

## 24.3 The Geology and Geography of Oil

For most Americans, oil comes from a gas station, which is where they typically purchase oil to lubricate their car engines. To power those engines, they also buy gasoline made from oil. In some regions of the United States, people also heat their homes by burning oil. The oil that Americans burn in their cars and homes took a long time to form, and more often than not, that oil has traveled a very long distance to reach this country.

**Oil Was Formed Millions of Years Ago** The oil that is pumped out of the ground today was formed a very long time ago. It began as tiny plants and animals that lived and died in the oceans. After they died, these creatures sank to the ocean floor. Over time, most of their remains were transformed into rock. Layer after layer of rock was formed in this manner. However, some of these plant and animal remains did not turn into rock. The weight of the water, heat from Earth's core, and chemical changes combined to transform some of the remains of these creatures into oil and natural gas.

Over time, the oil and natural gas seeped into pores, or tiny holes, within the layers of rock. These pores may be too small to see, but they are large enough to hold oil and gas, in much the same way that a sponge holds water.

At times, some of this oil or gas has risen to Earth's surface. However, most of it remains trapped underneath a layer of **impermeable rock**. *Impermeable* means "preventing the passage of liquid or gas." Geologists call this layer a **cap rock** because it functions like the cap on a container. This cap rock keeps most of the oil and natural gas contained deep inside the earth.

**Oil Is Found in Pockets Deep in the Earth** A great amount of the world's oil lies buried under Southwest Asia. One reason for these large deposits is that millions of years ago this area was under water. The sea that covered the region contained the tiny plants and animals that began the process of making oil.

### From Sea Creatures to Crude Oil

The oil we use today was formed millions of years ago. It began as tiny creatures that sank to the bottom of the sea. As the creatures decayed, parts of their remains slowly turned into oil. Because oil formation is so slow, oil is a nonrenewable resource.

