



Tectonic Plates Jigsaw Puzzle

Instructions for teachers

1. Print the jigsaw puzzle pages, at either A4 or A3 size, in colour and single-sided. A3 size is recommended as the puzzle is big enough to cut out relatively easily and will still fit on a student desk.
2. Laminate the pages (if you wish) and then cut out each tectonic plate. Cut along the solid red lines but not along the red dashed lines – they indicate the position of smaller plates.



3. Complete the puzzle. Remember the Earth is a spherical shape so the puzzle is ‘continuous’ – pieces on the right can be picked up and placed on the left side or vice versa.



NOTE: You may find it easier not to use the Antarctic plate. When converting a 3-dimensional object to a 2-dimensional map the polar-regions become stretched. Consequently, Antarctica and the northern polar-regions look proportionally much bigger than reality. Also, if the Antarctic piece is used in the puzzle it limits the manoeuvrability of the other plates.

Option 1: Students may work individually or in groups to cut out and complete the puzzle.

Option 2: The teacher may prepare a set (or a few sets) for the class to use during their lesson.

Suggested activities

- Teaching about maps. Before using the puzzle consider using mandarin skins to represent a map sheet. Draw 'continents' on a whole mandarin then challenge students to peel the mandarin and lay out the peel/surface as a flat map. They will gain a greater appreciation of the distortions that are in all flat maps.



http://lassothemoon.typepad.com/lasso_the_moon/2014/09/geography-maps-and-globes.html

- Investigate where major geological hazards occur (e.g. earthquakes, volcanoes and tsunamis) using websites such as [This Dynamic Planet](#). Consider whether the distribution of geological hazards around the world appears random or not.
- Display a [world map of earthquakes](#) on an interactive white board. Trace over the main earthquake zones – you will have drawn a rough outline of the major tectonic plates that can be compared with a map of the tectonic plates. Alternatively students can do this activity individually using world maps showing earthquake distribution.
- Look at a world map of tectonic plates and geohazard distribution such as [This Dynamic Planet](#).
 - 1) a) Name five countries that are in mid-plate locations.
b) Name five countries that are on the edge of tectonic plates.
 - 2) Are divergent plates (plates which are moving away from each other) usually found in the centre of oceans or at the edge of continents?
 - 3) Name three places where plates are converging (plates coming together).
 - 4) a) Compare Australia's position (mid-plate) with that of some of our closest neighbours e.g. New Zealand, Indonesia, Papua New Guinea.
b) When planning for geohazard events how might preparations in Australia differ from preparations in Indonesia or New Zealand?
 - 5) Create a table of the top five fastest moving tectonic plates. Include columns for the plate name, speed (mm/year) and direction. If there is more than one speed shown across the plate then choose an average number for that plate.
 - 6) Find the San Andreas Fault in California. Draw a sketch to show the two plates involved in this transform plate margin and their directions of movement.
 - 7) Consider the position of major elevation features in relation to plate boundaries (e.g. fold mountain ranges, deep ocean trenches, mid-ocean ridges). Investigate how these features are formed and their association with different types of plate margin.

Sources of information about tectonic plates

- This Dynamic Planet Map <http://pubs.usgs.gov/imap/2800/>
This Dynamic Planet Interactive Map <http://nhb-arcims.si.edu/ThisDynamicPlanet/index.html>
This Dynamic Earth: the Story of Plate Tectonics <http://pubs.usgs.gov/gip/dynamic/>
This Dynamic Earth: the story of plate tectonics (1996) is a comprehensive and useful booklet. This Dynamic Planet is a map/poster (earthquakes, volcanoes, plate tectonics plus impact crater locations). A Pangea continent reconstruction exercise is also on the webpage.
- IRIS Seismic Monitor <http://ds.iris.edu/seismon/>
A seismic activity map which provides location and size information for recent earthquakes from around the world. Other seismology education resources are on the site.
- Australian Earthquakes <http://www.ga.gov.au/earthquakes/>
Map showing latest and significant earthquakes in the Australian region. Also links to the Australian earthquakes database.
- Earthquakes 2011 https://www.youtube.com/watch?v=dPEpSX08K_Q
Excellent YouTube animation of world earthquakes 2011 – well worth using with sound.
- Plate Tectonics – The Geological Society <http://www.geolsoc.org.uk/Plate-Tectonics>
Great interactive for students to investigate plate boundaries and their relationship to volcanoes and earthquakes.
- Educational booklet series: Tsunamis, Earthquakes, Volcanoes & you
<http://www.ga.gov.au/metadata-gateway/metadata/record/75909/>
Information on what to do in the event on a geohazard; written for East New Britain, PNG. Includes an animation for tsunami events.



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www.ga.gov.au/education

Education inquiries: (02) 6249 9673 or education@ga.gov.au

Base map source: Surface of the Earth Poster, revised March 2000

NOAA/NCEI, Boulder, CO, USA

<http://www.ngdc.noaa.gov/mgg/fliers/00mgg05.html>

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