

## Pangaea Puzzle

### **Overview:**

During this activity, students analyze data collected by scientists to reach their own conclusions about how Earth's continents were positioned 200 million years ago.

### **Objectives:**

The student will:

- understand how Alfred Wegener deduced that all of Earth's continents were once joined;
- understand how scientists proved Wegener's theory; and
- analyze geographic and fossil data plotted on a map to reconstruct Pangaea.

### **Materials:**

- Scissors
- Glue sticks
- Globe
- Student Worksheet: "Pangaea Puzzle"



### **Activity Procedure:**

1. Explain that in the 1900s, Alfred Wegener, a German scientist, noticed that Earth's continents looked like pieces of a puzzle. When he put them together they seemed to form one large continent. He named this continent Pangaea, which means "all lands" in Greek.
2. Distribute scissors, a glue stick and the Student Worksheet: "Pangaea Puzzle" to each student, and ask students if they think Earth's continents were ever joined together. During this activity, students will use fossil and geographic evidence to prove or disprove Wegener's theory.
3. Ask students to follow the directions on the worksheet to analyze the data and come to a conclusion about the ancient positions of Earth's continents.
4. Discuss student conclusions about the positions of Earth's continents 200 million years ago. Ask students to predict the positions of Earth's continents 200 million years from now.

### **Answers to Student Worksheet:**

Data Analysis: See figure of Pangaea, above

Conclusion: Earth's continents were once joined together. Scientists found similar fossils and geographic features on continents that were once joined, proving their Pangaea hypothesis. Student's means of reaching their conclusions will vary.

Further Questions:

1. Fossils on the east coast of South America match fossils on the west coast of Africa.
2. Answers will vary but should indicate understanding of the direction of plate movement.

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### ***Testable Question:***

Were Earth's continents ever joined together?

### ***Background Information:***

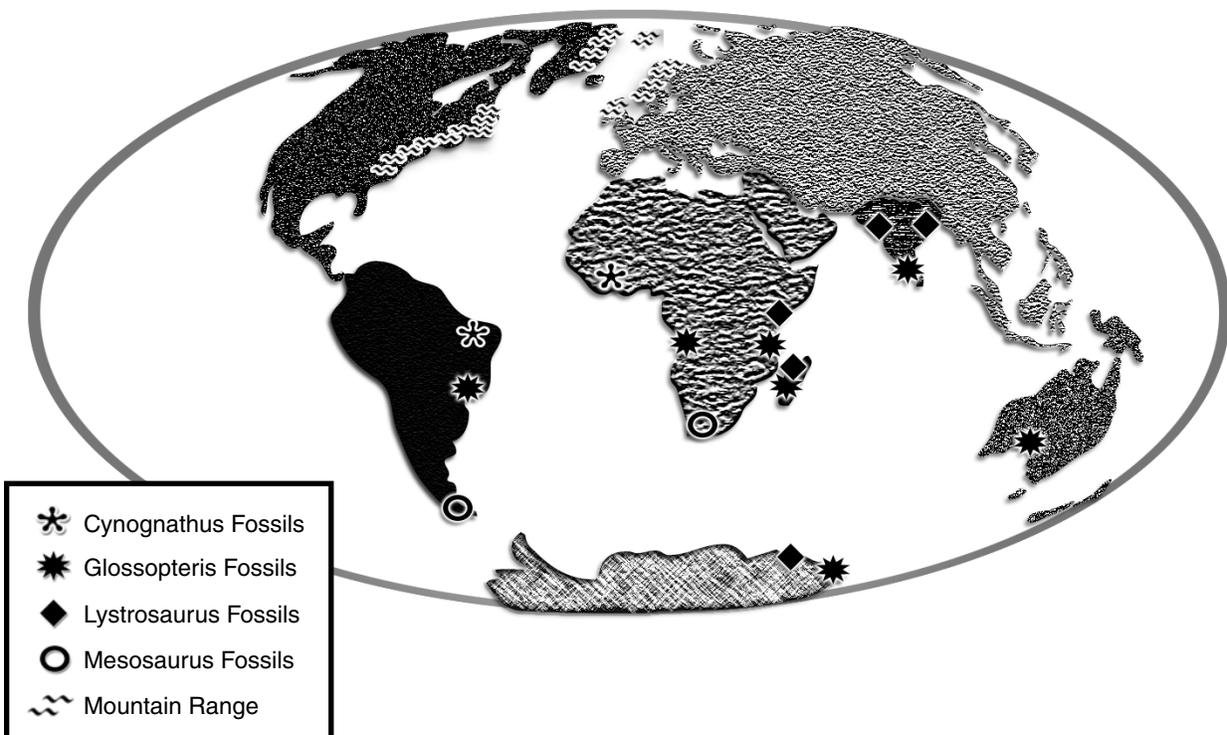
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### ***Hypothesis:***

Scientists hypothesize that Earth's continents were once part of a supercontinent named Pangaea that existed 200 million years ago. They believe that if Earth's continents were all joined in the past, then the same fossils and ancient features should be found in areas that were connected because these areas were once part of the same land mass.

### ***Data:***

Scientists have discovered and identified many ancient fossils and features on Earth's continents. Some of these fossils and features are plotted on the map below. Use the key to identify similar fossils found on different continents.



Name: \_\_\_\_\_

## Pangaea Puzzle

### *Materials:*

- World map from “Data” section of this worksheet
- Scissors
- Glue stick

### *Procedure:*

1. Study the world map and the data it contains. Use a globe to help you identify the continents on your map. The patterns on the map represent different tectonic plates. This is why India is patterned differently than Europe and Asia. Although these land masses are now joined, India is part of a different tectonic plate.
2. Cut out the tectonic plates on your map and lay them on your desk to show how they appear on Earth today.
3. Look carefully at the shape of the plates, and the fossil and geographic evidence on the plates. Use these clues to help you slide the plates together into one supercontinent. (Hint: Continents cannot jump over one another.)
4. Glue your supercontinent in the space below.

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**Conclusion:**

Place a check next to your conclusion:

\_\_\_\_\_ Earth's continents were once joined together.

\_\_\_\_\_ Earth's continents have always been separated.

Was the scientists' hypothesis proved or disproved by the data you analyzed? Use a complete sentence.

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Briefly explain how you came to your conclusion.

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**Further Questions:**

1. What clues exist to show that Africa and South America were once connected?

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2. In the space below draw your prediction of what Earth's continents may look like 200 million years from now. Explain your prediction.

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