

Unit 4: Earthquakes 101

Narrator: The ground starts to shake, walls shift, and glasses rattle. Soon, everything begins to collapse. These are signs of what could be a powerful earthquake. We've seen the destruction they cause. Some of us may have even lived through one. And we know they can be devastating. But where do they come from?

While the ground beneath us may seem solid, the surface of the earth isn't completely stable. Earth's crust is made up of 12 major tectonic plates. These huge pieces of land float on super hot magma and constantly move around. They shift, bump, and push against each other. When the movement of two plates against each other is violent enough, an earthquake is created. The stronger the earthquake is, the more destruction it will cause.

The most violent earthquakes start in a subduction zone where one tectonic plate is pushed beneath another. While one plate is pushed downward, the other is pushed upwards. This type of quake hit Nepal in April 2015, destroying many buildings and killing over 8,000 people. And when this type of quake happens under the ocean, it can create giant waves called tsunami, which have killed thousands in Japan and Indonesia. On average, earthquakes kill about 10,000 people per year. Sometimes numbers are even higher. The shallow quake that hit Haiti in 2010 killed over 300,00 people, making it one of the deadliest on record.

It is estimated that there are 500,000 detectable quakes on earth each year. 100,000 of these can be felt. And 100 of them cause actual damage. The magnitude, or strength, of a quake is measured using the Richter scale, which runs from zero to ten, ten being the strongest. Every whole number increase means ten times more movement on the ground. In recorded history, the world has never experienced a ten on the Richter scale. But scientists predict an average of at least one major earthquake of magnitude 8 or higher every year. And we need to prepare for them.

Engineers are designing buildings that are stronger and more flexible, and scientists are looking for ways to predict future earthquakes and learn when and where they will strike next. All this is done in hopes that we can one day learn to predict earthquakes accurately.

Then we'll be able to protect more homes and countless lives from once deadly earthquakes.