Advancing Tools and Processes for Next Generation Science

Model C: Planning for Classroom Assessment
Tool 2: Using Performance Expectations to Plan for Classroom Assessment

Introduction

Tool 1 focused on using information from a NGSS page to develop a Unit Blueprint. In Tool 2, teachers start to plan for assessment by determining evidence of learning for learning sequences in their unit. Using a backwards design approach (where teachers think about the assessment before the instruction) teachers take performance expectations from the NGSS and develop evidence of learning specifications, which describe what qualifies as evidence for students' proficiency. Teachers go on to develop the plan for instruction in Tools 3 and 4. They revisit their evidence of learning specifications in Tool 5 when they design an assessment task(s) with their plan for instruction in mind. While this is not true "backwards design," teachers are thinking about what qualifies as evidence at the end of instruction before formalizing the instruction.

High quality assessment practices are critical to the success of the NGSS. While Tool 1 focused heavily on planning for instruction, Tool 2 focuses on planning for classroom assessment based on performance expectations and aligned with SEPs, DCIs, CCCs, and Connections. To learn the process for Tool 2, teachers revisit instructional sequence one from the Tool 1 example unit blueprint and develop evidence of learning specifications that represent learning at the nexus of the three NGSS dimensions.

Goals and Outcomes:

- Understand the role of NGSS performance expectations in planning for classroom assessment
- Consider how SEPs, DCIs, and CCCs impact assessment and instruction
- Develop specifications to frame the summative assessment for an instructional sequence

Prerequisite: Participants should have experience using Tool 1.

Time and Purpose

Part 1 Introduction (Slides 1-9) [30 minutes]

Purpose: For PD Provider to set the stage for developing Evidence of Learning Specifications for the performance expectations bundled in one instructional sequence.

Part 2 Understanding Tool 2 (Slides 10-26) [150 minutes]

Purpose: Participants learn a process for developing evidence of learning specifications to provide a foundation for the development of an assessment task in Tool 5.

a. Introduction to Tool 2 (Slides 10-13) (30 minutes)

b. Developing Evidence of Learning Specifications (Slides 14-26) [120 minutes]

Part 3 Working on Your Evidence of Learning Specifications (Slide 27) [90 minutes]

Purpose: Participants develop the Evidence of Learning Specifications for their learning sequence and get feedback from others. The amount of time should

allow for the development of at least one set of specifications and the beginnings of another set of specifications.

a. Writing Evidence of Learning Specifications (Slide 27) (90 min)

Part 4 Review and Complete Tool 2 (Slides 28-30) [30 minutes]

Purpose: Participants reflect on their experience and provide feedback for the field-test of Tool 2

a. Gallery Walk (Slide 28) (20 minutes)

b. Enter Specs in Tool 2 (Slide 29) (15 minutes)

c. Reflection (Slide 30) (10 minutes)

Total Time = 300 minutes (5 hours)

Materials:

- Tool 2 Electronic Template for capturing the Evidence of Learning Specifications
- 3X3 orange, blue, green, and purple sticky notes (1/2 pad of each color/group)
- Chart paper, markers (must include blue, orange, green and red) and tape
- PEs from card deck used in Tool 1

Handouts

HO 1	Classroom Assessment Design
HO 2	Tool 1 Template Example – Unit Blueprint for MS-LS2
HO 3	Guide To Developing Evidence of Learning Specifications
HO 4	General Features of the Practices
HO 5	Initial Specifications
HO 6	Tool 2 Template Example – EoLS for Instructional Sequence 1

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

Charts/Posters

Create two demonstration charts. The **first demonstration chart** is for EoLS for MS-LS2-2 using Slide 15 (photo of sample chart can be found in the Appendix at the end of this facilitation guide).

You will need to gather and make the following:

- PE card from Tool 1 card deck for MS-LS2-2 and MS-ESS3-4
- Sticky notes for MS-LS2-2:

- Orange (predator-prey, competition, symbiosis, organism interactions in different ecosystems, relationships among living and non-living components, interdependence)
- Green (patterns can be used to ID cause & effect, cause & effect can be used to predict phenomena)
- Blue (construct an explanation that predicts phenomena, qualitative relationships, quantitative relationships, analyze and interpret data, develop and use a model to describe phenomena, construct an argument)

Create a **second demonstration chart** for EoLS for MS-ESS3-4 (photo of sample chart can be found in the Appendix at the end of this facilitation guide). You will need to gather the PE card from Tool 1 card deck for MS-ESS3-4 and create sticky notes with comparable information as you did in the first demonstration chart.

Slides

Slide 1	Five Tools & Processes for NGSS
Slide 2	Five Tools and Processes Graphic
Slide 3	Goals
Slide 4	High Quality Classroom Assessment Prompt
Slide 5	Three Facets of High Quality Assessment
Slide 6	Code Your Brainstormed List
Slide 7	Connection to Five Tools
Slide 8	Types of Assessment
Slide 9	What Are Evidence of Learning Statements?
Slide 10	Tool 2: Planning for Assessment
Slide 11	Classroom Assessment Design
Slide 12	Dinner Party "Performance Expectation"
Slide 13	Dinner Party Example
Slide 14	Developing Evidence of Learning Specifications
Slide 15	EoLS Foreground/Background Chart
Slide 16	MS-LS2 Blueprint
Slide 17	Developing Evidence of Learning Specifications
Slide 18	Bundled PEs
Slide 19	Getting Familiar with one PE
Slide 20	Developing Evidence of Learning Specifications
Slide 21	Developing Evidence of Learning Specifications
Slide 22	Getting Familiar with the other PE
Slide 23	Developing Evidence of Learning Specifications
Slide 24	Evidence of Learning Specifications (initial example)
Slide 25	Evidence of Learning Specifications (revised example)
Slide 26	Evidence of Learning Specifications
Slide 27	Apply Process
Slide 28	Gallery Walk
Slide 29	Enter Your Specs on Tool 2
Slide 30	Reflection

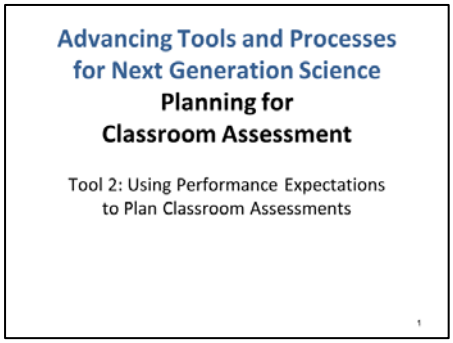
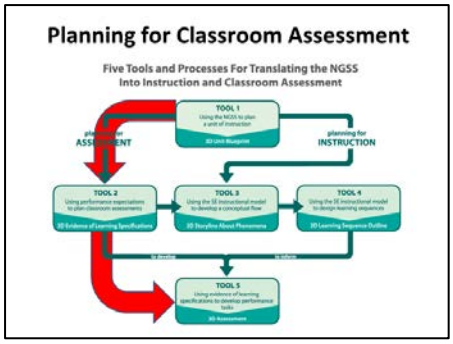
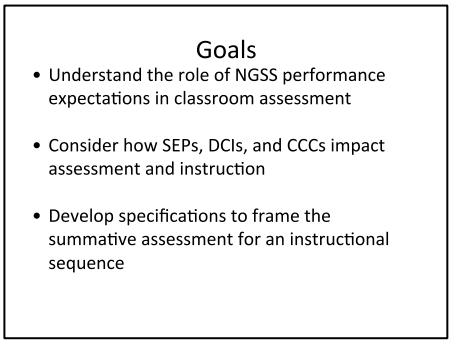
PD Leader Resources (*NOT used by participants*)

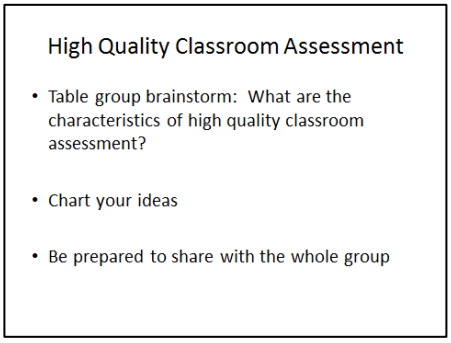
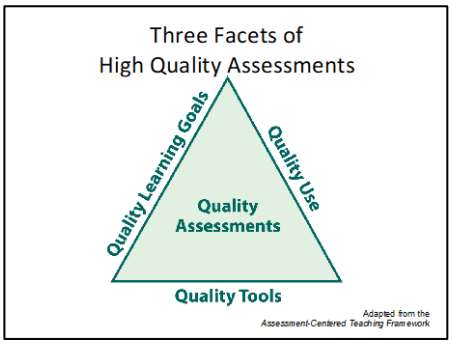
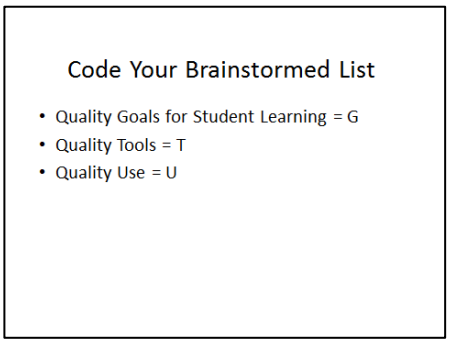
- *Assessment-Centered Teaching: A Reflective Practice* (2008), DiRanna, K., Osmundson, E., Topps, J., Barakos, L. Gearhart, M., Cerwin, K. Thousand Oaks, CA: Corwin
- *Developing Assessments for the Next Generation Science Standards* (2013) by James W. Pellegrino, Mark R. Wilson, Judith A. Koenig, and Alexandra S. Beatty, Editors; Committee on Developing Assessments of Science Proficiency in K-12; Board on Testing and Assessment; Board on Science Education; Division on Behavioral and Social Sciences and Education; National Research Council

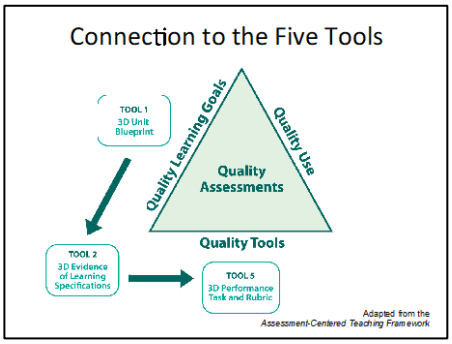
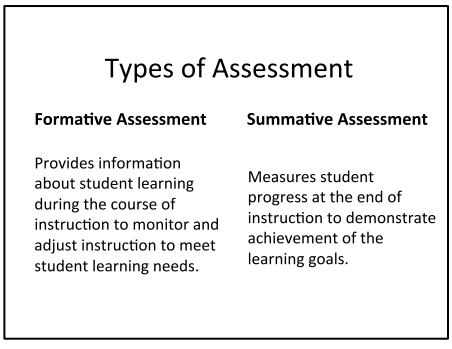
Advance Preparation:

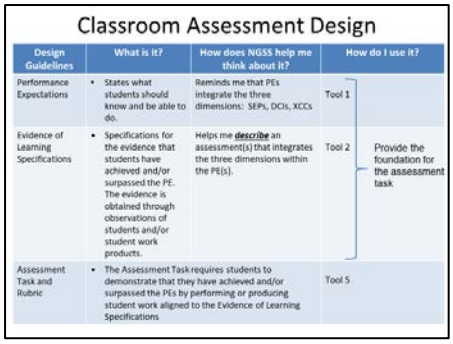
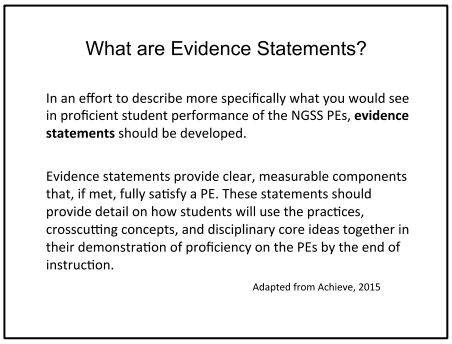
- Communicate with participants prior to the session that they should bring both **HO3 (Tool 1 Example Unit Blueprint)** from their previous PD session *and* their own Tool 1 Unit Blueprint (either electronic or printed). Suggest that participants bring a computer to record their product from the Tool 2 session in an electronic template.
- Print Handouts
- Create a blank "Evidence of Learning Specification Chart" using Slide 15, and prepare the colored sticky-notes listed above.
- Share electronic Tool 2 Template with participants.
- Keep the Quality Assessment charts and EoLs charts for use in the Tool 5 session.

Part 1 Introduction (30 minutes)

Slide and Time	Facilitation Notes
 Slide 1 (1 minute)	Display **Slide 1 (Five Tools & Processes for NGSS)**. Welcome participants to the session.
 Slide 2 (2 minutes)	Display **Slide 2 (Five Tools and Processes Graphic).** a. Orient the participants to the purpose of Tool 2 and its role in relationship to the rest of the tools. b. Let participants know that Tool 2 influences both Tools 3 and 4 (instructional design - which is not part of this professional learning experience), and Tool 5 (designing assessment tasks - which is part of this professional learning experience).
 Slide 3 (2 minutes)	Display **Slide 3 (Goals).** a. Explain to participants that the focus of this session is to use the NGSS to plan for classroom assessment based on an instructional sequence from Tool 1. The actual assessment will be developed in Tool 5. b. Explain that in planning for the assessment, they will consider how the nexus of the SEPs, DCIs, and CCCs impact both instruction and assessment. c. Explain that in this session, they will plan for the assessment using a backward design and that they will revise and refine their ideas as they design for instruction in Tool 4 and for assessment in Tool 5.

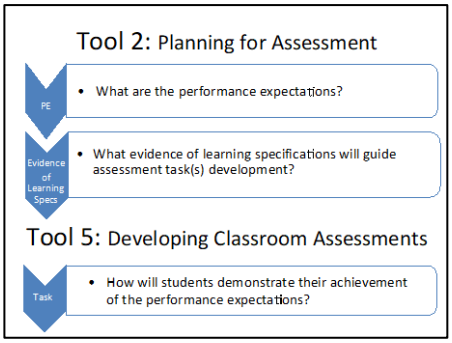
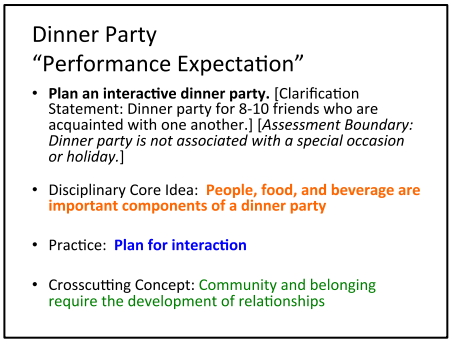
Slide and Time	Facilitation Notes
 Slide 4 (5 minute)	Display **Slide 4 (High Quality Assessment).** a. Distribute chart paper and markers. Ask participants to think-pair-share in response to the prompt: What are the components of quality classroom assessment? Have participants chart their responses. Share some responses.
 Slide 5 (1 minute)	Display **Slide 5 (Three Facets of High Quality Assessment).** a. Briefly explain this diagram is adapted from an assessment framework developed from an NSF funded research project that involved UCLA, Stanford, Berkeley, Lawrence Hall of Science and WestEd. b. The framework consists of three facets of high quality assessments represented by the three sides of the triangle: quality learning goals, tools, and use of assessments. c. Refer to "Quality Learning Goals" and explain this includes the three dimensions of NGSS. d. Refer to "Quality Tools" and explain that quality tools include tasks/prompts and rubrics/scoring guides. e. Refer to "Quality Use" and explain that quality use includes how assessment results guide instruction.
 Slide 6 (10 minutes)	Display **Slide 6 (Code Your Brainstormed List).** a. Have participants reconsider their charted list of components of high quality classroom assessment. Ask participants to use the three facets of high quality assessment to sort the components on their list. b. Have participants write the letter "G" to indicate items on their list related to goals for student learning. Have participants write the letter "T" to indicate items on their list related to tools/prompts or rubrics/scoring guides. Have participants write the letter "U" to indicate items on their list related to use. c. Facilitate a discussion of participant rationale for each designation, making the connection that as good teachers they already have knowledge and practices

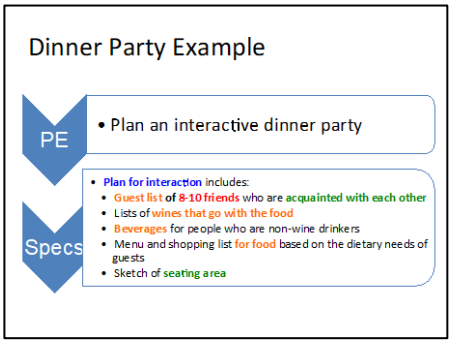
Slide and Time	Facilitation Notes
	about quality classroom assessments that they can apply to Tool 2.
 Slide 7 (4 minutes)	Display **Slide 7 (Connection to Five Tools)**. This slide is animated. a. Explain that in Tool 1 (click), participants developed a three-dimensional blueprint for a unit that contains 3-5 instructional sequences that align with the learning goals in NGSS. b. In Tool 2 (click) we will develop criteria or evidence of learning specifications that will inform the development of quality assessments. c. (Remind them that aligning 3D learning goals from NGSS with assessment tools takes planning and careful consideration of what learning and student work look like at the nexus of SEPs, DCIs, and CCCs. In addition, thinking about assessments that align with bundled PEs is complex!) d. In Tool 5 (click) we will use the evidence of learning specifications from Tool 2 to develop a performance task and rubric to serve as assessment tools. e. Once students have completed a performance task and teachers have used a rubric to assess students' understanding, these results can be used to inform instruction (although the Five Tools do not address this).
 Slide 8 (3 minutes)	Display **Slide 8 (Types of Assessment)**. a. This slide is animated. State that before participants get into Tool 2, we want to revisit types of assessment. b. Ask participants in partners to briefly discuss what they think about when they see these two terms. Ask a few partners to share their ideas. c. Advance the slide twice to reveal both "definitions." Comment on how they match (or not) the discussion the participant just had. d. Explain that Tool 2 informs the development of a *summative* assessment in Tool 5 for an instructional sequence (from Tool 1). e. Tool 2 can also be used to inform the development *formative* assessments when you are designing learning sequences for instruction in Tool 4.

Slide and Time	Facilitation Notes
	f. Remind participants that formative and summative are two types of assessments that fit into the area of quality tools. Evidence of Learning Specifications are used to develop both formative and summative assessments.
 Slide 9 (2 minutes)	Display **Slide 9 (Classroom Assessment Design)** and a. refer participants to the handout **HO1 (Classroom Assessment Design)**. b. Have table group review the chart and have a brief discussion of what they understand and any questions they might have. c. Mark that we will now take a deep dive into the NGSS with a different lens. Explain that this chart will help guide the construction of Evidence of Learning Specifications that will eventually lead to the development of an assessment task(s).
 Slide 10 (2 minutes)	Display **Slide 10 (What are Evidence Statements?)** Hidden slide **PD Leader Note:** Use this slide only if participants ask about Evidence Statements by Achieve. a. This slide provides a definition of Evidence Statements from Achieve, taken from the Front Matter of the Evidence Statements. Have a participant read the slide and ask groups to turn and discuss the quote briefly. Answer any questions. *Note: Participants may ask why we would want to develop our own evidence specifications when Achieve already released evidence statements for each PE. One response might be that while we can use the Achieve statements to inform our own, they are not bundled, as emphasized during Tool 1. When we develop our own specifications, we will keep in mind the integration of one or more PEs, as Achieve suggests.* b. Tell participants they are now ready to learn more about the connection between Tool 2 and Tool 5.

Part 2 Understanding Tool 2 (150 minutes)

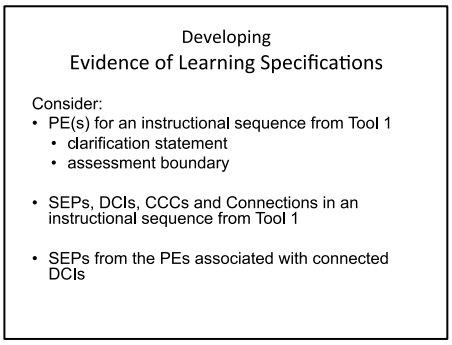
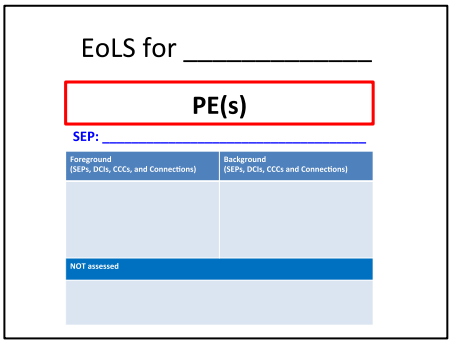
Part 2a. Introduction to Tool 2 (30 minutes)

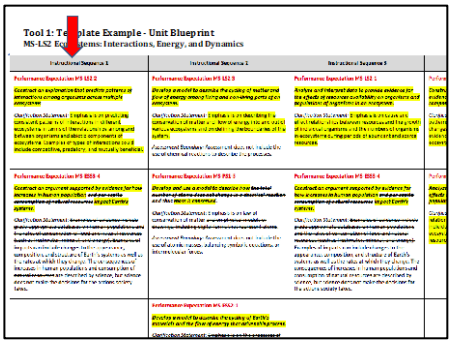
Slide and Time	Facilitation Notes
 Slide 11 (5 min)	Display **Slide 11 (Tool 2: Planning for Assessment)**. This slide is animated. a. Ask participants, with a partner to discuss what they recall about Performance Expectations. Ask for several groups to share, making sure the following points are made: PE is a statement of what students should know and be able to do at the end of instruction; examples of the PE topic are given in the clarification statements; the assessment boundary defines the scope of the assessment; and the PEs are NOT assessment tasks. b. Advance the slide. The tool also helps determine the Evidence of Learning Specifications. Explain that the EoL specs help frame/outline what would serve as evidence of learning and what might the student product(s) include. EoL Specs are NOT the assessment task, but they provide "criteria" for the task. c. Advance the slide. Information from Tool 2 will help inform the development of a specific assessment task or set of tasks that measure what students have learned through instruction. Tool 5 is a process to design the specific assessment task or sets of assessment tasks. Transition: *To help you develop Evidence of Learning Specifications (EoLS), we'll offer a couple of scaffolds. The first will be an "everyday example" to help highlight the kinds of thinking that you'll do and the structure of the evidence of learning specifications. The second will be graphic organizer to help deepen your understanding of PEs and the ideas and practices developed in an instructional sequence.*
 Slide 12 (15 minutes)	Display **Slide 12 (Dinner Party "Performance Expectation").** a. This slide is animated. Share with participants that they'll be developing evidence of learning specifications for this PE. Remind them that the purpose of this example is to have a little fun, but to also highlight the kind of thinking they'll do for one of their instructional sequences. b. Use animation to display the "performance expectation" and provide a moment for participants to read the PE and take note of the clarification statement and assessment boundary.

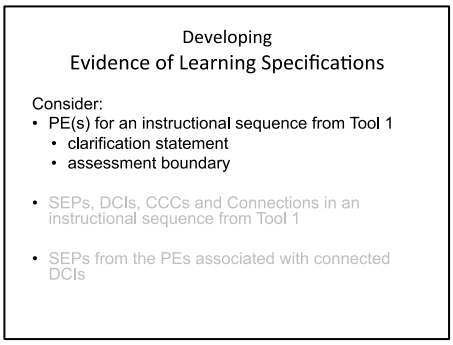
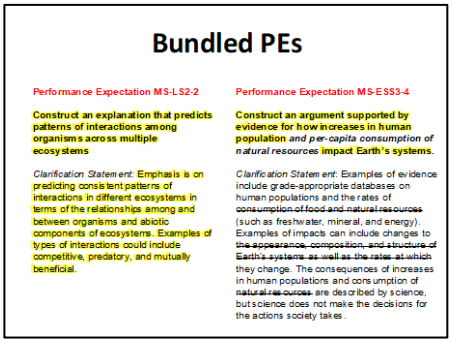
Slide and Time	Facilitation Notes
	c. Use animation to reveal the DCI, Practice, and CCC associated with this PE. Provide a minute for participants to review the information. d. Invite participants to work with a partner to identify what they would expect as evidence that someone had achieved this performance expectation. As participants are talking, listen for a group who successfully negotiates the difference between ***planning*** for a party and ***conducting*** a party. This nuance of the PE needs to be addressed with the whole group during the charting and discussion. e. Invite participants to share their ideas with the whole group. Chart them as they are shared. Probe for thinking and remind them that this is the purpose for the activity. Ask participants questions such as: • Where did you get that idea? • Why did you focus on that? • When/how would you know that happened? • Is there a difference between planning and conducting a party and if so, what is it?
 Slide 13 (10 minutes)	Display **Slide 13 (Dinner Party Example).** a. Once participants come up with their own Evidence of Learning Specifications (Specs), review how this fits into Tool 2. Point out and/or gather key ideas: ▪ The PE is the driving statement. ▪ The Specs are not the task, but rather the criteria for the task that will be developed in Tool 5. ▪ The Specs are focused on *planning* and NOT *conducting* to be consistent with the PE and SEP. ▪ The assessment boundary and clarification statement both guide and limit the Specs. ▪ It's important to study all the dimensions and connections to fully understand the PE and to inform the Specs for the summative assessment. ▪ These Specs will also inform formative assessment and instruction. b. Ask participants two critical questions and gather ideas from the group

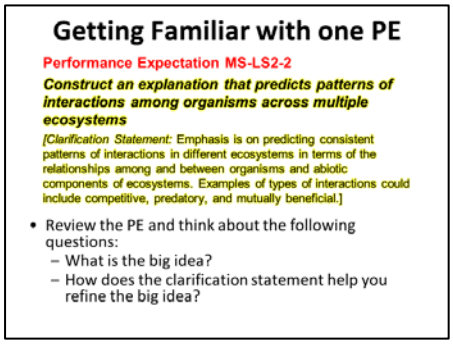
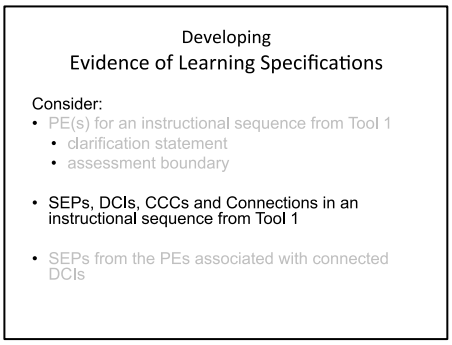
Slide and Time	Facilitation Notes
	▪ What did you have to think about to construct the dinner party EoLs. ▪ Why is this kind of thinking important as we implement NGSS in classrooms? Highlight that thinking about evidence of learning specifications is a meaningful way of planning for assessment. It helps align the assessment to the PEs, DCIs, CCCs, and SEPs because the process helps to articulate what the end product will look like, rather than leaping right to designing the task—otherwise, we might have focused on an assessment of "conducting" the dinner party rather than "planning" the party. Transition: *We'll now transition from the "party" example to evidence of learning specifications for NGSS performance expectations. To get there, we'll go through an example using an instructional sequence from the example MS-LS2 blueprint you received during Tool 1. Then, you will design the Specs for one of your instructional sequences and PE(s).*

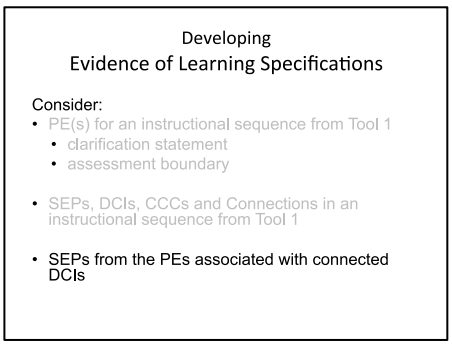
Part 2b. Developing Evidence of Learning Specifications (120 minutes)

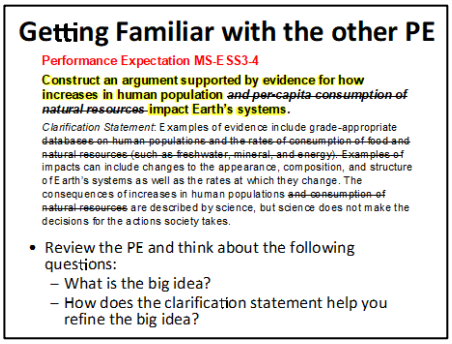
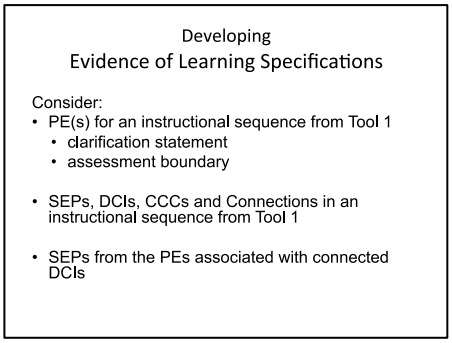
Slide and Time	Facilitation Notes
 Slide 14 (1 min)	Display **Slide 14 (Developing EoLS)**. a. Remind participants that just as in the Dinner Party Example, they will study three key aspects of an instructional sequence from Tool 1. Make a link back to the Quality Assessment triangle and the important role of alignment. b. Review with participants the three steps we will use as the process for Tool 2. This process helps ensure the assessment we develop in Tool 5 is aligned to the NGSS.
 Slide 15 (4 min)	Display **Slide 15 (EoLS for ___)** PD leader note: Slides 15 – 26 are a teach piece for developing EoLs and this learning experience is likely to increase the quality of the EoLs developed by your group. Depending on the structure of your group and especially if everyone in the room is working on the same NGSS page/card deck, then you may choose to conduct this guided practice together on the blueprint the group is working from. If you choose to do this, make sure that you think through the process and develop your own EoLs so you are more prepared to support the groups' thinking and improve the quality of the EoLs developed by the group. You might want to show them the example of EoLs from MSLS2 sequence 1 on slide 26 so they have a better picture of the EoLs they will develop. If your group is working on multiple pages with multiple decks, then it may be best to work through the MSLS2 example. a. Distribute HO2: Unit Blueprint for MS-LS2. b. Explain that we'll make our thinking visible and public using this chart. Go through the headers on the chart. Explain that you will model each item, with a think aloud, and some group participation to help them use the chart. c. Note: One of the most challenging parts of the process is to make decisions about what will go in the foreground and what will go in the background. If you think your group needs a better understanding of foreground/background at this point, do one of the following: • ask them to hold their questions until they experience the model

Slide and Time	Facilitation Notes
	OR: • Define the words: foreground are ideas and practices that will intentionally be built into the summative assessment and into instruction; background are practices and ideas that MIGHT impact formative assessment and MIGHT impact instruction • Provide examples from their context. - Some districts use the phrase "priority standards" so anything that's a priority standard would go in the foreground. - Teachers know their curriculum and can make links to ideas/practices developed in the past or ideas/practices that will come in future lessons. These ideas will go in the background. d. Remind participants that the goal of doing a model together to is to help participants understand the process and thinking that goes into the development of EoL Specs focused on an instructional sequence. Note: For the think aloud, you will use Instructional Sequence 1 from the MS-LS2 unit blueprint from Tool 1. Then participants will have an opportunity to build Specs for their own instructional sequence.
 Slide 16 (4 min)	Display **Slide 16 (Tool 1 Template Example).** Note: This slide is animated. Possible narrative includes *think aloud written in italics* and questions/prompts for participants to consider written in regular text. MOVES you will make (e.g., ADVANCE SLIDE, POINT, TAPE, WRITE, POST, MODEL, and DRAW) are noted in text with all caps. a. The think aloud represents one person's voice, but that voice is representative of a collaborative group that is using Tool 2. ▪ *I need to review my instructional sequence to determine where I want to start. I recall that in this <u>unit</u> I mapped out in Tool 1, students will study how organisms (including humans) interact with one another and with their environment.* ▪ *I'm going to choose Instructional Sequence 1 for this example (*ADVANCE SLIDE to reveal arrow*). In Sequence 1,*

Slide and Time	Facilitation Notes
	students will study the patterns of interactions among organisms in ecosystems. b. [RECORD "MS-LS2 Ecosystems: Interactions, Energy, and Dynamics, Instructional Sequence 1" at the top of the chart] c. Refer to **HO2 (Tool 1 Template Example)**. Ask participants to take just a minute or two and scan column 1 including the rows for PEs, DCIs, SEPs, CCCs, and Connections of the example Tool 1 blueprint to confirm the ideas developed as noted in the think aloud.
 Slide 17 (1 min)	Display **Slide 17 (Developing EoLS)**. a. Note that we'll begin by considering the PEs for instructional sequence 1.
 Slide 18 (5 min)	Display **Slide 18 (Bundled PEs)** a. *I see that I have bundled PEs in this sequence. I also note that the instructional sequence is more focused on MS-LS2-2 with only parts of other PE highlighted and a large portion of the PE crossed out.* b. *Can someone provide a specific example from this instructional sequence of what I mean?* (Example: Most of the MS-ESS3-4 clarification statement is crossed out, as it doesn't apply to this unit.) [POINT TO TEXT ON SLIDE] *c. I also notice that the first PE focuses on "constructing an explanation" but the other PE focuses on "constructing an argument "* [POINT TO TEXT ON SLIDE] *Based on this observation, I will eventually need to develop two sets of EoL Specs. If I had selected Sequence 2, with PEs that have the same practice, I would only need one set of EoLS.* *d. I'm going to start by developing one set of EoL Specs for the first PE, so I'm going to tape that PE card to the chart to help me analyze what the PE is really asking students to know and do* [TAPE PE CARD FOR MS-LS2-2 INTO RED BOX]

Slide and Time	Facilitation Notes
	e. *Now, I want to study the PE to really understand what it is asking of the students*
 Slide 19 (5 minutes)	Display **Slide 19 (Getting Familiar with one PE).** a. Repeat that in this example, you will model one PE. Explain that the first step in filling out the chart is to get very familiar with the PE. b. Ask participants to review the PE and think about just the first question. Gather a few ideas, then continue the Think Aloud. ▪ *I've read the PE and I'm going to do two things to begin to fill out my chart. First, I'm going to enter the SEP from the PE as a tentative sentence stem for my Evidence of Learning Specs.* [WRITE "Construct an explanation" in blue marker in the SEP row onto the chart] ▪ *Next, I'm going to look at what is not part of the assessment – but in this PE there is no assessment boundary. If it there were, I would record these ideas directly into the space at the bottom of the chart where it says, "NOT assessed." Anything I've crossed out would also go there, however I haven't crossed anything out for this PE.*
 Slide 20 (30 min)	Display **Slide 20 (Developing EoLS)** and continue the think aloud. a. *Now for a harder part. I have to decide what ideas and practices will be in the foreground and which will be in the background. The bottom line here is that anything in the foreground will be explicitly addressed in both formative assessments and the final Assessment Task we develop in Tool 5 and will impact instruction. Anything that we put on the background side of the chart might be included in instruction and perhaps inform the development of formative assessments.* b. *I'm going to re-read the clarification statement again to see if that gives me any ideas. I'm also going to look at Instructional Sequence 1 from the MS-LS2 Unit Blueprint to ask myself, which DCIs, SEPS and CCCs should be considered "foreground" (the ones that are most important to this PE) and which should be considered "background" (the ones that are "nice to have" but not necessary).*

Slide and Time	Facilitation Notes
	c. *As I read, I'm going to jot down my ideas on the appropriate color post it (blue = SEP; orange = DCI; green = CCC; purple = Connections).* d. Invite participants to study the Instructional Sequence 1 from the MS-LS2 Unit Blueprint. Ask them to identify one idea for sure that would be in the foreground. Gather ideas from the group and only post the idea if everyone agrees that it should be foregrounded. Make sure to probe for reasoning: • Where did you get that idea? • Why do you think it should be foregrounded? [WRITE a word or phrase that represents the idea (or practice) on the appropriate color sticky note and POST it on the chart.] Note: If the idea is a practice, remind them that the SEP attached to the PE is foregrounded because that is part of the summative assessment. If the practice is different from the one in the PE, place it in the background for now. e. Try to gather an idea that most people think could be backgrounded. Again, ask for participants' reasoning. [RECORD the idea on the appropriate color sticky note and POST on the chart.] f. Remind participants that this is an opportunity to revisit the decisions they made about grouping ideas and practices during Tool 1. They should make good decisions about going back to other standards pages to review the DCIs, CCCs, and Connections associated with any bundled PEs. The information gathered will not only be used to revisit groupings and sequences, but also inform ideas that will likely be backgrounded on the chart. [POST prepared sticky notes to the foreground and background side of the chart]
	Display **Slide 21 (Developing EoLS)**. a. Explain that the last item to consider for the foreground/background chart is any practices that are associated with selected DCIs from the bundled PEs. Continue the think aloud. ▪ *The bundled DCI in this sequence is ESS3.C. When I go to the standards page for MS-ESS3 (NGSS Vol. 1, p. 83-84), I see that ESS3.C is the DCI for PEs MS-ESS3-3 and MS-ESS3-4 (which is the one I bundled). I'm going to decide to add*

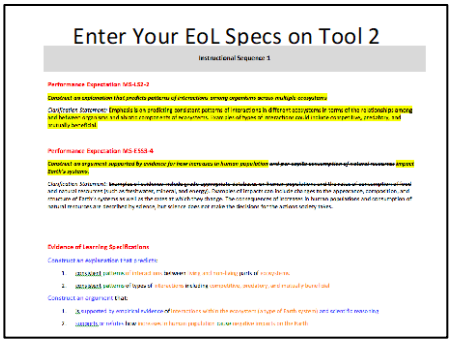
Slide and Time	Facilitation Notes
Slide 21 (15 min)	*a blue sticky-note to background for the practice of "construct an argument" as a possible practice I might have my students engage in during instruction, but I'm not going to add one for "design a process" since that one doesn't really make sense for this sequence in my unit.* [MODEL looking up a connected DCI and the associated PE. WRITE that practice on a blue sticky note and POST it on the chart in the background.] ▪ *Ok, I've checked the three items to help fill out my chart. In doing so, I've got ideas about what is in the foreground and should go into my summative assessment and instruction and what is in the background that might inform my instruction and formative assessments.*
 Slide 22 (25 minutes)	Display **Slide 22 (Getting Familiar with the other PE)** a. For more guided practice, work with participants on developing the graphic organizer on chart paper for MS-ESS3-4, following the same process as before. See the Appendix at the end of the facilitation guide for a photo of an example sticky-notes for this chart.
 Slide 23	Display **Slide 23 (Developing EoLS)** a. to remind participants what the steps are for the process of creating sticky-notes. Support groups as necessary. b. Ask, what was an insight you gained from doing the foreground/background? c. Transition once charts are completed: I'm now ready to write my EoL Specifications using my charts. d. Distribute HO3 (Guide to Developing EoL Specs). Give participants a few minutes to look it over, then point out that we have done Parts 1-3 together and direct them to now look at Part 4 "Brainstorm EoLS." Note: It is difficult to model *how* to start writing the actual Specs (you just have to try it!), therefore the next part of the process provides an example of some simplified *initially* brainstormed specifications that participants will have a chance to improve.

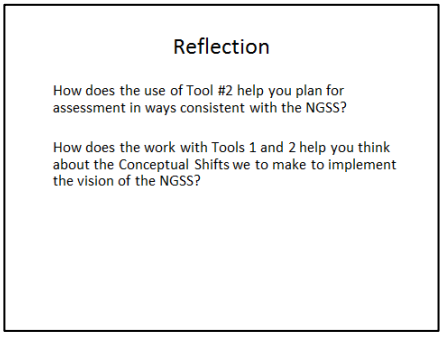
Slide and Time	Facilitation Notes
Evidence of Learning Specifications Initial example Construct an explanation that: 1. shows patterns of interactions between living and non-living parts of ecosystems 2. includes different types of interactions among organisms Construct an argument: 1. that is supported by evidence 2. for how increases in human population impact the Earth Slide 24 (25 minutes)	Display **Slide 24 (Evidence of Learning Specification: Initial Example**). a. Explain to participants that the writing of the EoLS is an iterative process, with several steps for refinement. We're going to imagine that a group tried to write some EoLS, and we're going to take their initial Specs and try to make them better, and more aligned with the NGSS. Distribute **HO4 (General Features of the Practices)**. As mentioned previously, while we are writing our own EoLS, it can still be helpful for us to use what Achieve has written to check for alignment. The Appendix includes components for the SEPs that can be helpful when refining our Specs. b. Distribute **HO5 (Initial Specifications)**. Tell participants to use the suggestions in Part 5 to work with their group to mark up the text on the page (cross out, add words, etc.). If you have one available, you can use a document camera to model how to begin this process (ex. add the word "predicts" to the SEP stem for the first set of Specs). c. Allow table groups to share out example of what they would revise.
Evidence of Learning Specifications Revised example Construct an explanation that **predicts**: 1. consistent ~~shows~~ patterns of interactions between living and non-living parts of ecosystems 2. consistent ~~includes different~~ **patterns** of types of interactions ~~between organisms~~ including competitive, predatory, and mutually beneficial Construct an argument **that**: 1. ~~that~~ is supported by **empirical** evidence **of interactions within the ecosystem (a type of Earth system) and scientific reasoning** 2. supports or refutes ~~for~~ how increases in human population **cause negative** impacts **on** the Earth Slide 25 (4 minutes)	Display **Slide 25 (Evidence of Learning Specification: Revised Example**). a. Allow participants a moment to compare their revised example with the one on the slide. Answer questions about the process.
Evidence of Learning Specifications Construct an explanation that predicts: 1. consistent patterns of interactions between living and non-living parts of ecosystems 2. consistent patterns of types of interactions including competitive, predatory, and mutually beneficial Construct an argument that: 1. is supported by empirical evidence of interactions within the ecosystem (a type of Earth system) and scientific reasoning 2. supports or refutes how increases in human population cause negative impacts on the Earth Slide 26 (1 minute)	Display **Slide 26 (Evidence of Learning Specifications) and distribute HO6 (Tool 2 Example)**. a. Explain that at this point, participants would transfer their Evidence of Learning Specifications to their Tool 2 Template. Remind participants that developing EoL Specs is one way to assure that our assessments align with the NGSS as emphasized in the Quality Assessment triangle.

Part 3 Working on Your Own Evidence of Learning Specifications (90 minutes)

Slide and Time	Facilitation Notes
Apply Process • Use the instructions on the handout to guide the develop of Evidence of Learning Specifications for one of your instructional sequences. • You will have approximately 90 minutes. Slide 27 (90 min)	Display Slide 27 (Apply Process). a. Refer to **HO3 (Guide to Developing EoLS)** and tell participants they have approximately 90 minutes to develop their own Evidence of Learning Specifications for their instructional sequences. b. Recommend that if they might want to begin with a sequence that has fewer bundled PEs or PEs that all focus on the same practice (if possible). Recommend that they avoid starting with a sequence that includes an Engineering PE.

Part 4 Review and Complete Tool 5 (30 minutes)

Slide and Time	Facilitation Notes
Gallery Walk • Review at least one other groups' work associated with the same PE. • What do you notice about their evidence of learning specifications? • Use sticky notes to provide comments and feedback Slide 28 (20 minutes)	Display **Slide 28 (Gallery Walk).** a. Ask groups to follow the prompts on the slide. If no group has a similar PE, assign how groups should rotate. b. At the end of 15 minutes, stop the gallery walk and ask the original group to review the gallery walk notes and make revisions if needed. c. Ask a few groups for any aha's as they did this process.
Enter Your EoL Specs on Tool 2  Slide 29 (5 minutes)	Display **Slide 29 (Enter Your Specs on Tool 2)** a. Provide groups 5 minutes to enter their ideas into the electronic Tool 2 Template.

Slide and Time	Facilitation Notes
 Slide 30 (5 minutes)	Display **Slide 30 (Reflection)**. a. Provide a few minutes for participants to respond to one or both questions. b. Select a strategy to have individuals share at least one idea from their reflection.

Appendix

Sample EoLS Charts