

Solar System Science

In this activity, students explore and compare planets in our solar system. Each student becomes the “ambassador” for a planet and prepares by researching their planet, then meets with other ambassadors to form new mini-solar systems.

MATERIALS

StarDate: The Solar System or other reference material on the solar system.

ACTIVITY

Split the class into small groups; each group researches one planet. Students in the group make a list showing the planet’s atmosphere, size, mass, distance from the Sun, geology and surface features, surface temperature, and moons. They also write a sentence describing something unique or striking about their planet — an impression.

Have one ambassador from each group join with ambassadors from other groups. Each group need not have exactly the same planet mix, but there should not be duplicates of a planet within a solar-system group. The ambassadors interview each other to exchange information and impressions.

Once they have shared their information, the ambassadors should consider how they could organize themselves. Some might want to arrange themselves in order of distance from the Sun. Others might notice that some planets are small and rocky and others large and gaseous. “Solar systems” may invent several organization schemes. They will note interesting or unexpected planetary features. For instance, Olympus Mons, a “super volcano” on Mars, seems odd. Have each system report to the class.

Hints: The results may vary if the mix of planets is different in each system. The teacher should help students sum up the results, noting similarities and differences among the schemes. Most planetary scientists organize planets into two divisions: terrestrial (like Earth) and Jovian (like Jupiter). Terrestrial planets are small and rocky with few or no moons, and they are close to the Sun. Jovian planets are gaseous giants with many moons, and are farther from the Sun.

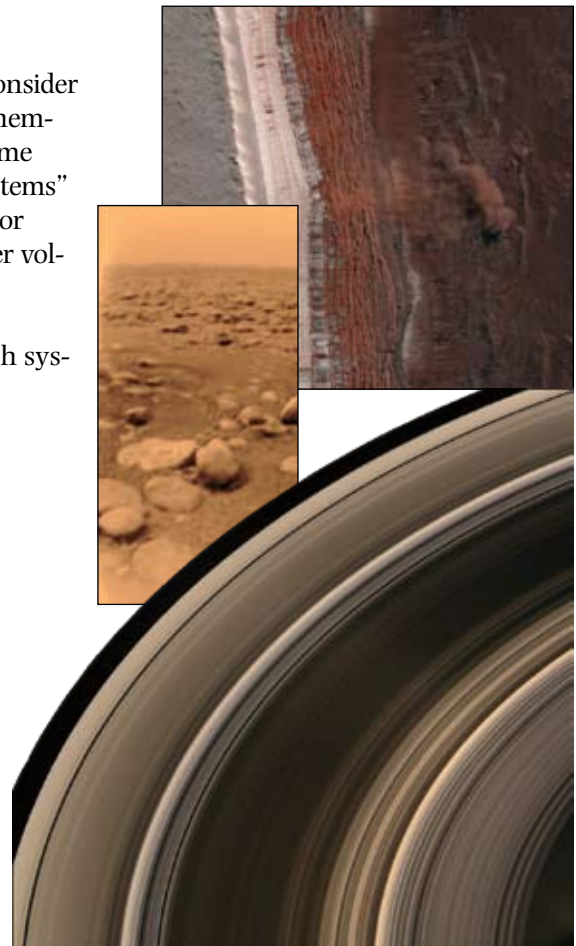
EXTENSION

What planet or object should NASA choose for future human exploration? Ask the “solar system” to choose a planet or moon. With pictures and text describing its features, design a spacesuit for the visit. For instance, Jupiter poses a serious challenge — it’s mostly high-pressure gas. What materials would the astronaut need to stay alive? How would the suit help the astronaut explore Jupiter? Would wings help?

Compare planets in our solar system to new extrasolar planets that astronomers have discovered.

NATIONAL SCIENCE EDUCATION STANDARDS

- Content Standard in 5-8 Earth and Space Science (Earth in the solar system)
- Content Standard in 5-8 Science as Inquiry (Abilities necessary to do scientific inquiry)
- Content Standard in 5-8 Physical Science (Properties of objects and materials)



The solar system is filled with amazing sights, including (from top), an avalanche beneath a Martian ice cap, the surface of Saturn’s big moon Titan, and Saturn’s bright rings.

Solar System Science

Subject: Our Solar System

Grade Levels: 6-8

Objectives

Students explore and compare planets in our solar system. Each student becomes the 'ambassador' for a planet and prepares by researching their planet, then meets with other ambassadors to form new mini-solar systems.

Texas Essential Knowledge and Skills

Science:

§112.18. grade 6 (b)-2(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers.

§112.18. grade 6 (b)-4(A) use appropriate tools to collect, record, and analyze information, including journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, triple beam balances, microscopes, thermometers, calculators, computers, timing devices, and other equipment as needed to teach the curriculum.

§112.18. grade 6 (b)-11(A) describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets.

§112.18. grade 6(b)-11) (B) understand that gravity is the force that governs the motion of our solar system.

§112.18. grade 6 (b)-11(C) describe the history and future of space exploration, including the types of equipment and transportation needed for space travel.

§112.19. grade 7 (b)-9(A) analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere.