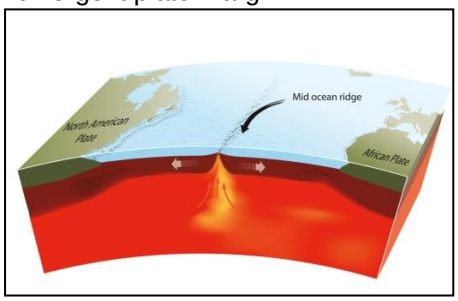
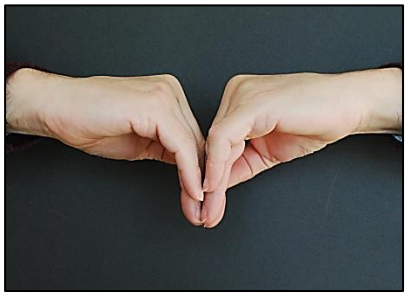
Plate margins and movement by hand
Modelling plate margins and plate movement with your hands

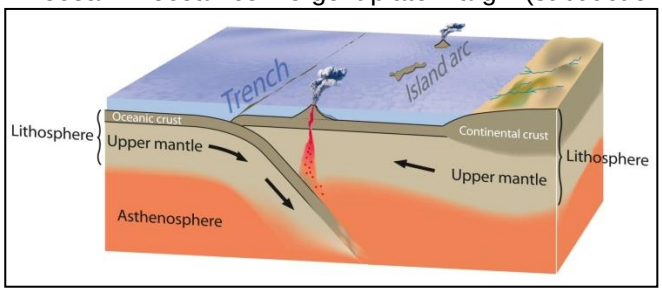
Ask your pupils to model each of the following with their hands:

A divergent plate margin:

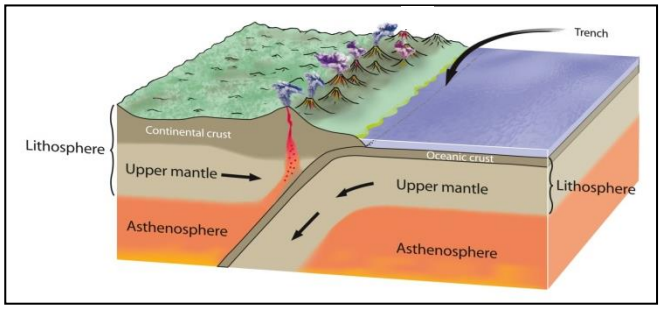




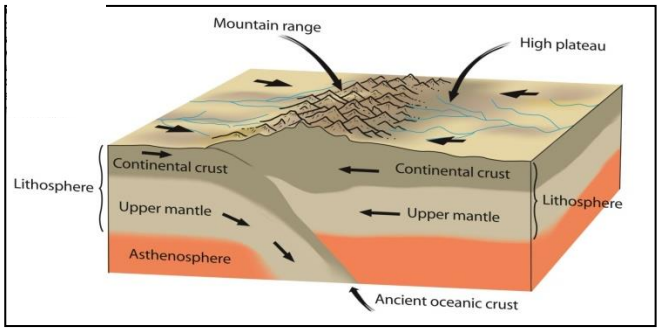

An ocean v. ocean convergent plate margin (subduction zone)



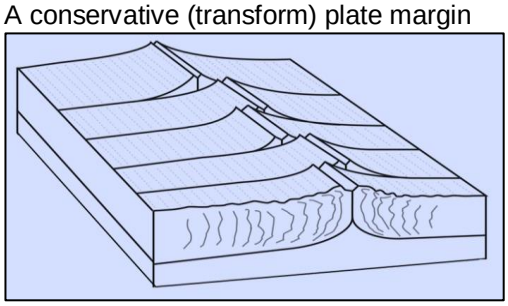
An ocean v. continent convergent plate margin (subduction zone)



A continent v. continent convergent plate margin (subduction zone)

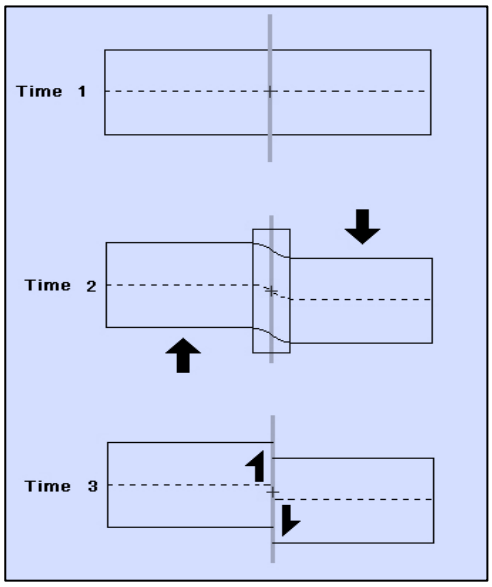


A conservative (transform) plate margin



(Dave King)

The elastic rebound theory generating earthquakes at a fault, such as the San Andreas Fault



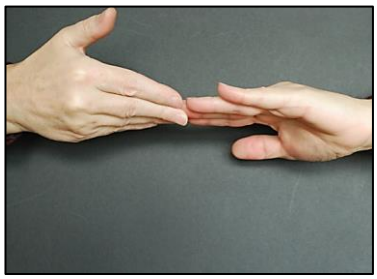
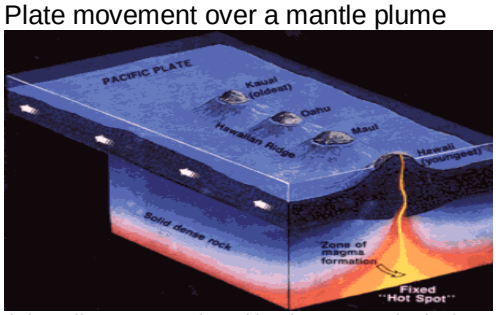
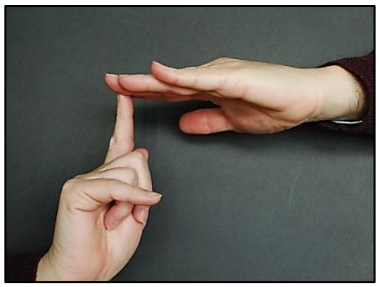
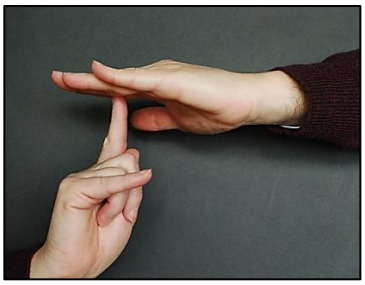


Plate movement over a mantle plume







(Plate diagrams produced by the US Geological survey, redrawn by ESEU and used with permission.)

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The back up

Title: Plate margins and movement by hand.

Subtitle: Modelling plate margins and plate movement with your hands.

Topic: A class activity to help pupils to visualise plate margins and movements through modelling with their hands.

Age range of pupils: 10 years upwards

Time needed to complete activity: 5 minutes

Pupil learning outcomes: Pupils can:

- describe different types of plate margin and movement;
- model them with their hands.

Context:
The educational advantages of using your hands to model geoscience features and processes have been explained in the Earthlearningidea, *Rock cycle at your fingertips.*

Participants in the GIFT Conference in Vienna, Austria, 2017, modelling plate margins with their hands. *(Filippo Camerlenghi).*

Following up the activity:
Ask pupils for other ways in which plate margins could be modelled. They may suggest:

- a computer model, like the one found at: https://www.geolsoc.org.uk/Plate-Tectonics ;
- three-dimensional models made from papier mâché, Plasticine™ or other materials.

Underlying principles:

- Different plate margins and plate-related processes can be modelled with your hands, if you use your imagination.

Thinking skill development:
Thinking about how to model plate margins and processes with your hands involves seeking patterns and then using your imaginative skills to show these patterns.

Resource list:

- only your hands

Useful links:
Try some of the other plate tectonic-based Earthlearningideas listed at: http://www.earthlearningidea.com/home/Teaching_strategies.html)

Source: Devised by Chris King; photos by Peter Kennett, both of the Earthlearningidea Team.

The Earthlearningidea hand-modelling activities	
Modelling Earth processes	The rock cycle at your fingertips: modelling the rock cycle with your fingers
	Plate margins by hand: modelling plate margins and plate movement with your hands
	Modelling by hand 'when the youngest rock is not on top': illustrating how rock sequences can have older rocks on top of younger ones
	Modelling unconformity – by hand: using your hands to demonstrate how unconformities form
Modelling structural geology nomenclature	Modelling Earth stresses isometrically: using your hands to model Earth stresses
	Modelling folding – by hand: using your hands to demonstrate different fold features
	Right way up or upside down? - modelling anti- and synforms by hand: use your hands to show how folds can be the right way up or inverted
	Visualising plunging folds - with a piece of paper and your hands: using your hands and folded and torn paper to show the patterns made by plunging folds
	Modelling faulting – by hand: using your hands to demonstrate different fault features
Climate change activities	The Earth during Milankovitch cycles – by hand: modelling the Earth's squashed orbit, tilt and wobble using your hands
	Modelling tipping points – by hands: demonstrating tipping points in the Earth's system with the hands of three pupils