

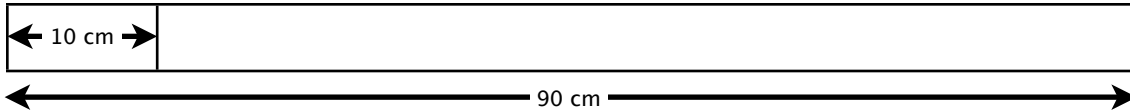
LAB ACTIVITY: A Slice of Planet Earth



In this lab, you will be creating a cross-section of the Earth that shows the layers of the Earth's interior and atmosphere drawn to scale. In our model, **one centimeter will be equal to 100 km**. For example, the radius of the inner core is 1271 km. In our model, that layer would be drawn 12.7 cm ($1276 \text{ km} \div 100$). Notice this number can be rounded to the nearest tenth.

Step 1: Cut a piece of register tape that is 90 cm long

Step 2: Using a ruler, draw a line across the register tape in about 10 cm from one end.



Step 3: Calculate the thicknesses of the layers using the data in the table below.

	Layer	Average Thickness	Scale in Centimeters
Earth's Interior	Inner Core	1271 km	12.7 cm
	Outer Core	2270 km	
	Mantle	2885 km	
	Asthenosphere	200 km	
	Lithosphere	100 km	
Atmosphere	Troposphere	12 km	
	Stratosphere	50 km	
	Mesosphere	80 km	
	Thermosphere	140 km	

Step 4: Using these calculations, draw in the remaining lines to complete your scale model. Neatly label each layer with the correct name. Draw a person or tree on the surface of the lithosphere to indicate that this is the outermost surface of the Earth

Step 5: Using your ESRTs, label the composition of the inner and outer core.

Step 6: Using your ESRTs, label the density range of the inner core, outer core, and mantle.

Step 7: Using your ESRTs, label the temperature from the surface down to the center of the Earth in 1000 km intervals. For example, start with the surface temperature, then label the temperature 1000 km down, 2000 km down and so forth.

Name: _____ Date: _____ Period: _____

Step 8: Go over the boundaries between the layers with a black marker. Then, using colored pencils, lightly and neatly shade the layers using the following color scheme:

Layer		Color
	Inner Core	Brown
	Outer Core	Red
	Mantle	Orange
	Asthenosphere	Yellow
	Lithosphere	Pencil
	Troposphere	Light blue
	Stratosphere	Pink
	Mesosphere	Dark blue
	Thermosphere	Purple
Color the remaining space black		

Step 9: On a piece of loose-leaf, answer the following questions.

1. List the layers of the Earth's interior from least dense to most dense.
2. Based on the information in the ESRTs, what do you think the main composition of the Earth is?
3. Using a ruler, how many centimeters thick is the solid Earth (from the start of the inner core to the outer edge of the lithosphere)?
4. The actual radius of the Earth is 6,378 km. What was your percent error from the result you got in the previous question?
5. Why are the layers of the Earth sorted by density?
6. Analyze the layer in which life exists. How does the thickness of this layer compare with the total thickness of the Earth?
7. We have a good idea of what the Earth's interior looks like despite never actually observing it firsthand. What information did we base our model on?