

Advancing Tools and Processes for Next Generation Science

Model C: Planning for Classroom Assessment Concept Attainment: Phenomenon

Introduction: One goal of the *Framework* is to promote three-dimensional phenomena- or problem-driven learning. Some find it difficult to identify phenomena and distinguish them from topics, questions, or concepts. The goal of this learning experience is for participants to develop an operational definition of phenomena by generating descriptive criteria. This learning experience utilizes the concept attainment strategy to support participants in developing a deeper understanding of phenomena. Using a unique approach, the participants don't know the question, but the answers are revealed. The question that the PD leader has in their mind is: Does this statement represent a phenomenon (yes or no)? The outcome of the strategy is participant-generation of a list of criteria that describe the "yes" statements.

Goals and Outcomes:

- Develop an understanding of anchor phenomena during a concept attainment activity

Prerequisite: This learning experience can be used any time based on participant needs. The learning experience is excerpted from Tool 3. For the purposes of Model C: Developing Classroom Assessment, it is intended to follow work on Tool 2 and precede the development of an assessment task using Tool 5.

Time and Purpose:

Introduction (slide 1)

Purpose:

Concept Attainment Strategy (Slides 2) (35 min)

Purpose: Distinguish between facts, concepts, phenomena, and anchor phenomena. Consider the role of anchor phenomena in the development of three-dimensional, phenomenon-focused classroom assessment.

Reading (slide 3)

Purpose:

Summary: Participants develop an understanding of anchor phenomena during a concept attainment activity. They apply this understanding in Tool 5 as they develop an assessment for an instructional sequence.

Total Time = 35 minutes

Materials:

- Phenomena concept attainment cards (one set, printed on 11x17)
- Category headers: "Yes" and "No"
- Tape

Handouts:

HO1 Coherent Instructional Sequences Based on Anchor Phenomena

Slides:

Slide 1 Concept Attainment

Slide 2 Phenomena and Concepts

Advance

Preparation:

- Print and copy handouts, and one set of Phenomena Concept Attainment cards
- Create category headers by printing “Yes” and “No” on separate pieces of paper and taping them on the wall.
- Add tape to the back of each Phenomena Concept Attainment card so they can be quickly added to the wall under the appropriate category header. Lay the cards on a large table so you can easily see which cards to use. Be familiar with the cards so you can scaffold which cards you use with your group.

Phenomena Concept Attainment (35 minutes)

Slide and Time	Facilitation Notes
<div data-bbox="207 821 647 1150" style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"><p style="text-align: center;">Concept Attainment</p><ul style="list-style-type: none">• What is the <i>pattern</i> that predicts the Yes? or No?</div> <p>Slide 1 (30 min)</p>	<p>1. Display Slide 1 (Concept Attainment)</p> <p>Facilitator note: The purpose of this activity is to help participants distinguish phenomena and concepts using a different approach. The participants don’t know the question, but the answers will be revealed. The question that the PD leader has in their mind is: Does this statement represent a phenomenon (yes or no)? The goal is for participants to generate a list of criteria that describe the “yes” statements. Read through the statements and star the “easy ones” so that you are able to choose statements through the process that will help your participants move forward in their understanding. In other words, you won’t necessarily use the statements in numbered order. Do NOT do all the statements.</p> <p>Describe what is going to happen and why. One way to set up this activity is to let participants know that we’ve been using a number of ideas during the early part of the session and we want to tease out an operational definition of some of these ideas. Let them know that this is something of a unique experience similar to a “Carnac the Magnificent” skit from the Johnny Carson Show (Google Johnny Carson Carnac) and describe the premise of the skit or better yet ask a participant to do it.</p> <p>To set up the activity, tell participants that the goal is to try and figure out the criteria by that makes a statement a “yes” and (just like Carnac) to determine the question. Begin by asking participants to remain silent while you hold up each of the first four statements (11X17 phenomena statements printed so that participants can easily read the statement and you can read the “answer” printed on the back; lay them out on a table with tape already attached and so that you can read the answers on the</p>

Slide and Time	Facilitation Notes
	<p>back). Read each statement and place them on the wall under yes or no.</p> <p>After the first 4 statements, ask for thumbs up, down, or sideways to reflect how <u>confident</u> they are that they'll be able to predict yes or no for the next card. Continue to select cards from the pile, read each, ask them to use their thumbs to describe their confidence level, and place it on the wall. By card 8 or 9, most participant should feel more confident.</p> <p>Ask participants to turn and talk about the criteria they are using to predict. Listen to their conversations. As long as you are hearing criterion consistent with phenomena, gather some ideas from the group and chart them. You might have them talk with a neighbor after another few cards if you do not hear the intended criteria.</p> <p>By about card 10, have them give thumbs up if they can <u>predict</u> yes or no and explain which place it goes and why. This means that a thumbs up will represent a yes statement, thumbs down a no statement, and thumbs sideways if they aren't sure. Offer additional opportunities for participants to turn and talk and then share their ideas. Add to the criteria chart as appropriate.</p> <p>Continue until most (all) participants are able to identify the question and the most helpful criteria for determining a yes statement. Star those statements on the charted list.</p>
<div data-bbox="207 1178 649 1514" style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">Phenomena and Concepts</p> <ul style="list-style-type: none"> • As you read, be prepared to discuss the following questions: <ul style="list-style-type: none"> – What are anchor phenomena? – What is the difference between phenomena and concepts? </div> <p>Slide 2 (5 min)</p>	<p>2. Display Slide 2 (Phenomena and Concepts). Distribute H05 (Coherent Instructional Sequences Based on Anchor Phenomena) and have participants read, then discuss with an elbow partner. Group discussion about what is similar between their rules and the ideas on the handout.</p> <p>Discuss the questions on the slide with participants. If participants are still struggling, brainstorm other examples of anchor phenomena to help participants clarify their understanding.</p>

Slide and Time	Facilitation Notes
<div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p style="text-align: center;">Meta Moment</p> <p>What is the role of anchor phenomena in the design of classroom assessment that embodies the NGSS?</p> <p>Be prepared to share your ideas.</p> </div> <p>Slide 3 (5 min)</p>	<p>3. Display Slide 3 (Meta Moment). Allow time for participants to reflect individually on the on the prompt, then as several participants to share their thinking.</p>