Advancing Tools and Processes for Next Generation Science

Model C: Planning for Classroom Assessment Tool 5: Using Evidence of Learning Specifications to Develop a Performance Task and Rubric

Introduction

The purpose of Tool 5 is to develop a performance task with a student checklist and a scoring rubric for the teacher. Using the evidence of learning specifications (EoLs) from Tool 2, teachers begin to develop a summative assessment that completes the "evaluate" activity of their instructional sequence. They develop a three-dimensional assessment that incorporates crosscutting concepts that students learned in the sequence, the disciplinary core ideas, as well as the science and engineering practices. This three-dimensional performance task helps teachers formally evaluate what students have learned as a result of NGSS-aligned instruction.

Goals and Outcomes:	 Appl deve 	y a common understanding of high quality classroom assessment to the Plopment of a performance task	
	 Deepen understanding of how performance tasks align to Evidence of Learning Specifications based on Performance Expectations. 		
	 Use perfesseque 	 Use Evidence of Learning Specifications developed in NGSS Tool 2 to create a performance task and rubrics as a summative assessment of an instructional sequence 	
Prerequisite:	Participa anchor p	pants should have experience using Tools 1 and 2, and have an understanding of phenomena	
Time and	Part 1	Introduction (Slides 1-3) [5 minutes]	
Purpose		Purpose: To build on the work completed in Tools 1-4.	
	Part 2	Deconstructing a Performance Task (Slides 4-12) [80 minutes]	
		Purpose: Deepen understanding of how performance tasks align to Evidence of Learning Specifications based on Performance Expectations.	
		Summary: Participants take a performance task and align each prompt with the example EoLS from Tool 2. They review Ms. Rivera's Tool 5 template.	
	Part 3	Developing a Performance Task (Slides 13-22) [155 minutes]	
		Purpose: Use Evidence of Learning Specifications developed in NGSS Tool 2 to create a performance task with a rubric and student checklist as a summative assessment of an instructional sequence.	
		Summary: Participants review the steps in the Guide for Developing a Performance Task and are given time to create a 3D performance task, rubric and student checklist using the Tool 5 template to align their EoLS from Tool 2.	

Total Time = 240 minutes (4 hours)

Materials:

Markers

Chart Paper

- Evidence of Learning Specifications developed in Tool 2
- Completed Tool 4 Instructional Sequence

Handouts

- HO 1 Performance Task for Instructional Sequence 1
- HO 2 Student Checklist
- HO 3 Scoring Rubric
- HO 4 Aligning EoLS with Performance Task
- HO 5 Tool 5 Template Example
- HO 6 Guide for Developing a Performance Task & Rubric

Resources

R 1	A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas (2012) by National Research Council
R 2	Next Generation Science Standards For States, By States Volume 1: The Standards (2013) by NGSS Lead States
R 3	Next Generation Science Standards For States, By States Volume 2: The Appendices (2013) by NGSS Lead States

<u>Slides</u>

- Slide 1 Advancing Tools and Processes for Next Generation Science
- Slide 2 Five Tools and Processes Model C Graphic
- Slide 3 Goals
- Slide 4 Developing Assessments for the NGSS
- Slide 5 The Gift
- Slide 6 Tool 2 and Tool 5
- Slide 7 Classroom Assessment Design
- Slide 8 Performance Task for Instructional Sequence 1
- Slide 9 Performance Task and Student Checklist
- Slide 10 Scoring Rubric
- Slide 11 Aligning Evidence of Learning Specifications to Performance Task
- Slide 12 Tool 5 Example
- Slide 13 Developing a Performance Task
- Slide 14 Guide for Using Tool 5
- Slide 15 Quality Assessments
- Slide 16 Your Turn
- Slide 17 Reflection
- Slide 18 Five Tools and Processes Graphic

	<u>Other</u>
	 Teacher Resources from existing science instructional materials (test items, formative assessments, sample questions from instructional materials).
Advance Preparation	 Be sure every team has their Tool 2 EoLS and their completed Tool 4 instructional sequences
	 Prepare Handouts 1-6
	 Gather instructional resources from Tool 4 as well as previous classroom
	assessments used
	 Transfer electronic Tool 2 Template to participants

Part 1 Introduction (5 minutes)

Example Transition to Tool 5: At this point, you have developed a blueprint of the unit of instruction. With that, you know the performance expectations and elements of the dimensions that you expect students to learn. You have also developed evidence of learning specifications that show how the dimensions are integrated in ways that will help you see if students have proficiency. In Tool 5, you will learn the process for developing performance tasks, based on the three dimensions and phenomena.

Slide and Time	Facilitation Notes
Advancing Tools and Processes for Next Generation Science Planning for Classroom Assessment Tool 5: Using Evidence of Learning Specifications to Develop a Performance Task and Rubrics	Display Slide 1 (Advancing Tools and Processes for Next Generation Science). Welcome participants to the session.
Planning for Classroom Assessment	Display Slide 2 (Five Tools and Processes Graphic).
Five Tools and Processes For Translating the NGSS Into Instruction and Classroom Assessment Tool 1 Sector 2 Sector 2 Secto	 Remind participants that this is the overview of the whole process and that you are following the planning for assessment path but that there are two other tools that are available for planning units of instruction.
Slide 2 (2 minutes)	 b. Overview: Based on participant responses, briefly review Tools 1-4 represented in this graphic. Tool 1 helps teachers plan for a unit of instruction. Tool 2 supports teachers in planning for assessment based on an instructional sequence. Tool 3 introduces teachers to an instructional
	model to guide to design learning sequences. Tool 4

Slide and Time	Facilitation Notes
	supports teachers in using their instructional resources to plan a sequence of instruction based on the NGSS. Finally, share that Tool 5 helps teachers develop a performance task aligned to the NGSS.
	 Point out to participants that today's focus will be on Tool 5. The product by the end of the session will be a performance task and rubric that align with their Tool 4 instructional sequence.
Goals Apply a common understanding of high quality classroom assessment to the development of a performance task Deepen understanding of how performance tasks align to Evidence of Learning Specifications based on Performance Expectations. Use Evidence of Learning Specifications developed in Tool 2 to create a performance task with rubrics as a summative assessment of an instructional sequence 	Display Slide 3 (Goals) . a. Review the goals and outcomes of the session.
Slide 3 (2 minutes)	

Part 2 Deconstructing an Assessment Task (80 minutes)

Slide and Time	Facilitation Notes
Developing Assessments for the Next Generation Science Standards "Assessment tasks have to be designed to provide evidence of students' ability to use practices, to apply their understanding of the crosscutting concepts, and draw on their understanding of specific disciplinary ideas, all in the context of addressing specific problems." - Pellegrino, Wilson, Koenig, Beatty, Editors, Developing Assessments for the Next Generation Science Standards National Academies Press (2014) Slide 4 (5 minutes)	 Display Slide 4 (Developing Assessments for the Next Generation Science Standards). a. Allow time for participants to read the passage. Ask participants to think about the implications for assessing student understanding in the era of NGSS. Have participants share their thinking. Chart ideas. Retain this chart to use at the closing of the session.

Slide and Time	Facilitation Notes
	Display Slide 5 (The Gift).
	a. The slide is animated starting with the gift.
Assessment Boundary Science Calima Specifications Specifications Slide 5 (5 minutes)	 Explain that NGSS comes as a gift to increase student understanding and enjoyment of science.
	c. Click to reveal the PE. Explain that the performance expectation is a statement of what students should know and be able to do at the end of instruction. The clarification statements further detail the PE by offering examples. The assessment boundary defines the scope of the assessment.
	 Advance the slide to reveal the = claim. The PE is the equivalent of making a claim about what students should know and be able to do.
	 Advance the slide. The PE is based on the 3 Dimensional Learning: Disciplinary Core Ideas, Science and Engineering Practices and the Crosscutting Concepts.
	 f. Advance the slide. The SEP and CCC are further enhanced with connection to the Nature of Science, and Engineering, Technology and Application of Science
	g. Advance the slide to reveal the evidence of learning specifications. Explain that in order to assess if the students meet the intent of the PE, one has to design an assessment task. But first, one has to think of the types of evidence students would display to show that they learned. These are called the evidence of learning specifications and Tool 2 provides a process for determining these for the learning sequence from Tool #1
	 h. Advance the slide to reveal the assessment task. Once one has PLANNED for the assessment (Tool 2), one can design instruction (Tools 3 and 4) and finally design the specific assessment task that matches the instruction (Tool 5). Note that one can design instruction with Tools 3 and 4, but that today you are skipping to Tool 5 to develop performance tasks.



Slide and Time	Facilitation Notes
Performance Task and Student Checklist Read Performance Task and review the Student Checklist With a partner write an ideal student response for each prompt Slide 9 (30 minutes)	 Display Slide 9 (Performance Task and Student Checklist). a. Have participants work with a partner and complete the task. Participants can use the student rubric to check their work. b. Have partners share responses with another partner group. Explain that the ideal student responses will become the high-level student response on the Scoring Rubric.
Scoring Rubric • Compare your responses to the Scoring Rubric • To what extent do your responses align with the Scoring Rubric? • What was alike? What was different? • Consider the ways each response combines SEPs, DCIs, and CCCs. Slide 10 (10 minutes)	 Display Slide 10 (Scoring Rubric). a. Distribute H03 (Scoring Rubric). Have participants compare their responses to scoring rubric. b. Use the prompts on the slide to facilitate discussion.
Aligning the Evidence of Learning Specifications to the Performance Task • Read the PE and the Evidence of Learning Specifications (EoLS) • Read each Performance Task prompt. • Record the number of each Evidence of Learning Specification to its corresponding section of the performance task into the chart on your handout. Slide 11 (10 minutes)	 Display Slide 11 (Aligning the Evidence of Learning Specifications to the Performance Task). a. Distribute HO4 (Alignment with EoLS). Direct participants to read the two PEs and then focus on the Evidence of Learning Specifications that were developed with Tool 2. b. Using the chart on page 2 of HO4, ask participants to determine which Evidence of Learning Specification(s) aligns with each prompt/question of the performance task. Ask participants to record their alignment in the chart. c. Ask participants what they notice about the prompts and Evidence of Learning Specifications. This task was designed so that each question/prompt aligns with at least one or more EoLS.

Slide and Time	Facilitation Notes
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Part 3	Developing an Assessment Task
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(155 minutes)

Slide and Time	Facilitation Notes
Developing a Performance Task How did you develop performance tasks for your students prior to NGSS? What will you need to consider when you develop performance tasks in the era of NGSS? Slide 13 (5 minutes)	 Display Slide 13 (Developing a Performance Task). a. Ask participants to think-pair-share how they developed performance tasks prior to NGSS. b. Ask participants to share what they will need to consider when developing performance tasks in the era of NGSS. Facilitate a brief discussion that includes: using Evidence of Learning Specifications, assessment at the nexus of SEPs, DCIs, and CCCs.
Guide for Developing a Performance Task & Rubric Step 1: Review your EoLS Step 2: Explore resources, use Evaluate Analysis Guide Step 3: Construct performance task questions and prompts aligned with EoLS Step 4: Develop Scoring Rubric (high, low, and medium levels as needed) Step 5: Develop Student Checklist Slide 14 (15 minutes)	 Display Slide 14 (Guide Developing a Performance Task & Rubric). a. Distribute H06 (Guide Developing a Performance Task & Rubric). b. Give participants time to read the Guide and discuss at their tables the different steps and resources needed to develop a performance task. c. Call on different tables and ask for volunteers to paraphrase one of the steps to check for understanding and clarify any questions about the process. Note: Be sure to remind participants that the performance task needs to focus on a phenomenon and the questions need to be grounded in an anchoring event(s). If you facilitated the concept attainment about phenomena on a different day, consider having participants scan Handout 5 from Tool 3 to remind themselves of

Slide and Time	Facilitation Notes
	performance task of the sequence needs to be a new context that was not used during instruction. For example, the performance task that participants completed at the beginning of this session involved a fictitious scenario with graybirds and whitebirds on north and south islands.
Quality Assessments	Display Slide 15 (Quality Assessments)
TOOL 1 20 Uhr Backgerier Backgerier Outality Outality	a. Remind participants that in Tool 2 we discussed that quality assessments have three facets and how our tools support the development of quality assessment tools.
Assessments Quality Tools UD Performance Secretication UTOOL 3 UD Performance Assessment Centered Treaching Promework Slide 15 (5 minutes)	 Explain that once Tool 5 is field tested with students, participants will use the data collected to inform their evidence of learning specifications and inform their assessment tasks and rubric. The development cycle is then entered again for another learning sequence from Tool 1.
Your Turn	Display Slide 16 (Your Turn).
 Use the Guide to Developing a Performance Task and Rubric to complete Tool 5 and design a performance task, scoring rubric, and student checklist. 	 a. Remind participants this is where they can use the resources they brought to help them develop a performance task. They can use the digital version of Tool 5 to develop and align their task with the EoLS developed in Tool 2. Allow time for participants to work in groups to develop a performance task (with scoring rubric and student checklist). Remind participants that they should have their Tool 2 EoLS.
Slide 16 (90 minutes)	 b. Discuss with participants that this should be a performance task that would be used at the end of a unit. It should be based on a phenomenon that is different from what they might expect to be the driving context for the classroom instruction. Although Model C can be used for formative assessments as well, while they are learning the process in these sessions, they should be working toward developing the richest assessments possible.

Slide and Time	Facilitation Notes
Reflection • How has your thinking about developing performance tasks for classroom assessment in the era of NGSS changed? Slide 17 (30 minutes)	 Display Slide 17 (Reflection). a. Facilitate sharing of assessment task and rubric drafts at the end of the session. b. Ask how their thinking has changed about developing performance tasks after doing the work in Tools 2 and 5.
Planning for Classroom Assessment Live Tools and Processes For Translating the NGSS Instruction and Classroom Assessment Upper for the State of Classroom Assessment Stide 18 (10 minutes)	 Display Slide 18 (Five Tools and Process Graphic). a. Participants have used Tools 1, 2, and 5 to plan for classroom assessment. b. Invite them to consider how they will continue work on classroom assessment and consider if planning for instruction using Model C might support their goals for the future.

Planning for Use of the Five Tools and Processes

At this point, it is important to allow time for participants to develop a plan on how to continue their work with the Five Tools. As you conclude the work on Tool 5, remind them that the purpose of this professional learning experience was to help them develop understanding of the process for developing assessments that are aligned with three-dimensional teaching and learning. Allow time for groups to develop an action plan for continuing their work. If there are teams that can continue working together in professional learning communities (PLCs), encourage them to spend this time planning when and how they will work. If the participants will not be working together in the future, consider allowing individual planning time or time to discuss ideas with others who are in similar positions. This can help them develop their ideas for sharing the process with others.