

Purpose: to show the earth and its layers to scale.

Materials: large sheet of paper, string, cardboard, thumbtack, colored pencils

Background: The earth to an average person is large but few appreciate how big it is. We will draw it to scale.

Procedure:

- A) Our scale earth radius will be about 25 cm. The earth has a radius of 6,371 km. Each of our measurements will relate to this proportion: 6371 km:25 cm. Therefore:

Layer	Thickness	Scale Thickness	Cumulative Thickness	Scale Cumulative Thickness
Inner Core	1200 km	4.7 cm	1200 km	4.7 cm
Outer Core	2250 km	8.8 cm	3450 km	13.5 cm
Mantle	2900 km	11.4 cm	6350 km	24.9 cm
Crust	5-40 km	0.02-0.16 cm	6371 km	25.0 cm

- 1) Cut a piece of string about 35 cm long.
- 2) Tie one end of the string to the thumbtack.
- 3) Put 2 pieces of cardboard on top of each other. Put the white paper over the cardboard.
- 4) Near a lower corner choose a starting point. Put in your thumbtack.
- 5) From your starting point measure the scale cumulative thickness for each layer on the paper.
- 6) Hold your pencil at each point, pinch the string and carefully draw a quarter circle for the inner core, outer core, and mantle. Free hand draw the crust.
- 7) Label each layer. Show the thicknesses in km.
- 8) Put your names on your paper. Color appropriately.
- 9) On your paper write some observations. Note: The oceanic crust is about 5 km thick and the continental crust is about 40 km thick.