



Lesson 11 - Planetary Trading Cards (required)

Background

For this required lesson, students will research facts about each of the 9 planets and record them on Planetary Trading Cards. These cards will be used during Mission Day and to help construct a larger planetary poster that is an integral part of Mission Day work.

Students can use a variety of resources to research the planet facts. It is recommended that the students use this activity to practice their skills in using the library or other resource materials.

NASA has a terrific website for the students to learn about the planets. Go to: <http://learn.arc.nasa.gov/planets/> to find out more.

Teacher Notes and Hints

Prior to the lesson

- Preview the lesson with the students so they know the Planetary Trading Cards are an important part of their mission.
- Review how to conduct a search for information using a variety of sources. If possible, a scheduled visit to the school library would reinforce the students' abilities and allow them to access the information they need.
- Students can work in teams to gather the information on the 9 planets or they can work individually. Working individually will ensure the students are more aware of the facts about each planet.
- If the students work individually, you also have the option of having each of them produce a poster for the Planetary Poster activity. (Students like this project and the posters can be displayed.)
- The NASA Celestia Exploration Activity, found here: <http://learn.arc.nasa.gov/planets>, or in the teachers' toolkit, has planet information needed for the Planetary Trading Cards. Even if they use a variety of resources, it would be a good idea to let them utilize this site, if possible.
- Stress to the students they will be the "astronauts" who will need to use the Planetary Trading Cards they make up to rescue the lost crew. This allows for more "buy in" from the students and they usually do a more thorough job on gathering the facts. The students connect to the Student Place, at: <http://www.e-missions.net/MMAB/studentsplace/main.html>. They can also go to the Student Place found under Student Materials or on the

main web page of Moon, Mars, and Beyond. Then go to Mission Prep → Celestria Link. The Kids Eye View has a fun link - "How Much Would You Weigh on Each Planet."

- You may want to review the units listed on the Planetary Trading Cards worksheets before the students work on them. For example, you may want to make sure all students remember that the prefix "kilo" means 1000, and therefore, kilometers means 1000 meters (they have a concept of a meter from the meter stick) and kilogram means 1000 grams (tell them a gram weighs about as much as a paper clip). You may also want to review the concept of an AU.

Skills and Objectives

Students will be able to:

- Use a variety of resources to gather information on the 9 planets.
- Become familiar with key characteristics of the planets of the solar system.
- Construct Planetary Trading Cards which lists key facts about the planets and visually depicts the planets' features.
- Review planetary order, orbit, and key environmental conditions, such as day and night time temperatures.
- Compare and contrast different characteristics about the planets and discuss why these similarities or differences may exist.
- Have the students present their findings to the class even if it's only to observe or examine the displayed cards. Each student may be given the chance to present the most interesting fact they found out about their favorite planet.

Activity Overview

In this activity, students may use a variety of resources to gather relevant facts about each of the 9 planets in our solar system. They will list these facts on Planetary Trading Cards. These cards will then be used to create a large Planetary Poster (Lesson 12) to be used on Mission Day.

This lesson can be modified according to grade level. For example, third graders can utilize fewer types of resources and rely more on the NASA Celestia Exploration Activity link for their planet information; fourth and fifth graders could be required to have more references and fifth graders could also become familiar with citing their resources.

Vocabulary

Vocabulary for this lesson reviews the vocabulary from previous lessons

Key Concepts

1. Planets have different colors because of the composition of their atmospheres and surface rocks.
2. Planets have specific features because of conditions on that planet. For example, the Great Red Spot on Jupiter is a huge swirling continuous storm in the atmosphere.
3. A variety of resources can be used to find information on the planets.
4. Presenting their work in a neat and complete way will help mission work.

Materials

- Reference books
- Planetary Trading Card sets for each student (helpful to have extras)
- Crayons or colored pencils
- Access to the Internet (optional if using other resources)

Procedure

Copy enough sets of Planetary Trading Cards and have extras in case students need to start over on some planets.

Preview the activity and instruct the students to find out all the information needed on the Planetary Trading Cards. Remind them they will need this information in order to construct the poster display for Mission Day.

Review all types of reference materials that you have available for them. (Third and fourth graders may need help finding the information in some types of resources.) Review how to find the information on a specific topic, or use the website given.

Instruct the students to complete the fact sheets and to color the planet on the Planetary Trading Card the correct color. Also, they are to add any distinguishing feature that is relevant to that planet.

They are to write any “Cool Facts” about each planet.

Extensions

After the students have constructed and reviewed the Planetary Trading Cards, quiz the students to reinforce the material. You can play a Jeopardy type game with teams.

- The planet with the “greenhouse effect.” What is Venus?
- A small rocky planet thought to be very earth-like. What is Mars?
- The planet with the largest moon in our solar system. What is Jupiter?

The difficulty of the questions can depend on grade level.

Use some Language Arts classes to extend the writing skills required by this activity. The students can be required to choose two planets and write an essay comparing the features of those planets. You may also want them to include the history of the planet.

You could research some of the mythology of the planets and moons. The students could read several stories as a preview for their mission work. This fits into Language Arts classes as stories about our Moon differ greatly according to culture. After reading some of the stories, point out that violent, militaristic cultures tend to have violent myths concerning how our Moon and its features formed while nature-centered cultures tend to have myths that are plants and animal centered.