

# THE RULES OF SEA FLOOR SPREADING

## **Purpose**

To work out what factors determine the amount of displacement of the ridge along a transform fault.

To demonstrate the relationship between the movement of a continent and the orientation of the ridge and the transform faults

## **Rules of motion**

1. The spreading rates are the same on both sides of the ridge
2. Ridges are at right angles to the direction of motion
3. Transform faults are parallel to the direction of motion

## **Activity**

1. Put the two pieces of card together as shown in diagram 1 and place a piece of paper underneath. The card represents a continent which is about to rift apart and the paper, when exposed, represents the oceanic crust which is created.
2. Move the card pieces apart by about 4 cm as in diagram 2.
3. Mark the edges of the continent onto the paper using a brown crayon.
4. Draw a line joining points X and Y. The line shows the direction of movement of the continents.

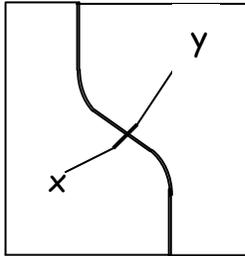


Diagram 1

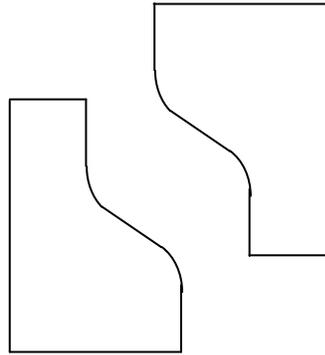


Diagram 2

5. Transform faults are always parallel to the direction of movement. Draw in pencil a series of lines 2cm apart to represent the transform faults. These should be between the continents and parallel to the line joining X and Y. Mark the mid point of each line.
6. Use a red crayon to draw in the ridge on each block between pairs of transform faults. It should always be at right angles to the transform fault, and in the centre of the block it should be half way between the continents.
7. Repeat instructions 1 to 6 using a new piece of paper but move the card pieces in a different direction.
8. Look at a map of the Atlantic and suggest where the displacement along the transform faults will be largest.

## Teacher's Section

### Requirements

A4 cards (one for each student) cut to the pattern shown in the diagram. Points X and Y are adjacent either side of the cut. Each student also needs sheets of plain A3 paper.

Map of Atlantic with out any transform faults shown.

### Notes

Make sure students are drawing the ridge segments in correctly.

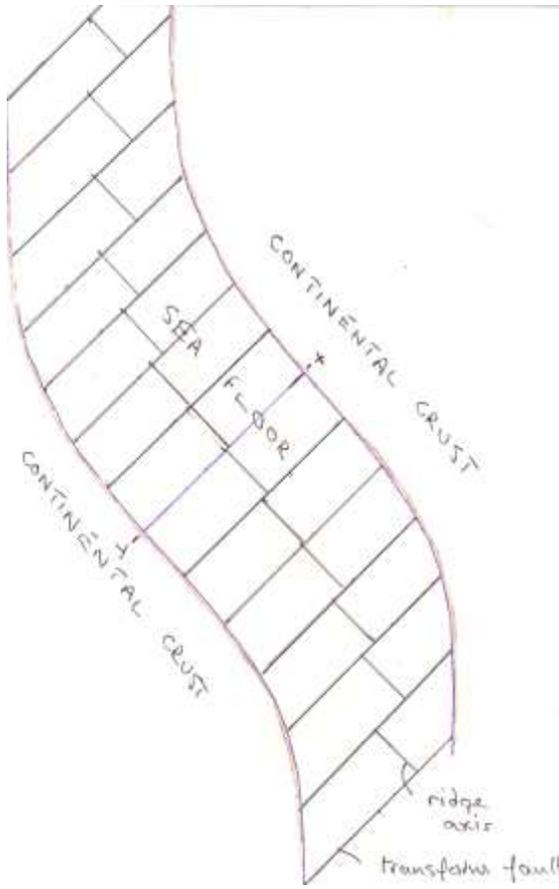
### Results

Where the edge of the continent is at right angles to the direction of movement there will be no offset but the amount of offset will increase as the movement direction becomes more oblique to the continents edge.

### Time

30 minutes

Based on an article by Dennis Bates in the Journal of Geological Education 1990 v38



The result should look like this but with the ridge segments in red.