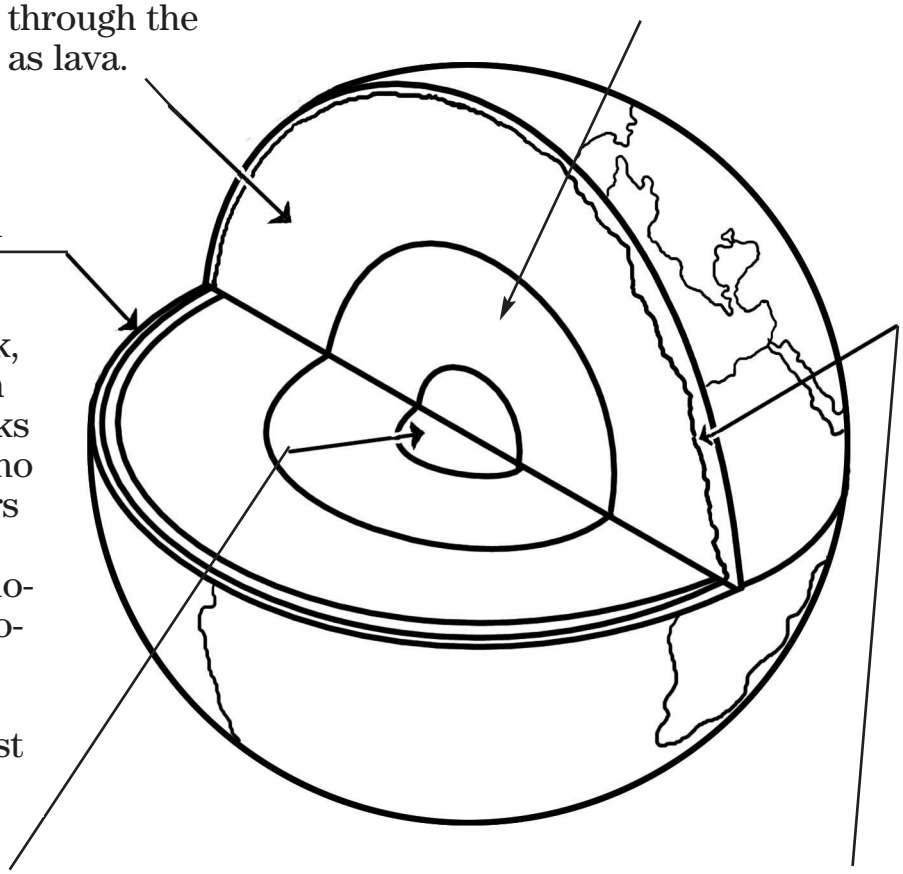
Inside the Earth

Name _____

Scientists divide the earth into five distinct layers. Identify and list the ways these layers are different and similar.

Mantle: The mantle is actually divided into three layers. All three layers are so hot that they are permanently molten. Magma usually forms in the upper layer of the mantle from rocks rising into it from the lower two layers. In the upper layer, these rocks melt and burst through the surface of the earth's crust as lava.

Outer Core: Scientists believe that the outer core is composed mainly of iron and nickel and is so hot that it is probably always molten.



Crust: The surface of the earth is actually composed of two different types—oceanic and continental. Oceanic crust is quite thick, at 4 miles (6 kilometers) in depth, and young. The rocks in oceanic crust are often no more than 200 million years old. Continental crust can range from 16 miles (25 kilometers) to 56 miles (90 kilometers) in depth. Rocks have been found in continental crust that are at least 3.8 billion years old.

Inner Core: Scientists believe that the inner core is a solid ball of iron and nickel. Temperatures in the inner core may reach as high as 6,700° F (3,700° C). However, the pressures are so high that this part of the earth remains solid rather than molten (melted).

Lithosphere: The lithosphere is actually composed of all the earth's crust and a little bit of its upper mantle. It extends 60 miles (100 km) below the surface of the earth.

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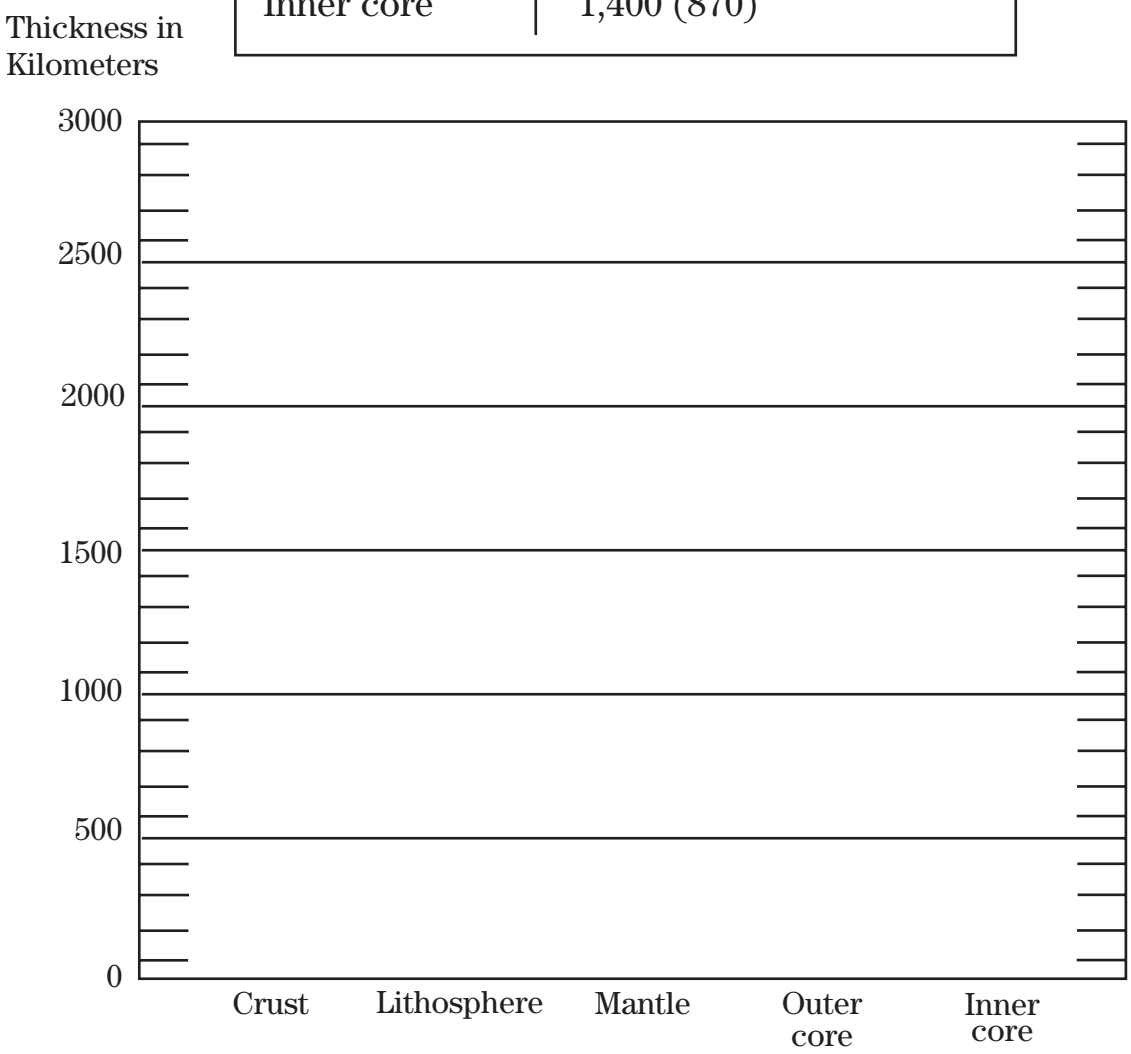
Graphing the Depth

Name _____

Directions: The layers of the earth vary greatly in thickness. Create a bar graph to illustrate these differences. Use the graph to answer the questions on the next page.

Layer	Thickness in Km (miles)
Crust	40 (25)
Lithosphere	100 (62)
Mantle	2,900 (1,802)
Outer core	2,000 (1,243)
Inner core	1,400 (870)



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Adapted from *Earthquakes: A Teacher's Package for K–6* developed by the National Science Teachers Association with the support of the Federal Emergency Management Agency; revised April 1999.

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1. Use the words in the box to complete the sentences below.

Earthquakes	Core	Plates	Volcanoes	Mantle	Crust	Boundaries

The outer layer of the earth is called the _____. It is made up of tectonic _____. Just underneath the crust is the _____ and right in the middle of the earth is the _____. Colliding plates produce _____ and _____ at the plate _____.

2. Draw a line to form six correct sentences from the fragments below.

The crust	Is made of iron and lies at the center.
Plate boundaries	are under the oceans.
The core	is between the crust and the core.
The mantle	carry the continents.
Oceanic plates	is a thin rocky layer at the surface.
Continental plates	are where many earthquakes happen.

Circle the correct answer.

3. T or F – The earth has an iron mantle.
4. T or F – The crust is made of tectonic plates.
5. T or F – The crust and the inner core are solid.
6. T or F – The mantle surrounds the iron core.
7. T or F – Oceanic plates lie under the beach.
8. T or F - The Earth's crust includes both the ocean floor and dry land.

9. What is the earth's crust made of? _____, _____

10. Name the two types of Earth's crust. _____, _____

11. Which layer of the earth is the thickest? _____How thick? _____

12. Which layer of the earth is the thinnest? _____ How thick? _____

13. What makes up the lithosphere? _____

14. How are the asthenosphere and the lithosphere different?

15. Describe convection and why it's important.

16. Which two metals make up both parts of the core? _____, _____

17. Why have we not drilled or mined deeper into Earth?

18. How far is it to Earth's center? (add up all the layers to get the answer) _____miles