Mars Rover Celebration NGSS Alignment

WEEK 5: DESIGNING AND BUILDING
LESSON 13: CONSTRUCT MOCK-UP
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: • Explore the importance of engineering in our society • Work as a team to build a prototype of the team's rover using student Science Notebooks and team sketches as a guide		
MS Engineering Design		
MS-ETS1-3 Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.		
SCIENCE AND ENGINEERING PRACTICES (SEP)	**DISCIPLINE CORE IDEAS (DCI)**	**CROSSCUTTING CONCEPTS (CCC)**
Analyzing and Interpreting Data Analyze and interpret data to provide evidence for phenomena **Developing and Using Models** Develop and use a model to describe phenomena	**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** A system can be described in terms of its components and interactions. **Influence of Science, Engineering and Technology on Society and the Natural World** Technologies extend the measurement, exploration, modeling, and computational

	capacity of scientific investigations

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	Analyzing and Interpreting Data	Earth and the Solar System	Systems and System Models
EXPLORE	Developing and Using Models	Earth and the Solar System Developing Possible Solutions	Systems and System Models Influence of Science, Engineering and Technology on Society and the Natural World
EXPLAIN	Developing and Using Models	Earth and the Solar System Developing Possible Solutions	Systems and System Models Influence of Science, Engineering and Technology on Society and the Natural World
ELABORATE	Developing and Using Models	Earth and the Solar System Developing Possible Solutions	Systems and System Models Influence of Science, Engineering and Technology on Society and the Natural World
EVALUATE	Performance Expectations	Performance Expectations	Performance Expectations