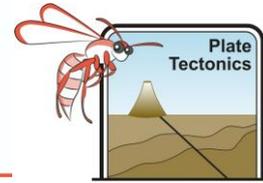


Fold Movement - Student Activity



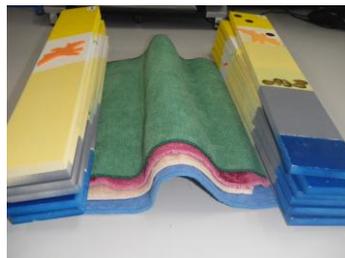
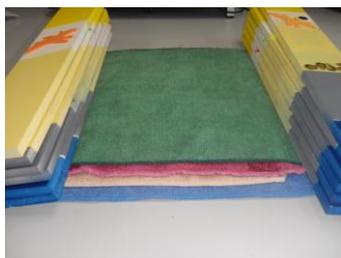
1. Rocks Moving Apart - The Crust Extends and Sags

When continental crust stretches during tectonic movement the mid section sags to form a ***sedimentary basin***.



Into this basin are deposited sediments eroded from the surrounding land. These sands, silts and muds are compacted by overlying layers and form sedimentary rock such as sandstone, siltstone and mudstone.

2. Rocks Moving Together - The Crust Shortens and Folds

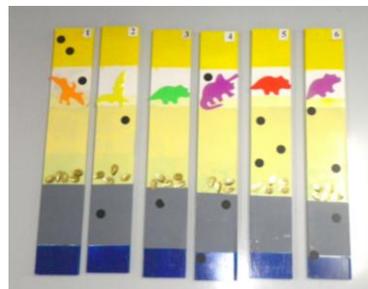


Most sediment is originally deposited in horizontal beds in sedimentary basins, younger beds being deposited on top of older beds. Beds that are incompetent (plastic) will respond to pressure by folding.

AIM To model folding in the continental crust

MATERIALS per student

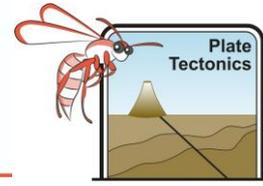
- Cardboard or thick paper
- Coloured pens & pencils
- Ruler
- Option adhesive stickers to indicate fossils
- Scissors



Method:

1. Draw a series of horizontal beds on the cardboard sheet and colour to represent sedimentary beds (as above). This diagram represents a vertical section cut down into sedimentary beds, like the exposure seen in a road cutting.
2. Add fossils either by drawing them or by using stickers. Please note that only fossils of the same age should be in the same bed or sedimentary layer.

Fold Movement - Student Activity



3. Rule the cardboard into six vertical sections and cut to create six rock columns. These will represent drill cores cut down into the rock.

Will the oldest rock be at the top or at the bottom?

Sketch your rock beds in box 1 below

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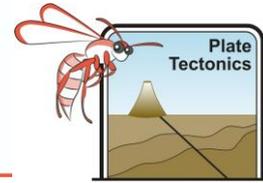
Box 1: Horizontal strata

Compressive forces will force your sediment to bend to form an anticline (dome)
Sketch what happens to your rocks in box 2 below

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

Box 2: An anticline

Fold Movement - Student Activity



Draw a horizontal line across your rock columns to represent the eroded surface.

If erosion wears away the anticline to a horizontal surface like this one, will the oldest or youngest rocks be in the centre?

If the rocks are compressed they may also form a syncline (be deformed into a downward curve)
Sketch your rock beds in box 3 below

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
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Draw a horizontal line across your rock columns to represent the eroded surface.

If erosion wears away the anticline to a horizontal surface like this one, will the oldest or youngest rocks be in the centre?

As a result of folding, would the length of a piece of crust be shortened or lengthened? _____

As a result of folding, would the thickness of a piece of crust be increased or decreased? _____

The Australian continent is slowly moving northward to push up against the Asian continental plate.
Would the folded mountain ranges in Papua New Guinea be the result of compression or extension?



Folds in the 1.6 billion year old Banded Iron Formations of our Pilbara