

Lesson 1

Exploring the Surface of Mars

GRADE LEVEL(S)

4 – 6

LENGTH

90 minutes

MATERIALS

- Giant Destination Mars Map
- Computers with internet access
- List of appropriate websites for student research
- Science Notebooks

VOCABULARY

- Plagiarism
- Research

ESSENTIAL QUESTION

What does the surface of Mars look like?

LESSON OBJECTIVE(S)

Students will be able to:

- Learn about the surface of Mars through using the Mars Map and internet research
- Gather, and analyze data from multiple sources on the internet
- Develop and use strategies for reading informational text to systematically find information
- Understand that Earth and Mars have similar geological features

ENGAGEMENT

1. Ask students to brainstorm a list with their partner of words that describe the characteristics of the surface of the Earth.
2. Explain to students that today they will begin their exploration of Mars and will be comparing and contrasting the surface of Mars with the surface of the Earth.
3. Introduce the Mars Map and explain that they will all have about 15 minutes to explore the surface of Mars.
4. Instruct students of their two tasks to complete during their exploration: (1) write down in their science journals notes of things they observe and (2) write down one question they have about the surface of Mars.
5. After the Mars exploration has concluded, ask students to write in their science notebooks ways that Earth and Mars are alike and ways they are different.
6. Ask student pairs to share the questions they have about the surface of Mars and write these on the board. Use these questions as the basis for the internet scavenger hunt – using the teacher provided websites.

EXPLORATION

1. To help students learn how to research Mars, students will work with a partner to use specific websites on the teacher provided list to answer their questions about Mars and discover additional facts and features about the planet.
2. As students are conducting research to answer their questions, ask them to also add to their list of observations in their science notebooks while they are researching to add additional facts and features about Mars.
3. Walk the class through answering the first question as a large group. Demonstrate how to answer the first question by pre-reading the questions to determine what kind of information will be needed. Then, select a web site and teach students how to skim for key words.
4. After modeling the first question and answer with students, students may work as a team or in pairs to complete the remainder of the research questions in their notebooks.
5. Circulate as students work, assisting when necessary.

EXPLANATION

1. After students have had time to research answers through numerous sources, review the questions and solicit answers from students.
2. Be sure to ask students to share the website that their information came from and discuss how students chose which sites to use. Discuss with students how to distinguish between credible and less credible Internet sources (use provided slides if desired).
3. Send students back to their teams to discuss the answers they found and whether they came from credible sources. Once they have narrowed down their answers to information that came from credible and reliable sources, students should discuss what they learned about Mars through this activity and complete the accompanying Venn Diagram in their Science Notebooks. Venn Diagrams may be completed with a partner or individually.

EXTENSION

1. To extend student learning in this introductory lesson on Mars, students should work with a partner and search the Internet for information on the Mars Exploration Rover Mission (MER). Ask students to be prepared to share one important accomplishment of this mission with the class.
2. Have students share information on the MER briefly. Explain that they will learn more about the exploration of Mars in the coming lessons.

EVALUATION

1. During this lesson, the teacher is encouraged to use formative assessment such as questioning and examining student responses/notes throughout the lesson to elicit evidence of learning and deepen student understanding. Teachers may wish to grade team or individual Venn Diagrams and/or review students' science notebooks to formally assess student understanding.
2. Teachers are encouraged to create their own grade-level and ability-level assessments so as to best meet the needs of their students.

NOTE: Teachers may elect to use a search engine in lieu of the specific web sites provided. To assist students in executing safe searches on the internet, a student-friendly search engine such as Sweet Search (<http://www.sweetsearch.com>) or other district approved search engine is recommended.