



## **Earthquake**

Thousands of earthquakes occur around the world every year. Most earthquakes are minor earth tremors, but some earthquakes are very strong and cause massive damage, particularly if they occur near human settlements.

The Earth's crust is broken into about twelve pieces called tectonic plates (a bit like a cracked egg shell). The tectonic plates gradually move and drag against each other. This causes a lot of stress or tension to build up in the rocks.

This stress is released when the rocks break and crush under pressure, causing the vibrations we know as an earthquake.

These vibrations (called seismic waves) travel in all directions. They can travel at speeds up to 14 kilometres/second. The strength of seismic waves determines how 'violent' an earthquake will be.

Most earthquakes occur at tectonic plate boundaries. Some earthquakes (less than 10%) occur in the centre of tectonic plates as well.

A fault is a break in the Earth's crust where large sections of rock have been crushed and broken due to these stresses. Faults are divided into three main groups, depending on how they move.

- *Normal faults* occur where blocks are pulling apart (spreading zones).
- *Thrust faults* occur where one block is compressed under an overlying block (subduction zones).
- *Strike-slip faults* occur where one block moves horizontally past another block.

The *Earthquake* exhibit in Earth Quest is similar to the San Andreas strike-slip fault. This fault is found near California (United States of America) and is more than 1300 kilometres long and up to 16 kilometres deep.

The San Andreas fault has the Pacific tectonic plate on the west side, and the North American tectonic plate on the east side. The Pacific plate moves about 2.5 centimetres northwest each year. This movement causes earthquakes along the fault, which has devastated cities such as San Francisco in the past.

### **More Information**

Geoscience Australia Earthquakes fact sheet [http://www.ga.gov.au/urban/factsheets/20010919\\_15.jsp](http://www.ga.gov.au/urban/factsheets/20010919_15.jsp)

United States Geological Survey (USGS)

San Andreas Fault <http://pubs.usgs.gov/gip/earthq3/safaultgip.html>

Earthquake Information for Kids <http://earthquake.usgs.gov/4kids/>

Earthquake Information for the General Public <http://pubs.usgs.gov/gip/earthq1/>