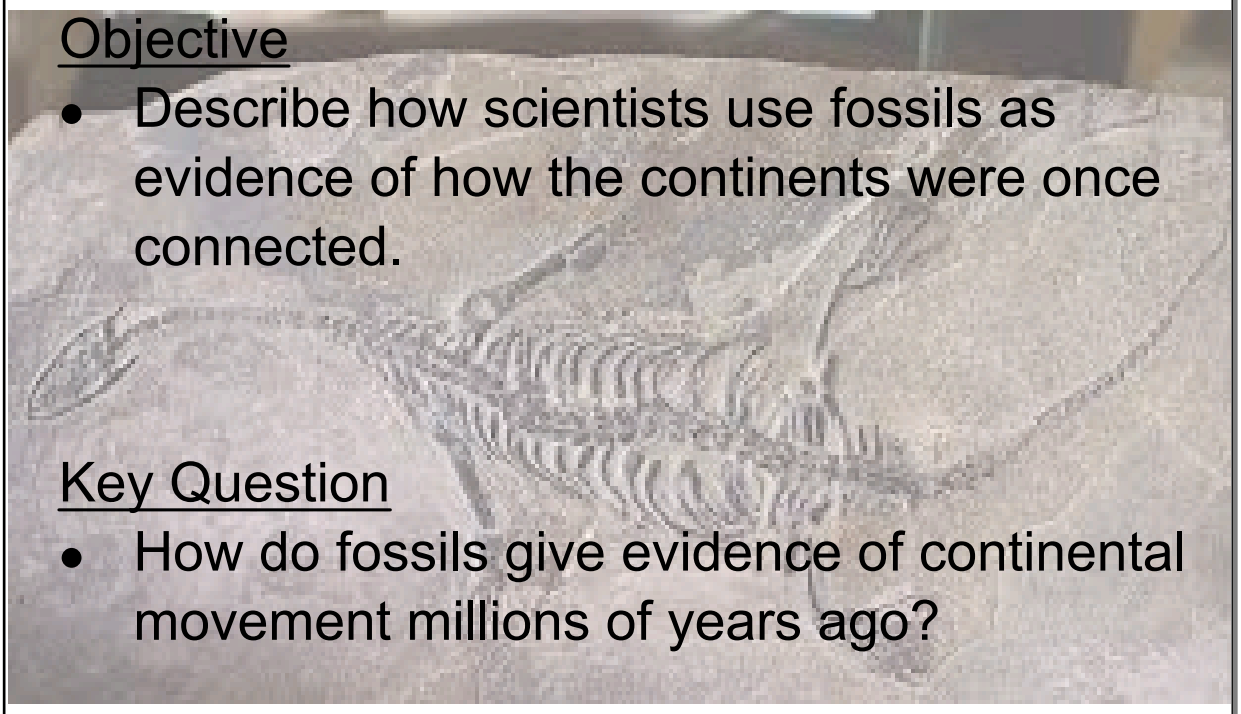
Lesson 8

Fossils Help To Put the Pieces Together

Mar 6-3:16 PM



Objective

- Describe how scientists use fossils as evidence of how the continents were once connected.

Key Question

- How do fossils give evidence of continental movement millions of years ago?

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Materials Needed

For each student:

- 9 student pages

For each group of 2-3:

- 1 large manila envelope

For the class:

- World Map
- Tectonic Plates Map
- 2 Africa Card Sets
- 2 South America Card Sets
- 2 Australia pictures Card Sets
- 2 Antarctica Card Sets
- 2 Indian Card Sets
- 10 *Fossil Across the Continents* Card Sets

Advanced preparation needed

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Who can tell me about the theory of Pangea?

What evidence do scientists have that support this theory?

https://www.youtube.com/watch?v=5ppyGg3vRs8

We are going to do some exploring of the layers of the Earth and fossils that may give you evidence to support the theory of Pangea.

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Think of your learning style, (auditory, visual, or kinesthetic) and put yourselves in groups of 2-3 kids. Try to match up with one person who doesn't have your learning style.

You and your partners are a team of paleontologists that will be assigned a continent to explore for fossils

Pretend you are a great, well-known paleontologist who digs for fossils that are over three hundred million years old. Today you are assigned a continent to explore and dig for fossils. Two teams will be assigned the same continent, making two teams per continent. After you have completed your "dig" and identified the plant and animal remains, you will join scientists from four other continents and share your discoveries.

Mar 8-7:58 AM

Each team is going to get a "Paleontologist Assignment" envelope.

- Read the "Paleontologist Assignment" on page 22 of your packet with me. Make sure you record your data in the table on pager 29 for your continent. You will fill in the other continents when you meet with the other "Paleontologists).

Mar 8-8:56 AM

1. Complete the appropriate column on the chart below with the data you are collecting on your "dig".

Time	Antarctica	Australia	India	Africa	South America
Modern Day					
100 million years ago					
200 million years ago					
300 million years ago					

2. Discuss the results from you "dig" with the results from other continent teams and record the data from each continental "dig."

Mar 8-3:44 PM

1. Complete the appropriate column on the chart below with the data you are collecting on your "dig".

Time	Antarctica	Australia	India	Africa	South America
Modern Day		Echidna Earthworms Ferns	Pangolin Earthworms Ferns	Aardvark Earthworms Ferns	Giant Anteater Earthworms Ferns
100 million years ago	Minmi Austrosaurus	Minmi Austrosaurus	Brachypodosaurus	Kentrosaurus	Secernosaurus
200 million years ago	Later G. Flora Dicrodium Lytosaurus	Later G. Flora Dicrodium	Later G. Flora Dicrodium Lytosaurus	Later G. Flora Dicrodium Mesosaurus Lytosaurus	Later G. Flora Dicrodium Mesosaurus
300 million years ago	Early G. Flora	Early G. Flora		Early G. Flora	Early G. Flora

Discuss the results from you "dig" with the results from other continent teams and record the data from each continental "dig."

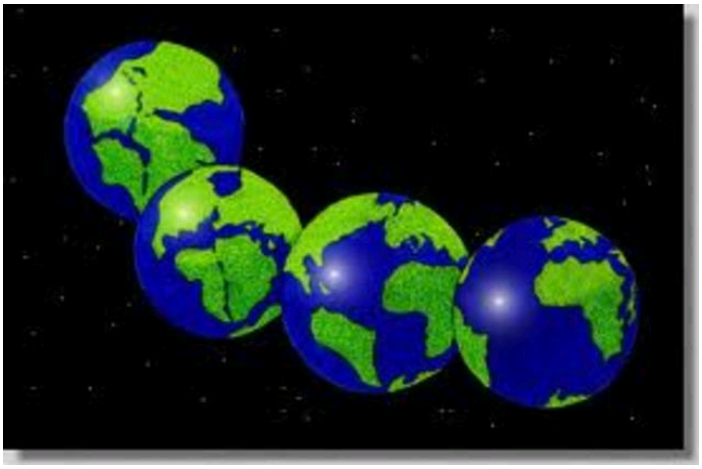
Mar 8-3:44 PM

How can lands that are separated by vast oceans, with very different climates, have the same kinds of fossilized plants and animals?

- How can the same species of plants and animals move across vast oceans and live in different climates?
- Does anyone have a different idea to explain this discovery?
- How does the discovery of the same type of plants and animals give evidence of the continents of today forming one large land mass?
- How have the environmental conditions on the continents changed?

Mar 8-3:53 PM

Over 250 million years ago, all of the continents formed one large continent scientists call Pangea. Pangea split apart into a northern section and a southern section and then finally into the continents we know today.



Mar 8-4:27 PM

by Nan Criqui

Most people know that Earth is moving around the Sun and that it is constantly spinning. But did you know that the continents and oceans are moving across the surface of the planet? **Volcanoes** and earthquakes as well as mountain ranges and islands all are results of this movement.

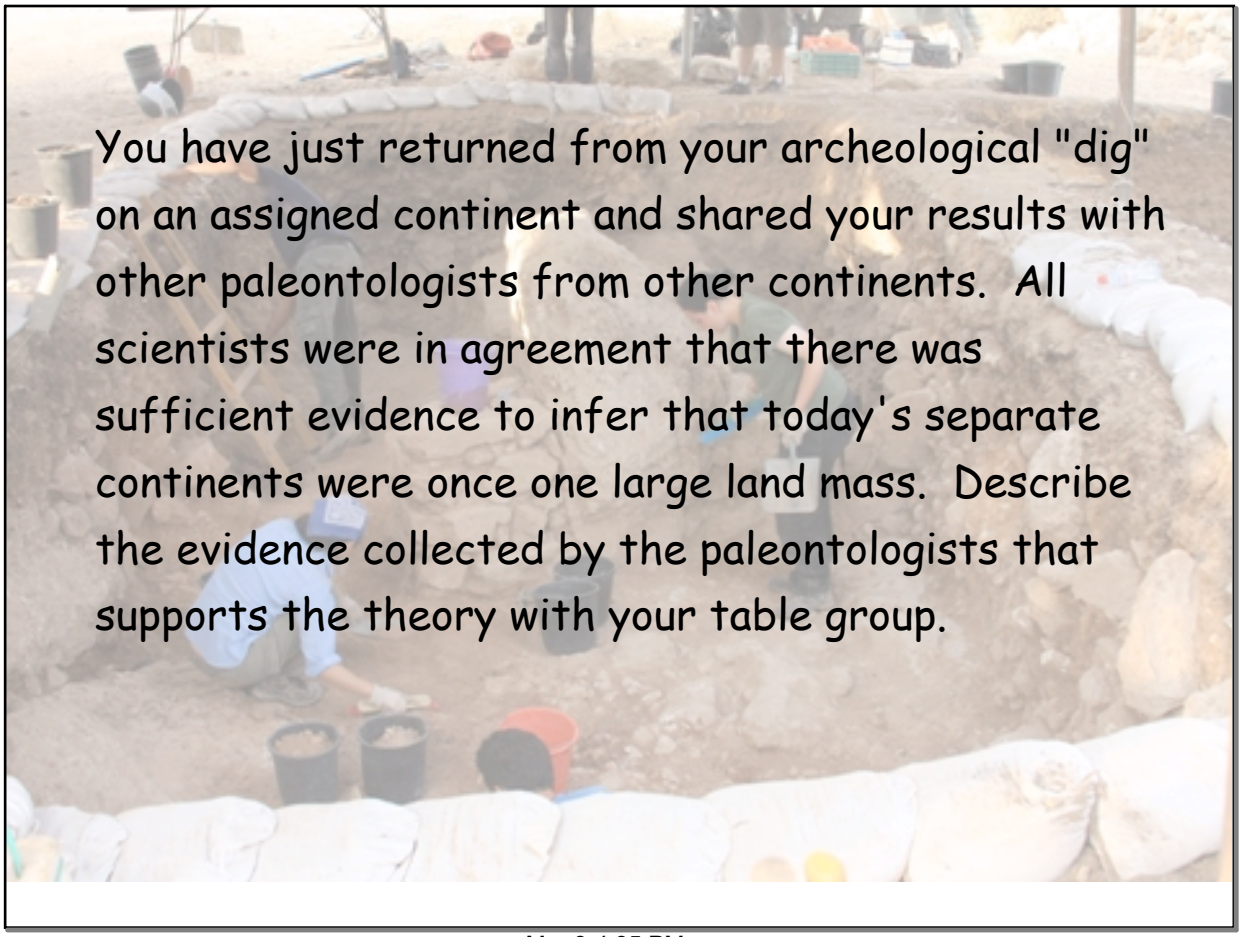
Less than 100 years ago, many scientists thought the continents always had been the same shape and in the same place. A few scientists noted that the eastern coastline of South America and the western coastline of Africa looked as if they could fit together. Some also noted that, with a little imagination, all the continents could be joined together like giant puzzle pieces to create one large continent surrounded by one huge ocean.

Imagine the continents as giant puzzle pieces. When the pieces are placed in this arrangement you can see how well their coastlines fit together.

Click here to see where fossils were found!

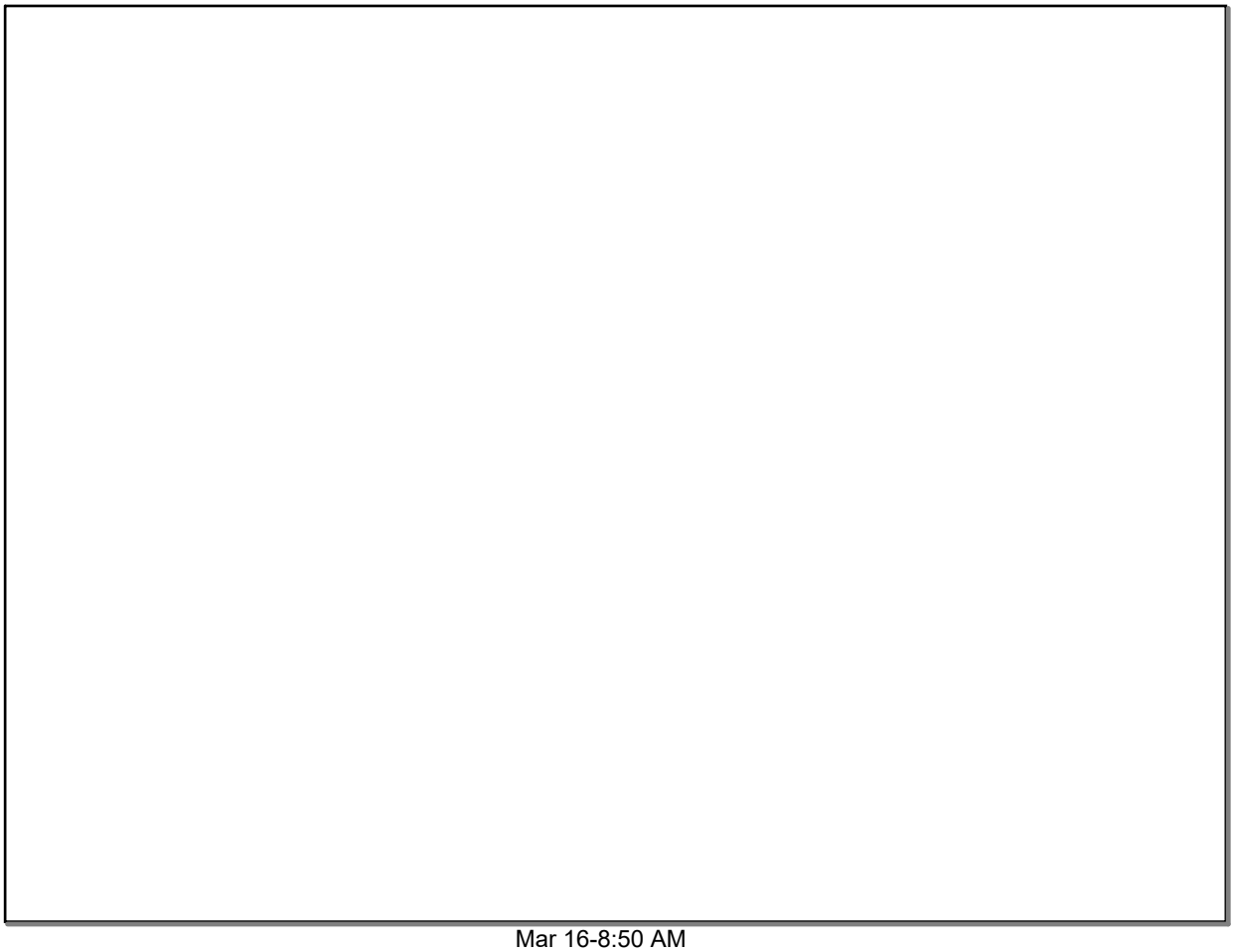
It was known that lands now far apart and with very different climates contained the same kinds of fossil plants and animals. For example, certain **dinosaur** fossils have been found across central South America and western central Africa, and nowhere else. Identical fossil plants have been found in southern South America, southern Africa, India, Antarctica, and Australia. Evidence of an ancient glacier that was once one large ice cap can be found in South America, Africa, India, and Australia. These areas would join if the present continents were moved so that they fitted together into one whole. But no one could explain how or why this movement might happen.

Mar 8-4:22 PM



You have just returned from your archeological "dig" on an assigned continent and shared your results with other paleontologists from other continents. All scientists were in agreement that there was sufficient evidence to infer that today's separate continents were once one large land mass. Describe the evidence collected by the paleontologists that supports the theory with your table group.

Mar 8-4:35 PM



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