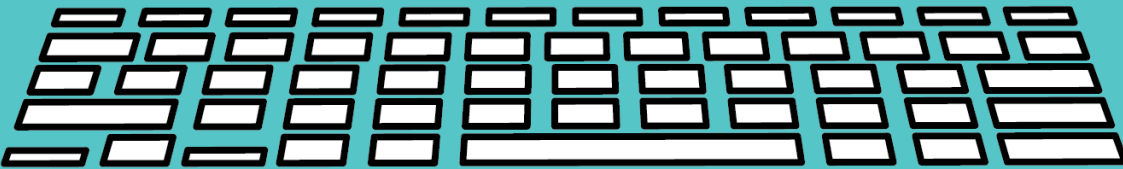
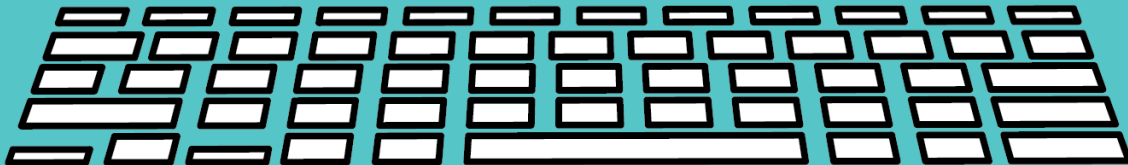


THE EARTH IS THE  
ONLY KNOWN  
PLANET THAT  
CAN SUPPORT  
LIFE

Short Answer	Type Answer Here
1. What is the outer layer of the Earth called?	
2. What is the layer at the center of the Earth called?	
3. What is the layer of Earth below the crust called?	
4. The inner core & outer core are as big as what planet?	
5. What year was the inner core discovered?	
6. What layer is the hottest?	
7. What layer of the Earth is the coldest?	
8. How many parts is the Earth's core divided into?	



Short Answer	Type Answer Here	Fill in the Blank	Type Answer Here
1. What is the outer layer of the Earth called?		9. There are ___ main layers of the Earth.	
2. What is the layer at the center of Earth called?		10. The mantle is about ___ miles deep.	
3. What is the layer of Earth below the crust called?		11. The crust and the upper mantle make up the ___.	
4. The inner core & outer core are as big as what planet?		12. The outer core is made up of ___ magma.	
5. What year was the inner core discovered?		13. The inner core is made up of iron and ___.	
6. What layer is the hottest?		14. The word "Earth" came from the Anglo-Saxon word ___.	
7. What layer of the Earth is the coldest?		15. Below the asthenosphere is the ___.	
8. How many parts is the Earth's core divided into?		16. The ___ crust lies beneath the ocean floor.	



## LAYERS OF THE EARTH

There are four layers of the Earth, the crust, mantle, inner core and outer core. When the Earth was made billions of years ago, it was extremely hot. Over time, the outside layers cooled down and the outer crust turned inward. The rest of the Earth remained hot.

The crust is the outermost layer of the Earth, which means the ground you are standing on. The crust is the thin, outer layer of the Earth where all life exists including humans, animals, sea life and plants. The crust comes in two sections, called plates.

The temperature of the crust is very hot. It is due to geothermal energy. Geothermal energy comes from the formation of the planet and from radioactive decay of materials. The crust is the coldest layer because it is exposed to the atmosphere. It is composed of low-density material such as igneous, metamorphic, and sedimentary rocks.

The oceanic crust lies beneath the ocean floor. The oceanic crust is similar to basalt which is a dark, fine-grained rock. The crust in the ocean floor is around 3 to 6 miles thick. The crust on land is much thicker, with an average of 20 to 30 miles thick. On land, it is called the continental crust. Continental crust forms the continents.

The Earth's mantle has an upper and lower area, separated by a transition zone. The mantle is much thicker than the crust and is about 1800 miles deep. The movement of the mantle can cause volcanoes and earthquakes.

The mantle is composed of rock but the rock is not hardened due to extremely hot temperatures. The rock in the upper mantle is stiffer, because of its cooler temperature. The mantle is made up of minerals, melted iron, magnesium and other semi-solid rocks that flow under pressure. This flow is due to a large temperature difference between the bottom and the top of the mantle.

The mantle is divided into layers. The crust and the upper mantle make up the lithosphere. The lithosphere is broken up into slow moving tectonic plates. The layer of earth just below the lithosphere is known as the asthenosphere.

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The asthenosphere is weaker, hotter, deeper and under increasing pressure. The liquidity of the asthenosphere makes it very important for tectonic plate movement. This layer acts as a "lubricant" for tectonic plates to slide over. Below the asthenosphere is the mesosphere which is another strong layer.

The core is the layer at the center of the Earth. This is above the Earth's solid inner core and below the mantle. The Earth's core is divided into two different parts: the outer core and inner core. The inner core and outer core of the Earth are as big as Mars.

The outer core is the second largest layer and made up of liquid magma. The outer core is very hot, reaching temperatures between 4400 to 5000+ degrees C. The outer core is made up of iron, nickel, sulfur and oxygen. The outer core is so hot that the iron and nickel metals are in liquid form. This liquid layer of iron and nickel is 5,150 km deep. The outer core is approximately 1408 miles in diameter and 2200 km thick.

As the Earth spins, the iron inside the outer core moves around. The movement develops strong electric currents in the liquid iron. These powerful currents stretch thousands of miles into space creating a magnetic field. The magnetic field creates a protective barrier around the Earth. This barrier protects the Earth from harmful particles from the sun. It also deflects the sun's solar wind.

The Earth was formed over 4.5 billion years ago and all the heavy materials sank to the center. The solid metal ball in the middle of the Earth is known as the inner core. It is made up of iron and nickel, just like the outer core. The inner core is the hottest part of the Earth reaching temperatures of 5000+ degrees C. It is as hot as the surface of the sun.

Scientists do not reach the inner core so it is commonly believed that the inner core is solid due to extremely high pressure. The pressure is caused by the weight of the other layers of the Earth. This pressure would make it impossible for iron to melt.

In 1929, the inner core was discovered by Inge Lehmann. She was studying a large earthquake in New Zealand. She discovered that an earthquake sends vibrations through the inside of the Earth. She also noticed that the vibrations were moving across the solid in the center of the Earth. She called this the inner core theory. Her theory was not proven until 1970.

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