

Plate Tectonics and Earth History

Plate tectonics is one possible answer to the riddle of trilobite extinction. Earth's moving plates caused continents to collide and separate many times. Continental collisions formed mountains and closed seas. Continental separations created wider, deeper seas between continents. By the end of the Paleozoic Era, sea levels had dropped and the continents had come together to form one giant landmass, the supercontinent **Pangaea** (pan JEE uh). Because trilobites lived in the oceans, their environment was changed or destroyed. **Figure 11** shows the arrangement of continents at the end of the Paleozoic Era. What effect might these changes have had on the trilobite populations?

Not all scientists accept the above explanation for the extinctions at the end of the Paleozoic Era, and other possibilities—such as climate change—have been proposed. As in all scientific debates, you must consider the evidence carefully and come to conclusions based on the evidence.

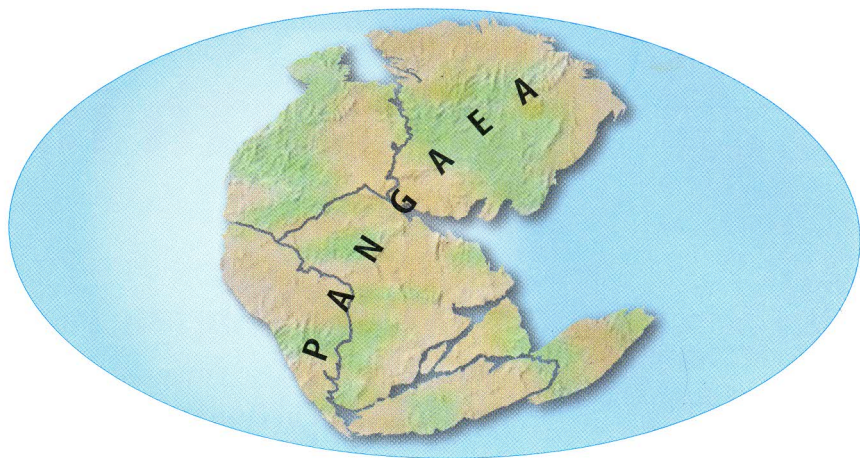


Figure 11
The amount of shallow water environment was reduced when Pangaea formed. How do you think this change affected organisms that lived along the coasts of continents?

Section 1 Assessment

1. Discuss how fossils relate to the geologic time scale.
2. How might plate tectonics affect species of organisms?
3. Relate trilobite eye type to lifestyle type.
4. Why can paleontologists use some trilobite fossils as index fossils for the Cambrian Period and other trilobite fossils as index fossils for other geologic time periods?
5. **Think Critically** Aside from moving continents, what other factors could cause an organism's environment to change? What effects could changing environments have on species?

Skill Builder Activities

6. **Recognizing Cause and Effect** Answer the questions below. For more help, refer to the **Science Skill Handbook**.
 - a. How does natural selection cause evolutionary change to take place?
 - b. How could the evolution of a characteristic within one species affect the evolution of a characteristic within another species? Give an example.
7. **Communicating** Write a short poem in your Science Journal that describes a day in the life of a trilobite. For more help, refer to the **Science Skill Handbook**.