

Plate tectonics

The plates

Pa I 10 min

Students are given a world map of the plates and they count up how many are made of only oceanic crust, how many of only continental crust and how many are a mixture of both. Students put on arrows to show the motion of the plates and try to explain what is happening to Africa.

Plates

TE

Think of the world as a football and the panels on the football represent the plates.

Model of constructive plate margin

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Two strips of carpet 2m by 10cm are pulled out from the gap between two desks. See also [Sea Floor Spreading E](#)

Pre trench bulge

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The level of the sea floor rises just before a subduction zone. This is because the plate has to bend to go down. Hold one end of a 30cm ruler 20 cm from the edge of a desk, Hold the other end and press it downwards to represent the subducting slab.



Reason for the curvature of trenches and island arcs

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Make a short slice in a large sponge or polystyrene ball at an angle of 30° to the surface. Insert a thin sheet of metal or cardboard in the cut, this represents the descending plate. The line of the cut, that is the intersection of the descending plate and the surface of the earth, is curved.

Speed of movement of plates

Pa I 10 min

Students plot age of sea floor basalt against distance from Mid Atlantic ridge or the age and position of the hot spot islands in the Pacific.

Uplift and subsidence at subduction zones

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The crust of the plate which is not subducting is pushed and bulged upwards as the other plate moves downwards into the subduction zone. Eventually the stress is too great and is released by movement along a thrust fault. The stationary crust then subsides. To illustrate this use a strip of one sided corrugated paper 10cm wide and 100cm long, with the corrugations upwards, and pull it down between 2 desks. This is the subducting plate. The plate which is not subducting is a sheet of sponge rubber 10cm wide, 2.5cm thick and 50cm long.

