

Discovery Lab Post-Visit Activities

Space Tech: The Next Generation

Grades 3-5

We hope that you enjoyed your visit to the Orlando Science Center! As a means of enhancing and extending your students' Discovery Lab experience into the classroom, we are providing you with these post-visit materials to share with your class.

Discussion Topics:

- The sun gives off energy in the forms of heat and light. This energy can be converted into other forms of energy, such as electricity. What are different ways we can use solar energy? What are the advantages and disadvantages of using solar energy?
- Our solar system consists of the Sun, the eight planets and their moons, asteroids, meteoroids, and thousands of comets. Compare and contrast the other planets with Earth. How are the four inner planets different from the four outer planets?
- Space technology benefits you every day in a variety of ways. Since 1976, over 1,600 NASA technologies have benefited the United States, helping improving our quality of life. The Space Shuttle Program alone has generated more than 100 technology spin-offs. How might our lives change in the future as space exploration continues and new discoveries are made?

In Class Activities:

- Simulate the reason for the seasons using a globe and flashlight. Select one student to represent the Sun and hold the flashlight. A second student will hold the globe and orbit the Sun. Dim the lights and watch as the beam of light from the sun shines more directly and intensely upon the Northern hemisphere during the summer than it does upon the Southern hemisphere, which is experiencing winter. Why does more sunlight reach one hemisphere? Earth is slightly tilted upon its axis. Summer occurs in the hemisphere tilted towards the Sun, while winter occurs in the hemisphere tilted away from the Sun. The hemisphere that is tilted towards or away from the Sun changes as the Earth orbits the Sun.
- Many of the inventions and materials that we take for granted in our everyday lives came about through basic research originally done to fulfill the needs of the space program. Research some of the new materials and technologies that have been developed for the space program and brainstorm how these new technologies might be used in other areas, such as health and medicine, the home, the environment, public safety, recreation, transportation, computer technology, and industrial productivity. Draw a picture of your invention, design, or new technology application. Then, write a description of your idea that you might use to help convince someone to invest money or time in helping you make the product. Build a model or prototype of your idea. Inventors often use what are normally considered children's building materials, like clay or interlocking blocks, to make their early models.

Math Problem:

Calculate your weight on the other planets in our solar system. Multiply your weight on Earth (in pounds) by the planets' gravitation factor. Use the following information:

Planet	Gravitation Factor
Mercury	0.38
Venus	0.91
Earth	I
Mars	0.38

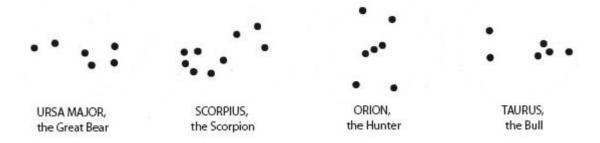
Planet	Gravitation Factor
Jupiter	2.54
Saturn	1.08
Uranus	0.91
Neptune	1.19

Writing Prompt:

Bring in several examples of advertisements found in magazines and newspapers. Read them aloud and pass them around the class. As a class, discuss the advertisements. What kinds of words do the advertisers use? Why do they use these words? They want you to invest in their product or visit their place of business. They are using persuasive language because they are trying to persuade you into buying or visiting. Assign each student a planet to research. Students should find out as much information as they can about this planet, and then write an advertisement for it, trying to persuade people to come visit this planet. Include actual facts, but be creative!

Art Project:

Create your own classroom planetarium by making constellations in a cup. Sketch a constellation of stars on the bottom of a Styrofoam cup. Using the point of a pencil, poke holes through the stars on the bottom of the cup. Make larger holes to represent brighter stars and smaller holes to represent dimmer stars. Darken the room to simulate nighttime. Shine a flashlight into the cup to project your constellation onto the wall or ceiling. The constellation should appear as dots of light (for the best results, you may need to adjust the distance between the cup and the wall). Turn on the lights to simulate daytime. Discuss what happens to the constellations during the daytime.



Additional Resources:

Sun, Moon & Stars by Mary Hoffman & Jane Ray (Dutton Juvenile)

Eyewitness: Space Exploration by Carole Stott (DK Children)

The Ultimate Interactive Atlas of Space (Scholastic Reference)

Earth in Space (Newbridge Educational Publishing)