Clues to Earth's Past

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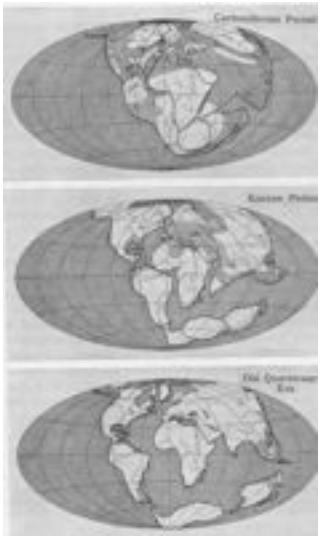

[1] How do scientists know what the Earth was like long ago? Scientists ask questions. They notice things. They gather clues and evidence. Then they make a hypothesis. They try to collect information to prove whether their hypothesis is correct or not.

[2] In 1915, Alfred Wegener published his theory of continental drift. He said that all of Earth's continents were drifting. He thought that they could fit together. He carefully studied the outlines of the continents. He noticed that Africa and South America looked as though they would fit together like a jigsaw puzzle. He compared rock types from both sides of the Atlantic Ocean. He looked at fossils in the rock and found similar ones. How did the rocks and fossils get separated by the Atlantic Ocean?

[3] Wegener believed that all of Earth's land masses were once joined into one giant landmass. He called it Pangaea, meaning "All Earth." Then, he said, Pangaea split apart. The different continents drifted away from each other, in time finding their modern places.

[4] Wegener's ideas were not accepted at the time. He couldn't explain how the continents moved. In the 1950s and 1960s, other scientists found evidence for Wegener's theory of continental drift. They found fossils of a seed fern that had lived 250 million years ago. The same type of plant's fossils was found in South Africa, Australia, and India. Scientists believed the seeds of this plant were too big to have been carried across the ocean by wind. They could not explain how the plant could have traveled so far if the continents were in the same place then as they are now.

[5] More fossil evidence was found. A hippo-like reptile left fossils in Africa, South America, and Antarctica. Scientists did not believe this animal could have swum the oceans between these land masses.

[6] Rocks also supported Wegener's theory. The Cape Mountains of South Africa match the folded mountains near Buenos Aires, Argentina. It is very likely they were part of the same mountain range at one time. Similar rocks, deposited by glaciers, have been found in South America, Africa, India, Australia, and Antarctica. This would show that the same ice sheet may have once covered those places during one of the ice ages. In 1962, Harry Hess explained how the sea floor spreads and the continents move with it. Today Wegener's theory of continental drift is widely accepted.

[7] Fossils are evidence of the plants and animals that used to live on the Earth. Scientists can date the rocks that fossils are found in. They can get a pretty good idea of how old the rock is and when the plant or animal must have been become trapped in the rock.

[8] Another tool scientists use is DNA evidence. DNA is in the cells of every living thing. Changes in DNA over time create new adaptations and even new species. Scientists can compare the DNA of two different living things. They can get an idea of how closely related the two living things are (or were). DNA can only be gathered from living things, or sometimes, from soft body parts that have been preserved. These two things used together can give scientists a good picture of Earth's past.

Name _____ Science Pd _____

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1. Alfred Wegener's theory of _____ said that all of Earth's continents were moving.
   - (A) Evolution of continents
   - (B) Seafloor spreading
   - (C) The great rift
   - (D) Continental drift

2. Wegener's idea was thought to be true right away.
   - (A) False
   - (B) True

3. Which of these did **not** support Wegener's theory of continental drift?
   - (A) Similar rocks on different continents
   - (B) Fossils of plants and animals found on different continents
   - (C) Similar glacial deposits found on different continents
   - (D) DNA evidence

4. More than _____ years passed before Wegener's theory was supported by new evidence.
   - (A) Forty
   - (B) Fifty
   - (C) Thirty
   - (D) Twenty

5. What did Wegener call Earth's one giant landmass?

   _____

   _____

6. Why were Wegener's ideas not accepted at the time?

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