

Step 1: Identify the Scope of Your Unit

1A. Identify the Performance Expectations Bundle that This Unit Targets.



1B. Identify the elements from the foundation boxes for the DCIs and CCCs

Disciplinary Core Ideas (DCIs)

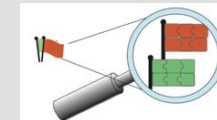
Cross-Cutting Concepts (CCCs)

Step 2: Unpacking

2. What are the sub-ideas & implicit understandings of each of the DCI(s) and CCC(s)?

Repeat steps 2A and 2B for each part of the Framework text relevant to your unit.

(Copy and paste this section as a separate table for each phrase you unpack)

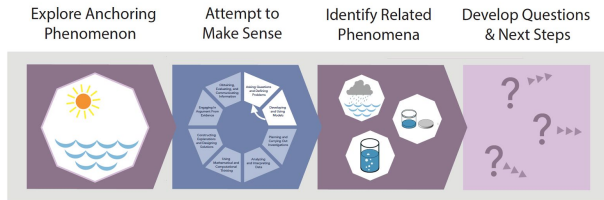


2A: Paste a sentence from the Framework text here. Bold a phrase that is important to unpack.

2B: Clarify what that specific phrase above means in your own words. Include not just the "what" but also the "how" and "why." Do not simply restate the language of the Framework. Identify the concepts that students must understand that are not written on the page, but are *needed* in order to get to the key punchlines of the science.

2C: Now push further: Take your phrase and look at it through the lens of each of the **Crosscutting Concepts (link is located here)**. (Try various CCCs, not just the ones in the foundation boxes.) For example, What **causes** X to occur? How does the **structure** of Y affect the **function** of Y? What exactly is the **scale** of Z? Can Z always be detected? Is Z visible to the eye? What **scale** would students have to experience to be convinced of Z? Record the elaborations elicited by these questions.

Step 3: Apply Storyline Tool #1



Select your context for using this tool:

- Analyzing Existing Curriculum Materials
- Planning to Teach With Existing Curriculum Materials
- Adapting or Designing New Curriculum Materials

Does the launch of the unit include these elements of the Anchoring Phenomenon Routine?		Yes	No	<ul style="list-style-type: none"> ➤ Analyzing: If you found evidence of this, what did it look like? ➤ Planning: What will you do when you teach this lesson to accomplish this? Is there anything you need to add to the lesson? ➤ Adapting: How can you enhance these elements in the materials?
<p>Element 1 Explore Anchoring Phenomenon</p> <p><i>What do we notice?</i></p>	<p>1A: Students explore an anchoring phenomenon and notice aspects that require key pieces of target DCIs to explain.</p>			
	<p>1B: Students go public with what they noticed.</p>			
	<p>1C: The class builds a record of what everyone noticed.</p>			
<p>Element 2 Attempt to Make Sense</p> <p><i>How can we explain this?</i></p> <p><i>Do our explanations agree?</i></p>	<p>2A: Students generate initial explanations that elicit competing ideas about key pieces of the target DCIs.</p>			
	<p>2B: Students go public with their explanations.</p>			
	<p>2C: The class builds a record of areas of consensus and disagreement across everyone's explanations.</p>			

Does the launch of the unit include these elements of the Anchoring Phenomenon Routine?		Yes	No	<ul style="list-style-type: none"> ➤ Analyzing: If you found evidence of this, what did it look like? ➤ Planning: What will you do when you teach this lesson to accomplish this? Is there anything you need to add to the lesson? ➤ Adapting: How can you enhance these elements in the materials?
<p>Element 3 Identify Related Phenomena</p> <p><i>Where else does something like this happen?</i></p>	3A: Students generate examples of related phenomena they have experienced.			
	3B: Students go public with related phenomena.			
	3C: The class builds a record of related phenomena.			
<p>Element 4 Develop Questions & Next Steps</p> <p><i>What do we need to figure out to explain all of this?</i></p>	4A: Students generate questions that could lead to uncovering important ideas in the target DCIs.			
	4B: Students go public with their questions.			
	4C: The class builds a record of everyone's questions.			
	4D: Students generate ideas for investigations that could lead to uncovering important ideas in the target DCIs.			
	4E: Students go public with their ideas for investigations.			
	4F: The class builds a record of everyone's ideas for investigations.			

Step 4: Target Student Products for Having Put the Pieces Together



4. Create one or more desired/sample student products that shows what the response that you want a student to provide (written in student language) that shows they have met this/these PEs.

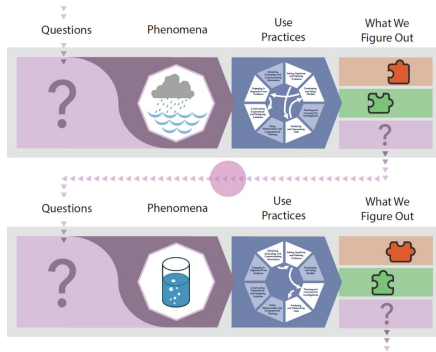
4A: What is the **prompt** that students are answering? The prompt should describe the specific phenomena students are explaining. Make sure it's three dimensional by including the practices and crosscutting concepts that students should be using.

4B: What is the **student response** to the prompt? If students "got" this bundle of PEs, what could they do or explain at the end of the unit or a particular milestone to demonstrate their understanding? Photograph your chart paper and insert it here, along with your response written in student language.

Step 5: Identify a Sequence of Connected Investigations

<p>Lesson Question</p> <p><i>Does the question come from phenomena related to the driving question or from gaps in what we figured out so far? Does the question ask how & why, and not just about facts?</i></p>	<p>Phenomena</p> <p><i>Is there something about the phenomenon that needs to be explained? Will investigation of this phenomena help answer the question for this lesson and figure out new pieces of the puzzle?</i></p>	<p>What Students Figure Out</p> <p><i>What pieces of your unpacking will will students be able to figure out through investigating this phenomena? What new questions would come out of doing this investigation that could motivate the next investigation?</i></p>

Step 6: Apply Storyline Tool #2 to Each Connected Investigation

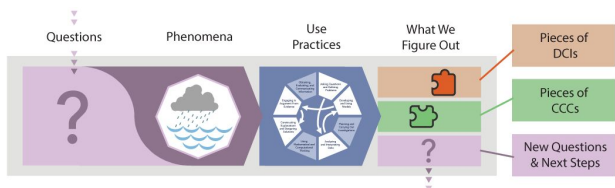


Storyline Tool #2: Connected Investigations Part A - Navigation Routine

Select your context for using this tool:

- Analyzing Existing Curriculum Materials
- Planning to Teach With Existing Curriculum Materials
- Adapting or Designing New Curriculum Materials

Are the lessons connected and motivated using ideas raised by students?		Yes	No	<ul style="list-style-type: none"> ➤ Analyzing: If you found evidence of this, what did it look like? ➤ Planning: What will you do when you teach this lesson to accomplish this? Is there anything you need to add to the lesson? ➤ Adapting: How can you enhance these elements in the materials?
Element 1 Looking back <i>What did we just do?</i>	1: Do you see an opportunity for the class to articulate how they got here, including: <ul style="list-style-type: none"> • what did the class <i>just</i> figure out today? • or what did the class figure out <i>last time</i>? 			
Element 2 Looking forward <i>What are our next steps?</i>	2A: Do you see an opportunity for the class to articulate <i>a question</i> that the class identified they need to address? 2B: Did you see an opportunity for the class to articulate <i>a direction</i> that the class identified they need to pursue?			



Storyline Tool #2: Connected Investigations Part B - Investigation Routine

Does the investigation include these elements?		Yes	No	<ul style="list-style-type: none"> ➤ Analyzing: If you found evidence of this, what did it look like? ➤ Planning: What will you do when you teach this lesson to accomplish this? Is there anything you need to add to the lesson? ➤ Adapting: How can you enhance these elements in the materials?
<p>Element 1 Questions & Phenomena</p> <p><i>What question are students trying to answer or what problem are they trying to solve?</i></p>	<p>1A: The investigation is framed around trying to answer a question about a phenomenon or a problem to solve.</p>			
	<p>1B: Students investigate a phenomenon.</p>			
<p>Element 2 Use Practices</p> <p><i>What are students doing?</i></p>	<p>2: Students use science and engineering practices to make progress on figuring out the phenomenon.</p>			
<p>Element 3 What Students Figure Out</p> <p><i>What pieces of the puzzle do students figure out?</i></p>	<p>3A: Students figure out pieces of the puzzle that help make progress on the lesson question.</p>			
	<p>3B: The pieces of the puzzle that students figure out are parts of DCIs and CCCs.</p>			

	3C: Part of what students figure out is the next question(s) to pursue and next steps the class can take.			
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