

Earth and Life History

Name:

Pangaea Flip Book

Period:

You have learned that Earth is made up of big chunks of moving rock. These are called **tectonic plates**; their shapes can be easily determined by the pattern of earthquake locations that occur along their edges. In fact, it is the constant, slow, steady movement of these plates moving about and grinding against each other which causes earthquakes and volcanoes in the first place. Based upon your existing knowledge, you know what the land mass arrangement of the Earth looks like at the present day. However, how did it look in the past? This lab should answer this question for you.

You should have 3 sheets in front of you that show the surface of the Earth at different times in its history. Piece #20 approximately represents the current arrangement of land masses (though in fact it is a few million years before the present). Every piece going backward from #20 represents a step back in time of about 10 million years.

1. Begin with piece #20 and color the land masses as described below. Do one land mass at a time, and follow it back through the pieces. Keep going back in time and coloring it until the land mass has merged with another one. Then, pick another land mass and follow that one back, coloring it as you go. Use the color codes below, and check each one off as you finish coloring it back through time.

- North America—blue
- South America—red
- Australia—brown
- India—light brown
- Africa—orange
- Greenland—green (duh!)
- Europe & Asia—violet
- Antarctica—yellow

2. Now travel the other direction in time, beginning with Piece #1. The large land mass is a supercontinent called **Pangaea**. This name is pronounced *pan-jee-ah*. Color Pangaea light blue . Keep coloring Pangaea until you meet up with the other land masses that you have already colored.

3. Cut out each of the pieces along the dotted lines and stack them in numerical order with #1 on the top. Line them up so the number of each card should be in the lower right of each picture .

4. You now have a flip book. By holding the stack on the left side, you can make the continents move about by flipping through the pieces. You are modeling the breakup of Pangaea, as well as the movement towards the present configuration of land masses, caused by plate tectonics.

5. Use your flip book to answer the questions on the back of this page.



Paraphrased from and based upon [Project Earth Science: Geology](#) by Brent Ford (1996)

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1. What event began about 200 million years ago?

The event that began about 200 million years ago was...

2. In which piece did you decide the following land masses first separated from other land masses? *Hint: look for the smallest numbered piece that still has that land mass colored.*

North America first separated in piece number _____

Australia first separated in piece number _____

India first separated in piece number _____

Africa first separated in piece number _____

Antarctica first separated in piece number _____



3) In which piece did you stop coloring Pangaea?

I stopped coloring Pangaea in piece number _____ .

I decided to stop coloring it here because...

4) When plates slam together, they create massive mountain ranges at places called **convergent margins**. Based upon your flip book, where in the world would you expect to find large mountains that resulted from plates colliding with each other? Give 2 locations. *Hint: where were land masses moving closer together?*

Location 1 would be between _____ and _____

location 2 would be between _____ and _____

5) Again, look at your flip book. When plates move apart, the area between them is called a **divergent margin**. Where do you think divergent margins exist in the world? Be specific about at least 2 locations (name surrounding continents and oceans, such as "Between A and B, in the C ocean"). *Hint: where were land masses moving farther apart from each other?*

Location 1 would be between _____ and _____, in the _____ Ocean.

location 2 would be between _____ and _____, in the _____ Ocean.