

# Mars Rover Celebration NGSS Alignment

**WEEK 3:** DESIGNING THE MISSION

**LESSON 10:** LANDING, MOVING AND SURVIVING CONDITIONS

**GRADE LEVEL:** 3-5

## PERFORMANCE EXPECTATIONS

In the NGSS framework, one of the important things that teachers need to do is explicitly identify when Science and Engineering Practices (SEP) and Cross Cutting Concepts (CCC) are being covered. The SEP's and CCC's are pervasive throughout the Mars Rover Celebration curriculum. The tables here are intended to assist the teacher in deciding when to mention that an SEP or CCC is part of the material being presented.

Lesson Objectives		
Students who demonstrate understanding can: <ul style="list-style-type: none"><li>Examine different methods for landing rovers on Mars</li><li>Determine which landing strategy is best suited to land the team's rover</li><li>Research solutions to different problems that may occur once the rover lands on Mars</li><li>Learn how to write in a persuasive manner</li><li>Present a well-written persuasive argument to teammates</li></ul>		
3-5 Engineering Design		
3-5-ETS1-2 Generate an compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.		
SCIENCE AND ENGINEERING PRACTICES (SEP)	DISCIPLINE CORE IDEAS (DCI)	CROSSCUTTING CONCEPTS (CCC)
<b>Obtaining, Evaluating and Communicating Information</b> Obtain and combine information from books and other reliable media to explain phenomena	<b>ESS1: Earth's Place in the Universe:</b> ESS1.B: Earth and the Solar System  <b>ETS1: Engineering Design:</b> ETS1.B: Developing Possible Solutions	<b>System and System Models</b> A system can be described in terms of its components and interactions.

## SUMMARY OF THE THREE DIMENSIONS

The 5E lesson model provides the 5 phases of learning that helps to facilitate the process of science understanding. Teachers are encouraged to use the table below to help align their teaching methods with the embedded Science and Engineering Practices (SEP), Disciplinary Core Ideas (DCI) and Cross Cutting Concepts (CCC) present in the lesson.

5E MODEL PHASE	SCIENCE AND ENGINEERING PRACTICES (SEP)	DISCIPLINE CORE IDEAS (DCI)	CROSSCUTTING CONCEPTS (CCC)
<b>ENGAGE</b>	Obtaining, Evaluating and Communicating Information	Earth and the Solar System	Systems and System Models
<b>EXPLORE</b>	Obtaining, Evaluating and Communicating Information	Earth and the Solar System Developing Possible Solutions	Systems and System Models
<b>EXPLAIN</b>	Obtaining, Evaluating and Communicating Information	Earth and the Solar System Developing Possible Solutions	Systems and System Models
<b>ELABORATE</b>	Obtaining, Evaluating and Communicating Information	Earth and the Solar System	Systems and System Models
<b>EVALUATE</b>	Performance Expectations	Performance Expectations	Performance Expectations