

Environmental Studies Program
Science Enrichment and Extensions



STARLAB

1. Our Solar System

Read books about our solar system.

- a. Make a picture chart or design your own project of our solar system. Be sure to show where each planet is in relation to the sun. As you draw or design each planet be sure to show some of its unusual characteristics (Mars' reddish color, Jupiter's red spot, and so on).
- b. Read about rotation, axis and revolution. Be able to tell what each means.
- c. Write or be able to tell a sentence about each one of the nine planets.
- d. Name the planets in our solar system.
- e. Define rotation, axis, and revolution. Can you demonstrate what these words mean?

2. Earth's Rotation

Read about how the earth's rotation makes the sun appear to change its position in the sky.

- a. Use a globe with a ball of modeling clay on it to show how the earth spins or rotates on its axis. Use the flashlight on the globe to show how the clay travels from day into night.
- b. Trace your shadow on the side walk (2-3 times) and at least one hour apart. Be sure to include your shoes in the drawing.

- c. Take pictures of each shadow to show the changes in each one of the shadows, or draw pictures to show the changes.
- d. Make a picture chart to record each of the shadows.

- e. Answer these questions: What causes day and night? Why weren't your shadows in the same places they were in earlier? Why does the sun seem to rise, set and move across the sky? Explain why the night sky seems to move across the sky just as the sun does?

3. Stories in the Stars

Read books about some of the stories (myths) that go with the constellations.

- a. Choose 3 or more constellations and make a model of each of them. Here are 2 suggestions of how you can make your models:

*Paper Models: Use black or blue construction paper and gummed stars of varying sizes and colors to show the constellations' designs.

*Clay Stars: Attach different sized modeling clay stars with toothpicks.

- b. Learn several different stories about each of your constellations.
- c. Answer these questions: What stories do you know about each of the constellations you studied? Why did star watching play such an important part in the lives of ancient people?
- d. "Do Your Own Thing" or "A View Of Your Own"
Design your own constellations and create your own stories about them.

4. Exobiology Activity-Design a Creature

Scientists who are investigating the possibility of life on other planets are called exobiologists. These scientists try to determine what life forms might exist on other planets with conditions different from those on Earth. Exobiologists studied the kinds of life that could exist on Mars so that they could design spacecraft like the Viking, that would be able to search for this possible life.

Read about the planets in our solar system. Use any information obtained from planetarium shows or Starlab lessons.

- a. Choose one of the planets in our solar system besides Earth. Make a drawing of it and label its features on the picture. (ex. temperature, air, landforms, gravity)
- b. Create an imaginary being that would be able live on your planet. What special parts or adaptations will your creature have in order to live on this planet? How does it breathe, eat, gather its food, avoid enemies, adjust to temperatures, move, etc.,? Your creature should be made up of at least 4 parts that will help it survive on your planet. Draw or model these parts.
- c. Answer these questions: What characteristics (features) does your planet have? What features or special parts does your creature have in order to survive?

5. Polluting Our Heavens!

There is litter in space and more to come with ongoing space exploration. Old satellites, pieces of exploded rockets, and other particles of junk are orbiting around the Earth. They have

already caused problems for satellites, the space shuttle, and other space-craft.

In 1983 the space shuttle, Challenger's window was dented by what scientists think was a tiny fragment of paint that had worn off of another spacecraft. How could such a thing happen? Well, like all objects in space, this tiny fleck was traveling at a tremendous speed. The tiny particle could have broken the window of the Challenger and the crew would have been faced with a life threatening situation.

Other spacecraft have been hit by orbiting garbage. In 1981 a Soviet satellite suddenly broke apart in space. It is believed that it collided with space junk.

Now aside from this, the space program has had a very positive effect on our lives. Medicine, fabrics, solar energy, and computers are just a few of the areas that have benefited from space explorations.

How would you solve this problem? Be sure to use the scientific process. Here are some steps you'll want to include.

- a. Research the history of space exploration.
- b. Record or graph the possible number of space satellites, space probes, et cetera since 1957 that could possibly be polluting our atmosphere and space.
- c. Clearly state your hypothesis.
- d. Include your solution. Perhaps build a model of it.
- e. What's your recommendation?

6. Create Your Own

Create your own project. Read all of the projects under Starlab. Borrow, combine, let your creativity be your guide.

