

## Moon and Stars (3-4<sup>th</sup> grades) Pre-Visit Activities

### Vocabulary List and Student Definitions (elementary level):

- **Sun-** the closest star to earth, our sun is a medium sized yellow star.
- **Star-** a huge ball of glowing gas, made mostly of hydrogen and helium. From Earth, stars look like a point of light.
- **Constellations-** a large group of stars which form a pattern in the night sky.
- **Moon-** a natural satellite which orbits a planet.
- **Moon Phases-** the visible change in the reflection of light off the moon which causes the moon to appear to change shape.
- **Axis-** the line which the earth rotates around. Earth's axis is slightly tilted (23.5 degrees).
- **Planets-** a massive sphere which orbits a star.

### Teacher Background and Supporting Information

#### 1. Our Sun:

- a. The closest star to earth, the sun is the center of our solar system.
- b. The sun is a medium sized, yellow star which provides energy to our earth in the form of light and heat.
- c. Our sun is made of mainly two types of gases, Hydrogen and Helium.
- d. 8 planets revolve around the sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. Pluto is a dwarf planet because it is much smaller than the other planets of our solar system.

#### 2. Stars in our Universe:

- a. Stars are all different sizes, and can be much smaller, or much larger than our sun. From earth, all stars except our sun look like points of light.
- b. Stars seen from earth have been used for telling stories and making patterns and pictures in the sky. These pictures and patterns are called constellations.
- c. Certain constellations are better visible during certain times of the year based on where earth is located during its revolution around the sun.

#### 3. Our Moon:

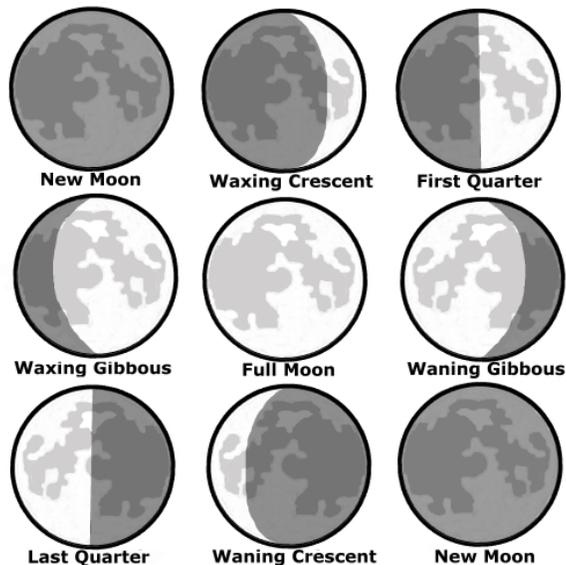
- a. The moon is the earth's only natural satellite, meaning it is not manmade, and orbits earth due to the force of gravity.
- b. We only see one side of the moon because the moons revolution around the earth is perfectly in sync with earth rotation.
- c. The surface of the moon has many craters.

#### 4. Phases of our Moon:

- a. Our moon does not generate light like a star, it reflects light from the sun.
- b. Throughout a 29 ½ day cycle, our moon appears to change shape. This is called the phases of the moon.
- c. Starting with "new moon" the moon begins to "wax", reach the "full moon" and then "wane" back into the "new moon".

## Student Activities

1. Incredible edible moon:
  - a. Create a model of the moon's phases using Oreo cookies. Each student will need a total of 4 Oreo cookies, which will be pulled apart, creating 8 models of the moon. Each student will also need a paper plate, and an optional spoonful of frosting (to function as an adhesive). Encourage students not to eat any of their cookie cream, but rather scrape it off each cookie and save it for the parts in the project which they may need extra.
  - b. Give each student their supplies, and allow them to pull the Oreos apart. Begin by choosing one cookie to be the "new moon", one which is nearly completely dark. Place this cookie on the plate at the top in a "12:00" position. Use the frosting as an adhesive by applying a small amount to the back of the cookie, and laying it down on the plate.
  - c. In a clockwise pattern, use the next three cookies to create a waxing moon. The waxing crescent moon should have a small amount of cream on the right side of the cookie; the first quarter moon should have cream on the right side half of the cookie, and the waxing gibbous should be covered in cream leaving out a small sliver on the left side.
  - d. The fifth cookie should be the full moon, and entirely covered in cream. The last three cookies should show a waning moon. The waxing gibbous moon should be mostly covered in cream on the left side of the cookie, leaving a small sliver on the right; the third quarter moon should have cream on the left half of the cookie; and the waning crescent should have a small sliver of cream on the left side of the cookie.
  - e. Allow students to take their edible phases of the moon home, or have an in class Oreo eating party!



2. Read aloud Spots of Light: A Book About Stars by Dana Meachen Rau  
When I Heard the Learn'd Astronomer by Walt Whitman