why would you call it successful?
   This is the first time that I used the computers for reading and the embedded simulation. I would say that it went well.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   Yes, it was very straightforward.
3. Was there something that you would have liked to see that didn't happen?
   I was hoping to have a bit more time to share our models.
4. What are your comments on the materials that you used today/ this week?
   I have really liked the simplicity of the teacher presentation materials. Everything you need is embedded in the presentation and it makes it very easy to plan. If I were using the curriculum (not as part of a field test) it would be very simple to see what you needed to include and emphasize and what you could skip or assign to students who need more help.

Overall:

5. What are your students understanding or not understanding?
   They have made the connection between the state of matter, temperature, particle motion, arrangement of particles, and some students, even density.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic?
   I think this is a fairly simple topic, but they really liked the dye lab portion and it had lots of students who made connections to our prior unit about density, STP and expansion and contraction. They were able to say "Oh! Now I can see WHY things expand and become less dense as they get warmer!" Some students are already seeing how pressure and temperature are linked because of the simulation they completed. Of course, we won't be exploring that specifically until next week, but some are making that natural leap.
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 seen that particles must exist (to stir the dye in the water), move faster when heated and slower when cooled.
8. Have student to student discussions focused on sense-making around evidence collected?
   Yes, they were really fascinated with the simulation. There were lots of interesting discussions while they explored what would happen if….?
9. How would you rate the explanations student generate using the tools from this unit?
   Very clear, especially because they are using models. I think this slows them down so they really have to think about what is really happening at the macro/micro level, so their understanding and explanations are more complete and detailed.
10. Is there anything that we should know that I haven't asked you?
    None

SECTION 4: Curriculum Lead's Reflections

Summary: This lesson benefited greatly from the teacher's strong skillset related to transitions and student-to-student discourse strategies. The lesson appears to lean heavily on transitioning away from the Sim to a whole-class discussion. This creates tension as students want to keep using the simulation. This teacher has done an admirable job of being transparent with her students about the field test and fidelity (only using 2:1 when she has enough computers to do 1:1, because that will probably be the model adopted); however, her pedagogical skills are clearly compensating for some of the lesson's shortfalls, perhaps without her realizing it. I am left to wonder how this lesson would have gone in a classroom with a first-year teacher or one with a less-developed skillset.

***Field Test* Classroom Observation**

Teacher #4
Vendor: TCi
Unit: Properties of Matter

Post-Observation Notes

1. What did you try today that seemed successful? Why would you call it successful?
   Stations set-up, giving them access to materials and exposure to multi investigations though dry ice is challenging. Did it as demo first yesterday then a reading and today the stations at lab then swap.
2. Did the instructional materials provide you with the scaffolds you needed to have a successful lesson?
   Had to modify the lesson set-up and materials mgt so everyone had access. What would other groups have been doing while waiting for their turn. But they want teacher to be in 4 places at once! Not written for a classroom with one teacher. Can't monitor stations and kids who are waiting. I modified so yesterday each grp took turns observing each station while others read to prep them.
3. Was there something that you would have liked to see that didn't happen?
   Directions and station management in teacher guide is really vague.
4. What are your comments on the materials that you used today/ this week?
   Materials are good and labs works well, just had to find dry ice. Everything provided except for that.

Overall:

5. What are your students understanding or not understanding?
   Nearly finished with unit. Understanding big ideas around different states of matter. Mostly understand the idea of gaining and losing energy and how that causes a change in state. Could put together vocab with that and beginning to understand what is happening with kinetic energy at molecular level. Can compare and pre and post.
6. How have your students engaged with the phenomenon? Has this phenomenon helped them to expand their thinking about this topic? Started with an anchoring phenomenon. It was decent. Diffusion of hot water quicker than cold water. They have lesson phenom. They experienced it. Pretty basic investigative level phenom but it's good because it talks about condensation. Lesson level phenom at 5 was tanker. Engaging. At the end of each lesson they revisit the phenom and show what they have learned.
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?
   Videos showing a lesson-level phenomenon for them to observe and record observation. Did Modeling with a SIM states of motion of particles. Mostly demos for the hands on except for this lesson, #5 to be done at stations. Would modify if I did this again to be hands-on at every table instead of so many demos. Mostly writing to process what they have done. There are 'discussion'Qs at demo stations but those Qs aren't in the student notebook. It's inconsistent. The notebook asks them to explain and diagram, but teacher isn't prompted to have students talk with each other using a talk move, just "have students discuss.." That's been true throughout unit. Yes, but the unit doesn't explicitly guide students (or teacher) to do it a certain time and using prompts or anything like that. Not explicitly.
8. Have student to student discussions focused on sense-making around evidence collected? See Above.
9. How would you rate the explanations student generate using the tools from this unit? I could look in student notebook and see their explanations from the end of lessons – can see that as an informal FA. Final written explanation at the end of the unit. End of lesson 5. Intended to be a formal assessment. Write to an imaginary pen pal to explain a phenomenon about metal changing phases – not the same exact Phenom as beginning but it does echo the alien again (who asks about water on earth in its different states. It's an application.
10. Is there anything that we should know that I haven't asked you?

I like it. Good hands-on opportunities for investigations. Engages students, Captures interest. But the labs are for demos or groups. With modifications it could be done at tables. But you'd need more materials to do that – for each group. The slides provided for the teacher presentation station don't always correspond with student notebook. Slides don't tell kids which page in textbook to go to, neither does student notebook. Makes a lot more work for me and students to hunt for where students are supposed to in their books – doesn't say in teacher materials either. The teacher presentation slides should already have that info on it to streamline and keep kids moving. Lessons are created for a 160 minutes, so I don't know how to manage the activities for a 50 minute period. Also the readings, they don't tell you when to insert the reading in the 160 minute lessons. There's a "menu" of readings and extras but I would like some more guidance about where to insert these optimally for learning. The student notebook is all online too and it's good. Kids can draw on it but activities weren't clearly sequenced.

SECTION 4: Curriculum Lead's Reflections

The serious classroom management/disruption issues made it challenging to observe students interact with the materials and the lesson though the fact that over half the class was partipcaitng at some levels suggest the lab was engaging. Although students interacted with the materials very few accurately made conceptual connections between what they observed in the lab and the particle models that corresponded with that phase in their notebooks. This lesson would require sense-making following – not certain if Unit Lesson 6 provides that – would have to refer to TCi Teacher Guide for this unit. The modification of the station tables from 4 to 8 certainly improved engagement.

<u>Student Interview</u>

<u>Teacher 1</u>
<u>Vendor: TCi</u>
<u>Unit: Properties of Matter</u>

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
    a. Not a lot. Kinda get to talk about it. Not as much as the other unit. Lot of writing, typing. We used to talk first then share. We don't really do anything that is social. Mostly wring in the notebook, reading. Not really that social. Share with the class once in a while. Write a lot in notebooks. Used to do more of that. AS computer even tells you to do that.
    b. Is having conversations with your peers something new to this unit or something you regularly do in science?
        i. Yes, share my ideas will help you. Use evidence. If you know something, and another person needs help, I can help them. Share the way I do it. Different people think about things differently.
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?
    a. During our seminars, we got to hear from other people who agreed with another claim and it helps me know more about my own ideas. In TCI that is not happening
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?
    a. NO. Straight to the point. Learning about it then a test now. No story. Information to process to test. AS: let you think about the idea, gives you worksheets, simulations,
    b. In AS there was a big question or thing that you had to find out about it. Short interval of time between when you learn and take a test. Shortly packed together.
4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? Initial Model.
    a. Absolutely not, we are going to give you a model, do a demo. We drew it, then do it and ask you to reflect on how that is different. Very quick. No revisit the model!
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
    a. Not very much. Text book, answer questions. Wish we did the can or food dye on our own.
    b. Reading is a page about everything you need to know.
6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
    a. Did not give me something to base it off.
    b. Listen to a scientist speak.
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?
    a. NOT
9. Were you able to ask your questions during the unit? To whom did you ask your questions?
10. Did your teacher have students share their individual ideas before coming to class "consensus"?
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?
13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.
    a. I hope not. It is boring.
    b. Not TCI
    c. Not doing 1, 2, 3, 5, 6,
14. Would you recommend that we use these materials for ALL students in ____ across the district.
    a. NOOOOOOO!

Student Interview
Teacher 2
Vendor TCi
Unit: Properties of Matter

Questions

1. Has this unit allowed you to engage in conversations with your peers to make sense together of the science ideas? Explain.
    a. Most of the time we do it with only one person. We don't share with others. Yes. Do a lot of reading and independent work, not very good at this at this point.
2. Is having conversations with your peers something new to this unit or something you regularly do in science?
    a. About the same.
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?
    a. It is important to me. If you and your partner have different answers, then you can try to convince them.
    b. Compare your answer to each other.
    c. Important to tell others what you learn. WE can help each others fix it. Getting your ideas out, can help develop your understanding of it. So you can learn from other kids, get more information. What you learn from them.
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?
    a. In one of the workbooks, about gas moving around.
    b. Water turn to gas due to temperature.
    c. Not much.
    d. Phenomena helps me with my learning. But not one in this unit. Good to have a big question to guide my thinking, rather than wandering ideas
    e. Rethinking about my 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?
    a. I did one time, I think. Describe what you know already.
    b. Important to me because I want to share. It shows improvement.
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
    a. Evidence: how molecules behave under temp and pressure. Not many models. Models that we physically see is more helpful.
    b. I need something that shows me what I should be seeing. AS does that.
    c. Readings and questions.
    d. Only lab was the cola can demonstration that was hands on.
    e. Solid and liquid in different pressures.
7. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?
    a. See Below
8. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?
    a. Key concepts in AS, help me summarize what I learned.
    b. But this unit does not have them.
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?
    a. NO model revisiting. We drew one picture.
    b. We do this in other units. It is very important. Resets my brain. Have confidence I am learning.
    c. Think about your thinking. Helps me become better.
10. Were you able to ask your questions during the unit? To whom did you ask your questions?
    a. I have lots of questions that I don't understand? As the teacher. I ask my friends but they are clueless.
    b. Written response. I don't see what I am supposed to write. It doesn't give me something to write about. I read through it and I have no idea what I am supposed to write about.
    c. I need something specific to write about
    d. Something invisible is hard for me to connect to. If I have a scenario, I can explain it.

e. On a test if I write about a phenomena that applies to my learning. Sometimes I see something that I never worked on or thought about.

11. Did your teacher have students share their individual ideas before coming to class "consensus"?
    a. Yes. Turn and talks. Sometimes we share out answers.
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?
    a. See below.
    b. Gotcha
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?
    a. Learn some more science ideas.
    b. Learning about stuff around us.
    c. I feel this is important to learn but they way they are teach ng is not good.
14. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.
    a. I don't want to be a scientist for TCI people. Study stuff that hasn't been di
    b. Gathering information. Observing how things behave (they are telling me about it).
15. Would you recommend that we use these materials for ALL students in ____ across the district.
    a. I love AS now. Listen to the recording.

"They throw everything at us, learn learn and learn and then the quiz. I think the better way to learn is to do summary, we learn stuff, before or after a quiz, lots of different ways to learn it. I like to have a lot of visuals to understand it. Sims are good. Videos are good but this unit doesn't have many. Give us too much information in a very short time. Before we understand, they give us a quiz. Not a summary before. I need time to process and make sense of it.
Instead of a quiz, I want something in the middle to check how I am doing.
I like Amplify now!"

Student Interview

Teacher 3
Unit: Properties of Matter
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.

   (see below)

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?

   I didn't have a partner today, so I had to work with two other people.

   It really helps to have a partner and to be able to talk as we learn!

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?

   I really like that there is a question. It makes it more fun, and it seems more hands-on. Science these days in general is more fun.

   At first, we were looking at some catastrophe in the sky. [other student corrects her] Oh, that was from last semester, never mind, I forgot. I think the question is what water looks like in the three phases. Solid, liquid, and gas. I don't think there is a question…

   Wait, isn't there that little monster alien dude who wants to know about the phases? Oh, yeah, that's right. It's not very realistic. But it's still interesting! [others agree.] I think the main question is, why does water have three different forms. What makes it happens.

   Comparing regular ice and dry ice.

   I don't feel it was very challenging, because right away I knew the answer. [Others agree.]

   I feel like the simulation – I learned a lot from it. I learned a lot from the last one, about particle movement. And my partner is very smart, so she broke it down for me.

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, and she asks us questions all the time, and has us talk about the answers with our lab partners.

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

   [Today, you used a simulation. What did you think of that activity?]

   I liked it. I thought it was fun. [several agree.] It was a good model. Well it helped the model make sense more.

   We were kind of talking in class about how much everyone likes seeing the model and trying it out.

   But I think it would be better if we had a little more time. So that we could explore the model more. Because there were all the different types of simulations and we didn't get to check them all out. It felt rushed.

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me?

   Sometimes they throw three different things at us one right after another, for example, we put this dye in water of different temperatures, then suddenly we went to the water molecules.

   Yeah, we suddenly switch. It's a little bit strange. I mean, they kind of introduced them. I could kind of see why they are in that order, I guess…

   I think the first one showed us that there first is motion, and then the second one how the motion is affected by the temperature.

I never really thought about how it was the water that was moving the dye.

I kind of did, but it was in the back of my mind.

I was thinking it was about the temperature.

I feel like I at least didn't really think about this stuff before – like, it's just there, it doesn't really matter, but it's really cool to learning about how it's really happening.

It's good to ask questions, to ask why.

7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so?

   [See below]

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?
10. Did your teacher have students share their individual ideas before coming to class "consensus"?
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?

    [I noticed today that you had a choice; you could either read the article online, or you could read it in the book. So, which way did you do it?]

    [3 respond computer, 2 respond book.] I didn't know we were allowed to use the book.

    If you were reading it in the book, you could switch over to the computer and look at it, and then go back to the book. If you read it on the computer, you just need the one resource, you don't need two resources.

    I don't think it really mattered. We were just reading it, that's all.

    If we were doing the simulating and the reading at the same time, then it would be better to do it on the computer.

    You could also put the book next to the computer and do it all at the same time.

    That's true.

    [I also noticed you were doing all your work on a worksheet today. Did you notice you could also do the work on the computer? Which do you prefer, writing or typing?]

    Writing – I can't type very fast.

    To me, if it's a big paper, I would probably type it because my handwriting is bad, and my pencil lead always breaks. But I can write really fast, so if it's a smaller one, I would want to just write it instead.

    I'm actually the opposite – I prefer to write big papers, and I prefer to type smaller things.

    I like having it on the paper like what we were doing today, because you can easily draw, like little arrows on the work and things. Or little notes or add on things easier.

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain.

    [I overheard Ms. Mosko tell you today that while she has enough computers for everyone, she is trying to run the field test as accurately as possible and is only allowing you to use computers with a partner. How is that working?]

    You can learn from each other. It's great to have a partner! If you get stuck you can rely on each other. Even if that don't know the answer, they can help you talk it through.

    [Question on authenticity:] Yes, I feel like this is work that scientists do. Like the dye experiment? That felt like work scientists would do. It was very professional.

    With Ms. Mosko's curriculum, it felt like we did a LOT more hands-on stuff.

    Definitely.

I felt like I was being a high school scientist.

Yeah, like she said to us, her husband is a high school teacher, and she steals labs from him and stuff. Or, this is a lab I did when I was in college and stuff. She would take things out of her college textbook.

It felt like it was real, and it was at our own pace.

This one is more like, observational, I guess.

That's a good word for it, observational.

14. Would you recommend that we use these materials for ALL students in middle school across the district?

I think Ms. Mosko should write the new curriculum.

I think the curriculum, if I was forced to learn this one, I wouldn't mind it, it's… okay…

Learning another curriculum before this one really made me think more.

Also, I think I like to move, so I want to be able to pour things in test tubes and things. [others agree.]

I really liked the dye lab…

Yes, that was a lot of fun.

…But that was my favorite part. The rest of it is… okay, I guess. Another thing I don't like is the paper. They give you this big stack of paper (the workbook) and tell you, you have to do this – and it makes me think, "OH MY GOD"…

Having just some pages at a time is easier to manage. And if you lose a page, Ms. Mosko has a replacement. I mean, if you lost them all, like in a workbook, you would be in a lot of trouble.

I like some of the labs, I would recommend some of them. Some of them weren't as fun, you know.

I liked the dye lab. And I agree with them, but we just started, and I don't know what's coming. It's too early to say.

<u>Student Interview</u>
<u>Teacher 4</u>
Unit: Properties of Matter
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 do labs where we talk about what happened or what will happen next. Record data with other people or go to other units and share data. Someimtes just looking for answer. Help each other out with data and answers. We write out sensemaking stuff.

   a. Is having conversations with your peers something new to this unit or something you regularly do in science? Sometimes turn and talks

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, creates more 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? **Started with what we KWL . The alien discovery. Is there water on other planets. Warm-up then leads toward a thing you do in the lesson. Mostly just do activities not really try to figure out what happened.**

4. At the beginning of the unit, did your teacher ask you your ideas about the phenomenon even before you began studying the topic? **KWL**

5. What kinds of evidence have you gathered in this unit? Did that evidence help you explain the phenomenon or answer the unit question? **Collect evidence to support claim. Evidence has to support what you were talking about – relevant – Have to explain using evidence. Reasoning. Data from a lab, the text book.**

6. Did the lessons link together to help you explain the phenomenon? Do you think you can explain it to me? **Adding to what we know and more understanding of the last thing we did. Doesn't connect back to a big question at start.**

7. Did you keep a summary table/ideas journal/learning tracking tool? Was it helpful? How so? **Investigation notebook answer questions. They ask us to write a definition and what happens after observing. Sometimes draw diagrams sometimes.**

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? **The SIM – gave an examples, showed instead of just telling, play around to see what happens. Not really working on computers**

9. Were you able to ask your questions during the unit? To whom did you ask your questions? **We ask the teacher. Or we can ask someone at our table if they are paying attention.**

10. Did your teacher have students share their individual ideas before coming to class "consensus"? **We look at the power point together and talk about it so we all know what the answer is.**

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? **Asks questions of class. You can look in the workbook. I could answer most questions at beginning on pretest.**

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? Could you explain the big ideas ot someone who wasn't in your class? **Probably could explain big ideas to a little kid. How it works and maybe why too.** Do the activities connect? **The activities connect.**

13. Do you think this unit is interesting? Do you think this is the kind of work that scientists do? Explain. **Kind of. I think scientists do experiments and they have to read and think about what is happening. I like the hands-on on this one. It was fun to use the materials.**

14. Would you recommend that we use these materials for ALL students in 7^{th} grade across the district. **I like the other ones we did before with the SIMS better. We got to answer it ourselves. It's more creative. More chances to show examples to understand. More hands-on in this one and its better, but we just started those though. Sometimes easier for a demo. But more fun to do it yourself as long as everyone's on task.**

Attachment I.5: Field Test Panel Transcript
Middle School AmplifyScience

Panel: JF, BA, SH, MB

DCIs

We felt the PS standards were truly met and discussed and seen in the instruction, and we felt there was room to address ESS. Molecular movement of different substances and reacting to different temperature. Weak in terms of the ESS. Phase change, heat, kinetic energy changing movement. Talking about water – only evaporation vs. condensation not cycling. Were fully able to talk about temp, molecular movement, and even sublimation but Amplify states they would be able to talk about water cycle and Earth and moons. Energy and temp standards and phase change but the ESS and space/universe wasn't touched on.

SEPs

Claim they do these practices 1, 2, 4, 6, 7, 8 and they do. Didn't plan an investigation but didn't claim they should. They use and manipulate models, but they don't develop their own models.

CCCs

Cause and effect, system, and scale,

Phenomenon

Methane lake on Titan. They revisit it frequently. Students are given the claim from the outset but not offered an opportunity develop their own model or make their own claim.

Storyline

Frequent checks to go back to the anchoring phenomenon. Good storyline and engage with that and come back to the phenom then have a chance to apply the learning to a new or corollary situation.

AC: PEs was also covered AND supported?

All covered, but PS3-2__ wasn't supported because that PE calls for planning an investigation and that didn't happen.

AC: was it engaging (The methane lake on Titan) or would something local have been more interesting?

At first, yes, but over time less so, because they were given the claims to choose from and it became so transparent, and not challenging enough.

Assessments

A lot of factual recall. Wordy and took a long time, but there are learning application questions in the WR (x2). The WR summative assessment wants students to break it up into three parts and the question doesn't really allow for that. Disappointed in the summative. I felt like it wasn't challenging enough – my students can do way more than this.

FA's were good and very helpful for gauging student understanding. Very 3D so I put a lot more stake in those than the summative assessments, which didn't adequately challenge them. Gives students different ways to express themselves. They show you where to use them with a hummingbird icon, but didn't allow them to visualize. As the first time using it, I found them helpful but redundant and didn't help me plan instruction . Critical juncture was helpful because I could differentiate instruction after the CJ assessment.

Not accessible to all learners – the summative. The summative is too dependent on reading.

Rubric was there but limited, how I could score student against the publisher's suggestion or learning targets. I think they would have scored higher without the rubric and based on my scoring.

The assessment was too wordy even though they knew content they couldn't get at it.

AC: digital platform assessment, speech to text.

They have the speech to text but didn't seem to help them.

AC: can you modify it?

No can't modify it. I can have them answer fewer Qs and hand score differently.

AC: the activities after the critical juncture – are they engaging, did students know which group they had been sorted into? Were they engaged?

Sometimes, but I can easily sort them based on what I know they know. When I get them in the right group, so they get that progress build, they have that "aha" moment and it moves them forward in understanding

Access prior knowledge and lived experience?

Don't know if all kids care about Titan, maybe because its space, probably some do. The short hands-on with the alcohol and water. The application with the oxygen tank maybe not as accessible to ELL, but definitely interesting to higher-level students.

Balance of activities?

Building understanding of phenomenon. With activities. Good mix – all lessons are intentional evidence collection points – nothing random, it's all building - like, let's update models to answer storyline – they do 3 labs and two readings, and simulations.

I disagree, the simulations are heavy and redundant and repetitive. No hands-on lab where they plan and gather evidence through the collection of their own data. Students liked the simulations at first, but then reported that they were redundant.

AC: Can you clarify if there is a balance or not of activities, because SH said no.

Yes, they were there, but maybe not balanced. Too short. They didn't say they would let them plan an investigation.

They took longer in my classroom (the hands-on) – there were 3 labs, yes and we took advantage of the Flextension materials that came with the unit. Spent all day doing an investigation with the dry ice and phase change.

Maybe there could be 1-2 more hands-on but what there is present in the unit was very effective to get kids to collect more evidence for their model and explanation.

Anti-Bias

No bias. There were only two people actually shown and there wasn't bias but both were white men.

AC: can you speak to materials quality?

They came, they were all there, they worked

Engagement in the phenomenon and getting evidence and revisiting –

Teacher guide so complete you could give it to a sub and they could pick it up.

Storyline builds adding layers to understanding and collecting evidence to explain phenom, but not classic modeling thought they develop a representation of phase change.

Teacher guide contains great content background knowledge . Gave it my IA and she learned all about molecular attraction.

The final seminar was a great opportunity to for students to debate and talk. Effective. I would have liked to see the curriculum ask us to use some different talk moves since we know several.

Subs can follow the plans well. I tried it. Gives you good materials prep and tells you possible misconceptions students may have in each lesson. Gives you a pacing for lessons and also gives you broader background of the purpose for the lesson and how it fits in.

AC: Did timeline seem to match up with what actually happened?

Overall, yes but not day to day.

A lot of transitions in lessons and fairly chunked up.

AC: are you all new to Amplify?

Just me (SH)

AC: how did it compare with what you had before?

I used computers before and did PHet simulations as well as the same kind of activities before, but we did more actually acting out some of the simulations in what I did before.

AC: glitches with technology?

Amplify never down during that time, there is time to log-on. At our school we only used computers 2-3 days per week only for about 10 minutes at a time. If I needed them to add a student, they could do that.

AC: engaging for all students or just some because of teacher etc.

I have a diverse classroom and most really liked it because Titan is interesting and how there is liquid, etc. Most of my students (mid and lower) did well with the 3 modalities but in each of my classes at least 3-5 who were very high needed more content. Harder

AC: would you teach it again

Yes if I could add hands-on modeling and more hands-on. I like storyline and phenomenon.

To have more joy and for my students I would want more hands-on and to design lessons where they ask their own questions and collect more evidence from their investigations

I would teach it again. My students learned about phase change.

AC: how do you know she was a scientist of color?

My students saw her name and because they are Latinas assumed she was Latina too. They saw themselves in her.

AC: Exposure to careers?

Scenario created a mock space agency for students to get info – the scientist represented and doing research was a woman of color. Amplify attempting to represent diversity but we can always do more. I think most or all curricula is euro-centric.

The only images they see are two white men at the beginning.

After critical juncture, two students researched why condensation on side of can while others why can we smell chocolate nearby. That's two obvious levels of differentiation. The teacher guide can help you also to adjust Sim for higher level students.

Did not discuss community impact with phase change form a global perspective – not about water cycle on earth - they missed an opportunity there.

Attachment I.5: Field Test Panel Transcript
Middle School HMH

Panel: SL, JL, RT

Phenomenon not revisited throughout the unit

Disappearing ice gave misconception that melting = disappearing

No storyline present whatsoever

Other practices?

Only physical models, no conceptual models in the unit

AC member asked additional question: with what was there, was it deep and sufficient?

Content was limited in depth -some online components allowed students to view but not as good as free resources from ACS

But students did understand some of the concepts of particle motion and spacing but not the particle motion

Insufficient inclusion of cross-cutting concepts

End of unit test was particularly confusing because CCCs not addressed sufficiently

Assessments:

A few poor engineering design solutions, limited dimensionality, questions not accessible because no one knew what a pressure cooker and canning was

Not a lot of FA opportunity – only online MC/drop-down menu – computer-based self-assessment not cognitively demanding

Focus on assessments – answer keys were in a different text which was challenging to cross reference – answer keys in different formats from questions – online assessment offered no place for teachers to give students feedback. There was after each lesson the “self-check”. There were some quizzes, but they couldn’t be found – three of four teachers didn’t find them until after unit was completed.

Summative assessments: 2/66 that had an 80% and above most were in 65% or below. Curriculum did not prepare them for the cognitive demand of the post-unit assessment. My ELs said this was very hard and I didn’t understand it.

Committee Member: will PD be provided to support teachers in finding materials and being prepared?

Coordinator said all vendors provided FT teachers with one day vendor training but not allowed follow-up how would teacher find things – vendor said it would be easy to find – but it wasn't intuitive accessible or use-friendly

Post-test not the same as pre-test

Scoring provided by program was not disaggregated by skill/standard and questions – only gave us a "this much out of this much" score

Only one lesson on pressure but several questions about pressure on the assessment.

Student assessment took much longer than a class period. Digital platform for assessment was confusing and not laid out well in one big paragraph and no option to score with partial credit, though written version did.

Not culturally relevant or relevant to student lived experiences. couldn't access any prior knowledge or anything personal. Didn't find most of it as instrument. The gallium was interesting because they wondered why it would melt in your hand. Disappointed they couldn't try it. Not very interested.

Did not offer a variety of learning activities. A few short labs but them watching ice melt but no simulations. A lot of short paragraph readings but if they didn't get the important pieces then they would have been lost. A barrier for them. If they didn't get it they would be lost for the day.

After each lesson was a self-check or a take it further - always some kind of a career option . Scope and sequence doesn't have these as key lessons – only differentiation for extensions – but not as core part of lessons. Did not allow kids to "see themselves" in the careers.

Teacher guide had lots of paragraphs that said "differentiation" but basically just good teaching. NO content information provided to support with understanding the science behind it. Not much offered to help teachers differentiate.

AC: what was format of the career exploration extension?

Read short paragraph on a forensic scientist and then multiple choice questions to answer about practices scientists do then graph and more questions

I gave them to students and had them do self-check then would have them go to the career exploration. There were other extension choices so not all students did it but I don't know what they thought of it.

AC: A lot of short paragraphs, you said -were they fact-based or were the readings letting them figure it out for themselves?

Textbook reading – words in bold

AC: Any discourse or sensemaking opportunities?

No

AC: did you get physical materials?

only 6 syringes, some basic things like cups and some marbles

Didn’t see bias but no chance to be inclusive and elevate. No opportunities to make local connections.

AC: was there omission to avoid conflicts

Just didn’t take the opportunity

AC: there’s a difference between some of the stuff we saw but didn’t choose. Anything blatantly inappropriate or just not there?

Text was a resource and was colorful and a good resource but not particularly helpful

Did you see 3-D teaching and learning?

No, I did not see that this curriculum was – background info is lacking, how to address misconceptions is slim, not a lot of jumping-off points for localing, seemed that the SEPs and CCCs put in as an add on. Textbook was all facts but the other 2 dimensions were just color coded and just tagged on.

There were some extensions that added engineering practices. Looked interesting but no time to do them. Assessment floored them because the SEPs and CCCs were there but not addressed anywhere in instruction except the unit project. We tried to keep coming back to the ice phenomenon but only because we chose to do that – the unit didn’t ask us to. We would have like to finish with a final report.

The unit project (phenomenon) provided very little for teacher – very short rubric for scoring and a student worksheet to do baseline research. The rest was me telling kids what it’s supposed to look like but no link to visit or resources to use. Students asked why are we learning this. NO opportunity to link back when discussing conservation of matter of phase change.

Where are there opportunities for discourse and sensemaking?

The teacher guide had sidebars that said turn and talk but not anything what they’re used to. Missed an opportunity to record initial thinking and revisit their thinking but also opportunities to engage in talk with each other.

AC: Were lessons clearly defined and laid out?

- No, were poorly defined. Unclear. Obvious breaks in terms of worksheets but didn’t match what we did in a class period.

AC: Did you get supports to deliver lessons

In terms of day to day, but was there the questions answer them, but not the complexities my kids were capable of, but it made it easy for the teacher

Too many resources to cross-reference for teacher. Didn’t like the workbook/textbook combo. Too much reading, bored. Missed hands-on labs.

AC: Any positive features?

I liked how they did summary tables/evidence tables. How does what we learned today help you explain this?...Gave students a way to synthesize what they learned, Wished they had more of those in there. Did lead to some good discussions

Some assessment Qs were good and 3-D but kids couldn’t answer them with the learning they had.

Attachment I.5: Field Test Panel Transcript
Middle School TCI

Panel: EE, JB, EM, MB

DCIs

DCi – PS1A and PS3A. It was mixed. A lot of good things overall but not sure. Structure of POM was very complete – the phrase kinetic energy was left out but all other DCIs, phases, attraction, motion pressure all included.

SEPs

Did lots of modeling about how particles were moving. Strongest part of the unit, computational thinking not taught really – just a graph but assessed a lot on graphs, constructing explanations was somewhat but not clear gathering of evidence to construct an explanation.

CCCs

Scale, quantity, cause and effect

Yes on cause and effect – what state change will occur when heat added or removed, looked at a lot diagrams and predicted effect. Not a lot of proportion pieces but were assessed. Modeling was strong and came back to over and over with different phenomenon. If you did some of supplemental activities, you could do more computational thinking.

Anchoring Phenomenon

Water evaporates when it is left out and boils when it is heated. And the alien letter explaining it was not engaging.

Lesson-level phenomenon, but weak connection to the anchoring phenomenon.

Storyline Collecting evidence?

Not really that the phenomenon has them come back to it. We could revisit the storyline but often didn't.

Students liked the lesson-level phenomenon and connect to their life beyond school but didn't find the alien phenomenon very engaging. Students didn't like the alien storyline but did like the investigations. Phenomenon too generic (ice melts). Some kids liked the pen-pal activity, and some didn't understand how it connected.

Assessments

Pre-test and Post-test contained very complex questions – for the most part 3D – the level of difficulty was so hard and not all of the material was addressed adequately in the curriculum. Fortunately, the assessments are customizable – you could take it our if you didn't teach it but as it was would be hard for students that had trouble reading. Without it being modified, it was very challenging - especially for ELLs – particularly with the language like vocabulary in the assessment that wasn't really emphasized in the instruction. I would say not accessible to most learners. The way we gave the test from TCi, not accessible to most students. If we decided to modify it and all agreed, we would improve it and customize it.

Assessment tools – autoscores, which is nice but when you want to score the diagram or written response questions, but it's complicated was a 6-point rubric but you give a score of 1 or 0.

Formative Assessments

No formative assessments. Lots of computer or written worksheets. You could look at it – lots of good stuff on it but was not identified by the vendor as when to you them for FA purposes.

The teacher materials – PowerPoints, etc., were very helpful and easy to use, students could access simulations and drag and drop quizzes and textbook/reference book which mirrors the digital platform. Using the computers was easy. When they chose to study on their own or to access it would submit the information to me.

Modeling tool digital drawing on assessment was very challenging to use – took forever to draw on it and it wiggled. Lost data due to text erasure. Took forever. Good question but not functional tools. We were told by vendor to practice with it because it was challenging to use.

AC: Formative assessments good, but not summative?

Good deep questions but hard and weren't taught directly but then asked to apply to a novel situation.

There was a lot of, "read this then draw what you learned."

A lot of molecular attraction questions but only one paragraph in the learning activities. 1/3 of the test was something they hadn't learned.

Used pages from the workbook as a quiz. They make lots of opportunities to find out student understanding. A class discussion can be an FA or so can something else. Up to the teacher to decide what and when to use as an FA, not a formal formative assessment recommended at a specific place.

AC: was TCi tech support helpful?

-Not allowed to contact them directly because of field test rules.

AC: you could modify or write your own questions?

Not possible to give different test to different students, you can scramble the answer choices, but all students have to take the same assessment (assuming they do it online for ease of scoring).

Inclusive culturally

Alien was not culturally inclusive, and they never did return to the KWL again after beginning

½ day spent on how lasagna was like rock layers – not very culturally relevant!

Water is relatable

Readings: The teacher guide says that all are suggested but not required

Good questions after the readings – kids can they do digital or paper models

4 labs

One simulation. Moved around like molecules

See real science represented?

Book - a reading further extension - felt like an odd add-on

Scientists and careers represented?

Not really. There is some reading but not very clear where it plays. Again, it was an extra activity.

Differentiation?

Not really. For EL's the suggestion was help them know the vocabulary beforehand

Hands-on was mostly confirmation of what they read not coming up with their own understanding or figuring it out and collecting evidence

The balance needs to be in favor of getting things into students' hands.

Curriculum doesn't say what order to do it in – try it out and see what works

TTS capability

My ELL and ELL/SpED struggled because the reading was the only activity that covered some standards, which wasn't accessible to these students.

AC: could SPS decide to pick activities to help prioritize what to do to help get through all the materials – can we modify and pick and choose?

Yes, if you had time

But there's no storyline, so you can modify it, but it's just rearranging the activities. It's not in service of explaining anything, so modifications wouldn't change the lack of storyline – it's just rearranging.

Feeling hot and cold water, stations activities with sublimation and deposition, condensation

AC: real life connections?

Students do readings, but you'd have to add more on yourself. Is there any perspective about how this affects my life? Not really.

AC: is it old-school teaching where they do a lesson to lesson to lesson without a storyline or positioning themselves as the scientists?

I disagree, this curriculum can be done differently if you can bring in an anchoring phenomenon it lacks that but it you could add it in.

It does great with modeling definitely but it’s chunks of info that are not building together because there is no storyline therefore no dimensionality.

AC: Any evidence of bias content?

No bias but very few pictures of people in general

Disagree. Woman pictured you see is about to collapse (heat transfer lesson)

-One white man, one African American male looking at water in space, Asian astronaut

Were the lessons 3 dimensional?

Allowed for that but need more experience with platform and what I was able to do, but a great deal of information and websites to visit to help expand knowledge and challenge them and simulation.

As veteran teachers we already know how to teach 3D I could do it but not sure if it would be that easy for a new teacher. Wasn’t sure if I was adding in things to make it 3-D or if it was in there from the publishers

Is the science accurate?

Some test questions where the correct answer choice was not present

One student said it’s not correct that molecules touch in a solid

Was there student discourse?

-No explicit direction for teachers about where to talk

-A lot of discussion questions weren’t discussion questions- there was only one right answer

Lesson planning and support?

There’s a daily lesson plan, could be modified if wanted or used as is, PowerPoint can be modified and saved, but I found it hard because teacher guide didn’t help me track where to find the student materials to add page numbers, for example, or find the equivalent student materials for the lesson

Hard to modify the PowerPoint - font too small

At beginning of online platform in resources there’s an overview of resources but not very through lesson overview.

They give you the chunks for activities but they don’t tell you where the readings go or how long they are so hard to figure out the pacing of a day

AC: you say there’s a lesson plan but does it not tell you what order?

It would give you a lesson overview but it tells you for the big picture -two gigantic lessons with no guidance – with one giant PowerPoint but you had to decide how long to teach it for that day without running out of time and then figure out which readings you could add. You could add in extra activity with a plus button, but no materials provided – made the entry and exit of each day challenging.

AC: modeling activities – how did you decide what to make a model to explain without a phenomenon?

Really difficult to do online modeling but could do it on paper.

AC: each unit comes with way more than you can teach so you have to cherry pick?

(All) yes.

Attachment I.6: Field Test Panel Consensus Scores

Amplify Results

Team	FT Teacher Panel Consensus Score
Team A	65.8%
Team B	66.5%
Team C	71.3%
Team D	71.0%
Team E	71.0%
Team F	65.8%
Team G	68.4%
Average	**68.5%**

HMH Results

Team	FT Teacher Panel Consensus Score
Team A	20.0%
Team B	24.3%
Team C	15.5%
Team D	30.0%
Team E	20.0%
Team F	25.0%
Team G	34.3%
Average	**24.2%**

TCI Results

Team	**FT Teacher Panel Consensus Score**
Team A	27.0%
Team B	45.5%
Team C	34.8%
Team D	39.8%
Team E	30.5%
Team F	24.3%
Team G	33.0%
Average	**33.6%**

Attachment J: Analysis and Synthesis Summary of Feedback and Data

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	**73.4**	**61.3**	**75.4**
Category 2: Assessments	0.17	**52.6**	**62.0**	**61.5**
Category 3: Inclusive Educational Practices	0.20	**41.2**	**28.0**	**47.8**
Category 4: Evaluation of Bias Content	0.20	**40.0**	**8.1**	**33.8**
Category 5: Instructional Planning and Support	0.21	**70.0**	**32.5**	**48.2**
Total, based on weighting		**56.0**	**38.0**	**53.5**

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	59.4	30.6	42.1
Team B	61.6	31.0	48.0
Team C	70.0	28.0	46.2
Team D	61.2	32.1	47.0
Team E	55.8	29.6	40.5
Team F	59.4	33.3	43.3
Team G	57.7	34.0	42.3
AVERAGE	**60.7**	**31.2**	**44.2**

<table>
<tr><td>Amplify 6-8</td><td colspan="2">Team A</td><td>Score
59.4</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>56.0</td><td>46.7</td><td>26.4</td></tr>
<tr><td>Field Test Data</td><td>63.0</td><td>42.5</td><td>26.8</td></tr>
<tr><td>Public Feedback</td><td>60.0</td><td>10.7</td><td>6.4</td></tr>
<tr><td colspan="4">Category 1: Standards

SEP, CCC, DCI covered. Content revisited, student ideas developed through modeling, sense-making of phenomena.</td></tr>
<tr><td colspan="4">Category 2: Assessments

Terrible summative, robust formative, critical juncture provides differentiation, great student growth.</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

Strong phenomena, strong, revisited storyline, discourse with peers, more PD on relating to people's lives.</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

New teacher/sub/IA friendly, good annotation tracker, concise, accessible. More PD would be useful.</td></tr>
</table>

TCI 6-8	Team A		Score **42.1**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**53.5**	**46.7**	**25.0**
Field Test Data	**27.0**	**42.5**	**11.5**
Public Feedback	**60.0**	**10.7**	**5.6**

Category 1: Standards

No storyline, standards not connected well, low/moderate student growth, sloppy fonts, incorrect test answers, good SEPs.

Category 2: Assessments

Poor alignment to content, no formative, poorly worded, too long – lots of bugs

Category 3: Inclusive Educational Practices

Boring, too much paper, no phenomena, storyline/discourse, no scaffolds, no clear connections.

Category 4: Evaluation of Bias Content

No cultural mirrors, no POC.

Category 5: Instructional Planning and Support

Some liked materials, vague directions, bad timing, misconceptions.

HMH 6-8	Team B		**Score** **31.0**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**38.0**	**46.7**	**17.7**
Field Test Data	**22.0**	**42.5**	**9.35**
Public Feedback	**40.0**	**10.7**	**4.28**

Category 1: Standards

No true phenomenon or storyline.

Category 2: Assessments

Pre/post test not the same, no student growth.

Category 3: Inclusive Educational Practices

Minimal connection to lives.

Category 4: Evaluation of Bias Content

Minimal connection to lives.

Category 5: Instructional Planning and Support

Every teacher said <u>no.</u> "Lessons did not give needed support."

<table>
<tr><td>Amplify 6-8</td><td colspan="2">Team B</td><td>Score
61.6</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>56.0</td><td>46.7</td><td>26.1</td></tr>
<tr><td>Field Test Data</td><td>71.0</td><td>42.5</td><td>30.2</td></tr>
<tr><td>Public Feedback</td><td>50.0</td><td>10.7</td><td>5.35</td></tr>
<tr><td colspan="4">Category 1: Standards

No change</td></tr>
<tr><td colspan="4">Category 2: Assessments

No change</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

1 out of 4 teacher data said needs support. Student data shows high involvement.</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

No change</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Students articulate support received. 1 teacher reported needing more support.</td></tr>
</table>

			Score
TCI 6-8	Team B		**48.0**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**53.5**	**46.7**	**25.0**
Field Test Data	**40.0**	**42.5**	**17.0**
Public Feedback	**55.0**	**10.7**	**6.0**

Category 1: Standards

Strong DCI, 3D phenomenon weak / no storyline.

Category 2: Assessments

Deep, interesting summative, missing formative.

Category 3: Inclusive Educational Practices

Good mix for strong teacher. Students showed lack of engagement.

Category 4: Evaluation of Bias Content

Category 5: Instructional Planning and Support

Bones are there (+).
No discourse support – instruction disorganized. (-).

TCI 6-8	Team C		**Score** **46.15**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**53.5**	**46.7**	**24.98**
Field Test Data	**30.5**	**42.5**	**12.96**
Public Feedback	**76.75**	**10.7**	**8.21**

Category 1: Standards

+ = some successful use of CCC/SEP/DCIs.
- = anchoring phenomena not consistently pulled through.

Category 2: Assessments

+ = adaptable assessment and editable.
+ = good opportunities for modeling
- = no clear formative assessment

Category 3: Inclusive Educational Practices

+ = fairly well balanced
- = limited discussions.

Category 4: Evaluation of Bias Content

+ = Asian and African American scientist examples
- = troubling reinforcement of negative female stereotypes

Category 5: Instructional Planning and Support

+ = some materials are “editable”
- = difficult for new teachers
- = sequence and timing difficult to follow

<table>
<tr><td>Amplify 6-8</td><td colspan="3">Team C</td><td>Score
70.0</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>56.0</td><td>46.7</td><td colspan="2">26.15</td></tr>
<tr><td>Field Test Data</td><td>94.0*</td><td>42.5</td><td colspan="2">39.95</td></tr>
<tr><td>Public Feedback</td><td>35.0</td><td>10.7</td><td colspan="2">3.75</td></tr>
<tr><td colspan="5">Category 1: Standards

+ = student engagement in survey
+ = ability to explain phenomena and storyline
+ = used SEPs to build understanding
- = limited student choice for their understanding</td></tr>
<tr><td colspan="5">Category 2: Assessments

+ = Critical Juncture
- = Lack of 3D
- = lack of ability to modify within platform</td></tr>
<tr><td colspan="5">Category 3: Inclusive Educational Practices

+ = MANY positive student responses to: balance & enthusiasm/self-confidence w/science learning
- = Some reading heave practice limits engagement by students who need reading support</td></tr>
<tr><td colspan="5">Category 4: Evaluation of Bias Content

+ = attempted with some success but needs more development
- = some missed opportunities</td></tr>
<tr><td colspan="5">Category 5: Instructional Planning and Support

+ = well structured and supported
- = Discourse rich but repetitive

* Orig. # higher due to student feedback.
Also; COMPUTER QUANTITY CONCERN.</td></tr>
</table>

HMH 6-8	Team C		Score 28.0
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**38.0**	**46.7**	**17.75**
Field Test Data	**15.5**	**42.5**	**6.59**
Public Feedback	**35.0**	**10.7**	**3.74**

Category 1: Standards

No storyline/phenomenon that was revisited consistently.

Category 2: Assessments

No suggestions on how to adapt. Low growth.

Category 3: Inclusive Educational Practices

Students report not connected to their world.
Heavy reading.
Introduced w/o revisit.

Category 4: Evaluation of Bias Content

No bias or counter bias

Category 5: Instructional Planning and Support

Pacing guide/lessons poorly defined.

Amplify 6-8	Team D		**Score** **61.2**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**46.7**	**26.15**
Field Test Data		**42.5**	**30.18**
Public Feedback		**10.7**	**4.87**
Category 1: Standards 3D phenomena with storyline			
Category 2: Assessments Not 3D, too long, don't elicit complete answers			
Category 3: Inclusive Educational Practices Engaging			
Category 4: Evaluation of Bias Content Better than most. Still lacking.			
Category 5: Instructional Planning and Support A sub could do it.			

HMH 6-8	Team D		**Score** **32.08**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**46.7**	**17.75**
Field Test Data		**42.5**	**10.63**
Public Feedback		**10.7**	**4.2**

Category 1: Standards

Phenomena – no storyline. 2D at best.

Category 2: Assessments

Good questions. Don't match with lessons. 8/8% growth.

Category 3: Inclusive Educational Practices

Not engaging enough.

Category 4: Evaluation of Bias Content

Nothing.

Category 5: Instructional Planning and Support

Not user-friendly. Weak background knowledge.

TCI 6-8	Team D		**Score** **47.0**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**46.7**	**24.98**
Field Test Data		**42.5**	**14.56**
Public Feedback		**10.7**	**7.46**
Category 1: Standards ~~Lame~~ Not true phenomena. No storyline.			
Category 2: Assessments Good questions, adaptable.			
Category 3: Inclusive Educational Practices Multiple learning modalities. Not always authentic.			
Category 4: Evaluation of Bias Content Women are not weak.			
Category 5: Instructional Planning and Support Not intuitive. Hard to navigate.			

Amplify 6-8	Team E		**Score** **55.8**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**56.0**	**46.7**	**26.2**
Field Test Data	**58.4**	**42.5**	**24.8**
Public Feedback	**44.6**	**10.7**	**4.8**

Category 1: Standards

3-D"ness" of NGSS, phenomenon was strong and revisited, connected by a storyline.

Category 2: Assessments

Students had a sense of their own learning. Average student growth (66.8%) was high.

Category 3: Inclusive Educational Practices

Students were able to call out the different ways they were learning and saw the purpose.

Category 4: Evaluation of Bias Content

Student Attribute Data strongly identifies connections between science and students' own lives.

Category 5: Instructional Planning and Support

Clear sequence, easy to follow, strong background information. So well put together that panelist could "hand it to a sub."

<table>
<tr><td>TCI 6-8</td><td colspan="2">Team E</td><td>Score
40.5</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>53.5</td><td>46.7</td><td>25.0</td></tr>
<tr><td>Field Test Data</td><td>27.4</td><td>42.5</td><td>11.6</td></tr>
<tr><td>Public Feedback</td><td>36.4</td><td>10.7</td><td>3.9</td></tr>
<tr><td colspan="4">Category 1: Standards

Not a strong phenomenon, no storyline. Teacher skills compensating for lesson shortfalls.</td></tr>
<tr><td colspan="4">Category 2: Assessments

Poorly worded, students said quizzes were only “at the end.” Shuts students down.</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

No discourse. Reading -> Writing -> Testing. Students asking for a different curriculum. A lot of demos instead of hands-on experiments.</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

Student Attribute Data shows that students have some connection with science, but not a strong connection.</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Directions, but no scaffolds. No teacher resources to know what model should look like. Lesson planning times are not useful.</td></tr>
</table>

<table>
<tr><td>HMH 6-8</td><td colspan="2">Team E</td><td>Score
29.6</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>38.0</td><td>46.7</td><td>17.7</td></tr>
<tr><td>Field Test Data</td><td>20.0</td><td>42.5</td><td>8.5</td></tr>
<tr><td>Public Feedback</td><td>32.0</td><td>10.7</td><td>3.4</td></tr>
<tr><td colspan="4">Category 1: Standards

No storyline, students do not make models. No phenomena/ puzzling situations.</td></tr>
<tr><td colspan="4">Category 2: Assessments

Tricky questions. Difficult for teachers to find assessments.</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

Mostly reading and writing with a few engaging activities.</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

No evidence of inclusivity. Community asked for this.</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Community members (some) though it looked nice, but teachers/committee members found it hard to use.</td></tr>
</table>

TCI 6-8	Team F		**Score** **43.32**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**53.5**	**46.7**	**24.98**
Field Test Data	**27.4**	**42.5**	**11.65**
Public Feedback	**62.5**	**10.7**	**6.69**

Category 1: Standards

Weal phenomena; no storyline

Category 2: Assessments

Editable assessment but overwhelming

Category 3: Inclusive Educational Practices

Some activity variety, mixed reviews on quality of those activities.

Category 4: Evaluation of Bias Content

BIAS PRESENT!

Category 5: Instructional Planning and Support

Not good for new teacher.

HMH 6-8	Team F		**Score** **33.29**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score	**38.0**	**46.7**	**17.75**
Field Test Data	**30.25**	**42.5**	**12.86**
Public Feedback	**25.0**	**10.7**	**2.68**

Category 1: Standards

“missed the mark”

Category 2: Assessments

“hard for students and unclear answer key for students”

Category 3: Inclusive Educational Practices

“Not culturally relevant or related to student experience.”

Category 4: Evaluation of Bias Content

“no inclusion”

Category 5: Instructional Planning and Support

“lack of scaffolding and teacher support”

<table>
<tr><td>Amplify 6-8</td><td colspan="2">Team F</td><td>Score
59.44</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>56.0</td><td>46.7</td><td>26.15</td></tr>
<tr><td>Field Test Data</td><td>65.75</td><td>42.5</td><td>27.94</td></tr>
<tr><td>Public Feedback</td><td>50.0</td><td>10.7</td><td>5.35</td></tr>
<tr><td colspan="4">Category 1: Standards

STORYLINE & PHENOMENA!!!</td></tr>
<tr><td colspan="4">Category 2: Assessments

Formative strong, summative alright</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

High engagement, hands-on needs work</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

No bias present</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Wide variety of teacher resources</td></tr>
</table>

<table>
<tr><td>HMH 6-8</td><td colspan="2">Team G</td><td>Score
34.0</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></td><td>46.7</td><td>17.8</td></tr>
<tr><td>Field Test Data</td><td></td><td>42.5</td><td>9.4</td></tr>
<tr><td>Public Feedback</td><td></td><td>10.7</td><td>3.4</td></tr>
<tr><td colspan="4">Category 1: Standards

Pros: Some alignment to SEP/DCI. Cons: Missing key DCI about attraction. Anchoring phenomena not clear or engaging.</td></tr>
<tr><td colspan="4">Category 2: Assessments

Pros: Some great 3D questions. Cons: 8.8% growth. Too difficult/wordy for content taught. Grading challenges.</td></tr>
<tr><td colspan="4">Category 3: Inclusive Educational Practices

Pros: Colored pictures. Career extensions. Cons: Wanted more talk. Heavy on reading. Fed, not figured out. Boring to students.</td></tr>
<tr><td colspan="4">Category 4: Evaluation of Bias Content

Pros: No blatant bias? Connect to sea ice melt. Cons: Lack of people at all. BUT connection to sea ice not intentionally discussed.</td></tr>
<tr><td colspan="4">Category 5: Instructional Planning and Support

Pros: Some possible misconceptions included. Cons: Hard to navigate. Science background lacking. Teacher didn’t find an assessment.</td></tr>
</table>

Amplify 6-8	Team G		**Score** **57.7**
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**46.7**	**26.0**
Field Test Data		**42.5**	**29.0**
Public Feedback		**10.7**	**2.7**
Category 1: Standards Pros: DCI/SEP well covered. Clear phenomena identified by teacher/student. Cons: ESS not really covered. Claims given.			
Category 2: Assessments Pros: Formative (3D), growth not significant? Cons: MC questions not 3D. WR asked in a way that doesn't elicit 3D. Text-heavy scenarios.			
Category 3: Inclusive Educational Practices Pros: Students take on scientist role. Doing -> collecting their evidence. Positive student feelings. Return to phenomena. Cons: Hands-on limited. Depends on delivery (different experience?)			
Category 4: Evaluation of Bias Content Pros: No obvious bias. Students see themselves as scientists. Cons: Limited people. Limited connection to social justice.			
Category 5: Instructional Planning and Support Pros: Science background. Daily lessons clear. Teach easy to use. Cons: Planning for differentiation up for extension.			

TCI 6-8	Team G		Score 42.3
	Consensus Score	**Weight**	**Score x Weight**
Review Criteria Score		**46.7**	**24.0**
Field Test Data		**42.5**	**14.0**
Public Feedback		**10.7**	**4.3**

Category 1: Standards

Pros: DCIs covered mostly. SEPs represented. Modeling for individual lesson questions. Cons: Weak phenomena and return to. Lacks storyline. Missed K energy.

Category 2: Assessments

Pros: 3D question bank. Less words. Cons: Too long. Poor wording. 28.9% growth. Lack of formative assessment.

Category 3: Inclusive Educational Practices

Pros: Some enjoyed sim. Some elements of hands-on are engaging. Cons: Students found boring/disconnect. Lack of discourse. Hands-on -> demos. Lack of connection. Them figuring out.

Category 4: Evaluation of Bias Content

Pros: None. Cons: Women in pictures weak/needed help. “Alien” = immigration?

Category 5: Instructional Planning and Support

Pros: Simplicity of teacher material. Flexible. Lots of extra material, could be used as extension. Cons: Lesson sequence 160 min (too ambiguous). Flexibility could be a con for a new teacher. Tech frustration.

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

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

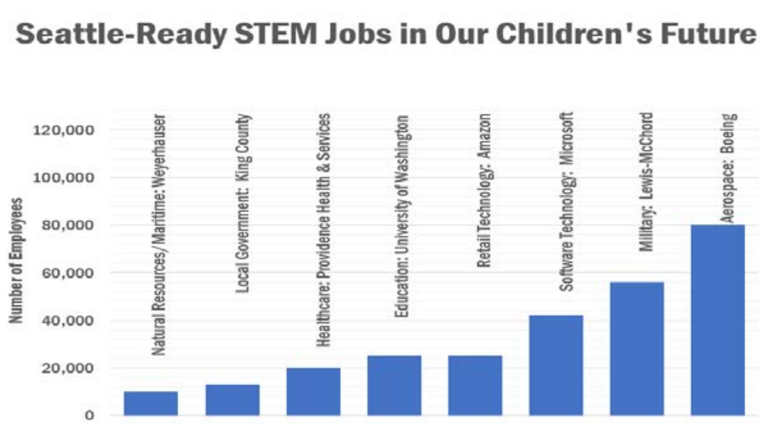
STEP 1: Set Outcomes, Identify and Engage Stakeholders
Leadership sets key racially equitable outcomes and engages stakeholders (SPS staff and community members.)

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.

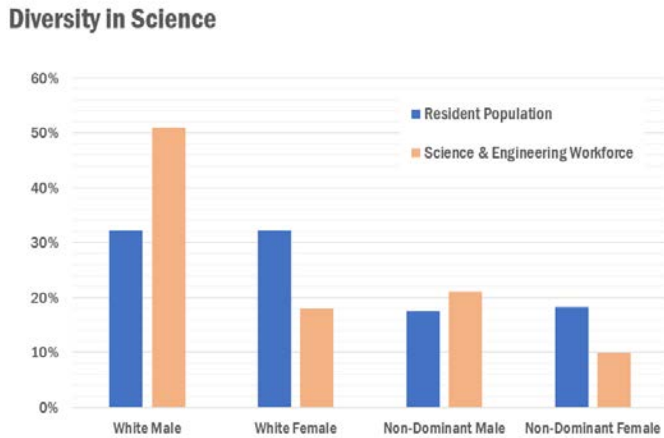
The WSSLS calls for students to learn science and engineering practices through engaging, culturally relevant content. We have defined racially equitable outcomes for students of color, English language learners, and students with special needs as the increased participation and success in science of 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:

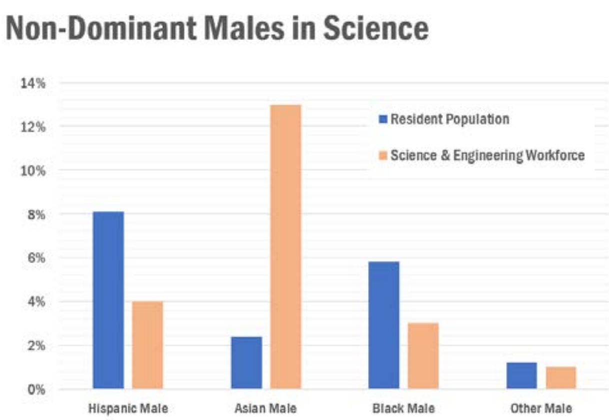
- Washington 4th grade African American and Hispanic students, respectively, score 31 and 29 points lower on the National Assessment of Educational Progress in Science. (*2015 National Assessment of Educational Progress (NEAP) Nation's Report Card - http://nces. ed.gov/nationsreportcard/states/*.)
- 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*.)

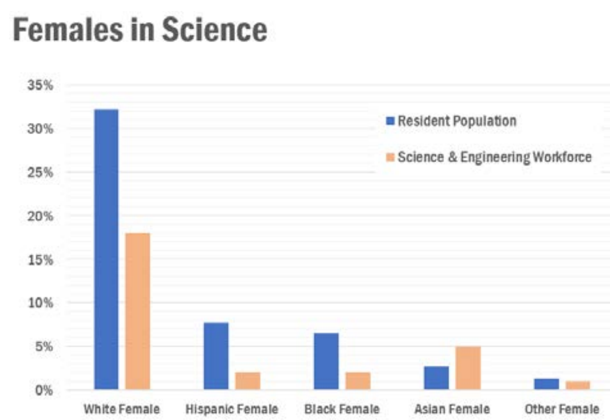


Source: Washington STEM, www.washingtonstem.org, 2016.

- 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.

Racial Equity Analysis Tool

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.

Racial Equity Analysis Tool

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

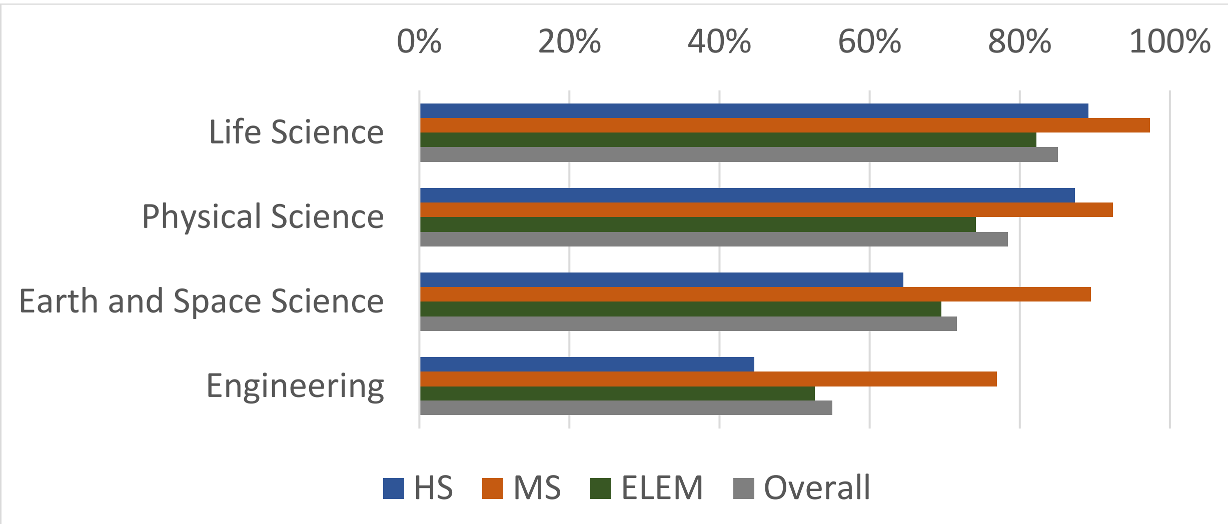
To calibrate the supports teachers need moving forward with NGSS-aligned instructional materials, it is first necessary to understand the supports that teachers currently use in the classroom.

- **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.

Attachment N
EdReports.org Middle School Science Instructional Materials Review, February 2019

EdReports.org is a nonprofit that provides free reviews of instructional materials in multiple academic content areas. An EdReports.org report released on February 28, 2019 announced the results of its first round of science instructional materials program reviews for grades 6-8. Content Review Teams, comprised of expert science educators from across the country, analyzed six instructional materials programs for standards alignment and usability, including supports for educators, multiple strategies for meeting the needs of a range of learners, strong student assessment practices and effective use of technology.

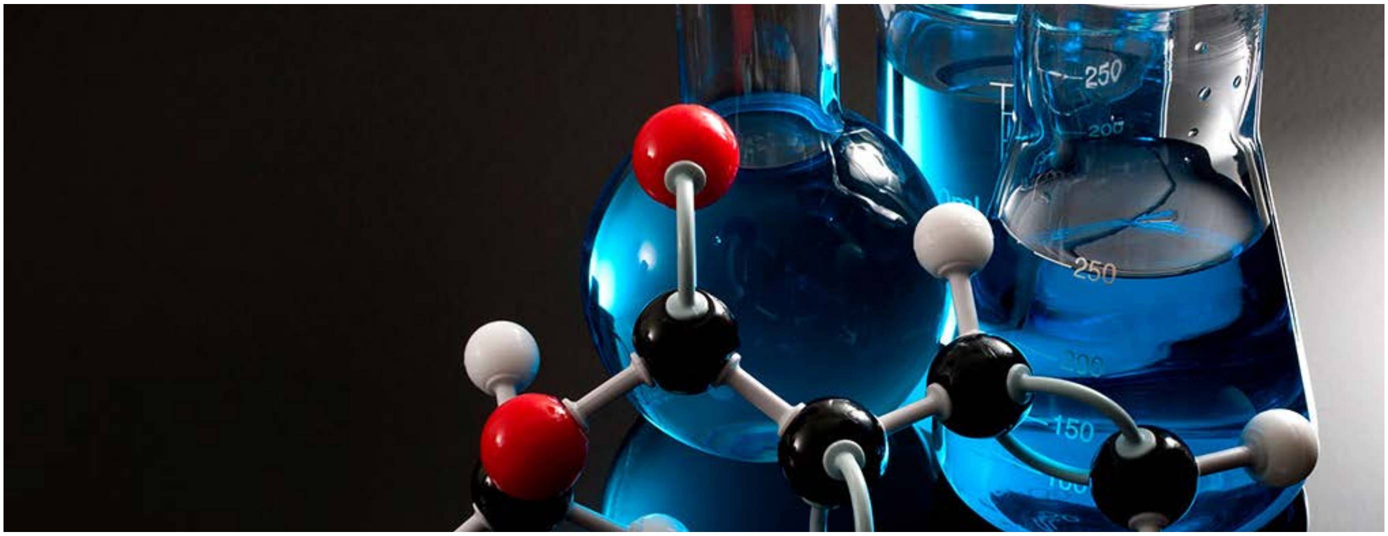
Of the 6 programs reviewed the report determined that only AmplifyScience (Amplify), fully met expectations for alignment to NGSS. HMH Science Dimensions Grades 6-8 (Houghton Mifflin Harcourt), partially met expectations for alignment to NGSS, and Bring Science Alive! Program (Teachers' Curriculum Institute - TCI) did not meet expectations for alignment to NGSS.

EdReports.org. (2019, February 28). ***EdReports Breaks New Ground with Inaugural Science Reviews*****. Retrieved from https://www.edreports.org/resources/article/edreports-breaks-new-ground-with-inaugural-science-reviews**

Attachment M: Ed Reports Research

EdReports Breaks New Ground with Inaugural Science Reviews

EdReports.org announced the results of its first round of science reviews for grades 6-8. Its findings revealed that one of the six instructional materials series fully met criteria.



February 28, 2019

EdReports.org, a nonprofit that provides free reviews of instructional materials, announced the results of its first round of science reviews for grades 6-8. Its findings revealed that one of the six instructional materials series fully met criteria.

“With 19 states (including Washington D.C.) adopting the Next Generation Science Standards and 21 other states adopting standards informed by NGSS and A Framework for K-12 Science Education, there is a clear need from the field for materials that are also designed for the innovations of the NGSS. Ultimately, we hope our reviews help ensure teachers have the resources they need to foster student success,” said EdReports.org’s Executive Director Eric Hirsch.

Content Review Teams, comprised of expert science educators from across the country, analyzed programs over the course of several months. Hundreds of hours were spent identifying evidence and scores for the five characteristics of the NGSS innovations: Making Sense of Phenomena and Designing Solutions to Problems, Three-Dimensional Learning, Building K-12 Progressions, Alignment with English Language Arts and Mathematics, and All Standards, All Students. The EdReports rubric and review methodology is free and publicly available on its website.

Materials that met criteria for alignment were then further evaluated on usability criteria which include supports for educators, multiple strategies for meeting the needs of a range of learners, strong student assessment practices and effective use of technology.

Across the six middle school science series, review teams found the following:

Met Expectations for Alignment to NGSS:

- Amplify Science (Amplify)

Partially Met Expectations for Alignment to NGSS:

- HMH Science Dimensions Grades 6-8 (Houghton Mifflin Harcourt)

Did Not Meet Expectations for Alignment to NGSS:

- Science and Technology Concepts Middle School (Carolina Biological Supply Company)
- Discovery Science Techbook for California NGSS Middle School (Discovery Education)
- Bring Science Alive! Integrated Program (Teachers' Curriculum Institute)
- Bring Science Alive! Discipline Program (Teachers' Curriculum Institute)

Ted Willard, Assistant Executive Director for Science Standards at the National Science Teachers Association, celebrated the release. “The Next Generation Science Standards have the power to transform science education by enabling students to learn science the way it is practiced and experienced in the real world,” Willard said. “The standards recommend significant shifts in science teaching, and the instructional materials teachers use need to reflect these important changes. Districts are looking to independent third parties like EdReports to help guide them in the selection of high-quality science instructional materials. These science reports will give educators a highly useful piece of evidence they need to navigate the instructional materials market and make informed decisions.”

Hirsch adds, “There has been a shortage of reviews available of year-long science programs, yet these programs remain the backbone of classroom curriculum nationwide. We’ve heard from states, districts, and schools how much our reviews help them reflect on the materials they are currently using and may consider in the future. We expect the extensive evidence documented in our reports will empower districts with the data they need to ask the right questions and make the best decisions.”

EdReports.org will continue to review additional 6-8 print and digital instructional materials in science and will release the results on a rolling basis. Elementary school reports will be available early in 2020 and high school reports down the line.

# # #

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