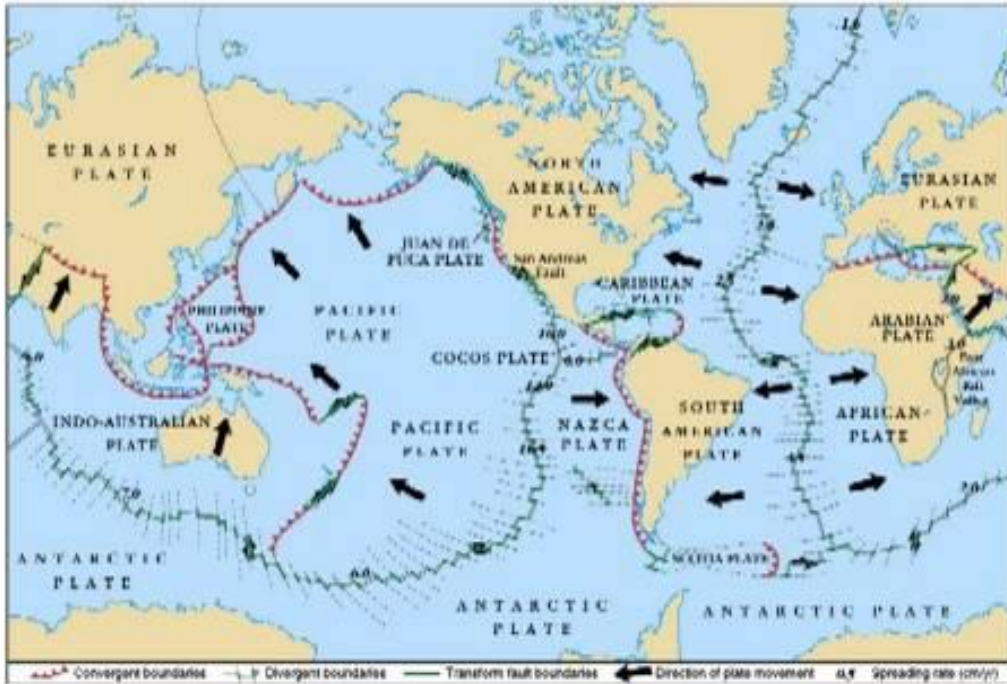


# Earthquake Data – Student Activity

## Earthquakes and tectonic plates

Tectonic plates can move against each other at zones of convergence. Sometimes it takes a great deal of pressure to overcome friction from the adjoining plate. Stress builds up until it is suddenly released as an earthquake. The plates move along fault lines.



**Convergent Boundaries** (Red in the diagram above)



When two plates are pushed together the denser plate will slide below the less dense plate. As the plate slides downwards it grates against the overlying structure. Seismic evidence demonstrates a zone of earthquakes originating at the convergence and sloping downwards away from it. Here one plate may crumple into another pushing up mountain ranges such as the Himalayas and the Andes.

Name two convergent boundaries from the diagram above. \_\_\_\_\_

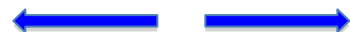
**Transform Boundaries** are found where where one plate grates past another (**Green** in the diagram above)



These are zones of severe earthquakes such as those which devastated Christchurch in New Zealand and San Francisco.

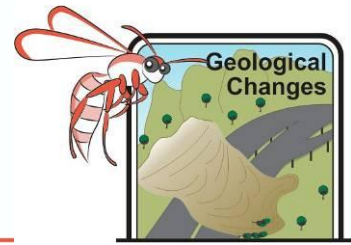
Name one transform boundary \_\_\_\_\_

**Divergent Boundaries** occur where tectonic plates move apart (**Blue** in the diagram). Earthquakes may occur because molten material bursts up from the asthenosphere to form shield volcanoes. These earthquakes are usually less intense and destructive. Here the Earth's crust is stretched thin between the two plates. It sags to form ocean basins.



Name two divergent boundaries \_\_\_\_\_

# Earthquake Data – Student Activity



Although the continent of Australia lies well within the Australian Plate stresses caused by moving such a large plate northeastwards results in local earthquakes along fault lines such as those felt in Newcastle in 1989 and Boulder in 2010.

## Using “Real Time Data”

Geoscience Australia provides data on earthquake activity not only for the Australian region but also collates information from around the World. This data is updated regularly. Use the key provided and the map on the first page of this worksheet.

## Materials

- Internet access either through the student’s own laptops or through a class data projector.
- Student worksheet
- Pen or pencil



## Method

Visit Geoscience Australia’s site at <http://www.ga.gov.au/earthquakes/initRecentQuakes.do> and use the real time data.

1. Take 5 minutes to familiarise yourself with the variety of information available. After each selection you must press the update button to refresh the map.
2. Plot any significant earthquakes (red circles) in the World during the last 30 days on the tectonic map provided on the first page.
3. Plot the magnitude of each significant earthquake beside its location.
4. How many earthquakes happened in the last 4 hours? \_\_\_\_\_
5. How many earthquakes happened in the last 24 hours? \_\_\_\_\_

Has anyone in your class experienced an earthquake? What would **you** expect to happen?

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**Vocabulary** Tectonics, tectonic plates, convergent, divergent and transform boundaries