

## Advancing Tools and Processes for the Next Generation Science Standards

### Model C: Planning for Classroom Assessment

**Purpose:** Participants will gain a deeper understanding of what phenomena-focused, three dimensional assessments looks like and how this aligns with the vision for the Framework for K-12 Science Education. Participants will develop understanding through an experience with the parts of the Five Tools and Processes focused on developing formative and summative school- or district-based classroom assessments for one instructional sequence or for one unit of instruction.

**Audience:** Classroom science teachers, assessment developers, curriculum developers, professional development leaders, state or district assessment teams, school or district curriculum teams, or administrators who are interested in developing three-dimensional formative and summative assessments.

**Components of the model:** Tool 1, Tool 2, Concept attainment for phenomena, and Tool 5

**Time:** Three one-day face-to face sessions with work time in-between sessions (recommended) or three full-day sessions

#### Introduction

Enacting Model C offers an opportunity to help participants who have some awareness of phenomena-focused, three-dimensional teaching and learning enhance their assessment tasks. The model will help deepen their understanding of the process for planning assessments that are both three-dimensional and phenomenon-focused. This model best serves district-based teams who have an understanding of phenomena-focused, three-dimensional teaching and learning, have a goal of changing their assessment practice, and who have a structure in place to continue to work together after the professional learning experience, such as through a professional learning community (PLC).

#### Goals of Model C:

- Increase understanding of how to develop assessments based on phenomena-focused three-dimensional teaching and learning.
- Increase understanding of phenomena and how to use phenomena as a basis for classroom assessments.
- Increase understanding of how to better assess student learning through the use of evidence of learning specifications.

#### Participant Outcomes After Completing Model C:

A participant should be able to

- develop phenomenon-focused, three-dimensional assessments informed by evidence of learning specifications,
- use evidence of learning specifications developed for phenomena-focused three-dimensional assessments to evaluate student learning, and
- share assessments developed during the professional learning experience.

#### Total Time:

- Three days of face-to-face professional learning with additional work time between meetings.

**Part 1 Tool 1: Using the NGSS to plan a unit of instruction** (Slides 1 – 47) (6 hours)

Tool 1 will help participants develop an understanding of the three dimensions of NGSS and then use these dimensions to develop a blueprint for an instructional unit. Although the focus of Model C is on developing assessments, Tool 1 is important for participants to be able to define the three dimensions that integrate in each learning sequence as well as the specific elements of each dimension that they should consider in the Tool 2 work.

**Part 2 Tool 2: Using performance expectations to plan classroom assessments** (Slides 1-30) (5 hours)

Tool 2 supports participants as they start to plan the assessments and evidence of learning in their unit. Participants use a Backwards Design approach to unpack the performance expectations from the NGSS in the unit and develop evidence of learning specifications that describe what qualifies as evidence of students' proficiency with the three dimensions.

**Part 3 Concept attainment for phenomena** (Slides 1-2) (35 minutes)

Because the goal of the *Framework* is focused not only on three-dimensional learning, but also on phenomena, the concept attainment activity supports participants in developing a deeper understanding of phenomena.

**Part 4 Tool 5: Using evidence of learning specifications to develop performance tasks** (Slides 1 – 18) (4 hours)

The purpose of Tool 5 is to develop a three-dimensional performance task. A student checklist, and a scoring rubric to help teachers evaluate what students have learned as a result of NGSS-aligned instruction. Participants use the evidence of learning specifications from Tool 2 to develop a three-dimensional phenomenon-focused assessment that incorporates disciplinary core ideas, crosscutting concepts, and science and engineering practices.

**Materials, PD Leader Resources, and Advance Preparation**

- Refer to the Facilitator Guide for Tools 1, 2 and 5 for specific information about preparations for each tool. Information about preparations for the concept attainment activity can be found in Tool 3.
- Make sure the meeting space has adequate table space for groups to work with the card decks in Tool 1, and plenty of wall space for hanging chart papers in Tools 2 and 5.