Mars Rover Celebration NGSS Alignment

WEEK 1: LEARNING RESEARCH SKILLS
LESSON 1: OVERVIEW OF THE SOLAR SYSTEM
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: • Review and elaborate on the structure, content and size of the Solar System. • Identify the central body of the Solar System *(Sun)* and the 8 major planets. • Describe the motion of the planets in the sky, including retrograde motion. • Complete an investigative study of the scale of the solar system. • Demonstrate a grade appropriate understanding of orbital motion (revolution) and planetary spin (rotation).		
Space Systems		
MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar system.		
SCIENCE AND ENGINEERING PRACTICES (SEP)	**DISCIPLINE CORE IDEAS (DCI)**	**CROSSCUTTING CONCEPTS (CCC)**
Developing and Using Models Develop and use a model to describe phenomena. **Engaging in Argument from Evidence** Support an argument with evidence, data, or a model.	**ESS1: Earth's Place in the Universe:** ESS1.A: The Universe and Its Stars 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. **Scale, Proportion, and Quantity** Standard units are used to measure and describe physical quantities

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	Asking Questions and Defining Problems	Earth and the Solar System	Scale, Proportion and Quantity
EXPLORE	Analyzing and Interpreting Data; Developing and Using Models	Earth and the Solar System	Systems and System Models
EXPLAIN	Engaging in Argument from Evidence	Earth and the Solar System	Systems and System Models
ELABORATE	Using Mathematics and Computational Thinking	Earth and the Solar System	Scale, Proportion and Quantity
EVALUATE	Performance Expectations	Performance Expectations	Performance Expectations