



# How Scientists Measure Earthquake Strength

KS4 GEOGRAPHY

KS3 SCIENCE

Ages 11-14 ⌚ 3 min read

## What Makes an Earthquake Powerful?

When the ground shakes, it can be barely noticeable or strong enough to damage buildings. Scientists need a way to measure how powerful each earthquake really is. They use special instruments called **seismometers** (or seismographs) that detect and record the vibrations from earthquakes.

## The Richter Scale

The most famous way to measure earthquakes is the **Richter Scale**, invented in **1935** by scientist **Charles Richter**. This scale measures the **magnitude** — how much energy an earthquake releases. It uses numbers from around **1 to 9**, where higher numbers mean stronger earthquakes.

Think of it like a volume knob on a speaker. A magnitude **3** earthquake is like a whisper you can barely hear, while a magnitude **7** is like someone shouting very loudly.

A magnitude **1 to 3** earthquake is so weak most people don't even feel it. But a magnitude **7** or higher can cause serious damage and hurt many people.

## Other Ways to Measure Earthquakes

Scientists also use the **Moment Magnitude Scale**, which is more accurate for very large earthquakes. This measures how much the Earth actually moves and how much energy is released.

Another important measurement is **intensity**, which describes the damage and effects people experience — not just the raw power. A building in a city might shake more noticeably than a field, even if the earthquake itself is the same strength.

Think of it like the difference between how loud a speaker is (magnitude) and how loud it sounds in your room (intensity). A speaker has the same volume in both a bedroom and a stadium, but it feels different depending on where you are.

## Why This Matters

Understanding earthquake strength helps scientists predict where earthquakes might happen and warn people. By studying patterns, they can help cities prepare and build stronger buildings. When a big earthquake strikes, knowing its magnitude helps emergency responders understand how much help is needed.

Scientists around the world share earthquake data instantly, so when the ground shakes somewhere, the whole scientific community learns about it within minutes.