

# The Moving Earth: Seasons

## Purpose

The purpose of these activities is to learn about the movement of the Earth in space and the four seasons, which occur due to the tilt of the Earth's axis and the orbit of the Earth around the Sun.

Students will be able to

1. Define key terms related to the movement of the Earth.
2. Understand and demonstrate the movement of the Earth in relation to the Sun and Moon.
3. Understand and describe how the four seasons are produced.
4. Communicate creatively about the seasons.

## Important Vocabulary (key terms in bold)

Earth	<b>rotate</b>	<b>revolution</b>	<b>orbit</b>
<b>axis</b>	<b>tilt</b>	<b>ellipse</b>	eccentricity
aphelion	perihelion	<b>equinox</b>	<b>solstice</b>
<b>seasons</b>	hemisphere	equator	weather
climate			

## Earth on the Move

Students theorize as to the movement of the Earth as a lead-in to a discussion of orbits. Students define key terms related to the movement of Earth, to keep as a reference for themselves as the lesson progresses.

(Note: this activity should be completed in conjunction with another, more in-depth lesson on the movement of the Earth.)

*(\*\* See below for printable activity sheet.)*

## Seasons Change

Students discuss the four seasons, and define related terms. Then students listen to "The Four Seasons" by Vivaldi, and write poems about the seasons, inspired by the music. (Note: this activity should be completed in conjunction with another, more in-depth lesson on the seasons.)

*(\*\* See below for printable activity sheet.)*

## Helpful Internet Resources

The following websites contain background information about the movement of the Earth and the seasons, as well as some activity ideas that will be useful in explaining/clarifying concepts touched on in this lesson.

1. <http://www.enchantedlearning.com/subjects/astronomy/planets/earth/index.shtml>
2. <http://lunar.arc.nasa.gov/education/activities/active20a.htm>
3. <http://education.arm.gov/lessons/2act1.1.html>
4. <http://www-istp.gsfc.nasa.gov/stargaze/Sseason.htm>
5. <http://solar.physics.montana.edu/YPOP/Classroom/Lessons/Sundials/summer.html>
6. <http://solar.physics.montana.edu/YPOP/Classroom/Lessons/Sundials/winter.html>
7. <http://solar.physics.montana.edu/YPOP/Classroom/Lessons/Sundials/equinox.html>
8. <http://www.peabody.yale.edu/education/curric/MPsci/MPsciIIAL4.pdf>
9. <http://aa.usno.navy.mil/data/docs/EarthSeasons.html>
10. <http://csep10.phys.utk.edu/astr161/lect/history/kepler.html>

# Earth on the Move

Directions: Define the following terms that relate to the movement of the Earth. Use the internet, a dictionary, the glossary of your science textbook, or a space science reference book.

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**1. rotation**

**2. revolution**

**3. orbit**

**4. ellipse**

**5. axis**

# Seasons Change

Put the letter of the correct definition next to each term.

1. solstice \_\_\_\_\_ a. one of four natural divisions of the year (spring, summer, fall, and winter), characterized by specific meteorological or climatic conditions
2. season \_\_\_\_\_ b. either of two times during a year when the sun crosses the celestial equator, causing the length of day and night to be approximately equal
3. equinox \_\_\_\_\_ c. either of two times of the year when the sun is at its greatest distance from the celestial equator, resulting in either the longest or shortest day of the year

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• **THINK!**

What would happen to the Earth with regard to seasons, if the Earth's axis was not tilted?

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