

## Physical Science Frameworks Curriculum Guide

### Capstone Instructional Segment

**Crosscutting Concepts:** Systems and System Models; Cause and Effect; Energy and Matter

**Topics:** All from year-long course

#### 2-week Instructional Segment

Anchoring Phenomenon	GSE	Sample Lessons	Disciplinary Core Ideas	Science and Engineering Practices	Instructional Notes
Overall- Model and explain the operation of a car or rocket.	All	<p><b>Items with links have sample lessons.</b></p> <p><a href="#">Capstone Lesson</a></p>	<p>Summative assessment unit</p> <p>In this short capstone unit teachers will require students to demonstrate their understanding of physical science concepts through the model phenomena of a rocket or a car.</p>	All	<p>Safety</p> <p>Use proper safety precautions if you plan to use model rockets or other materials in your classroom.</p> <p>By the end of the unit, students can use all of the terms from the year in their explanations of the operation of a car or rocket</p>

This instructional segment will connect to all other instructional segments in this course. Students will use a car and/or rocket as a model for explaining the physical science concepts taught throughout the course. As described below students can EXPLAIN and ELABORATE on the content of the course in relationship to these model vehicles.

From instructional segment 2- Structure and Function of Matter, the elements and compounds cars and/or rockets are built from are explained. From instructional segment 3- Stability and Change in Reactions, the chemical reactions in rockets and cars (combustion and others) are explained. From instructional segment 3- Energy and Matter, rockets powered by nuclear energy, ones used to deliver nuclear weapons, or the potential uses for nuclear energy to power cars (generally through electricity production delivered to electric cars) are explained. From instructional segment 4- Cause and Effect in Force and Motion, the movement of a car and/or rocket should be used to explain velocity, acceleration, and other concepts. From instructional segment 6- Patterns in Waves, the doppler effect that occurs when a car passes by or the sonic boom a rocket creates should be described. When students can see the patterns and connections within these units, they will certainly have mastered the physical science standards.