

Earthquake

FAULT MODEL

A fault is a place where there is a break in the Earth's crust. You can use clay to make your own model of a fault.

Instructions for teachers

- ▶ Read the following introduction about earthquakes and explain that today we will be doing a fun experiment to show how fault lines work to create an earthquake
- ▶ Divide the class into small groups and provide each group with the materials above to complete the experiment
- ▶ Provide students with the instructions below or read them aloud to the class as they undertake the experiment
- ▶ Following the experiment ask students if they have learnt something new about earthquakes and ask for any questions regarding earthquakes. Could we have an earthquake in Cairns?

Experiment:

Earthquakes often begin at a fault in the Earth's crust. If rock near a fault suddenly begins to move, it creates pressure that causes an earthquake. Here's a simple way to show how it works:

Materials:

- ▶ Three different colours of clay
- ▶ Dull knife

Instructions:

- Step 1:** Get three pieces of clay, each in a different colour, and pound each piece into a flat rectangle.
- Step 2:** Stack them on top of one another and press them together. The three pieces of clay represent layers of the Earth's crust.
- Step 3:** Use a dull knife to cut all the way through the layers, in the middle. Put the two sections of clay together, but don't match them up exactly as they were before you cut them apart. The cut is like a fault in the Earth's crust.
- Step 4:** Push in on the outside edges of both sections of clay. The clay along the "fault" will buckle and slide. Earthquake!

Discuss:

Earthquakes often begin at a fault in the Earth's crust.

- ▶ Where are the nearest faults to us here?
- ▶ When was Cairns last affected by an earthquake?
- ▶ What might cause an earthquake in Cairns?

Curriculum links

11-12	Earth and Environmental Science	ACSES098: Science Understanding; The cause and impacts of Earth hazards	Earth hazards results from interaction of Earth systems and can threaten life, health, property, or the environment; their occurrence may not be prevented but their effect can be mitigated.
11-12	Earth and Environmental Science	ACSES099: Science Understanding; The cause and impacts of Earth hazards	Plate tectonic processes generate earthquakes, volcanic eruptions and tsunamis; the occurrence of these events affect other Earth processes and interactions (eg ash clouds influence global weather).
11-12	Earth and Environmental Science	ACSES100: Science Understanding; The cause and impacts of Earth hazards	Monitoring and analysis of data, including earthquake location and frequency data and ground motion monitoring, allows the mapping of potentially hazardous zones, and contributes to the future predictions of the location and probability of repeat occurrences of hazardous Earth events, including volcanic eruptions, earthquakes and tsunamis
11-12	Geography	ACHGE013: Geographical Knowledge & Understanding; Overview of natural and ecological hazards	The concept of risk as applied to natural and ecological hazards
11	Geography	ACHGE012: Geographical knowledge and understanding; Overview of natural and ecological hazards	An overview of the nature of natural hazards (atmospheric, hydrological, and geomorphic) and ecological hazards
11	Geography	ACHGE013: Geographical knowledge and understanding; Overview of natural and ecological hazards	The concept of risk as applied to natural and ecological hazards
11	Geography	ACHGE022: Geographical Knowledge and Understanding; Depth and study of an ecological hazard	The nature and causes of the selected hazard and how the activities of people can intensify its impacts
11	Geography	ACHGE023: Geographical Knowledge and Understanding; Depth and study of an ecological hazard	The magnitude, frequency, duration, temporal spacing and effects of the hazard
12	Geography	ACSES094: Science as a Human Endeavour; The cause and impact of earth hazards	People can use scientific knowledge to inform the monitoring, assessment and evaluation of risk
12	Geography	ACSES098: Science Understanding; The cause and impact of Earth Hazards	Earth hazards result from the interactions of Earth systems and can threaten life, health, property, or the environment; their occurrence may not be prevented but their effect can be mitigated
12	Geography	ACSES099: Science Understanding; The cause and impact of Earth Hazards	Plate tectonic processes generate earthquakes, volcanic eruptions and tsunamis; the occurrence of these events affects other Earth processes and interactions (for example, ash clouds influence global weather)