

Earth Pie: A Scale Model of Earth, Its Internal Structure, and Chemistry

Geology Mr. Traeger

Name: _____ Period: _____ Date: _____

Partner's Name: _____

Purpose

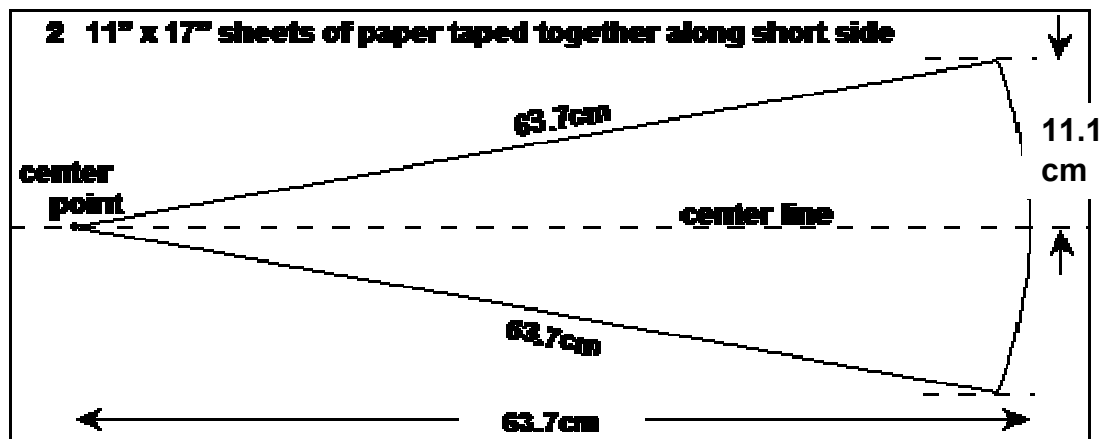
This activity is intended to give a comprehensive introduction to the internal structure and chemistry of planet Earth. Students will draw a portion of Earth's structure to 1:10,000,000 scale and will label the structure and chemistry of each layer. Modeled after [Earth's Interior Structure Activity](#) from Professor Larry Braile of Purdue University.

Materials

- Butcher Paper
- Loop of String 70 cm long
- Geology textbook pages 11-14
- Pencil
- Colored Pencils
- Meter Stick
- Earth Science textbook pages 70-74

Procedure

1. Get together in groups of 2. There needs to be 18 slices total, so this works out to 2 per group.
2. Obtain a piece of butcher paper 70 cm long. Divide this sheet in half width-wise and give the other half to another group to conserve resources.
3. Draw a centerline through the paper lengthwise. See diagram below.



4. Obtain a piece of string around 70 cm long. Tie one end in a loop. You will use this string to draw arcs for your piece of the Earth.
5. Use the table on the back to calculate the radius for each of your Earth layers on the drawing knowing that the scale should be 1:10,000,000. Draw the scale radii in centimeters in the margin next to the radii in kilometers. (7 points)
6. It works best to measure from the center of your string each time to draw in the boundary for each layer. Measure the appropriate length on your string from where you hold the end at the center point to where the end of your loop is. Hold your finger at the center point and put your pencil in the loop. Draw the appropriate arcs on your paper with the string. (6 points)
7. Cut out your wedge so that it looks like a piece of pie.
8. Label the name of each **layer** and **boundary** on your drawing. Write in the radii of each layer and boundary in kilometers from Earth's center. (7 points)
9. Label the type of chemical material that is within each layer. Also indicate whether this material is solid or liquid. (7 points)
10. Label the density of each layer in units of grams per cubic centimeters (g/cm^3). (5 points)
11. Label the average seismic velocity in kilometers per second (km/s) as the wave travels through each layer. Then draw what a P wave front and an S wave front would look like traveling through each layer. (5 points)
12. Use *The Interior of the Earth* handout to add some basic information to your drawing about each layer/boundary. (6 points)
13. Use your artistic ability to make this drawing unique. Use color, symbols, and your imagination to make this drawing look its best. Your drawing will go next to the other 17 drawings in the class to complete the internal structure of the Earth, so it should look good! (7 points)