A Moon of My Own Activities

A Moon of My Own

Cookie Moon Phases -In this edible activity students create moon phases using chocolate, crème-filled cookies, such as Oreos.

Moon Craters Experiment – Students experiment creating craters using objects of different sizes.

Moon Craters Model – In this art activity, young children create a model of the moon with craters.

Eclipsing the Sun – In this demonstration, students will clearly see how our moon causes a solar eclipse.

Cookie Moon Phases

Introduction

In the book *A Moon of My Own,* children are introduced to the phases of the moon. In this activity, students create moon phases using chocolate, crème-filled cookies, such as Oreos. This is fun follow-up activity to "Creating a Moon Phase Journal" in the back of the book. (Grades K-3)

Materials

- The book *A Moon of My Own*
- Paper plate, 1 per child or group
- Cookies, 4-8 per child or group
- Spoon, 1 per child

Procedure

1. Read aloud *A Moon of My Own*. When finished, go back to the beginning and have children notice how the moon looks on each page, as described in the section titled "Explore More for Kids."
2. Tell children that they are going to create moon phases using cookies, which they can eat at the end of the lesson.
3. Give each student a paper plate, spoon, and cookies. (Students can also work in small groups.)
4. Demonstrate how to carefully open up one of the cookies so that all of the filling stays on one side. Explain that half of this cookie looks like the full moon, and the side without any filling is like the new moon.
5. Have children create the phases of the moon using their spoons to scrape off some of the filling. Younger children may only do 4 phases: new, full, first quarter, and last quarter. Older children may do 8 phases of the moon and label them on their paper plate, using the new vocabulary words of "waxing" and "waning."
6. When finished, review the phases and eat them!

Standards Alignment

Next Generation Science Standards

DCI: 1.ESS1.A: The Universe and its Stars

Crosscutting Concept: Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)

Common Core ELA (K-3)

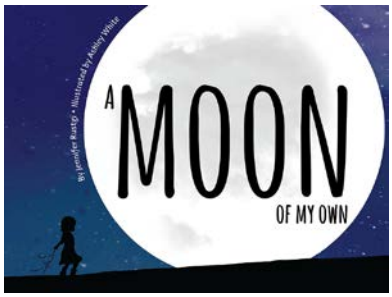
Reading: Informational Text
Integration and Knowledge of Ideas: K.7, 1.7, 2.7, 3.7)

Moon Craters Model

Introduction

In the book *A Moon of My Own*, children see the moon in places from all around the world. In this art activity, children make a model of the moon that shows the moon's craters.

Materials



- The book *A Moon of My Own*
- Paper plate, 1 per student.
- Bottle cap, 1 per student
- Flour and water mixed in a container, enough to "paint" one moon per student

Procedure

1. Teacher Prep(done right before the activity): Draw a large circle on each paper plate. Apply a thick amount of the flour and water mixture to "paint" a moon on each plate. Do not let the mixture dry out before children use it.
2. Read aloud *A Moon of My Own*. When finished, refer to the illustrations and point out the dark places on some of the moon images. Explain that these are craters, which are bowl-shaped areas on the surface of the moon. They were caused by the impact of something hitting the ground, such as meteorites.
3. Give each child a "painted" paper plate moon. Have them use a bottle cap to create craters. Allow the plates to dry completely and make make a "moon crater exhibit."

Standards Alignment

Next Generation Science Standards

DCI: 1.ESS1.A: The Universe and its Stars
Science and Engineering Practices: Planning and Carrying Out Investigations, Developing and Using Models

Common Core ELA (K-3)

Reading: Informational Text
Integration and Knowledge of Ideas: K.7, 1.7, 2.7, 3.7)

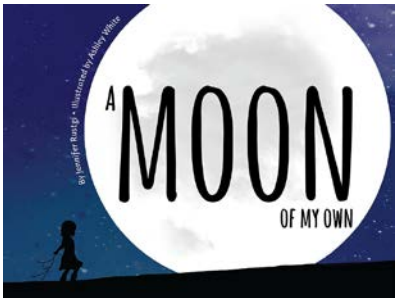
Moon Craters Experiment

Introduction

In the book *A Moon of My Own* children see the moon in places all around the world. In this experiment, students use various objects to create craters. This activity is based on the "Cosmic Craters" lesson from Space Racer's at http://spaceracers.org (Grades 1-6)

Materials

- The book *A Moon of My Own*
- Pie tin
- Flour and cocoa powder
- Objects to drop, such as a small marble, ping pong ball, and tennis ball (1 per group)



Procedure

1. Prep: Fill a pie tin with one inch of flour and cover it with a thin layer of cocoa powder.
2. Read aloud *A Moon of My Own*. When finished, refer to the illustrations and point out the dark places on some of the moon images. Explain that these are craters, which are bowl-shaped areas caused by the impact of something hitting the ground, such as a meteorite or other object.
3. Refer to the "Cosmic Craters" lesson from Space Racers to have student groups experiment with creating craters by dropping various sizes of objects into a pie plate filled with flour and cocoa powder. Refer to the following pdf for additional ideas. http://spaceracers.org/pdf/cosmic-craters-lesson-plan.pdf.
4. Have students make predictions about what will happen before dropping their objects, and if time allows, also drop the objects from different heights. Older children can measure and record their findings.
5. Discuss the findings from all groups and have students write a conclusion for the experiment. .

Standards Alignment

Next Generation Science Standards

DCI: 1.ESS1.A: The Universe and its Stars

Science and Engineering Practices: Planning and Carrying Out Investigations

Common Core ELA (K-3)

Reading: Informational Text
Integration and Knowledge of Ideas:
K.7, 1.7, 2.7, 3.7)

Sun-Earth Day Engagement Activity

'Eclipsing the Sun'

BENCHMARKS:

For grades K-12:

Concepts from physics and chemistry, insights from history, mathematical ways of thinking, and ideas about the role of technology in exploring the universe all contribute to a grasp of the character of the cosmos. In particular, the role of gravity in forming and maintaining planets, stars, and the solar system should become clear. The scale of billions will make better sense, and the speed of light can be used to express relative distances conveniently. *The final goal is for all of the pieces to come together.*

By the end of SECOND grade:

The sun can be seen only in the daytime, but the moon can be seen sometimes at night and sometimes during the day. The sun, moon, and stars all appear to move slowly across the sky.

By the end of FIFTH grade:

The earth is one of several planets that orbit the sun, and the moon orbits around the earth.

By the end of EIGHTH grade:

The sun is many thousands of times closer to the earth than any other star. Light from the sun takes a few minutes to reach the earth, but light from the next nearest star takes a few years to arrive. The trip to that star would take the fastest rocket thousands of years. Some distant galaxies are so far away that their light takes several billion years to reach the earth. People on earth, therefore, see them as they were that long ago in the past.

Nine planets of very different size, composition, and surface features move around the sun in nearly circular orbits. Some planets have a great variety of moons and even flat rings of rock and ice particles orbiting around them. Some of these planets and moons show evidence of geologic activity. The earth is orbited by one moon, many artificial satellites, and debris.

PREPARING FOR THE ACTIVITY:

Background Note:

Some experiences with how apparent positions of objects differ from different points of observation will make plausible the estimation of distances to the moon and sun. Finding distances by triangulation and scale drawings will help students to understand how the distances to the moon and sun were estimated and why the stars must be very much farther away.

Opening Discussion:

From a total solar eclipse it becomes evident that the Sun's influences do not stop at the surface. Scientists use the solar eclipse to get a closer look at the outer atmosphere of the Sun. We begin by having students understand how an eclipse occurs. *Why do we want to learn about the corona? One of the biggest mysteries about the Sun is "Why is the corona so hot?"*

Materials: *(This model is not to scale.)*

- **3 inflatable balls**
  - **Sun - 36 inch diameter**
    - (825,800 miles in diameter, 1,329,000 kilometers)
  - **Earth - 12 inch diameter**
    - (7,926 miles in diameter, 12,756 km)
  - **Moon - 8 inch diameter**
    - (2,160 miles in diameter, 3476 km)
  - **Flashlight**

THE ACTIVITY:

Activity Setup:

- Do the activity in a darkened room.
- This activity works very well in small groups of 4.
- Prior to breaking up into small groups, a brief demonstration of the activity might be necessary so that students will know what they are looking for: the moon's shadow moving across the Earth.
- One student will act as the Sun (Sun ball)
- One student will act as the Earth (Earth ball)
- One student will act as the Moon (Moon ball)
- One student will act as the light from the Sun (Flashlight)

Engagement Discussion Topics:

Ask your students why we can not use a scale model. Have them determine how large the scale model would have to be if the Earth had a 12-inch diameter.

Find out what the students know about the Sun, Earth and Moon. You can use the balls to engage them by throwing the balls to different students and having them respond with a new fact, or just have a classroom discussion and list the known facts.

The Demo:

Begin the demo by having the student with the flashlight to stand next to the Sun ball and to point the light in the direction of the earth ball.

Ask the student with the Moon ball to begin revolving around the Earth ball.

Watch the shadow effect as the moon moves between the Earth and the Sun. Ask the class to state what they see happening.

Break up into groups of 4 and repeat the activity.

Extend:

Could you see an Earth eclipse from the Moon? Show what that would look like. Imagine the size of the shadow!!