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

1. The instructional materials present the SEPs (Science and Engineering Practices) in a way that is: Current; Scientifically accurate; Grade-level appropriate
2. The instructional materials present the DCIs (Disciplinary Core Ideas) in a way that is: Current; Scientifically accurate; Grade-level appropriate
3. The instructional materials present the CCCs (Crosscutting Concepts) in a way that is: Current; Scientifically accurate; Grade-level appropriate
4. The instructional program provides phenomena-based science units.
5. The instructional program engages students in the engineering design process by solving engineering problems.
6. Units are organized in a coherent, sense-making sequence (storyline), anchored by a phenomenon or engineering problem that allows for students to develop and build knowledge to explain the phenomenon or solve the engineering problem.
7. Courses are designed around an instructional arc that supports the development of students' conceptual understanding.
8. Phenomena and/or engineering problems engage students as directly (first hand) as possible.
9. Individual learning activities include Science and Engineering Practices (SEPs) and Disciplinary Core Ideas (DCIs), with Crosscutting Concepts (CCCs) used to unify activities.
10. The instructional program provides opportunities for students to collect evidence using all of the following: computer-based simulations, hands-on investigations, field investigations, informational texts, and other media.
11. Instructional materials draw upon students' prior knowledge and experiences related to the targeted learning of SEPs, DCIs, and CCCs.
12. Instructional materials provide students with opportunities to consider the ethical implications of science where appropriate.
13. The instructional program indicates connection(s) to the Common Core State Standards.
14. The instructional program requires students to use and build their knowledge of Disciplinary Core Ideas as assigned to each course:
    a. Check one: ☐ Biology ☐ Chemistry ☐ Physics
    b. Earth and Space Science (Applies to all content areas reviewed)
    c. Engineering, Technology, and Application of Science (Applies to all content areas reviewed)

15. The instructional program requires students to use, leverage, and build their knowledge of the Science and Engineering Practices:
    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
16. The instructional program requires students to use and build their knowledge of the Crosscutting Concepts:
    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

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.

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).
2. Assessments do not create barriers to student success based on gender identification, cultural status, socioeconomic status, sensitivity, language, learning exceptionality, or the use of adaptive technology.
3. Assessments can be modified for language learners and students with learning exceptionalities.
4. Assessments are written in a way that makes the assessed standards visible to learners.
5. Pre-assessments for each unit are provided to elicit students' prior knowledge and preconceptions.
6. 3D assessment tools include multiple measures of student progress within a unit.
7. Formative assessments are embedded consistently within the unit of instruction to yield frequent information teacher may use in planning and modifying instruction and are designed to elicit understanding to provide evidence of students' progress toward mastering the three-dimensional learning.
8. 3D summative assessments, at the end of a chapter or a unit, require students to provide a gapless scientific explanation for the unit phenomenon, supported by evidence.
9. 3D 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.
10. Tools are provided for scoring assessment items (e.g., sample student responses, rubrics, scoring guidelines) and are connected to standards in student-friendly language.
11. 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.
12. Instructional materials provide opportunities and guidance for oral and/or written self-assessment allowing students to monitor their own learning.
13. Instructional materials include opportunities to use digital tools to assess three-dimensional learning to provide timely feedback to students.

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.

1. Instructional materials leverage students' prior knowledge and experiences by eliciting and revisiting their ideas throughout the unit.
2. Instructional materials should build upon student interests and identities and include options for how to connect instruction to students' home, neighborhood, community, and/or culture, with a lens on social justice issues that are pertinent to students' lives (e.g., food deserts).
3. Instructional materials are designed to leverage diverse cultural and socioeconomic backgrounds (e.g., phenomenon relates to students from multiple backgrounds) and experiences of students, including honoring the ways they come to know science (e.g., Native American generational storytelling).
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, field investigations, etc.) to support students' sense-making in the construction of explanations of the phenomena.
5. Teacher resources provide scaffolds for full participation by students of all capabilities.
6. Instructional materials provide appropriate accommodations and modifications to support all students in accessing information in the learning of science and engineering (e.g., reading strategies, accessing complex text, identifying language functions).
7. Students have opportunities to express their understanding of phenomena using multiple modalities, including, but not limited to, discussing, writing, gesturing, and drawing.
8. Instructional materials are available in multiple languages.
9. Instructional materials provide opportunities for students to explore science and engineering career pathways that are connected to their lives through relevance and authenticity.
10. 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.
11. Instructional materials include a global perspective, referencing work and innovations in the fields of science and technology done by people from different global societies and describing how different global communities experience, and are impacted by, science and engineering.
12. Instructional materials involve students in ethical discussions about science innovations that have exploited groups in history, in order to engage in restorative justice and prevent similar situations in the future.
13. Instructional materials engage students in ethical discussions related to the science and engineering topic being studied, including humankind's responsibility to the ecosystem, the ethical treatment of human subjects and vertebrate animals in research, and the ethical conduct of research.

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)

Instructions for Criteria 1-5: For categories represented, evaluate the level of evidence for each of the numbered components: Gender; Sexual Orientation; Ethnicity; Culture; Physical Disability; Physical Characteristics; Age; Family Structure; Socioeconomic Status; Geographic Setting

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.
6. Materials include historical and current contributions to science and engineering by members of non-dominant cultures.
7. Groups are identified in gender-neutral language (example: 'firefighter' instead of 'fireman').
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.
9. Persons with disabilities are shown working and playing as equals with those around them.
10. Where appropriate, instructional materials acknowledge when the dominant culture took credit for discoveries and work done by non-dominant cultures.

CATEGORY 5: TEACHER PLANNING, USABILITY, 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

1. Teacher support materials provide coherent learning progressions within and between units.
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) work together to support students' sense making.
3. Instructional materials document how each unit aligns to English/Language Arts and Math Common Core State Standards.
4. Instructional materials contain teacher guidance on how learning activities relate to the unit storyline and relevant phenomenon, including when in the unit to have students revise their thinking.
5. The instructional program provides guidance to teachers on how to engage students in a variety of discourse strategies to support their three-dimensional learning.
6. Teachers are provided with a wide variety of engaging, student-centered learning activities that help students make sense of phenomena or in designing solutions to related problems.
7. The instructional program contains teacher guidance, with annotations and suggestions, for how to successfully implement their units and daily lesson plans, including common issues that arise and how to respond to them.
8. Instructional materials contain explanations of the instructional approaches of the program and identification of the research supporting the approach.
9. Instructional materials include research on the effectiveness of the program.
10. Teacher support materials provide background knowledge related to the scientific content and engineering design process in each lesson.
11. Where applicable, teacher background knowledge materials include a global and local perspective.
12. Teacher support materials identify common student preconceptions and suggestions for how to provide feedback and engage students in meaning-making that addresses these preconceptions.
13. Teacher support materials ensure three-dimensional learning by identifying: opportunities for checking for understanding, when to revisit students' initial ideas, and methods of responsive instruction.
14. Teacher support materials provide regular updates to content, phenomena, assessments, and pedagogy.
15. Instructional materials include a comprehensive list of consumable and non-consumable supplies needed, as well as a detailed list of preparation tasks, for each lesson.

16. 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.
17. Instructional materials designated for each course are appropriate for one semester, and teacher support materials contain suggested pacing for the semester.
18. Instructional materials contain strategies for informing students, parents, and caregivers about the science program that are culturally respectful.

19a-h. Technology Criteria

a. Instructional materials encourage the meaningful use of digital technologies and tools (such as video clips, sensors, and computer simulations) to investigate and document phenomena that cannot be directly experienced in the classroom, as well as tools used to record, display, and analyze data.
b. Instructional materials provide strategies for effective implementation and management of instructional technology tools.
c. Instructional materials include or reference digital technology that provides opportunities for teachers and students to collaborate with each other (e.g., websites, discussion groups, webinars, simulations, data visualization software, cloud-based collaborative tools, etc.).
d. Electronic learning resources support instruction by indicating which lessons require technology.
e. Electronic learning resources support instruction by having a well-designed user interface.
f. Electronic learning resources support instruction by providing technical support.
g. Electronic learning resources support instruction by including suggestions for appropriate use.
h. Electronic learning resources support instruction by including back up plans that do not require technology.

SUMMARY

1. Each criterion is scored on a scale of 0 to 4:

   0 = No Evidence; 1 = Minimal Evidence; 2 = Moderate Evidence; 3 = Strong Evidence; 4 = Superior Evidence.

2. Each category's criteria are added together, then divided by the maximum possible score to generate a percentage.
3. Each category's percentage is then converted into points by multiplying by 100.
4. Each category's points are then multiplied by a weighting value:

   Category 1: 0.24

   Category 2: 0.20

   Category 3: 0.17

   Category 4: 0.16

   Category 5: 0.23

5. The resulting scores are added together to generate the summary score for the program.
6. Reviewers record evidence for each criterion as they conduct the review. They leave comments at the end of each category, as well as provide a personal score to reflect whether they feel the total score reflects their personal assessment of the program.