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Natural Disasters

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Why Are There Earthquakes?

By Rachelle Kreisman

The ground starts to shake. Buildings begin to sway. Watch out—here comes an earthquake!

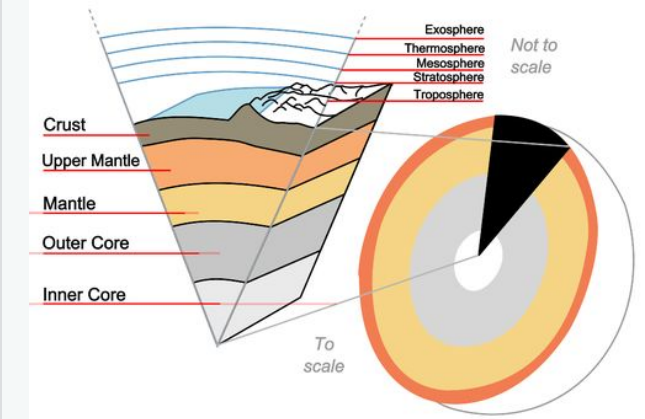
Earthquakes are natural events. They usually happen very quickly. In fact, most earthquakes last less than thirty seconds.

You may be surprised to hear that earthquakes are not rare. In fact, earthquakes happen every day somewhere in the world. Most of them are weak. There are times, however, when an earthquake is very powerful and causes a lot of damage. One strong earthquake can destroy houses, bridges, railroad tracks, and more.

Earthquakes are caused by the movement of huge pieces of rock under Earth's surface. The pieces are called *tectonic plates*. These plates are found in the top layers of Earth, called the crust and the upper mantle. Tectonic plates have rough edges and are always moving. Usually, they move slowly. But there are times when the plates get stuck against each other. If that happens, pressure builds up. When the two plates finally get "unstuck," they release energy. Often, a small amount of energy is released. That will mean a small earthquake. However, sometimes a lot of energy is released. When that happens, the earthquake that follows will be strong...and dangerous!

The Power of the Earth

By Linda Ruggieri



Rumble, rumble! Sometimes the earth shakes beneath people's feet. That shaking is called an earthquake. An earthquake can happen on land or in the ocean. Earthquakes can rattle walls, cause giant waves, and even bring down buildings.

Here is why earthquakes happen.

The earth is not one solid rock. If you could drill deep into our planet, you would find four layers. The top layer is the *crust*. Below the crust is the *mantle*. Under that is the *outer core*. The deepest layer

of the earth is the *inner core*.

The crust and the top part of the mantle are broken into giant pieces of rock called *tectonic plates*. These plates float on top of the rest of the mantle like icebergs floating on the ocean. The plates move so slowly, however, that people cannot feel them moving.

The plates sometimes move apart or slide past each other. One plate can even sink beneath another. But occasionally the edges of the plates get stuck. When that happens, pressure builds. Eventually, the pressure releases enough energy for the plates to break loose.

A relatively small amount of energy is usually required for the plates to break loose, and the nearby ground shakes just a little. Sometimes, however, a lot of energy is needed. Then the result is a big and dangerous earthquake!

Big Waves!

By Linda Ruggieri

Take a look at a world map. Can you find the Pacific Ocean? Japan is a country made up of many islands in that ocean. Most people in Japan live close to the waters of the Pacific.

A few years ago, people living in the Tohoku region of Japan saw something strange. Giant ocean waves were coming toward them. When the waves reached the beach, they did not stop. Streets and homes were flooded.

Giant waves like those are known as tsunamis (*soo-NAH-meess*). *Tsunami* is a Japanese word that means "harbor wave."

What causes a tsunami? An earthquake occurs in the ocean. The land below the water shakes. That causes water to swell into giant waves. The waves travel quickly across the ocean.

The tsunami that hit Tohoku started as an earthquake in the ocean eighty miles away. The quake was very strong. The tsunami waves it created kept coming for hours. The waves destroyed ships, cars, and many buildings.

Scientists are studying the events of the Tohoku tsunami. The scientists hope to learn things that will make people safer the next time a tsunami happens.

The Volcano That Keeps Erupting

By Susan LaBella

A volcano on the island of Hawaii has been erupting since 1983. The volcano's name is Kilauea (kee-lah-WAY-ah). It has released tons of hot, melted rock called lava.

Volcanoes are openings on the surface of our planet that can send lava, gas, and steam into the air. You may have seen volcanoes that look like mountains with openings at the top. Many volcanoes look like that. But others appear more flat. An example of a flatter volcano is the shield volcano.

Most of the world's volcanoes are found in an area that forms a shape like a horseshoe around the Pacific Ocean. Scientists call that area the "Ring of Fire."

Kilauea is a shield volcano. Lava from Kilauea has done a lot of damage. In 1990, lava flowed over a hundred homes, a church, and a store in the village of Kalapana. Those places were destroyed. From 1983 to 2011, lava destroyed almost all the houses in another community called Royal Gardens. There was one house that survived all those years. In 2012, another lava flow ruined the only home remaining in that community. Today, Royal Gardens is no longer home to anyone.

Scientists say Kilauea's lava threatens more homes and a forest preserve. The scientists are using computers to map the lava's path. They hope to predict what Kilauea will do in the future.

A Dangerous Landslide

By Susan LaBella

One night in March 2014, mud broke loose from a tall hillside near the town of Oso, Washington. The giant mass of wet soil moved downhill quickly. It eventually covered thirty nearby houses with mud and dirt. Many people were hurt.

Landslide is the word many people use to describe this kind of emergency. This landslide happened when very heavy rains soaked the ground near Oso.

At the beginning of any muddy landslide, wet ground breaks loose. As the mud moves, it may rip bushes, boulders, trees, and other things out of the ground.

Landslides can cause serious damage. A big landslide could bury homes and badly injure people in its path. Landslides can also dump huge amounts of wet dirt onto roads and highways. This added enormous weight could wreck cars and might even cause the road to collapse.

If a landslide happens near an area that includes buildings, it could break water lines, gas lines, or electrical lines. That kind of damage could also start fires.

Scientists are trying to figure out how to help people be safe in areas where landslides occur. The best thing, experts say, is to have a plan for what to do if this kind of moving-earth emergency happens.

Avalanche!

By Rachelle Kreisman

Have you ever heard of an avalanche? Avalanches are sudden natural events where large amounts of snow and ice slide down a mountain. As they slide, the snow and ice get faster. In fact, snow from an avalanche can move as fast as two hundred miles per hour. That is three times faster than a car on a highway!

Most avalanches happen after big storms. New snow puts added pressure on snow already on the mountain. That added pressure can make the old snow break loose and start sliding.

Avalanches can be dangerous. Heavy snow moving down a mountain may pull other things along, such as trees and rocks. A powerful avalanche can damage everything in its path.

Many people like to ski and snowboard. They want to have fun on mountains. They also want to stay safe. Experts can usually tell when an avalanche might happen. The experts can warn people of the risk. The risk may be low or high. People have to pay attention to warnings to be safe.