

## AFTERSCHOOL TRAINING TOOLKIT

### Integrating Science Across the Curriculum

#### Exploring Earthquakes: Earth Foldable

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##### Description:

This 3-D graphic organizer, called a foldable, is a powerful learning tool to help students visualize complex information about the Earth, including what scientists think a cross-section of the Earth looks like, time on Earth, the reason for the seasons, and Earth's place in the solar system. This foldable is a natural extension of *The Restless Earth* and *The Magic School Bus Inside the Earth*. This foldable will take more than one 45-minute session to complete, and can be done in conjunction with a Webquest about the Earth. (To find interesting Web sites see the Toolkit Resources and References.) Students should complete a vocabulary foldable prior to attempting this more complex foldable.

Download, print, and copy the instructions and foldables. Read the instructions on page 4 carefully before you begin, and then create a foldable as a model for the students to follow.

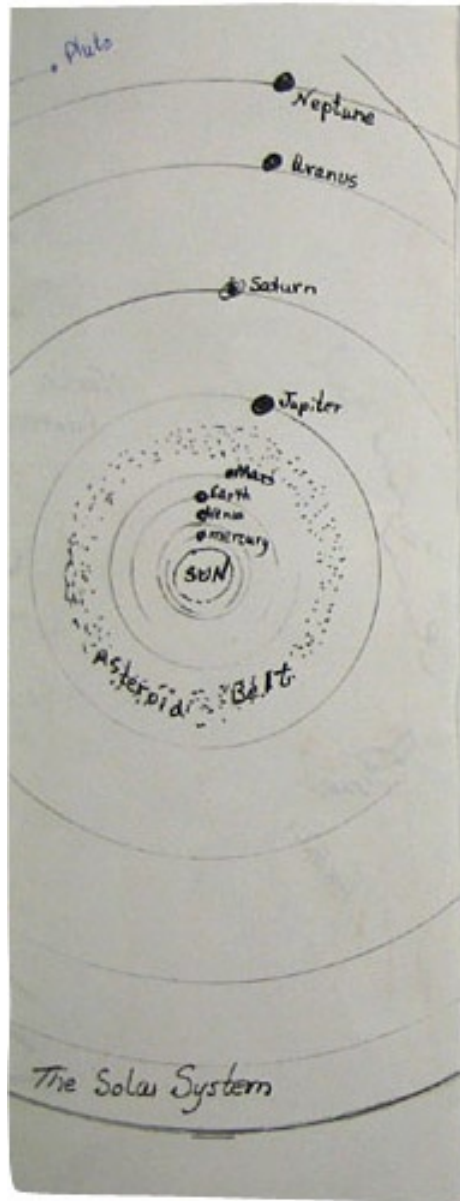
Allow students to personalize their foldables by

- coloring and labeling the oceans and continents;
- drawing, coloring, and labeling the sun, planets, and asteroid belt;
- coloring the crust, mantle, outer core, and inner core of the Earth; and
- creating a time and seasons vocabulary foldable with personalized definitions and illustrations for the day, month, year, and seasons.

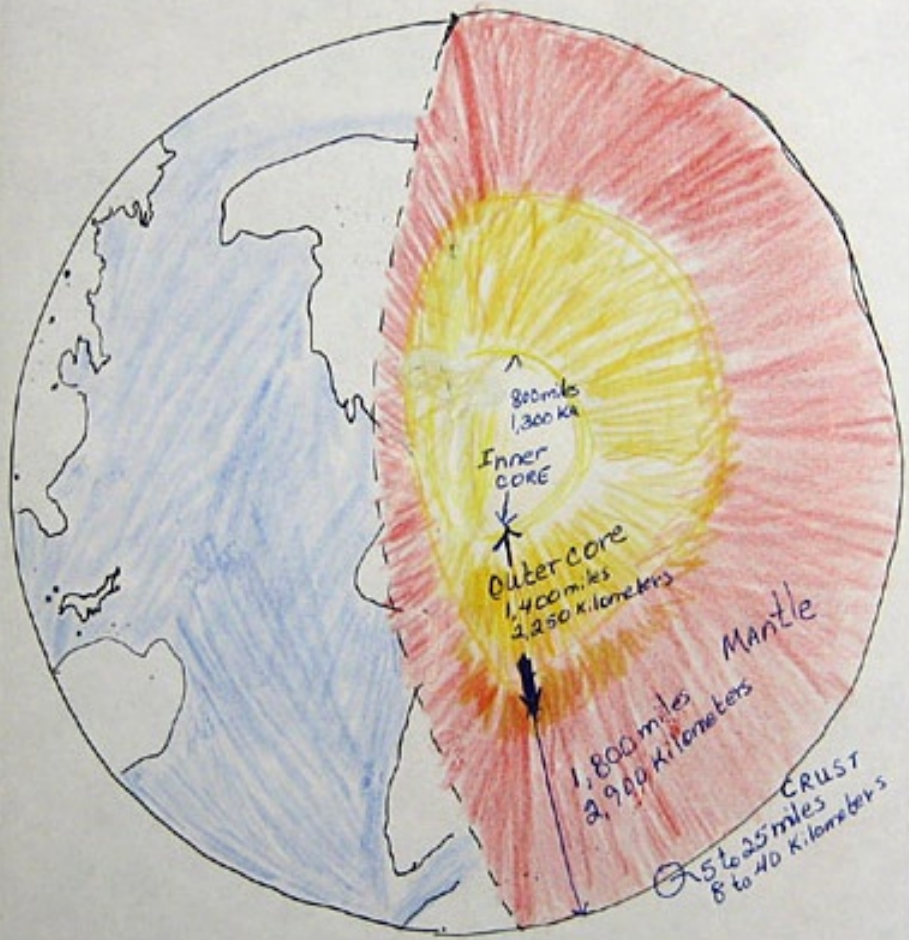
The 3-D graphic organizers (called "foldables") presented in this lesson were adapted from the work of Dinah Zike.



Outside front.



# Inside the Earth



# Time And Seasons on Earth

day

month

year

seasons

Inside, small flaps closed.

The Solar System

### Inside the Earth

### Time and Seasons on Earth

**A day** is the time it takes for the Earth to spin (rotate) on its axis one time - day & night.

The word **Month** comes from the word moon - a month is roughly one full lunar cycle. The moon actually goes through a cycle from new moon to new moon in 29.53 days. A month is 1/12th of a year and can be 28, 29, 30, or 31 days.

One year is the time for the Earth to revolve around the Sun one time.

The 4 seasons - spring, summer, fall, & winter - are caused by the tilt of the Earth on its axis (23°) and the movement of the Earth around the Sun. When it's winter in the Northern hemisphere, it's summer in the Southern hemisphere.

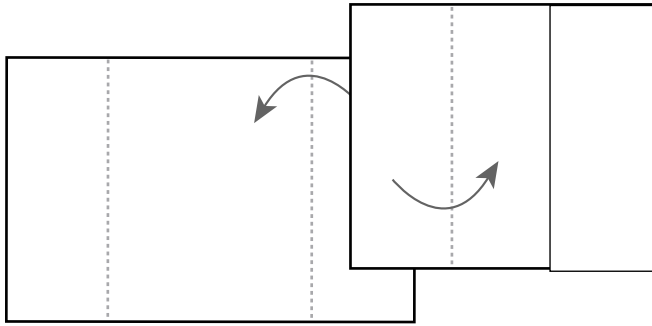
Earth spins on its Axis (Rotates)

**The Month Part**  
 Thirty days hath September, April, June, and November  
 February has twenty-eight alone.  
 All the rest have thirty-one,  
 Except in leap year, that's the time  
 when February has twenty-nine.

Earth revolves around the Sun.

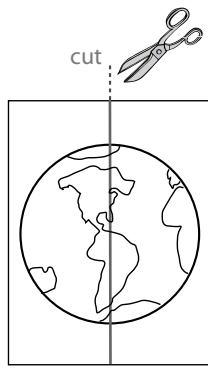
- Vernal Equinox March 20-21
- Summer Solstice June 21 or 22
- Autumnal Equinox Sept. 22 or 23
- Winter Solstice Dec 21 or 22

Inside, small flaps opened.



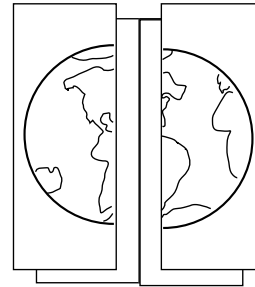
**Step 1.**

Fold an 11" x 17" piece of paper from each outside edge into the middle.



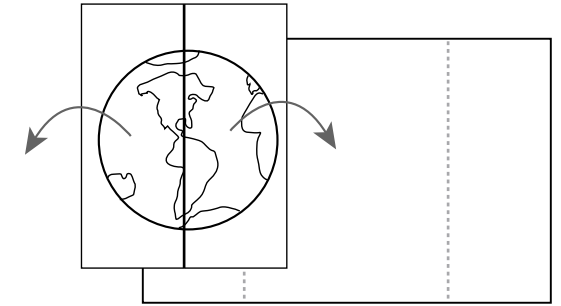
**Step 2.**

Print out page 5 onto an 8-1/2" x 11" piece of paper. Cut in half lengthwise.



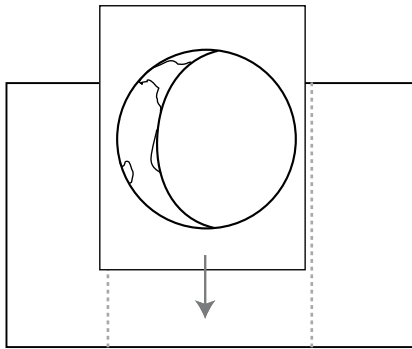
**Step 3.**

Glue the two halves of the Earth from Step 2



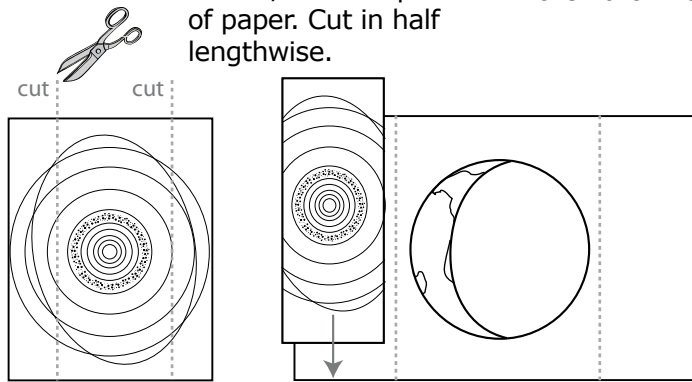
**Step 4.**

Open the 11" x 17" paper.



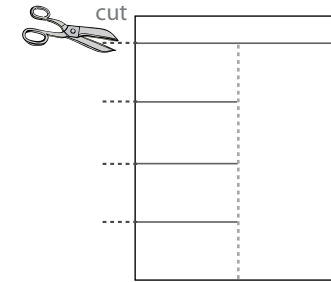
**Step 5.**

Glue page 6 to the middle section of the 11" x 17" paper.



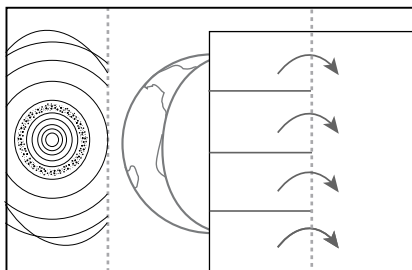
**Step 6.**

Cut page 7 where indicated and glue to the left flap of the 11" x 17" paper.



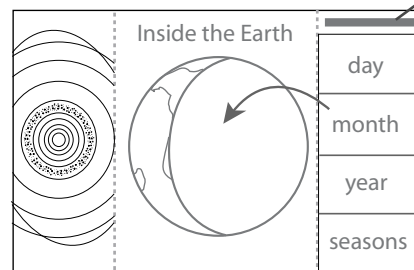
**Step 7.**

Trim 1/2" off the top of a new 8-1/2" x 11" page. Fold lengthwise. Cut left half into four even horizontal sections.



**Step 8.**

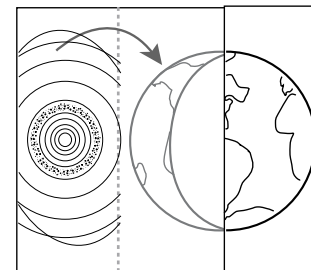
Glue right half of page onto right side of 11" x 17" spread. Match up the bottom right corner for positioning.



**Step 9.**

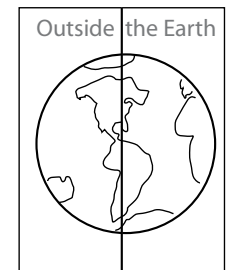
Fold over flaps and label.

4



**Step 10.**

To close, fold left and right flaps into the middle.



Outside view.

