

LAB

**Laboratory
Activity**

Paleogeographic Mapping

Paleo- means old as in paleontology, the study of old life (fossils). *Geo-* means Earth, as in geology, the study of Earth. *Graphic* refers to a drawing or painting. Therefore, paleogeographic could be translated as “Old Earth Picture.” Scientists often use fossil evidence to help them develop a picture of how Earth was long ago. By examining and dating rock formations and fossils of various plants and animals, scientists are able to formulate hypotheses about what Earth’s surface might have looked like during a particular period in history. For example, similar rock formations and certain types of plant and animal fossils of a particular age could indicate whether two, now separate, land areas might have been connected during that period. Further analysis of the samples and data could also provide clues to the climate of that area or whether it was dry land or covered by an ocean. To classify events in the geologic past, scientists have divided the millions of years of Earth’s history into segments, called *eras*. In this activity, you will examine evidence from the fossil record relative to a current map of an imaginary continent and develop a map of what the continent and the surrounding area might have looked like during the Mesozoic Era (248 million to 65 million years ago).

Strategy

You will determine how fossil evidence can be used to infer information about a continent during the geologic past.

You will interpret fossil evidence to draw a map showing how a continent appeared during the Mesozoic Era.

Materials

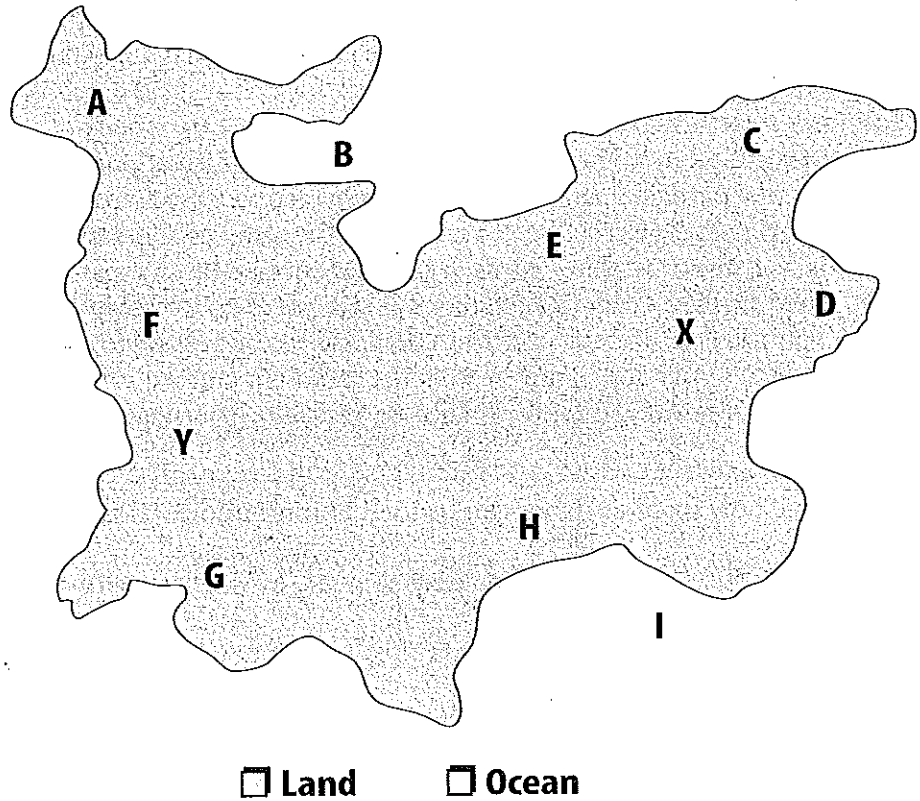
colored pencils or markers

Procedure

1. Figure 1 shows a map of a present-day imaginary continent. Locations *A* through *I* are places where fossils have been found in rocks dating to the Mesozoic Era. Study the map and look at the fossils key below the map.
2. From the locations of the different fossils, infer where the land areas were at the time the fossil organisms lived. Keep in mind that the way the modern continent looks may have no relationship to where the land/ocean boundaries were during the Mesozoic Era.
3. Use one color of pencil or marker to color in the land areas on the map in Figure 1. Fill in the block labeled Land with the same color. Use a different color of pencil or marker to color in the ocean areas on the map in Figure 1. Fill in the block labeled Ocean with this color.
4. In the space provided under Data and Observations, draw a map showing land and water areas during the Mesozoic Era. Use the color boundaries you added to Figure 1 as your guideline. Based on these boundaries, add all of the symbols from the map key in Figure 1 to your map.
5. Color all the areas around and between the labeled areas on your map as either land or ocean. Fill in the blocks labeled Land and Ocean with the colors you used.

Laboratory Activity 1 (continued)

Figure 1



Fossils found in Mesozoic rocks

A (shark teeth)

B (petrified wood)

C (sea stars)

D (leaf and fern imprints)

E (seashell fragments)

X, Y (Areas to be identified after completing your map)

F (teeth/bones of small mammals)

G (dinosaur bones)

H (corals)

I (dinosaur footprints)

Laboratory Activity 1 (continued)**Data and Observations****Mesozoic Map**

Land Ocean

Questions and Conclusions

1. According to your map, was location Y land or water during the Mesozoic Era? Explain how you decided.

2. According to your map, was location X land or water during the Mesozoic Era? Explain how you decided.

3. Compare your map with those of other students. Why do you think that not everyone agreed on whether location X was land or water? How could you find out which interpretation was correct?



Laboratory Activity 1 (continued)

4. Corals grow only in warm, shallow oceans near the coastlines of continents that are relatively near the equator. Would knowing this fact make you revise your map? Why or why not?
- _____
- _____
- _____
5. Suppose the modern continent shown in Figure 1 was located in an area that is extremely cold. Using the evidence you have, plus the information in Question 4, what could you infer about the continent?
- _____
- _____
- _____

Strategy Check

- _____ Can you determine how fossil evidence can be used to infer information about a continent during the geologic past?
- _____ Can you interpret fossil evidence to draw a map showing how a continent appeared during the Mesozoic Era?