

SECTION 3-3

SECTION SUMMARY

Volcanic Landforms

Guide for Reading

- ◆ What landforms does lava create on Earth's surface?
- ◆ How does magma that hardens beneath the surface create landforms?

Some volcanic landforms are formed when lava flows build up mountains and plateaus on Earth's surface. **Rock and other materials formed from lava create a variety of landforms including shield volcanoes, composite volcanoes, cinder cone volcanoes, and lava plateaus.**

At some places on Earth's surface, thin layers of lava pour out of a vent. More layers of such lava harden on top of previous layers. The layers gradually build a wide, gently sloping mountain called a **shield volcano**. If a volcano's lava is thick and stiff, the lava may explode into the air and harden into ash, cinders, and bombs. These materials pile up around the vent, forming a steep, cone-shaped hill or mountain called a **cinder cone**. Sometimes lava flows alternate with explosive eruptions of ash, cinders, and bombs. The alternating layers form a tall, cone-shaped mountain called a **composite volcano**. Some eruptions of thin, runny lava flow out of cracks and travel a long distance before cooling and hardening. Over millions of years, these layers of lava build up over a large area to form a lava plateau.

An enormous eruption may empty a volcano's main vent and magma chamber. With nothing to support it, the top of the mountain collapses inward. The huge hole left by the collapse of a volcanic mountain is called a **caldera**.

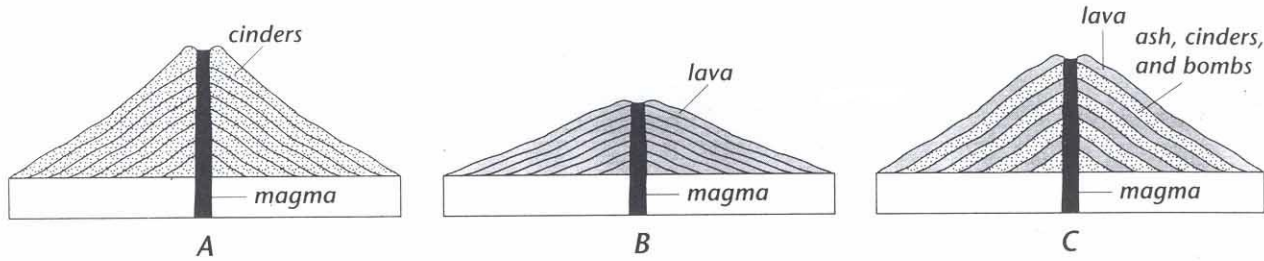
Over time, the hard surface of a lava flow breaks down to form soil. Some volcanic soils are among the most fertile soils in the world. People have settled close to volcanoes to take advantage of the fertile soil.

Sometimes magma rises upward through cracks in the crust but does not reach Earth's surface. The magma cools and hardens into rock beneath the surface. **Features formed by magma include volcanic necks, dikes, and sills, as well as batholiths and dome mountains.** A **volcanic neck** forms when magma hardens in a volcano's pipe. The softer rock around the pipe wears away, exposing the hard rock of the volcanic neck. A **dike** forms when magma forces itself across rock layers and hardens. A **sill** forms when magma squeezes between layers of rock and hardens. When a large body of magma cools inside the crust, a mass of rock called a **batholith** forms. Smaller bodies of hardened magma can form dome mountains.

SECTION 3-3 REVIEW AND REINFORCE

Volcanic Landforms

◆ Understanding Main Ideas



Answer the following questions on a separate sheet of paper.

1. Name each type of volcano shown in the diagrams. How is each formed?
2. How does a lava plateau form?
3. What happens to create a caldera?
4. Why is volcanic soil so fertile?

◆ Building Vocabulary

Define each of the following terms in the spaces provided.

5. batholith _____

6. dike _____

7. volcanic neck _____

8. sill _____
