

Layers of the Earth (Density) – Student Activity

This activity uses secondary data (data/information collected by another reputable scientist). You will be using the following secondary data to create a reasonably accurate model of the Earth.

When rock becomes stressed it releases unwanted energy as an earthquake. This energy travels through the Earth as seismic waves. (Seismic = Greek shaking). Shock waves travel away in all directions and are changed by the rock they travel through.



Earth statistics (secondary data)

Average radius from crust to core at the equator	6,370km
Average depth to bottom of crust	100km
Average depth to bottom of mantle	2,900km
Average depth to bottom of outer core	5,100km

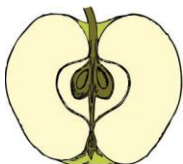
Why do you think you were given **average readings**? _____

If you drew a straight line from the surface to the centre, what percentage of this line would each layer take? Use the table below for your calculations.

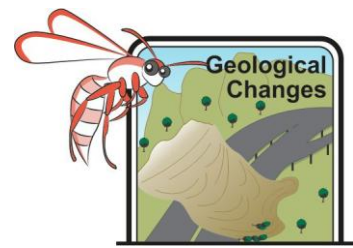
Layers of the Earth

Layer	Thickness (Km)	Calculation	Percentage (%)
Crust			
Mantle			
Outer Core			
Inner Core			

HINT Sneaky students know a quick way to check at the end if they have the correct percentages. What is this?



This activity demonstrates how **thin** the crust of the Earth really is. If the Earth is represented by an apple cut in half. The skin of the apple is thicker than the crust!



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Scientists often construct models to explain important ideas. Using plasticine or play dough create a model of the layers inside our planet. The model will be small enough to fit into the palm of your hand.

Materials

- Play dough or plasticine in a variety of colours
- A sharp knife retained by the teacher to cut the models in half

Method

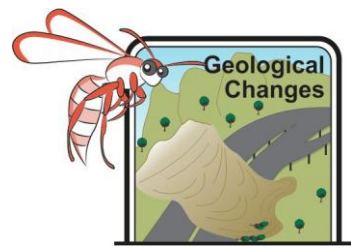
1. Determine how many colours you will need _____
2. Which layer should you start from? _____
3. If we are making this to scale we will need:
 - A ball for the inner core with a radius of _____ or a diameter of _____
 - A layer _____ deep round the inner core to represent the outer core
 - A layer _____ deep round the core to represent the mantle
 - A layer _____ round the mantle to represent the crust.
4. Slice the model in half to expose the layers of the Earth.
5. Label each layer
6. Measure the diameter of your model Earth

Results

Stick a photograph or draw a sketch of your model here



Scale



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What have we learned today?

(Use your best scientific words or a diagram)

1. The Earth is made of _____ layers _____
2. Seismic waves are energy released by an _____
3. We can use seismic data to _____

Vocabulary Core, crust, earthquake, mantle, seismic, wave