# Tool 5A: Program Level Evaluation Innovation 1: Making Sense of Phenomena and Designing Solutions to Problems

This tool is to be used to collect evidence and make claims about how an instructional materials program addresses NGSS Innovation 1: Making Sense of Phenomena and Designing Solutions to Problems.

**Directions**

Using the sampling evaluation plan, record evidence of where the innovation has been *clearly* incorporated into the materials as well as instances where it does not appear to have been incorporated. Your evidence should include page numbers, a brief description of the evidence, and an explanation of how it either supports or contradicts the claim.

| **Claim** | **Evidence** | **Sufficient evidence to support the claim?** |
| --- | --- | --- |
| From the student’s perspective, most learning experiences are focused on making sense of phenomena and designing solutions to problem. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Guidance is provided to teachers to support students in making sense of phenomena and designing solutions to problems. | What to look for as evidence:One phenomena/problem or a series of related phenomena/problem drive instruction and help maintain a focus for all the lessons in a sequence.Guidance is provided to the teacher for how each of the lessons supports students in explaining the phenomena or solving the problemTeaching strategies are provided to use student sense-making and solution-designing as a mechanism for making their three-dimensional learning visible.  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |

**Summary and Recommendations**

1. Based on the evidence collected, to what degree to the materials incorporate this innovation over the course of the program?

[ ]  Materials incorporate the innovation.

[ ]  Materials partially incorporate the innovation.

[ ]  Materials do not incorporate the innovation.

1. Reviewer Notes/Comments
2. If this innovation is only partially incorporated, suggest additional professional learning or other support that would be needed for teachers to use the materials in a way that incorporated the innovation in their instruction.

# Tool 5B: Program Level Evaluation Innovation 2: Three-Dimensional Learning

This tool is to be used to collect evidence and make claims about how an instructional materials program addresses NGSS Innovation 2: Three-Dimensional Learning.

**Directions**

Using the sampling evaluation plan, record evidence of where the innovation has been *clearly* incorporated into the materials as well as instances where it does not appear to have been incorporated. Your evidence should include page numbers, a brief description of the evidence, and an explanation of how it either supports or contradicts the claim.

| **Claim** | **Evidence** | **Sufficient evidence to support the claim?** |
| --- | --- | --- |
| Student sense-making of phenomena and/or designing of solutions requires student performances that integrate grade-appropriate elements of the SEPs, CCCs, and DCIs. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Teacher materials communicate the deliberate and intentional design underpinning the selection of three-dimensional learning goals across the program. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Student materials include accessible and unbiased formative and summative assessments that provide clear evidence of students’ three-dimensional learning. | What to look for as evidence in the student materials:* Materials regularly elicit direct, observable evidence of three-dimensional learning (SEP, DCI, CCC);
* Materials include authentic and relevant tasks that require students to use appropriate elements of the three dimensions;
* Provide a range of item formats, including construct-response and performance tasks, which are essential for the assessment of three-dimensional learning consonant with the framework and the NGSS.
 | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Over the course of the program, a system of assessments coordinates the variety of ways student learning is monitored to provide information to students and teachers regarding student progress for all three dimensions of the standards. | What to look for as evidence in the assessment system:* consistent use of pre-, formative, summative, self- and peer-assessment measures that assess three-dimensional learning,
* consistent support for teachers to adjust instruction based on suggested formative classroom tasks; and
* support for teachers and other leaders to make program level decisions based on unit, interim, and/or year long summative assessment data.
 | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| *When appropriate*, links are made across the science domains of life science, physical science and Earth and space science. | What to look for as evidence:* Disciplinary core ideas from different disciplines are used together to explain phenomena.
* The usefulness of crosscutting concepts to make sense of phenomena or design solutions to problems across science domains is highlighted.
 | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |

**Summary and Recommendations**

1. Based on the evidence collected, to what degree to the materials incorporate this innovation over the course of the program?

[ ]  Materials incorporate the innovation.

[ ]  Materials partially incorporate the innovation.

[ ]  Materials do not incorporate the innovation.

1. Reviewer Notes/Comments
2. If this innovation is only partially incorporated, suggest additional professional learning or other support that would be needed for teachers to use the materials in a way that incorporated the innovation in their instruction.

# Tool 5C: Program Level Evaluation Innovation 3: Building Progressions

This tool is to be used to collect evidence and make claims about how an instructional materials program addresses NGSS Innovation 3: Building Progressions.

**Directions**

Using the sampling evaluation plan, record evidence of where the innovation has been *clearly* incorporated into the materials as well as instances where it does not appear to have been incorporated. Your evidence should include page numbers, a brief description of the evidence, and an explanation of how it either supports or contradicts the claim.

| **Claim** | **Evidence** | **Sufficient evidence to support the claim?** |
| --- | --- | --- |
| Students engage in the science and engineering practices with increasing grade-level appropriate complexity over the course of the program. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Students utilize the crosscutting concepts with increasing grade-level appropriate complexity over the course of the program. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| The disciplinary core ideas are presented in a way that is scientifically accurate and grade level appropriate. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Teacher materials make it clear how each of the three dimensions *builds progressively over the course of the program* in a way that gives students multiple opportunities to demonstrate proficiency in the breadth of the performance expectations addressed in the program. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Each unit builds on prior units by addressing questions raised in those units, cultivating new questions that build on what students figured out, or cultivating new questions from related phenomena, problems, and prior student experiences. | What to look for as evidence:for each of the units, look at the transitions into and out of the units. Are the units linked together from a student’s perspective? | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Teacher materials clearly explain the design principles behind the sequencing of the storyline. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Student materials engage students with the nature of science and engineering, technology, and applications of science over the course of the program. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Teacher materials make connections to the nature of science; engineering, technology, and applications of science over the course of the program. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |

**Summary and Recommendations**

1. Based on the evidence collected, to what degree to the materials incorporate this innovation over the course of the program?

[ ]  Materials incorporate the innovation.

[ ]  Materials partially incorporate the innovation.

[ ]  Materials do not incorporate the innovation.

1. Reviewer Notes/Comments
2. If this innovation is only partially incorporated, suggest additional professional learning or other support that would be needed for teachers to use the materials in a way that incorporated the innovation in their instruction.

# Tool 5D: Program Level Evaluation Innovation 4: Alignment with English Language Arts and Mathematics

This tool is to be used to collect evidence and make claims about how an instructional materials program addresses NGSS Innovation 4: Alignment with English-Language Arts and Mathematics.

**Directions**

Using the sampling evaluation plan, record evidence of where the innovation has been *clearly* incorporated into the materials as well as instances where it does not appear to have been incorporated. Your evidence should include page numbers, a brief description of the evidence, and an explanation of how it either supports or contradicts the claim.

| **Claim** | **Evidence** | **Sufficient evidence of quality?** |
| --- | --- | --- |
| Materials engage students with English language arts in developmentally appropriate ways (supporting state English-language arts standards) |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Materials engage students with mathematics in developmentally appropriate ways (supporting state mathematics standards) |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Teacher materials make connections to state mathematics and English-language arts standards and incorporate teaching strategies that support this student learning where appropriate. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |

**Summary and Recommendations**

1. Based on the evidence collected, to what degree to the materials incorporate this innovation over the course of the program?

[ ]  Materials incorporate the innovation.

[ ]  Materials partially incorporate the innovation.

[ ]  Materials do not incorporate the innovation.

1. Reviewer Notes/Comments
2. If this innovation is only partially incorporated, suggest additional professional learning or other support that would be needed for teachers to use the materials in a way that incorporated the innovation in their instruction.

# Tool 5E: Program Level Evaluation Innovation 5: All Standards, All Students

This tool is to be used to collect evidence and make claims about how an instructional materials program addresses NGSS Innovation 5: All Standards, All Students.

**Directions**

Using the sampling evaluation plan, record evidence of where the innovation has been *clearly* incorporated into the materials as well as instances where it does not appear to have been incorporated. Your evidence should include page numbers, a brief description of the evidence, and an explanation of how it either supports or contradicts the claim.

| **Claim** | **Evidence** | **Sufficient evidence of quality?** |
| --- | --- | --- |
| Students have substantial opportunities to express and negotiate their ideas, prior knowledge, and experiences as they are using the three dimensions of the NGSS to make sense of phenomena and design solutions to problems. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Teacher materials anticipate common student ideas and include guidance to surface and challenge student thinking. |  | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Students regularly engage in authentic and meaningful learning experiences that reflect the practice of science and engineering as experienced in the real world. | What to look for as evidence:* Students experience phenomena or design problems as directly as possible (firsthand or through media representations).
* Includes suggestions for how to connect instruction to the students' home, neighborhood, community and/or culture as appropriate.
* Provides opportunities for students to connect their explanation of a phenomenon and/or their design solution to a problem to questions from their own experience.
 | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Teacher materials provide guidance for using effective teaching strategies that engage students in real world phenomena and authentic design problems | What to look for as evidence*:** When phenomena may not be relevant or clear to some students (e.g., crop growth on farms), the materials offer alternate engaging phenomena or problems to the teacher
* Varied phenomena
 | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |
| Materials provide suggestions for how to attend to students’ diverse skills, needs, and interests in varied classroom settings. | What to look for as evidence:* Appropriate reading, writing, listening, and/or speaking alternatives (e.g., translations, picture support, graphic organizers, etc.) for students who are English language learners, have special needs, or read well below the grade level.
* Extra support (e.g., phenomena, representations, tasks) for students who are struggling to meet the targeted expectations.
* Extensions for students with high interest or who have already met the performance expectations to develop deeper understanding of the practices, disciplinary core ideas, and crosscutting concepts.
 | [ ]  None[ ]  Inadequate[ ]  Adequate[ ]  Extensive |

**Summary and Recommendations**

1. Based on the evidence collected, to what degree to the materials incorporate this innovation over the course of the program?

[ ]  Materials incorporate the innovation.

[ ]  Materials partially incorporate the innovation.

[ ]  Materials do not incorporate the innovation.

1. Reviewer Notes/Comments
2. If this innovation is only partially incorporated, suggest additional professional learning or other support that would be needed for teachers to use the materials in a way that incorporated the innovation in their instruction.