# Five Tools and Processes for Translating the NGSS into Instruction and 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:**

- 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 NGSS Tool 2 to create a performance task and rubrics as a summative assessment of an instructional sequence

**Prerequisite:** Participants should have experience using Tools 1 and 2 and have an understanding of anchor phenomena.

**Total Time** **255 minutes not including breaks (4 hours and 15 minutes or a half-day workshop)**

**Part 1** **Introduction** (Slides 1-6) [15 minutes]

**Purpose**: Provide an opportunity for participants to connect with one another, review their prior work with Tools 1-4, and connect to the content of the day.

**Summary:** Participants review the work completed in previous sessions, consider the goals of the session, and how the goals will be accomplished

**Part 2** **Deconstructing a Performance Task** (Slides 7-15) [100 minutes or 1 hour and 40 minutes]

**Purpose**: Deepen understanding of how performance tasks align to Evidence of Learning Specifications based on Performance Expectations.

**Summary**: Participants complete a performance assessment 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 16-21) [140 minutes or 2 hours and 20 minutes]

**Purpose**: Use Evidence of Learning Specifications developed in 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. They are given time to create a three dimensional performance task, rubric, and student checklist aligned with their EoLS from Tool 2 using the Tool 5 template.

**Total Time = 255 minutes not including breaks (4 hours and 15 minutes)**

**Materials:**

- Chart paper
- Markers
- Highlighters (orange, green, and blue), one set per participant
- Evidence of Learning Specifications developed in Tool 2
- Completed Tool 4 Instructional Sequence

**Handouts**

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|---|---|
| HO 1 | Performance Task for Instructional Sequence 1 |
| HO 2 | Student Checklist |
| HO 3 | Scoring Rubric |
| HO 4 | Aligning the Evidence of Learning Specifications to the Performance Task |
| HO 5 | Tool 5 Template Example – 3D Assessment |
| HO 6 | Guide for Developing a Performance Task & Rubric |

**Resources** (Optional for this session)

Text Resources

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| 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 |

**Slides**

| | |
|---|---|
| Slide 1 | Five Tools and Processes for NGSS |
| Slide 2 | Five Tools and Processes Graphic |
| Slide 3 | Goals |
| Slide 4 | Developing Assessments for the NGSS |
| Slide 5 | Developing Assessments for the NGSS quote (optional) |
| Slide 6 | The Gift |
| Slide 7 | Classroom Assessment Design |
| Slide 8 | Tool 2 and Tool 5 |
| Slide 9 | Thinking Through a Performance Task |
| Slide 10 | Performance Task for Instructional Sequence 1 |
| Slide 11 | Performance Task and Student Checklist |
| Slide 12 | Scoring Rubric |
| Slide 13 | Checking Alignment |

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| Slide 14 | Making Decisions |
| Slide 15 | Tool 5 Example |
| Slide 16 | Guide for Developing a Performance Task & Rubric |
| Slide 17 | Developing A Performance Task |
| Slide 18 | Quality Assessments |
| Slide 19 | Your Turn |
| Slide 20 | Reflection |
| Slide 21 | Five Tools and Processes Graphic |

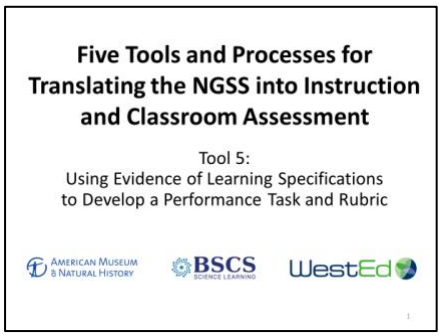
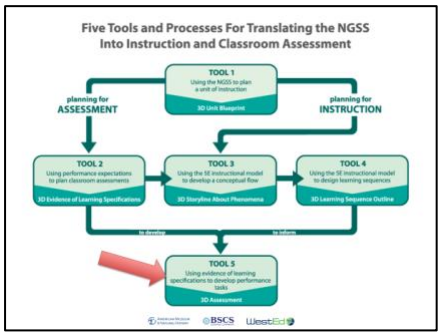
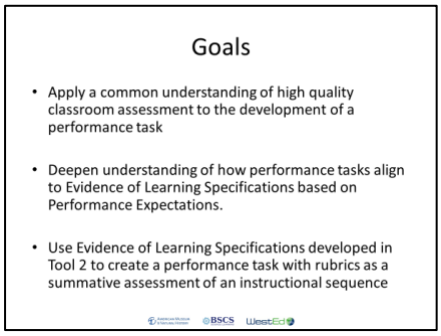
**Advance Preparation:**

- Communicate with participants prior to the session. Suggest that they bring a computer, so they can access their Tool 1 Unit Blueprint, Tool 2 EoLS, Tool 3 Storyline and Conceptual Flow, and Tool 4 Instructional Sequences. They should also bring teacher resources from existing science instructional materials such as test items, formative assessments, and sample questions from instructional materials.
- Make sure each team has their Tool 2 EoLS and their Tool 4 instructional sequences.
- Prepare handouts 1-6.
- Gather instructional resources from Tool 4.
- Transfer electronic Tool 5 Template to participants.

**Part 1 Introduction (15 minutes)**

**PD leader note:** Begin the session with a transition to Tool 5.

Possible Narrative: *At this point, you have developed a blueprint of the unit of instruction and know the performance expectations and elements of the dimensions you expect students to learn. You have developed evidence of learning specifications that show how the dimensions are. In Tool 5, you will learn the process for developing performance tasks based on the three dimensions and phenomena.*

| Slide and Time | Facilitation Notes |
|---|---|
|  <br>Slide 1 (0 minutes) | **Display Slide 1 Five Tools and Processes…**<br>a. Welcome participants to the session. |
|  <br>Slide 2 (2 minutes) | **Display Slide 2 Five Tools and Processes Graphic**<br>a. Briefly review the five tools represented in this graphic.<br>Possible narrative: *Tool 1 helps plan a unit of instruction and develops a unit blueprint which is used in Tools 2-5. Tool 2 supports planning for assessment. The products of Tool 2 are three dimensional Evidence of Learning Specifications based on the Performance Expectations for an instructional sequence. Tool 3 introduces an instructional model to develop conceptual coherence across an instructional sequence. Tool 4 supports analysis of instructional activities to plan a sequence of instruction based on the NGSS.*<br>b. Mark that the focus of this session will be on Tool 5. The product of Tool 5 is a performance task and rubric that aligns with their Tool 4 instructional sequence. |
|  <br>Slide 3 (2 minutes) | **Display Slide 3 Goals**<br>a. Review the goals and outcomes of the session. |

| Slide and Time | Facilitation Notes |
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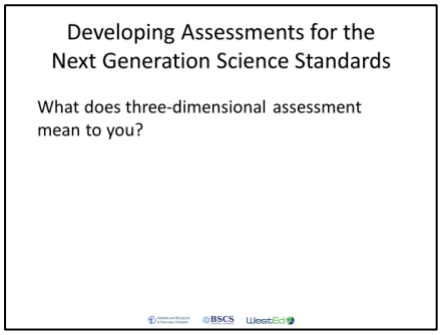
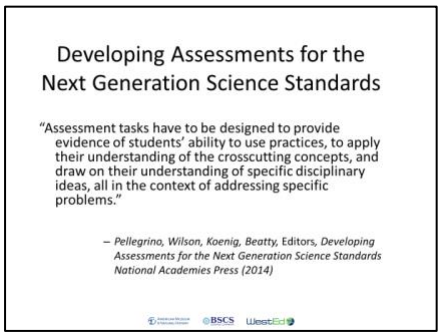
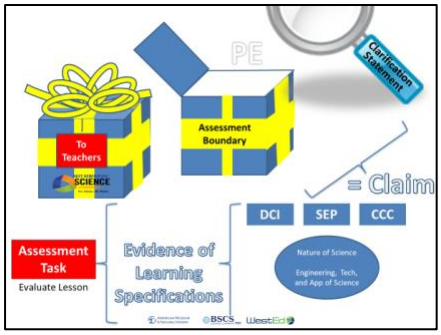
|  <br>Slide 4 (6 minutes) | **Display Slide 4 Developing Assessments for the NGSS**<br>a. Invite participants to think individually about the prompt.<br>b. Have participants share their response with an elbow partner and invite several pairs to share their ideas with the whole group. |
|  <br>Slide 5 *Optional* (0 minute) | **Display Slide 5 Developing Assessments for the NGSS**<br>a. Invite participants to read the quote on the slide, thinking about the implications for assessing student understanding in the era of NGSS.<br>b. Invite several participants to share their ideas with the whole group. |
|  <br>Slide 6 (2 min) | **Display Slide 6 The Gift**<br>**PD Leader Note:** This slide is animated.<br>a. Explain that the NGSS comes as a gift to increase student understanding and enjoyment of science.<br>b. Advance the slide to reveal the Performance Expectation (PE). Share that the PE 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 providing examples. The assessment boundary defines the scope of the assessment.<br>c. Advance the slide to reveal the Claim. The PE is the equivalent of making a claim abut what students should know and be able to do.<br>d. Advance the slide. Mark that the PE is based on three dimensional learning: Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs).<br>e. Advance the slide. Note that the SEPs and CCCs are further enhanced with connections to the Nature of Science and Engineering, Technology, and Application of Science. |

| Slide and Time | Facilitation Notes |
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| | f. Advance the slide to reveal the Evidence of Learning Specifications. Explain that, in order to assess if students have met the intent of the PE, one must first think about the types of evidence students must display to show that they have attained proficiency of the PE. This evidence is documented in Evidence of Learning Specifications (EoLS). Tool 2 provides a process for determining the EoLS for an instructional sequence from the Tool 1 Blueprint.<br>g. Advance the slide to reveal the Assessment Task. Share that once one has planned for the assessment using Tool 2, one can design instruction with Tools 3 and 4, and finally design a specific assessment task that matched the instruction with Tool 5. |

**Part 2 Deconstructing an Assessment Task (100 minutes)**

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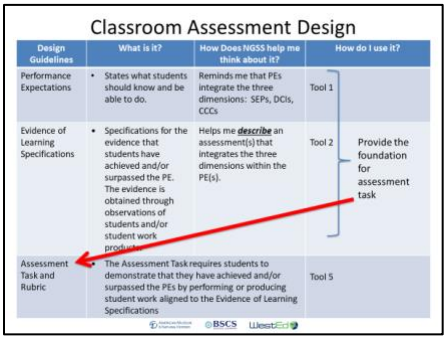
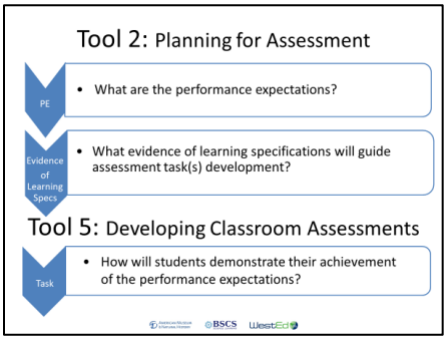
|  <br>Slide 7 (3 minutes) | **Display Slide 7 Classroom Assessment Design**<br>a. Briefly explain that in Tool 5 the claim or performance expectations and evidence of learning specifications are used as a foundation to develop an assessment task.<br>b. Share that a well-designed assessment task provides an opportunity for students to demonstrate that they have achieved or surpassed the performance expectation through a performance or product that is aligned to the evidence of learning specifications. |
|  <br>Slide 8 (5 minutes) | **Display Slide 8 Tool 2: Planning for Assessment**<br>a. Remind participants that they have completed the foundational work of planning for assessment in Tool 2. |

| Slide and Time | Facilitation Notes |
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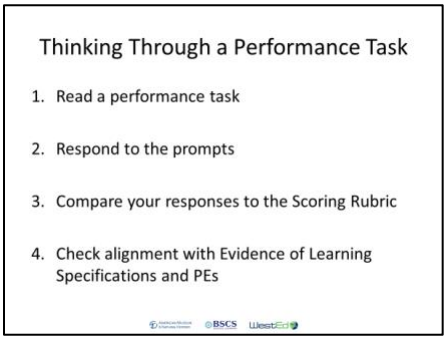
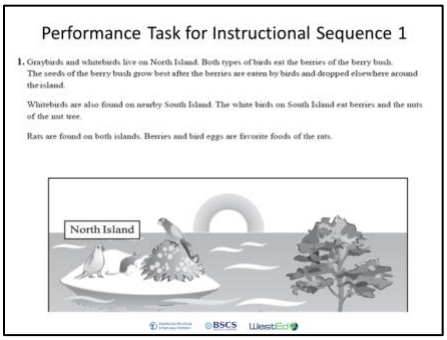
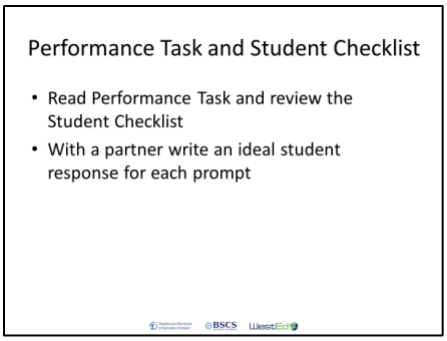
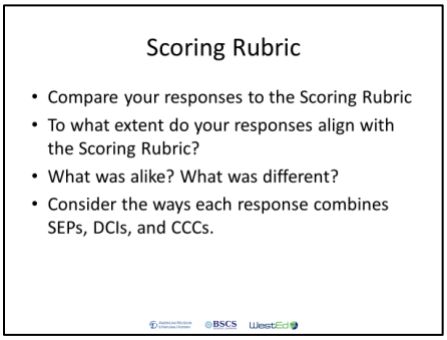
|  <br>Slide 9 (2 minutes) | **Display Slide 9 Thinking Through a Performance Task**<br>a. Share that we will examine Ms. Rivera's performance assessment for Instructional Sequence 1.<br>b. Briefly review the process with participants. |
|  <br>Slide 10 (5 minutes) | **Display Slide 10 Performance Task for Instructional Sequence 1**<br>a. Distribute **HO1: Performance Task for Instructional Sequence 1** and **HO2: Student Checklist**.<br>b. Invite participants to review the organization of the performance task and student checklist. |
|  <br>Slide 11 (30 minutes) | **Display Slide 11 Performance Task and Student Checklist**<br>a. Invite participants to work with a partner to complete the performance task.<br>b. If time permits, have participants share their responses with another partner group. Note that the ideal student responses will become the highest-level student response on the scoring rubric. |
|  <br>Slide 12 (10 min) | **Display Slide 12 Scoring Rubric**<br>a. Distribute **HO3: Scoring Rubric**. Invite partner groups to compare their responses to the scoring rubric and discuss the questions on the slide. |

| Slide and Time | Facilitation Notes |
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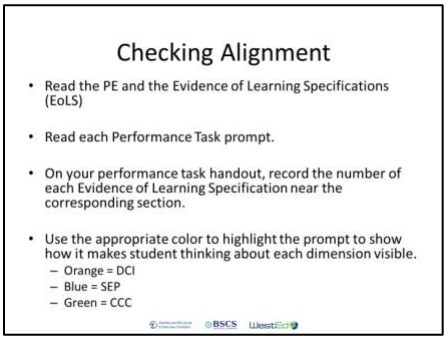
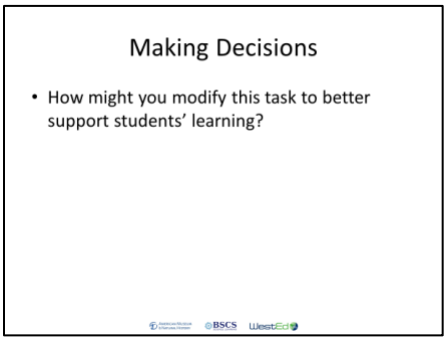
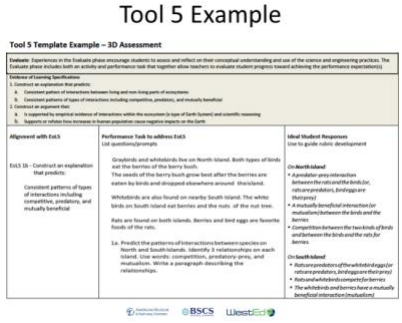
|  <br>Slide 13 (30 min) | **Display Slide 13 Checking Alignment**<br>a. Distribute **HO4: Aligning the Evidence of Learning Specifications to the Performance Task**. Orient participants to the handout, marking page 1 included the two Performance Expectations and the Evidence of Learning Specifications that were developed with Tool 2. Page 2 includes the assessment prompts in the left column and, in the right column, a place to record the Evidence of Learning Specification (EoLS) that corresponds to the prompt.<br>b. Review the prompts on the slide with participants and invite participants to work in pairs to record the EoLS and highlight the prompts with the appropriate color. If time permits, pairs can compare their thinking with another partner group. |
|  <br>Slide 14 (5 min) | **Display Slide 14 Making Decisions**<br>a. Invite small groups to discuss the prompt. Ask several groups to share a summary of their conversation. |
|  <br>Slide 15 (10 min) | **Display Slide 15 Tool 5 Example**<br>a. Distribute **HO5: Tool 5 Example.** Invite participants to examine the Tool 5 Example. Note that the Evidence of Learning Specifications are at the top of the page, and the prompts for each task can be found in the middle column.<br>b. Mark that the first column shows the alignment of each prompt with the Evidence of Learning Specifications, noting that this information can be compared to the alignment they just completed.<br>c. Share that the ideal student responses can be found in the third column. These ideal student responses will guide the highest level of the scoring rubric. |

**Part 3. Tool 4 Example Developing an Assessment Task (140 minutes)**

| Slide and Time | Facilitation Notes |
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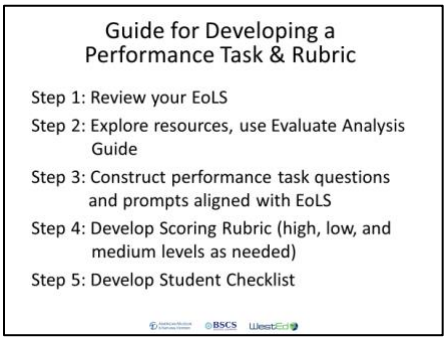
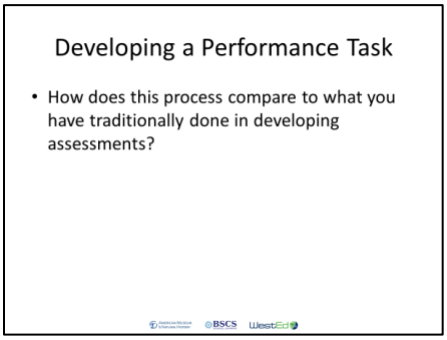
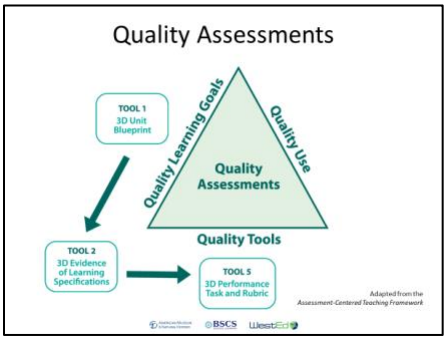
|  <br>Slide 16 (15 minutes) | **Display Slide 16 Guide to Developing a Performance Task & Rubric**<br>a. Distribute **HO6: Guide to Developing a Performance Task & Rubric**. Invite participants to read the guide individually and then discuss in their table groups the steps and resources needed to develop a performance task.<br>b. Ask participants to paraphrase the steps to check for understanding and clarify any questions participants might have about the process. |
|  <br>Slide 14 (5 minutes) | **Display Slide 17 Developing a Performance Task**<br>a. Invite participants to respond to the prompt individually in their journals. |
|  <br>Slide 15 (5 minutes) | **Display Slide 18 Ms. Rivera's Tool 4 Example**<br>a. Remind participants that we discussed the three facets of quality assessments in Tool 2.<br>b. Mark that once the performance assessment developed in Tool 5 is used with students, the data collected will inform how well students have met the Evidence of Learning Specifications and inform revisions of the assessment task and rubric.<br>c. Note that this development and revisions cycle will be repeated for the rest of the instructional sequences in the unit. |

| Slide and Time | Facilitation Notes |
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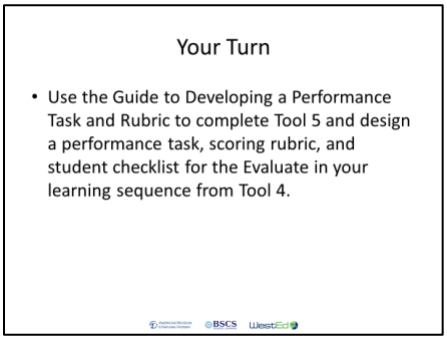
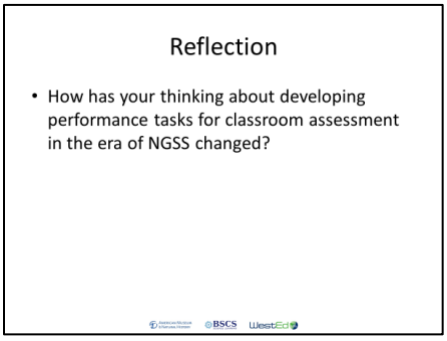
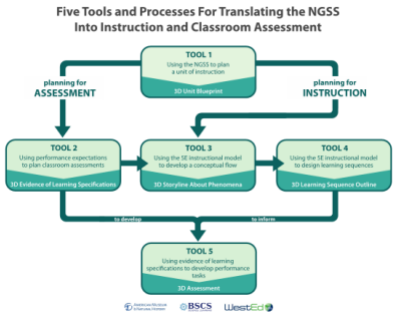
|  <br>Slide 19 (90 minutes) | **Display Slide 19 Your Turn**<br>a. Remind participants that the performance assessment we will develop today would be used at the end of an instructional sequence and should be based on a different phenomenon that the one that anchored the instructional sequence.<br>b. Note that participants can use the digital Tool 5 template to develop and align the assessment tasks with Evidence of Learning Specifications developed in Tool 2. Encourage participants to use any resources they brought with them to help in the development of the performance assessment.<br>c. Provide 90 minutes for small groups to begin to develop a performance task, student checklist, and scoring rubric. Circulate among the groups to provide support as needed. |
|  <br>Slide 20 (10 minutes) | **Display Slide 20 Reflection**<br>a. Invite participants to respond to the prompt individually.<br>b. Ask several participants to share their thinking with the whole group. |
|  <br>Slide 21 (15 minutes) | **Display Slide 21 Using Analysis Guides**<br>a. Use the Five Tools graphic to briefly highlight the purposes of Tools 1-4. Remind participants that the purpose of Tool 5 is to increase understanding of a process for developing high quality assessments aligned to three dimensional teaching an learning.<br>b. Invite participants to consider their next steps and how they will continue their work with the Five Tools.<br>c. Thank participants for their work in this session. |