

Name: _____

Date: _____ Period: _____

Lab Activity: Earth's Layers

INTRODUCTION:

The earth consists of a number of layers. These layers have unique compositions and are separated from each other based upon differences in density. In this lab you will gain an understanding of the structure of the earth and develop a mental model for the relative thicknesses of each layer.

OBJECTIVE:

Devise a model of the layers of the earth to scale and describe the layers of the Earth in terms of their chemical and physical properties.

VOCABULARY:

Inner Core

Outer Core

Mantle

Asthenosphere

Lithosphere

Hydrosphere

Atmosphere

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PROCEDURE A:

1. Cut an 80 cm piece of register tape and secure each end of the paper to the table.
2. Measure 10 centimeters from one end of the tape and draw a line across the tape and label it "Center of the Earth."
3. Using a pencil, draw lines and label the layers of the Earth onto the register tape based on the data table below and the scale 1 cm = 100 km. When measuring the scale distance, be sure the measure from the previous line.

Layer	Average Thickness (km)	Scale Distance (cm)
Inner Core	1276	12.8
Outer Core	2270	22.7
Mantle	2885	28.9
Asthenosphere	200	2.0
Lithosphere	100	1.0
Atmosphere	140	1.4

4. Use the Earth Science Reference Tables label each layer of Earth's interior with the appropriate density of each of the "solid" layers on to the scale model.
5. Color the layers using the key below:

Layer	Color
Inner Core	Red
Outer Core	Orange
Mantle	Yellow
Asthenosphere	Light Brown
Lithosphere	Grey
Atmosphere	Light Blue

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DISCUSSION QUESTIONS:

1. Why could the hydrosphere never be found above the atmosphere?
2. Which layer of Earth's interior is the thinnest and what is the density of that layer?
3. What element is found in the crust, the hydrosphere, and the troposphere ?
4. What is the actual temperature 3000 km below the surface of the Earth ?
5. Mount Everest is the tallest mountain on Earth rising 8.8 kilometers above sea level. Given this model's scale (1 cm = 100 kilometers) describe how it would appear on the register tape.

CONCLUSION: Earth is simply not a platform upon which we live. It has many different layers. Describe how the earth's layers are organized.