

~ LPI EDUCATION/PUBLIC OUTREACH SCIENCE ACTIVITIES ~

OREO PHASES

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Ages:
K-6th grade

Duration:
25 minutes

Materials for each student:

- 6 Oreo® cookies
- Paper towels
- A plastic spoon and/or a plastic knife for each student or group of students
- Student Handout

OVERVIEW —

Students will recreate the lunar phases using the frosting from Oreo® cookies. Round cream cheese crackers can also be used if cookies are not an option.

OBJECTIVE —

The students will:

- Accurately model the shape of the Moon's phases using Oreo® cookies.
- Place the phases in order.

BEFORE YOU START: This activity is not meant to model why the Moon has phases, only to assist in connecting the names and shapes, and to help the students remember the order. Attempts to model the three-dimensional nature of Moon phases with these two dimensions may lead to confusion.

ACTIVITY —

1. Invite the students to describe what the Moon looks like, and how it changes shapes.
2. Explain to the students that they will be using Oreo® cookies to draw the phases and to put them into order. Demonstrate how to twist and open a cookie so that the frosting is all on one side.
 - Which side looks like the Full Moon? Which side looks like the New Moon?
3. Pass out 6 cookies, a paper towel, a plastic spoon or knife, and a copy of the student handout to each student.. Each cookie should be able to make two Moon phases, but some will break, and some of the frosting will go "missing."
4. Invite the students to twist their cookies open and scrape the Oreo® cookies to illustrate Moon phases, and ask them to arrange cookies on the poster in order.
5. Check on the students' progress and invite them to clean up by eating their work!

EXTENSIONS —

1. Classrooms that enjoy singing might want to try "Phrases for Phases" or "When the light is on the right" (sung to the tune of "If you're happy and you know it"):
When the light is on the right it's getting bright (snap, snap)
When the light is on the right it's getting bright (snap, snap)
When the light is on the right,
Then the Moon is getting bright
When the light is on the right it's getting bright (snap, snap)
2. Conduct a Moon phases observing activity, in which the students record their Moon observations.

BACKGROUND —

Although there are other activities that place the phases in a circular formation, this may confuse students if they attempt to conceptualize the location of the Sun or Earth in relation to the Moon's orbit. We recommend that students first learn to correctly match the names with the appearances of each phase, and to place them in order.

For very young students, you may want to model only 4 Moon phases (New Moon, First Quarter Moon, Full Moon, and Third Quarter Moon). Older students should be able to model all 8 phases.

The Moon's phases are a natural example of a recurring predictable cycle. They have been used as a calendar by many different cultures throughout history.

TIES TO STANDARDS —

Connections to the National Science Standard(s)

Content Standard D Earth and Space Science, (grades 5—8): Most objects in the solar system are in regular and predictable motion. Those motions explain such phenomena as the day, the year, phases of the moon, and eclipses.

Texas TEKS

Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:

- (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;
- (B) use models to represent aspects of the natural world such as a model of Earth's layers;
- (C) identify advantages and limitations of models such as size, scale, properties, and materials;

1st grade Science Concept Standards (TEKS)

- 8 Earth and space. The student knows that the natural world includes the air around us and objects in the sky. The student is expected to:
- (B) observe and record changes in the appearance of objects in the sky such as clouds, the Moon, and stars, including the Sun;

2nd grade Science Concept Standards (TEKS)

- 8 Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:
- (D) observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.

3rd grade Science Concept Standards (TEKS)

- 8 Earth and space. The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to: (C) construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions...

5th grade Science Concept Standards (TEKS)

- (8) Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to: (D) identify and compare the physical characteristics of the Sun, Earth, and Moon.

Oreo Phases Student Handout

1



New Moon

Completely (or almost completely) dark.

2



Waxing Crescent

A sliver of light on the right.

3



First Quarter (or Half) Moon

The right half of the Moon is light.

4



Waxing Gibbous

Over half of the right side of the Moon is light.

5



Full Moon

The entire Moon is bright.

6



Waning Gibbous

Over half of the left side of the Moon is light.

7



Third Quarter (also Half) Moon

The left half of the Moon is now light.

8



Waning Crescent

A sliver of light now appears on the left side.