

Teachers, please copy both sides of this page for your students to take home.

SPACE ODYSSEY

Dear Students and Parents,

We hope you enjoyed your recent day of science exploration and investigation with Pacific Science Center's *Space Odyssey* van. The Science On Wheels program, which began operating in 1974, is an interactive outreach program that travels to schools across the state of Washington.

The *Space Odyssey* van provides students with hands-on science and astronomy experiences. Students explore an interactive exhibit area and receive a 45-minute hands-on lesson. Our goal is to foster an interest in science, technology and mathematics.

We encourage you to talk about our visit and investigate the activities below. They require few materials and are easy to do. Remember: your child and his or her friends will become our next astronomers. We hope you enjoy doing these activities together!

~Science On Wheels Teachers

Materials

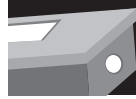
- empty shoe box with lid
- scissors
- push pin
- flashlight
- black construction paper (about the same size as the end of your shoe box, one piece for each constellation)

Some sources include *Glow in the Dark Night Sky Book* by Clint Hatchett and *365 Starry Nights* by Chet Raymo

- Put the lid on the box and turn out the room lights. Place a constellation card in the slit and shine the flashlight through the hole in the "planetarium."
- Slide the flashlight in or out to focus your constellation on the wall or ceiling.

What's going on?

Large planetariums work similarly to yours. In real planetariums, a small light bulb shines through holes in a sphere that projects constellations on a wall. To see a large planetarium in action, visit the Willard Smith Planetarium at Pacific Science Center.

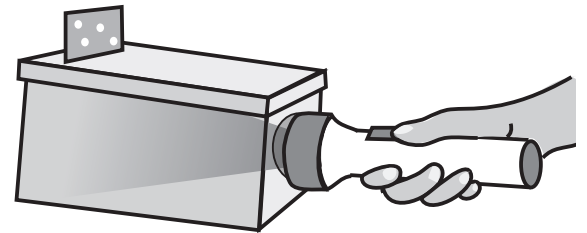


Shoe Box Constellation

Have you ever visited a planetarium? When you go to a planetarium, you can learn more about stars and their positions in the night sky. Build a mini planetarium to use at home.

Procedure

- Cut a square window in one end of the shoe box.
- On the same end, cut a rectangular slit in the lid, large enough to slide the construction paper through.
- On the other end of the box, cut a hole large enough to fit the flashlight through.
- Use the push pin to poke holes into the construction paper in the shape of a constellation. You may need to wiggle the push pin to make the holes slightly larger. Poke a different constellation into each piece of construction paper. Make sure to test the size of your constellation so that it fits through the window.



Remote Control

Astronomers can learn a great deal from looking at starlight, but visible light is only one type of electromagnetic radiation we get from the stars. All forms of electromagnetic radiation travel in waves; each type of radiation has a range of wavelengths.

Astronomers can learn more about the stars by studying all the different types of radiation they give off.

Here's an experiment you can do to learn about infrared light, the wavelengths of which are too long for humans to see. Most TV remote controls use infrared radiation; this is why you cannot see the light when you change channels.

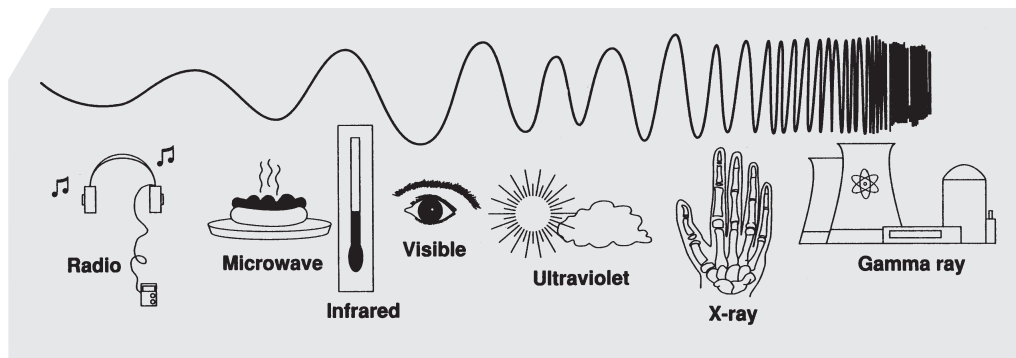
Procedure

- Clear a path between you and the television. Darken the room as much as possible.
- Have a friend stand halfway between you and the TV, directly in front of the TV screen, and try to turn on the TV with your remote control. Then, try shining your flashlight onto the TV screen. Have your friend move to different positions as you continue trying to turn the TV on and shining the flashlight on the TV screen.
- Have your friend blow some cornstarch or baby powder in between you and the TV as you try to turn on the TV through the dust. Shine the flashlight through the dust.
- Hold the glass of water directly in front of the remote control as you try to turn on the TV. Shine the flashlight through the glass of water.
- Hold the remote control in your right hand and position your left hand at different angles relative to the remote control as you try to turn on the television. Where does your left hand interfere with the remote control?

To think about: How is the white light from the flashlight different from the infrared radiation of the remote control? How is it similar?

Materials

- tv set and remote control
- flashlight
- cornstarch or baby powder
- clear glass of water



Astronomy At Your Fingertips

If you have ever wanted to be an astronomer, here are some easy tips on how to start. Ask someone you live with to join you in exploring space.

First

- Go to the library. You can find books on beginning astronomy, which often include star charts for the whole year. There are many monthly astronomy magazines that can guide you, too. If you have access to the Internet, you can find information there.

Then

- With the help of the star charts and an adult, go outside on cloudless nights and learn the sky. It feels great to look up and

be able to point to the Big Dipper!

- Don't feel like you need a telescope! Being an astronomer can be absolutely free, unlike some hobbies. Besides, the more familiar you are with the "naked-eye" sky, the more you might enjoy a telescope (or even binoculars) in the future.
- Find other friends who like astronomy and who would like to explore the nighttime sky with you. Sharing the experience with family and

friends can make astronomy even more fun.

- Keep a journal of your explorations in astronomy. Write down what you find or draw pictures. If you have a star chart that you can write on, circle the things you find and write the date when you find them.
- Have fun!

© 2007 Pacific Science Center
200 Second Avenue North • Seattle, WA 98109

♻️ Printed on 100% post-consumer recycled paper.