

Target Grade:	Lesson Title: Developed by: School:
Course:	
Performance Expectation(s) (Standard) from State Standards or NGSS:	
Lesson Performance Expectations	
Materials:	
Investigative Phenomenon	
<u>Gather Phase</u>	
What is the Teacher Doing?	What are the Students Doing?



In the Classroom List the practices that the students will be using in the Gather phase.	In the Classroom
<u>Reason Phase</u>	
In the Classroom List the <u>practices</u> that the students will be using during the <u>Reason phase</u> .	In the Classroom
<u>Communicate Phase</u>	
In the Classroom List the <u>practice</u> s that the students will be using during the <u>Communicate</u> <u>phase</u> . Use the following	In the Classroom



Suggested Prompts Using Crosscutting Concepts to Structure Student Thinking:	
ssessment of Student Learning	



#### The Gather, Reason, and Communicate Performance Sequence (Moulding & Bybee, 2017)

Gather	Students are provided with a relevant phenomenon or problem that acts as the launching point for them to (1) obtain information by asking questions and defining problems for causes of the phenomenon within and among systems; (2) investigate the interactions of components of systems to determine the changes in terms of flow of energy and cycling of matter; and (3) determine the proportion of components in systems and interactions/feedback among systems. Gathering may include reading, listening, investigating, and using models.
Reason	Students use information they gathered to make sense of phenomena. Reasoning includes analyzing data and information, constructing explanations for the causes(s)of the phenomenon, engineering solutions to problems, and developing arguments for how the evidence supports or refutes explanations or solutions. Reasoning occurs in our brains, but may utilize models, speaking, and writing to organize the relationship between the causes of phenomena and the evidence supporting the explanations.
Communicat e	Students communicate their reasoning by developing arguments for how evidence supports explanations. Communicating includes speaking, writing, and/or models to present explanations and arguments to themselves and others.

Moulding, B. & Bybee, R. (2017). Teaching Science is Phenomenal. ELM Tree Publishing: Washington, UT. ISBN:978-0-8890674-0-6



Science and Engineering Practices Using the GRC Instructional Sequence



