

## Wandering continents

### What evidence enables us to reconstruct the ancient supercontinent of Pangaea?

Ask pupils to work in small groups to make model continents in modelling clay and mark on them some of the evidence which enables us to show how they might have been joined together in the past. Follow the procedure below:

Cut out the continental outlines from the sheet (page 3) and label them with their names i.e. Europe, India etc.

Place the outlines over a slab of modelling clay or Playdough™ and cut out an outline of each continent in the clay.

Use coloured map pins (very carefully!) to mark the main evidence which can help us to show how the continents were once all together. The evidence is shown on the map on page 4, but you should try to get everything onto your models. The evidence includes: mountain ranges which match up across the oceans (labelled 'rocks' in yellow); erosive features and deposits from ancient ice sheets; the locations of three land animals and one land plant type.

Note: This activity can be carried out using cardboard cut-outs and coloured-in spots in place of modelling clay.

Once you have all the evidence on your model continents, place them on your desk in the approximate positions which they occupy today – you can use the map to help you, although it is on a different scale from your models.



South African pupils enjoying the activity (Tanja Reinhardt).

Now try to rearrange the continents, so that they all touch each other, using the evidence to decide how best to match them up. If you are successful, you will have shown what the ancient supercontinent, called Pangaea, might have looked like, around 200 million years ago.

Once you are happy with your result, ask your teacher for a copy of the world map (page 2), which shows the continents in their present positions, as well as the faint outline of Pangaea. How close were you to what most scientists think?

*Note that this is intended as a fun activity with only approximate modelling in clay. Locations of mountain ranges and fossils are generalised.*

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### The back up

**Title:** Wandering continents.

**Subtitle:** What evidence enables us to reconstruct the ancient supercontinent of Pangaea?

**Topic:** Using simple evidence from the geological record on each continent to enable a reconstruction of an ancient supercontinent to be made.

**Age range of pupils:** 8 – 14 years

**Time needed to complete activity:** 30 minutes

**Pupil learning outcomes:** Pupils can:

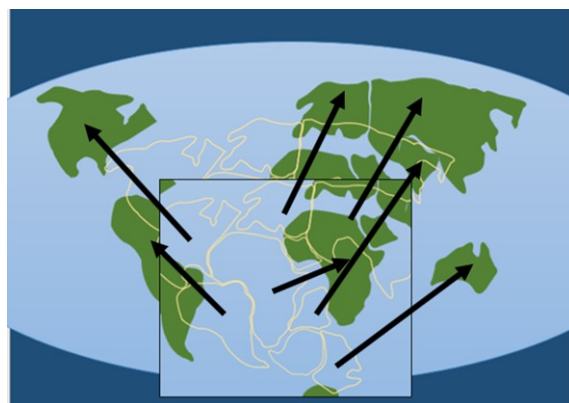
- manipulate craft materials;
- describe the shapes and current locations of the continents;
- describe matching patterns in their models;
- explain that evidence other than the shapes of the coastlines alone is needed to enable a valid reconstruction of an ancient supercontinent.

**Context:** A “fun” activity which can be used with younger children to introduce the aspect of plate

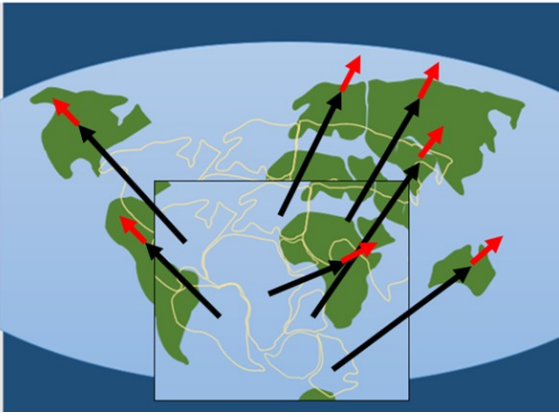
tectonics known as continental drift, or as a revision exercise for older pupils.

### Following up the activity:

- Ask pupils to place their model Pangaea on the world map, with their model Antarctica on top of the modern position of Antarctica, as shown on the world map. Draw arrows on the world map to show how each of the continents has moved to its present position - like this:



- Use the map to draw more short arrows to predict the ways in which you think the continents might move in the future - like this:



**Underlying principles:**

- The continents form parts of larger units called plates.
- Continents move, together with adjacent parts of their plate, over the surface of the globe, at rates of a few centimetres per year.
- Plate movement involves the lithosphere (and not the crust alone) being moved over a weak zone in the upper mantle of the Earth.
- Links between the continents were once explained by proposed land bridges, which later sank: however, the geophysical evidence shows there are no sunken masses of continental lithosphere.

**Thinking skill development:**

Pupils construct a pattern from the model continents, and explain their thinking in small

groups. Bridging is involved in relating the models to the real world.

**Resource list:**

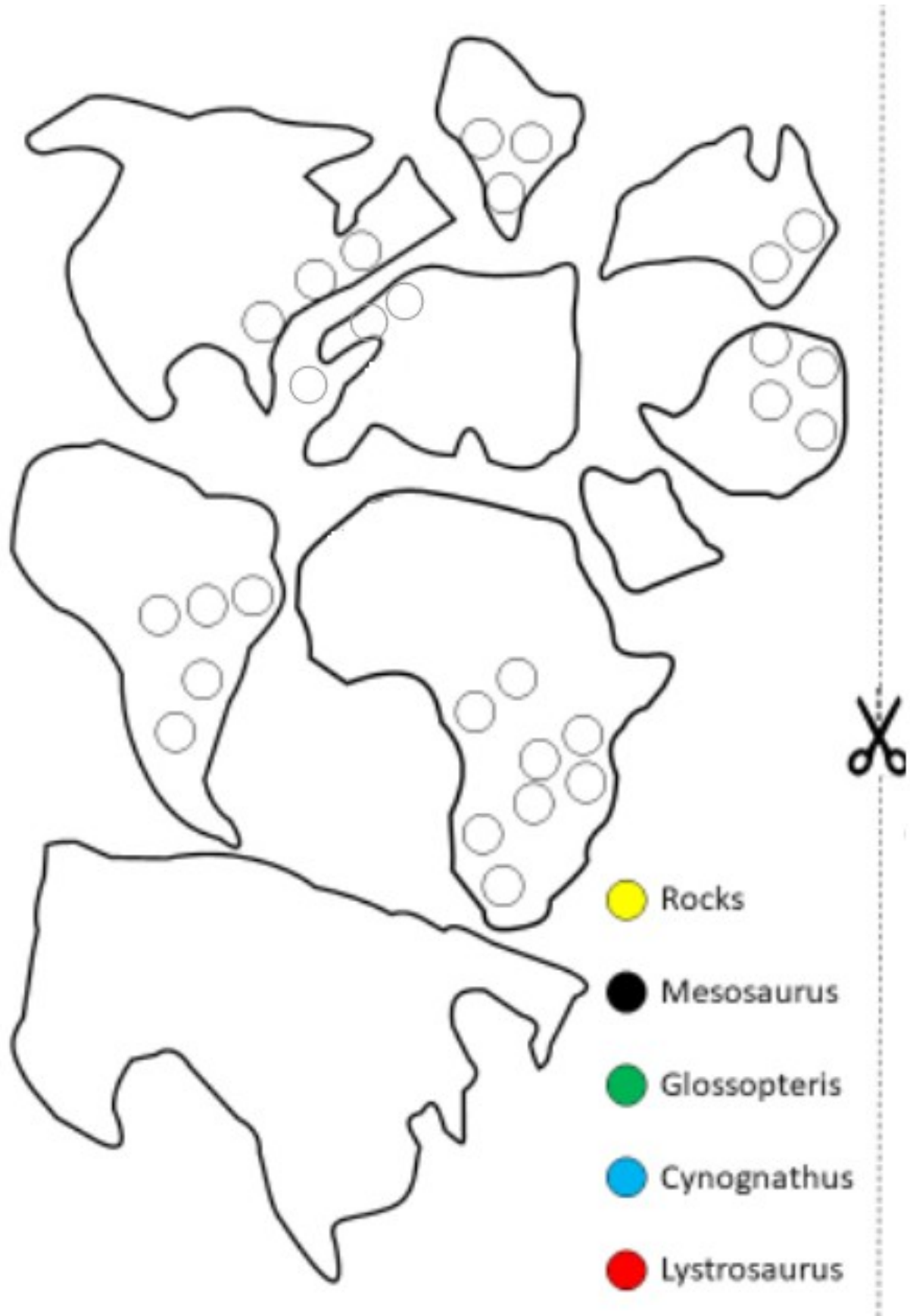
- printed sheets as above, preferably on card;
- scissors;
- modelling clay or Playdough™;
- sets of coloured map pins or the equivalent.

**Useful links:** [https://www.earthlearningidea.com/PDF/85\\_Continental\\_jigsaw\\_puzzle.pdf](https://www.earthlearningidea.com/PDF/85_Continental_jigsaw_puzzle.pdf)

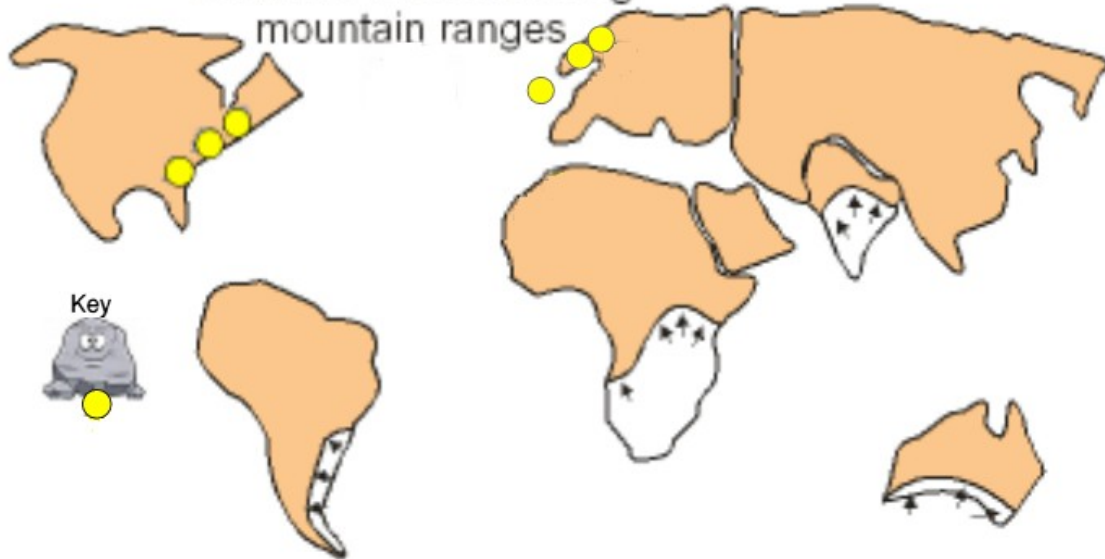
**Source:** Redrafted by Peter Kennett of Earthlearningidea, from an activity devised by Tanja Reinhardt of the University of KwaZulu-Natal, South Africa, following: <https://sis.tcu.edu/ideafactory/products/pangea-mat-and-cutter/>. Graphics by Tanja Reinhardt.



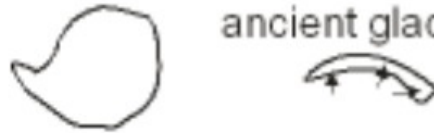
World map showing continents in their present positions with Pangaea in yellow outline



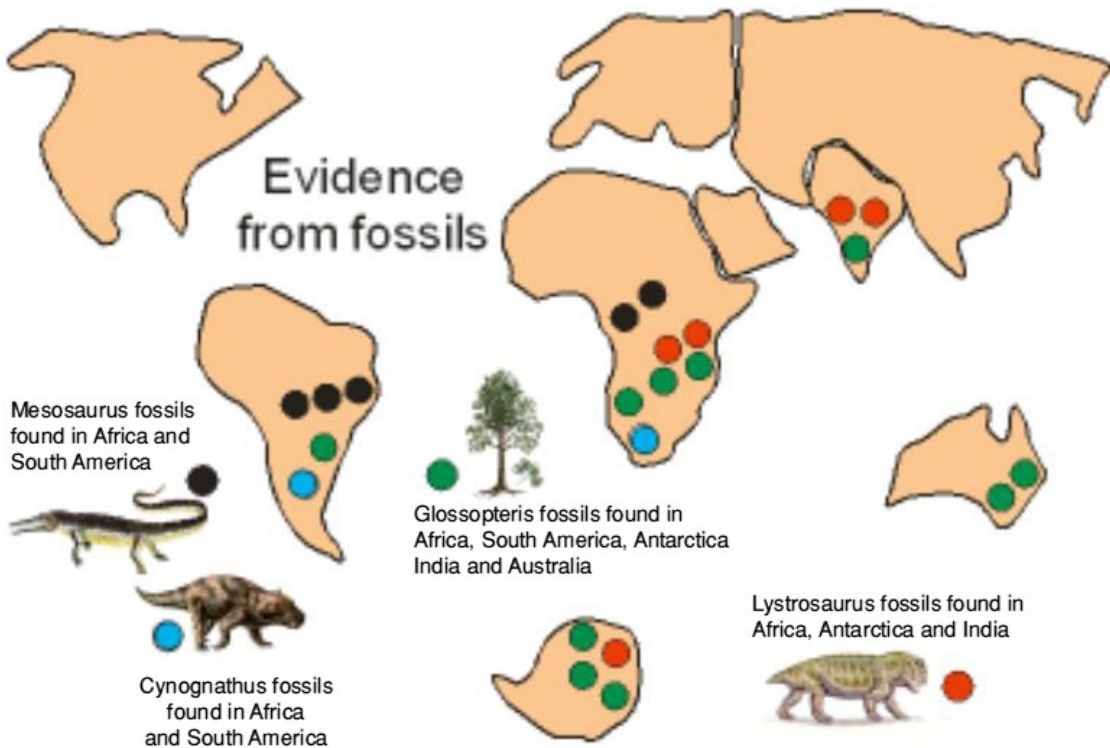
### Evidence from matching mountain ranges



### Evidence from ancient glaciers



### Evidence from fossils



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