Name _____ Date _____ Class _____

PERFORMANCE ASSESSMENT

Layers of Rock

◆ Problem

Last spring, a team of geologists made a study of the rock layers exposed on the side of a cliff. Here are the notes one of the geologists made.

> "On this cliff, we can see six layers of sedimentary rock. There is an extrusion between the third and fourth oldest layers. Through dating a sample of that rock, we determined the extrusion to be 250 million years old. An intrusion extends from the bottom layer into the fourth oldest layer. Through dating a sample of that rock, we determined the intrusion to be 100 million years old. We also looked for fossils. In the three oldest layers, we discovered fossil trilobites. In the second and third oldest layers, we found fossils of fishes. We found reptile fossils in the third oldest layer and the layer above it. In the younger layer that had a reptile fossil, we also discovered a dinosaur fossil. We found bird fossils in the second and third youngest layers. Most interesting was the fossil from a whale we found in the youngest layer."

This geologist needs a drawing for the final report that shows what the team found. How can you make a drawing from the geologist's notes?

◆ Procedure

1. **Make a list of every feature** the geologist found that could help you make a drawing of the site.
2. Make a drawing from your list. **Label the sedimentary rock layers A–F**, from oldest to youngest.
3. **Create a key** that tells what symbols you used on the drawing.

◆ Analyze and Conclude

Answer the following questions on a separate sheet of paper.

1. Which rock layer is the oldest? Explain how you know.
2. How did the geologists probably date the extrusion and intrusion? Explain.
3. Why didn't the geologist include dates in the notes for the sedimentary rock layers?
4. What is the age of sedimentary rock layer D? Explain how you determined its age.