

# Earth & Moon Orbits

## Summary

The students will be able to describe the movement of Earth and the moon and the apparent movement of other bodies through the sky.

## Materials

- Journals
- Hole punch
- Colored pencils
- Scissors
- Black line for [Earth, Moon Orbits](#) (pdf)
- Copy black line for *Earth, Moon Orbits* on white cardstock

## Books:

- *Earth: Our Planet in Space*  
, by Seymour Simon; ISBN 0689835620
- *The Moon*  
, by Seymour Simon; ISBN 0689835639
- *The Sun*  
, by Seymour Simon; ISBN 0688092365
- *The Librarian Who Measured the Earth*  
, by Kathryn Lasky; ISBN 03290444403
- *Don't Know Much About Space*  
, by Kenneth C. Davis; ISBN 0439438500
- *Eyewitness Books: Astronomy*  
, by Kirsten Lippincott; ISBN 075660656X
- *Space: A Nonfiction Companion to Midnight on the Moon*  
, (Magic Treehouse Research Guide Series) by Mary Pope Osborne; ISBN 037581356X
- *If You Decide to Go to the Moon*  
, by Faith McNulty; ISBN 0545000858

## Media:

- *Sun Dagger*  
Video, by Bullfrog Films ([info@bullfrogfilms.com](mailto:info@bullfrogfilms.com)); ISBN (DVD) 1594580898

## Background for Teachers

The Earth has just one moon. It is about 239,000 miles away from the Earth. The moon is  $\frac{1}{4}$  the size of the Earth and it doesn't make any light. The moon reflects the sun's light, like a mirror. The sun shines on the moon, and its light reflects off the moon's rocks and dust. The Earth's moon makes one orbit around the Earth one time a month, (every 28 days). The same side of the moon points toward Earth all the time. We see the moon in different shapes at different times. This is called the "phases of the moon." The different phases have to do with the position of the moon and sun.

The Earth rotates on its axis one complete turn in a 24 hour period (1 day). This causes the earth to have night and day. As the earth is spinning, it also rotates around the sun. It takes the Earth 365 days, or 1 year, to complete one revolution around the sun.

## Intended Learning Outcomes

2. Manifest scientific attitudes and interests.

3. Understand science concepts and principles.
4. Communicate effectively using science language and reasoning.

### Instructional Procedures

#### Invitation to Learn:

Read and share the book, *Earth: Our Planet in Space* by Seymour Simon, and have students make predictions along the way.

#### Instructional Procedures:

The Earth orbits the sun and the moon orbits the Earth.

Write on board or hold up a sign that says, "The Earth orbits the sun and the moon orbits the Earth." Explain to students that this is what they will be learning about in this lesson.

Ask the students the following question: What are the characteristics of the earth and moon?

Divide students into groups and have them discuss with each other what they think the characteristics of the earth and moon are. Have them share and write them on the board. (Earth and the Moon are spheres, they are heavenly bodies, both are in space, both rotate around something else etc.) Have students write the characteristics of the Earth and moon in their journals.

Ask students the following question: How do the Earth and moon receive light? In their groups, have students discuss with each other how they think the Earth and moon receive their light. Have each group share with the whole class their ideas. The Earth receives its light from the sun. The Earth rotates on its axis. It rotates one complete rotation in a 24 hour period (1 day).

The Earth also rotates around the sun. When the Earth rotates around the sun it is called a revolution. It takes the Earth 365 days (1 year) to complete one revolution around the sun. Have students write these facts about the Earth in their journals.

The moon receives its light from the sun. The moon reflects the sun's light, like a mirror. The sun shines on the moon, and its light reflects off the moon's rocks and dust. The Earth's moon makes one orbit around the Earth one time a month, (every 28 days). The same side of the moon points toward Earth all the time. Have students write these facts about the Moon in their journals. (These facts may be brought up when students are discussing them in their groups; if not, make sure that they understand these facts about the Earth and Moon.)

Ask students the following question: What causes day and night? In their groups, have students discuss with each other what causes day and night. Have each group share its ideas with the whole class their ideas. Day and Night are caused by the Earth's rotation. The Earth rotates one complete rotation in a 24 hour period (1 day) this is what causes day and night. To show this, shine a flashlight on an Earth model. Then slowly spin the earth. Show the dark side (night) and the light side (day). As the Earth spins, students can see how night and day change on the Earth. Draw a representation and have students explain in their journals. These facts may be brought up when students are discussing in their groups; if not make sure that they understand these facts about day and night.

Ask students the following question: How would your life be different without night and day? In their groups, have students discuss with each other how their lives would be different without night and day. Have students write their ideas in their journals, and then have each group share with the whole class how their lives would change.

As a whole class, discuss how students could draw a model of the Earth, moon and sun in their journals.

Out of the three which one is the largest? (Sun)

Out of the three, which one is the smallest? (moon)

Draw a model on the board that shows the sun, earth and moon.

The moon rotates around the Earth and the Earth rotates around the sun. Have students draw

the model in their journals and label the following:

Sun, Earth, moon

Rotation (spinning)

Revolution (orbit)

Lesson and Activity Time Schedule:

Each lesson is 55 minutes.

Each activity is 30 minutes.

Total lesson and activity time is 90 minutes.

Activity Connected to Lesson:

Earth, Moon Orbits activity see black line.

### Extensions

Students can use their bodies to represent the earth, moon and sun. Divide students into groups of three. Have one student be the sun and hold a picture of the sun. Another student can be the Earth and hold a picture of the Earth. The third student can hold a picture of the moon. The sun stays in one place while the Earth rotates on its axis and also revolves around the sun. The moon would then revolve around the Earth, making sure that the same side of the moon is always facing

Advanced learners could be given a special project to report on another planet and what similarities and differences it has regarding our Earth's rotation of the sun.

Students could draw and color a model of the Earth, moon and sun to represent the rotation and revolution.

Use literature to give students a better understanding of what is happening in space. Listed in materials are some resources you can use. When you share a book with the students, have them write a letter to the author asking his/her a question about the book.

Pair learners with special needs or English Language Learners with classmates of different abilities.

Allow students with special needs to dictate journal activities to a partner.

Family Connections:

Make a model of our solar system at home. We have been studying about the earth, moon and sun, so expand on that at home and learn more about other planets in our solar system.

Invite parents to help the student notice other places in life where there is an axis (like an axel on a wheel) and something rotates around it (the tire).

Find out more information about the moon, earth and sun and share a report with the class.

### Assessment Plan

Informal assessment can be used when students are discussing in their groups.

Students can hand in their journals, and their journals can be assessed.

Students could take a quiz on the items learned.

Teacher could orally assess students by asking them questions about what was discussed in the lesson.

### Authors

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