

Activity #4 - Pangaea Puzzle Pieces

Concept # 4

#4 Land masses on Earth are slowly changing shape as a result of moving for millions of years.

Objective:

Students in groups of 2-3 examine 10 pieces of evidence for the Pangaea theory and use them to reconstruct the supercontinent.

Materials:

- large piece of paper (a large 18" blue circle would be ideal, but any paper will do)
- scissors
- glue
- wall world map as reference
- Pangaea pieces
- evidence sheet

Procedures:

1. The teacher discusses the history of plate tectonics and continental drift.
2. Students are divided into groups of 2-3.
3. The students label each continent on their Pangaea Pieces.
4. Cut out the continents.
5. Try to reunite the Pangaea puzzle pieces based on the clues.
6. Glue your finished Pangaea puzzle in place on a large sheet of paper.

Evaluation:

- There are some very prolific diamond mines in South Africa. What do you suppose the chances are that one could find diamonds in South America?
- The coal deposits mined in Pennsylvania were formed from plants that grow in tropical climates. What does this suggest about where Pennsylvania was once located? What does this suggest about the locations of North and South America?
- The fit between Africa and South America along their coastlines is not exact. How might the fit be better?
- The dotted line you cut along the northern edge of India is where the Himalayan mountains are located. How do you think those mountains were formed?
- How would you evaluate the evidence in terms of your fit: Where was the evidence good and where was it bad?
- Does the evidence suffice, in your opinion, to support the theory of Continental Drift? Explain your answer.

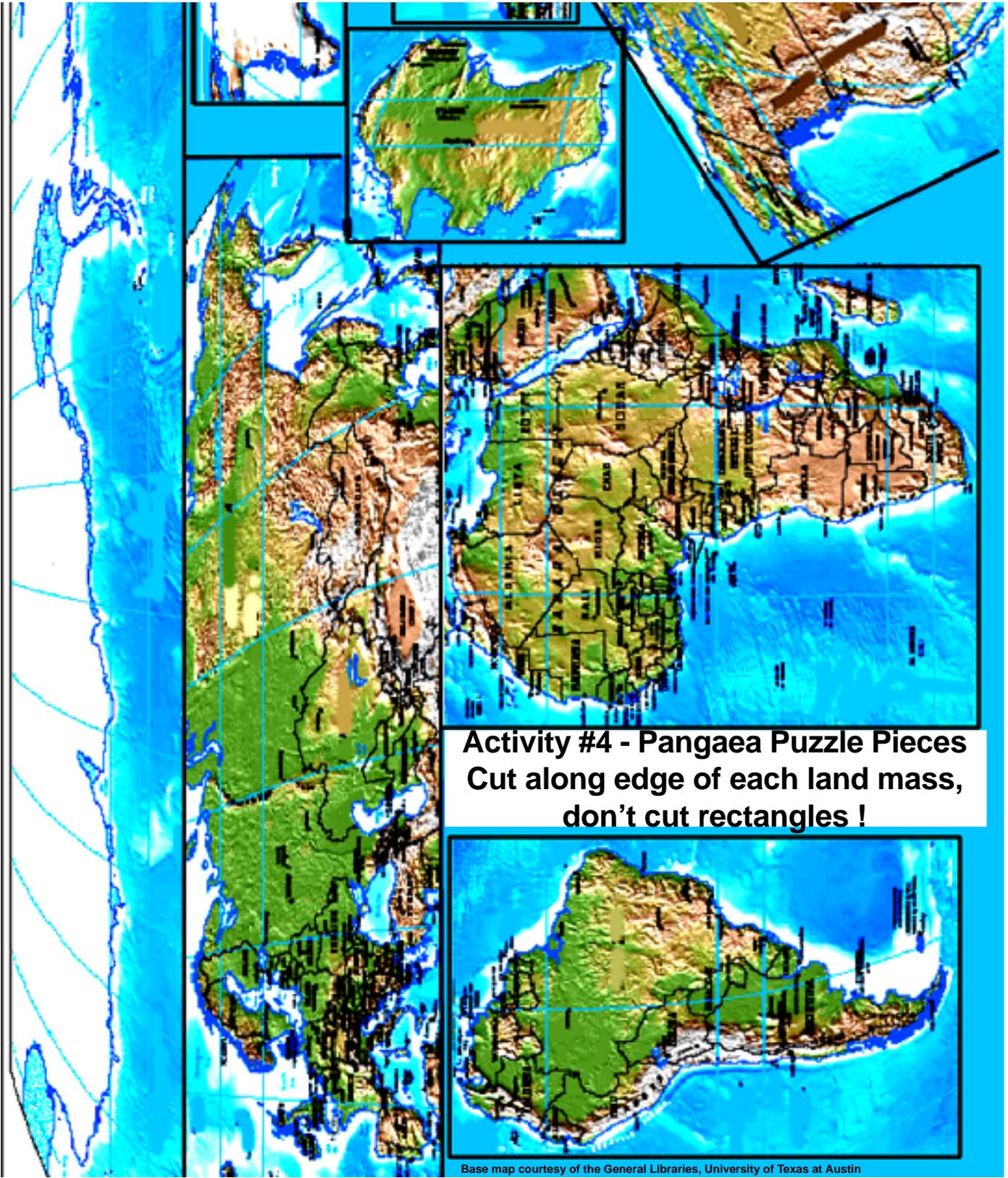
Extension:

- Based on the direction and speed of crustal plate movements over the past 250 million years, put together a second world map showing the oceans and continents as they should appear 250 million years in the future.

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Evidence or “Clues”

- 1. The paleomagnetic stipes or iron crystal patterns in the rocks of northern Brazil and central Africa are mirror images of each other.**
- 2. There is evidence of glacier activity on both sides of the Atlantic Ocean along the Equator.**
- 3. *Glossopteris* is a genus of extinct seed fern (a Pteriosperm) whose fossils are found throughout India, South America, southern Africa, Australia, and Antarctica.**
- 4. *Mesosaurus* was one of the first aquatic reptiles. Fossils have been found in South Africa and South America.**
- 5. The age of the rocks in Europe and north America are the same, and get progressively older as you move inland from the ocean.**
- 6. Fossils of *Lystrosaurus*, a mammal-like reptile, are known from Antarctica, India, and Africa.**
- 7. Mountains in Greenland and Norway are almost identical in their geological structure.**
- 8. The locations of earthquakes and volcanoes are not random. They occur along the margins of the crustal plates.**
- 9. The mountains of Scotland and the Appalachian mountains of north America are almost identical in their geological structure.**
- 10. The geological structure of southern Senegal and the Amazon Basin are almost identical.**



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Cut along edge of each land mass,
don't cut rectangles !

Base map courtesy of the General Libraries, University of Texas at Austin