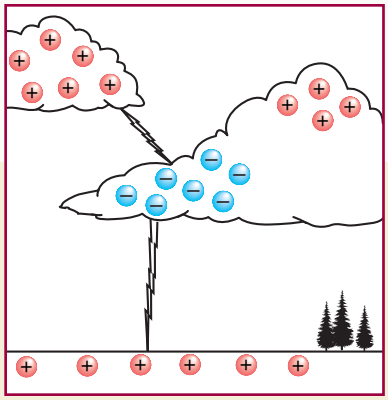
CHAPTER 17

Electrical Energy and Current



During a thunderstorm, different charges accumulate in different parts of a cloud to create an electric field between the cloud and the ground. Eventually, a critical *breakdown voltage* is reached. At this point, the molecules in the air are broken down into charged particles, forming a state of matter called a *plasma*. Because a plasma conducts electricity, an electric charge flows between the cloud and the ground, an event known as lightning.

WHAT TO EXPECT

In this chapter, you will learn about electric potential and electrical energy and will learn about how capacitors can be used to store electrical energy. You will be introduced to electric current and resistance.

Why it Matters

The use of electrical energy is universal in our modern society. An understanding of electrical energy and the factors that affect its rate of use can help us use electric power more wisely.

CHAPTER PREVIEW