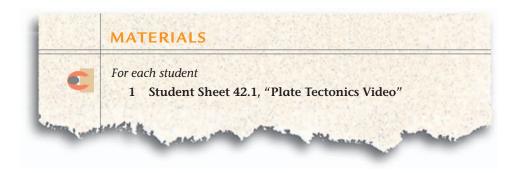In Activity 40, "The Continent Puzzle," you investigated the movement of continents. Today, geologists know that it's not just the continents that move—it is the entire surface of the earth! The earth's surface is broken into large sections called **plates.** These plates not only include the surface of the earth, but also extend down into the solid part of the upper mantle. This is one reason that geologists use the term "lithosphere." The movement of these lithospheric plates is called **plate tectonics** (tek-TAWN-iks).

CHALLENGE

How did continental drift lead to the theory of plate tectonics?

MATERIALS

For each student
1 Student Sheet 42.1, "Plate Tectonics Video"

Divers examine an underwater volcanic vent.

PROCEDURE

1. To prepare for watching the video, first read Analysis Questions 1–3.

2. Your teacher will provide you with Student Sheet 42.1, "Plate Tectonics Video." It will help you identify some of the important ideas presented in the video. Read the questions on Student Sheet 42.1.

3. Watch the video segments on continental drift and plate tectonics.

4. Answer as many questions on Student Sheet 42.1 as you can.

5. Watch the video segments again.

6. Complete Student Sheet 42.1.

ANALYSIS

1. Why were scientists surprised to find coal in the Arctic?

2. Think about what you learned from the video about where volcanoes are most likely to occur. Based on this information, do you think that the risk of a volcanic explosion at Yucca Mountain is high or low? Explain.

3. **a.** The idea of continental drift eventually led to the modern theory of plate tectonics. To help you remember similarities and differences between these two ideas, create a larger version of the Venn diagram shown below in your science notebook.

   b. Compare continental drift and plate tectonics by recording unique features of each idea in the circle with that label. **Hint:** Think about what you have learned about these ideas in the last few activities.

   c. Record features that are common to both these ideas in the space that overlaps.