15 The Rock Cycle

INVESTIGATION

The surface of Earth is ever changing. Some changes happen suddenly, such as volcanic eruptions or destructive landslides. Some happen more gradually, such as lithospheric plates moving and mountains forming. The geological processes that cause these changes also form different types of rock. Since scientists recommend that nuclear waste be stored deep underground, it is important to know about the different types of rock that might be under the surface.

Geologists identify rocks by their properties, including what they are made of, and give the rocks names, such as granite, obsidian, or marble. Geologists also group rocks based on how they formed. You already know how two types of rock form. Igneous rock forms when magma and lava cool and solidify. Sedimentary rock forms when sediments are pressed and glued together. A third type, **metamorphic rock,**

MATERIALS

1

9. Stop playing when the second person crosses the Start space again.
10. Your teacher will distribute Student Sheet 15.2, "Rock Formation." Work with your group and use information from all group members' Student Sheets to complete Student Sheet 15.2.

ANALYSIS

1. Create a diagram to describe the rock cycle.
   a. Start by drawing and describing igneous, metamorphic, and sedimentary rock.
   b. Draw arrows between igneous, metamorphic, and sedimentary rock to show all the ways rock can change into other types of rock.
   c. Label the arrows with the geological process that causes each change.
   d. Include the time scale of changes by labeling at least one sudden and one gradual change.
   e. Draw a star next to a geological process driven by energy from the Sun. Draw a circle next to a geological process driven by energy from Earth's hot interior.
2. You have learned that different kinds of rock are constantly formed by geological processes, but Earth's total mass stays constant. How is that possible? Explain using what you learned in this activity.
3. Which type of rock do you think would be most stable for storing nuclear waste? Explain using evidence from this activity.