

Name: _____

Period: _____

Earth Science - Plate Tectonics

Date: _____

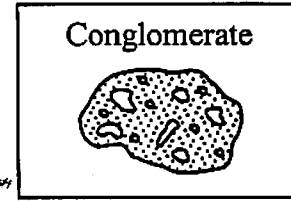
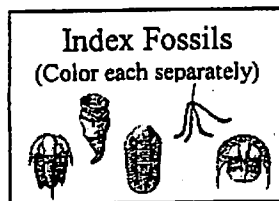
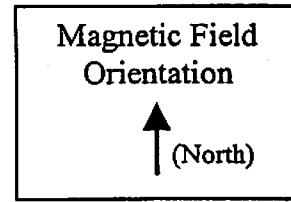
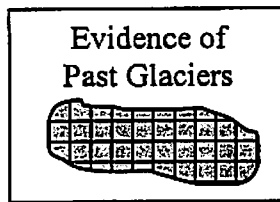
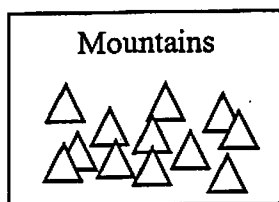
LAB: Continental Drift

Introduction:

Alfred Wegener, a German scientist, proposed his famous theory of continental drift in 1922. Wegener showed that Africa and South America were once joined together as part of a larger continent. At first his evidence was based on just the shape of the two continents and the fossil of the *Mesosaurus*. The *Mesosaurus* is a small reptile that lived 270 million years ago in Brazil and South Africa. Since the *Mesosaurus* fossils are found only in those two locations and *Mesosaurus* was not able to swim across the Atlantic Ocean, Wegener concluded that Africa and South America had to be joined together when the *Mesosaurus* lived. Further study of rock types and other fossils in the area supported Wegener's idea.

In this lab, you will attempt a project similar to Wegener's by repositioning imaginary continents into their original position using the evidence provided on your mini-continents.

Map Key:








Procedure:

- (1) Color each individual symbol on the map the same color. You may choose your own colors. (Ex: color all mountains green, color all sandstone brown, etc.)
- (2) Carefully cut out each piece of the puzzle. It is important to cut each piece out as accurately as possible.
- (3) Using the information you have on each continent, rearrange the landmasses to form the shape of the original super-continent.
- (4) Once you are confident that you have placed the continents back in their original positions you should glue the super-continent to the blank page provided. Be careful to make sure your super-continent fits on the page.
- (5) Complete the index fossil table in Part A.
- (6) Complete the discussion questions in Part B.

Part A: Geologic History

Directions: Use pages 8-9 in the *Earth Science Reference Tables* to complete the chart below.

Fossil	Name of Index Fossil	Geologic Period of the Index Fossil	How Old is the Fossil?
			
			
			
			
			

Part B: Questions

Directions: Read the following questions carefully and answer in complete sentences.

- 1) Besides shape, list 4 other pieces of evidence that helped you reconstruct the supercontinent:

1. _____
2. _____
3. _____
4. _____

- 2) If you found evidence of striations (scratches left in bedrock by a glacier) in a tropical rain forest, what does that tell you about where the continent used to be located?

3) A research team drilling through the ice in Antarctica found evidence of coal beds.

(a) Use your Earth Science Reference Tables to determine what coal is made of.

(b) Based on your answer above, what does the discovery of coal deposits under the ice in Antarctica tell you about the past climate of Antarctica?

4) Marine fossils have been discovered in the Alps (A mountain range in Germany, Italy, France, Austria, and Switzerland) at elevations higher than 10,000 feet. How is it possible for the remains of ocean-dwelling creatures to be found in rock at such high elevations?

5) The Atlantic Ocean is approximately 640,000,000 cm wide. The Atlantic Ocean first formed when North and South America began to separate from Eurasia and Africa about 200,000,000 years ago. Use this information to answer the questions below.

(a) Use page 8 and 9 in the Earth Science Reference Tables to determine the geologic period when the Atlantic Ocean first opened. (Hint: An important Geologic Event)

Name of Period: _____

(b) What is the rate of separation of the Atlantic Ocean? Follow the steps below to get your answer.

(1) Write the formula for rate of change:

(2) Substitute the correct values into your equation:

(3) Write your final answer along with the correct units:

Place your reassembled super-continent on this page:
(Be sure to test fit your pieces first!!!)

