**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 km ÷

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.

10 cm

90 cm

**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 the book or your knowledge, label the composition of the inner and outer core.

**Step 6:** Using your worksheet from yesterday, label the density range of the inner core, outer core, and mantle.

**Step 7** Using your worksheet from yesterday, label the temperature from the surface down to the center of the Earth.

**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:** Please answer the following questions in COMPLETE sentences.

# List the layers of the Earth’s interior from least dense to most dense.

1. **Based on the information from your worksheet, what do you think the main composition of the Earth is?**
2. **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)?**
3. **Why are the layers of the Earth sorted by density? (least dense to most dense)**
4. **Analyze the layer in which life exists. How does the thickness of this layer compare with the total thickness of the Earth?**
5. **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?**