

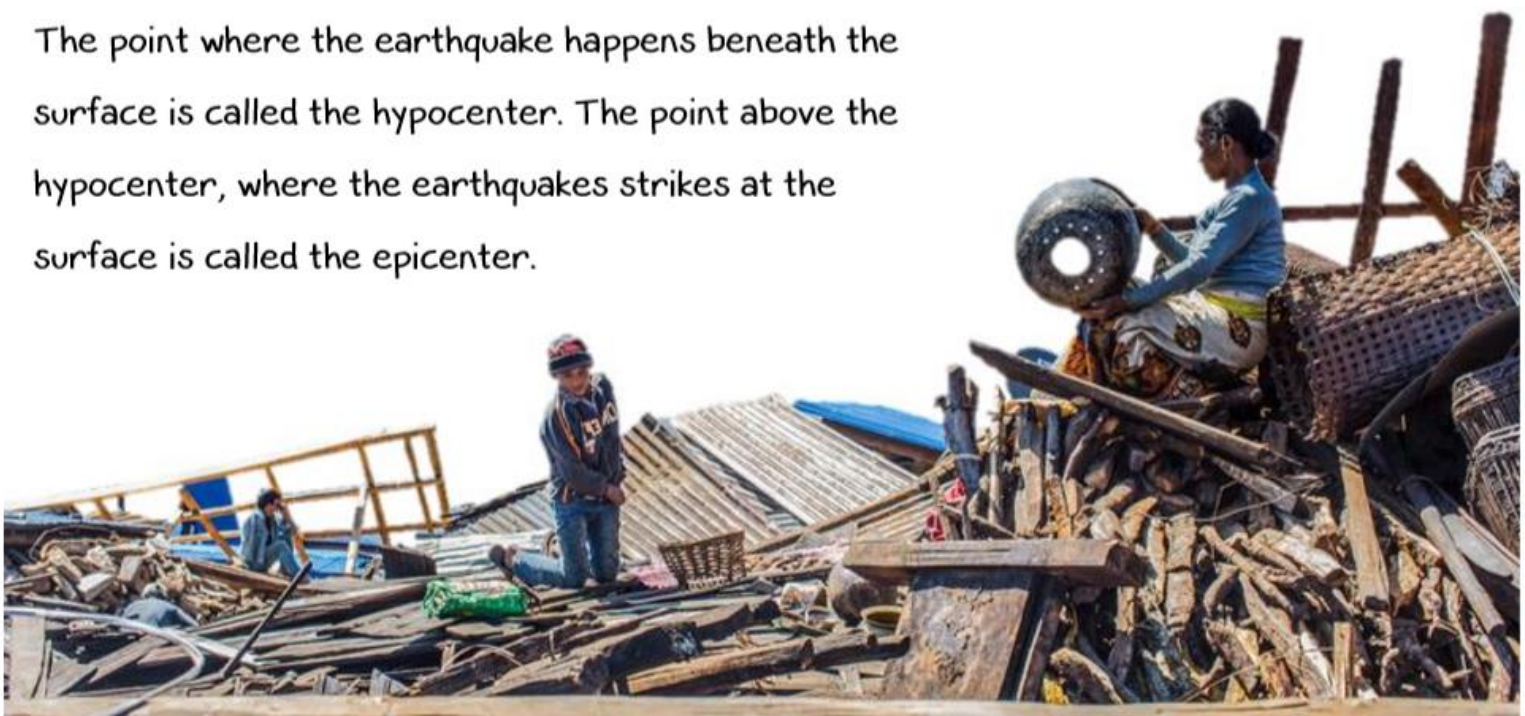
Earthquakes

INTRODUCTION

Earthquakes are the shaking or sudden shocks of the surface of the Earth. They usually occur when the plates of the Earth's crust are moving or when they break apart. It is a result of pressure that has been building up for a long time. They can happen anywhere, land or sea. Most earthquakes are not very powerful and can hardly be felt. However, some earthquakes are very destructive and are powerful enough to destroy an entire city. More than a million earthquakes happen each year. They can be felt over large areas but they usually last less than a minute. Unfortunately, earthquakes cannot be predicted.

Sometimes, small shocks can be felt before and after the main earthquake strikes. These small shocks are called foreshocks and aftershocks. The shocks of the actual earthquake are called mainshocks. Both the fore and aftershocks can occur weeks or even months before and after the earthquake.

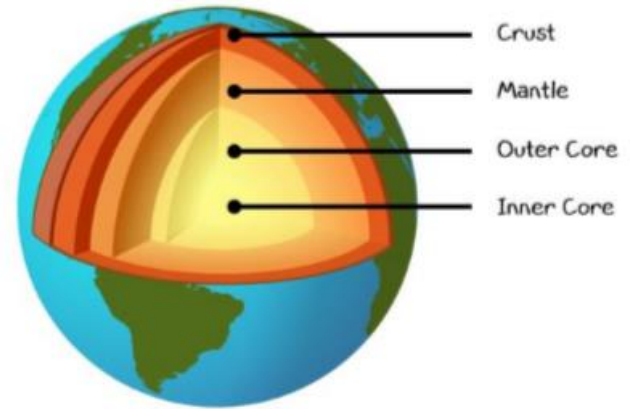
The point where the earthquake happens beneath the surface is called the hypocenter. The point above the hypocenter, where the earthquake strikes at the surface is called the epicenter.



Earthquakes

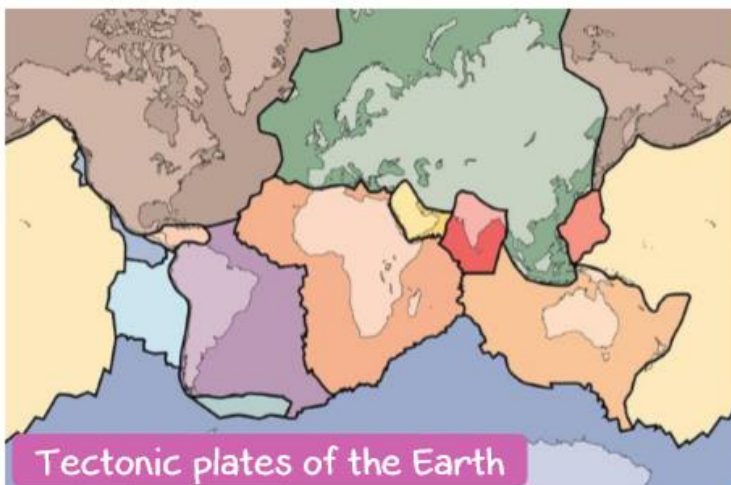
HOW THEY FORM

In order to understand how earthquakes occur, it is important to know that the Earth is made of different layers. The inner and outer core of the Earth consist of liquid materials, such as iron and nickel. Temperatures in the core are up to 9900 °F!



The mantle is made up of molten and semi-molten rock. Molten rock in the mantle is also known as magma. The outermost part is called the crust which forms the surface of our planet. The crust consists of plates (tectonic plates) that fit together like a jigsaw puzzle. These plates are continuously moving, sliding and colliding against each other. Earthquakes are formed in these crusts, along the edges of the plates (fault lines).

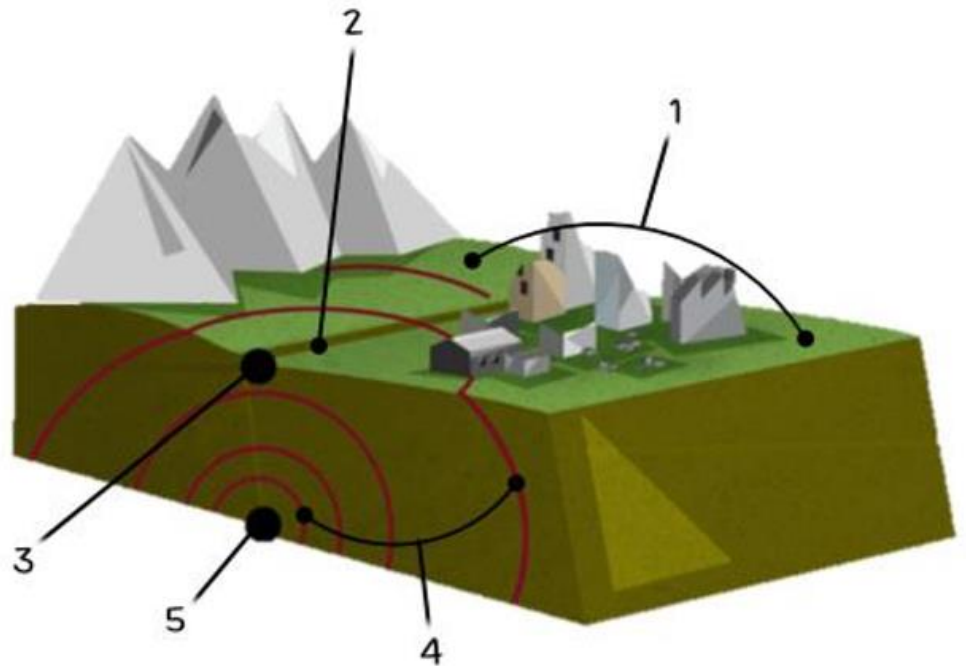
The inner part of the plates have massive amounts of energy. When there is too much pressure on these plates, some of this energy escapes through the cracks of the crust.



The energy forces the tectonic plates to slide, move over and collide against each other. This is when an earthquake happens. The escaping energy (seismic waves) radiate outwards to the surface of the Earth and shake the ground and anything on it.

Exercise 4: Match the words with their corresponding numbers on the image shown below.

- () Fault line
- () Seismic waves
- () Hypocenter
- () Tectonic plates
- () Epicenter



Dangerous Earthquakes

IN HISTORY

The strongest earthquake that was ever recorded happened in Chile in 1960. It had a reading of 9.6 on the Richter scale. The largest earthquake in the US hit Alaska in 1964. It had a 9.2 on the Richter scale.

The San Francisco earthquake of 1906 was one of the most destructive earthquakes in the history of the United States. The city of San Francisco was devastated by the massive damage that was caused.



The deadliest earthquake ever recorded happened in China in 1556. It is believed that 830,000 people died.

In April 2015, a massive earthquake struck Nepal. More than 7,500 people were killed in the 7.8 magnitude earthquake. Because of the shifting of the plates, the capital city of Nepal (Kathmandu) moved 10 feet to the south.

Things to know

ABOUT EARTHQUAKES

Around one million earthquakes occur every year. Nonetheless, only 100,000 are strong enough to be felt. Out of these, only about a 100 earthquakes are strong enough to cause any damage.

The strength of an earthquake is recorded using a seismograph. It detects the vibrations of an earthquake. The strength (or magnitude) is measured on the Richter scale. This scale is numbered between 0 and 10. The larger the number on the Richter scale, the more destructive the earthquake would be.

Volcanic eruptions can trigger tsunamis, earthquakes, flash floods, and landslides.

Most earthquakes in the United States occur in Alaska. California, Hawaii, Nevada, Washington, Idaho, Wyoming, Montana and Utah are also prone to earthquakes.



Most earthquakes happen along the Ring of Fire. It is an area on the edges of the Pacific Ocean where different plates collide against each other. Around 75% of the world's earthquakes happen in this zone.

People should follow the steps of the Drop, Cover & Hold method in order to reduce injuries. When an earthquake strikes, you must drop down to the floor, cover under a sturdy piece of furniture, and hold the position until the shaking of the earthquake stops.

The Richter Scale

- 4.0** Only some people may notice the earthquake. It feels as if a large truck is passing by.
- 6.0** Things will fall off shelves and some walls of houses may crack. Everyone will notice the earthquake.
- 7.0** Weak buildings might collapse and there will be cracks in bridges and roads.
- 8.0** Many buildings will collapse and there will be massive cracks in the surface.
- 9.0** Complete cities will be destroyed.