Unit 1: Geology on Mars

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

Unit Overview

Students will observe satellite images and Mars rover data as they consider what may have formed a long channel on the surface of Mars, the anchor phenomenon for the unit. Throughout the unit, students consider two possible claims for what may have formed the channel—flowing lava or flowing water. By comparing the channel on Mars to analogous structures on Earth's surface and in physical models, students are able to gather evidence and evaluate whether it supports the claim that flowing liquid water formed the channel. At the conclusion of the unit, students construct arguments for the claim they think is best supported by the evidence.

Enduring Understandings

Earth, Mars, and other rocky planets can be thought of as systems. These systems are made up of interacting spheres that can include the geosphere, atmosphere, hydrosphere, and biosphere.
When landforms on different rocky planets look similar, it is evidence that they may have been formed by the same geologic process.
Scientists can use models to test their ideas and get evidence about processes in the natural world that are difficult to observe.
Landforms can provide evidence about the past because they remain after the geologic processes that formed them stop happening.
Models represent the natural processes being investigated in important ways, but they are not exactly the same.

Essential Questions

How can we search for evidence that other planets were once habitable?
How does our understanding of Earth help us learn about other rocky planets?
How do models help scientists answer questions?
How do scientists construct arguments?

Learning Objectives

Earth, Mars, and other rocky planets can be thought of as systems. These systems are made up of interacting spheres that can include the geosphere, atmosphere, hydrosphere, and biosphere.
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difficult to observe.
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Career Exploration - Examine/learn about the career of a geologist.

Standards: Content

MS-ESS2-3	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

Standards: Interdisciplinary

Assessment Evidence

Formative	Teacher observations, Class discussions, Lab Activities, Key concepts and vocabulary quizzes, Warm Ups, Open Ended Responses, Modeling, Simulations, Innovators Monthly Research
Summative	In correlation with the NJSLS, students must demonstrate the following as summative assessments: MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar system. Other summative assessments will include but are not limited to: projects, summative tests, lab skills demonstrations, vocabulary quizzes, and designs for Science Fair projects.
Alternative & Benchmark	Smartboard, Computers, Websites and digital interactives/models, Multi-media presentations, Video Streaming, Amplify Digital Curriculum, Generation Genius, BrainPop, Mystery Science, Microsoft 365, Primary and Secondary Source Documents, Lab Materials as needed, Amplify Readings, Labs, Simulations
Assessment Evidence Resource	

Instructional Resources

Instructional Resource List

Curricular Mandates

Below are the curricular requirements as defined in NJ Administrative Code and Statute

	Amistad		Diversity, Equity, and Inclusion
	Holocaust		LGBT and Disabilities (Grades 6-12)
	Climate Change		Asian American & Pacific Islander

Social Emotional Learning (SEL) Competencies

NJ Social and Emotional Learning Competencies & Sub-Competencies

	Self-Awareness		Relationship Skills
X	Responsible Decision-Making		Social Awareness
	Self-Management		

21st Century Skills & Themes

X	Global and Cultural Awareness	X	Technology Literacy		Planning and Budgeting
X	Creativity and Innovation		Financial Institutions		Risk Management and Insurance
X	Information and Media Literacy		Digital Citizenship		Economic and Government Influences
X	Critical Thinking and Problem Solving		Credit Profile	X	Career Awareness and Planning
	Civic Financial Responsibility		Financial Psychology		