



# Orbit and Rotation Family Activity



## INTRODUCTION

Have you ever wondered where the Sun goes when nighttime comes? Why it can be night and day in two different places on Earth? Or why the Moon seems to change shape? It is all because of rotation and orbits!

### What are Revolutions and Orbits?

An orbit is a regular, curved path that one object in space takes around another one. The Earth takes 365.25 days to complete one revolution (completion of an orbit). Sound familiar? That is right, that's roughly how many days there are in a year! The extra .25 of a day is made up every 4 years when we add an extra day in February. That year is called a Leap Year. Not only does the Earth rotate around the Sun, but in a similar fashion, the Moon orbits around the Earth. The Moon completes one revolution in about 28 days. While this might be a little shorter than our current months, the orbit of the Moon and its phases were used in ancient times to create the calendar month.

### What is a Rotation?

Not only does the Earth revolve and orbit around the Sun, but it also moves around itself like a spinning top. The Earth has an invisible line that runs down the center of the Earth called an axis. The Earth completes one rotation on its axis every day.

### What is a Moon Phase?

The Moon does not light up in the same way the Sun does. The light that we see coming from the Moon each night is light that is coming from the Sun and is reflected by the Moon. Have you ever noticed how sometimes the Moon looks like a big, bright circle, but on other nights, it is barely visible? That is due to the Moon's orbit around Earth. One half of the Moon is lit up at all times. However, depending on the location of the Moon in its orbit, we only see certain parts of the Moon being lit up at different times. These different views of the Moon are called Moon Phases. It takes about 29 days for the Moon to complete its phase cycle. That is one day longer than the time that it takes to complete one revolution around Earth.

## MATERIALS

- Orbit and Rotation Worksheet (page 3 and 4)
- Scissors
- Coloring materials
- Two paper fasteners/brads

## INSTRUCTIONS

1. Color the Earth, Moon, and Sun.
2. Color the part that says "NIGHT" black.
3. Using scissors, cut along the dashed lines. DO NOT cut any solid lines.
4. Place the Moon Phases cutout on top of the Sun cutout so that the X3 is on top of the X1 label.
5. Push a paper fastener through X3 and X1. Fasten on the opposite side.

## **INSTRUCTIONS**

6. Place the Moon and Earth cutout on top of the Moon Phases cutout so that the X4 is on top of the X2 label.
7. Push a paper fastener through X4 and X2. Fasten on the opposite side.
8. Use the cutout to explore rotation and orbit of the Earth and Moon. Use some of the provided questions to guide your exploration.
9. For an extra activity, color in the Moon Phases.

## **QUESTIONS**

- How do the Sun and Earth interact to influence the Earth's patterns of night and day?
- How can it be night and day in two different places on Earth?
- What patterns in the sky can be explained by the rotation and orbits of the Earth and Moon around the Sun?
- Why does the Moon seem to change shape?



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