

Mars Rover Celebration NGSS Alignment

WEEK 3: DESIGNING THE MISSION

LESSON 10: LANDING, MOVING AND SURVIVING CONDITIONS

GRADE LEVEL: 6-8

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">Examine different methods for landing rovers on MarsDetermine which landing strategy is best suited to land the team's roverResearch solutions to different problems that may occur once the rover lands on MarsLearn how to write in a persuasive mannerPresent a well-written persuasive argument to teammates		
MS Engineering Design		
MS-ETS1-2 Evaluate competing solutions using a systematic process to determine how well they meet criteria and constraints of the problem.		
SCIENCE AND ENGINEERING PRACTICES (SEP)	DISCIPLINE CORE IDEAS (DCI)	CROSSCUTTING CONCEPTS (CCC)
Obtaining, Evaluating and Communicating Information Gather, read and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and method used, and describe how they are supported or not supported by evidence	ESS1: Earth's Place in the Universe: ESS1.B: Earth and the Solar System ETS1: Engineering Design: ETS1.B: Developing Possible Solutions	System and System Models Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems

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)
ENGAGE	Obtaining, Evaluating and Communicating Information	Earth and the Solar System	Systems and System Models
EXPLORE	Obtaining, Evaluating and Communicating Information	Earth and the Solar System Developing Possible Solutions	Systems and System Models
EXPLAIN	Obtaining, Evaluating and Communicating Information	Earth and the Solar System Developing Possible Solutions	Systems and System Models
ELABORATE	Obtaining, Evaluating and Communicating Information	Earth and the Solar System	Systems and System Models
EVALUATE	Performance Expectations	Performance Expectations	Performance Expectations