



Kinesthetic Astronomy

Grades 3 – 9

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Objectives

Students will be able to explain the relationship between the earth and the Sun.

Students will be able to model the movement of the earth around the sun.

Students will be able to define Solstice and Equinox.

AAAS Standards

Science

Grades 3 – 5, The Universe: By the end of 5th grade students should know that planets change their position against a background of stars. Earth is one of several planets that orbit the sun, and the moon orbits the earth.

Grades 6 – 8, The Earth: By the end of 8th grade students should know that because the earth turns daily on an axis that is tilted relative to the earth's yearly orbit around the sun, sunlight falls more intensely on different parts of the earth during the year.

Vocabulary

Solstice

Equinox

Rotation

Revolution

Orbit

Materials

Signs for each month

Object to represent the sun

Globe(s)

“East” and “West” popsicle sticks

Flashlight

Object or sign to represent Polaris

Optional: Zodiac constellation signs

Solar Pizza

Reproducible for educational purposes only.

NASA Solar Dynamics Observatory 2008

<http://sdo.gsfc.nasa.gov/epo/educators/resources.php>

Content

Predict: (Engagement and assessing prior knowledge)

What is a year?

Draw how the earth moves around the sun.

ASK: We have a summer solstice, where the northern hemisphere gets the most hours of daylight, and when summer officially starts. Which solstice is the summer solstice? Which month do you think this occurs in? Where is the winter solstice? You may want to take this opportunity to talk about what causes seasons. Use the flashlight at this point to illustrate which hemisphere is getting the most direct sunlight. INSTRUCT students to find the spot around earth's orbit where their birthday would be located. Remind them that the earth rotates counterclockwise and where they decided that the summer solstice was located.

Optional

