

**Lesson Outline****LESSON 3*****Describing Circuits*****A. Parts of an Electric Circuit**

1. An electric circuit transforms \_\_\_\_\_ energy to other forms of energy.
2. An electric circuit contains a(n) \_\_\_\_\_ source.
  - a. A(n) \_\_\_\_\_ is often used as an energy source.
  - b. As chemicals react within a battery, the battery's \_\_\_\_\_ terminal loses electrons and its \_\_\_\_\_ terminal gains electrons.
  - c. When the terminals are connected in a closed circuit, electrons flow from the \_\_\_\_\_ terminal of a battery to the \_\_\_\_\_ terminal.
3. An electric circuit contains at least one electric \_\_\_\_\_ that transforms energy.
  - a. Within a battery, \_\_\_\_\_ energy transforms into \_\_\_\_\_ energy of moving electrons.
  - b. When the electrons flowing in a conductor \_\_\_\_\_ with the atoms that make up the conductor, the electrons transfer some of their \_\_\_\_\_ energy to the atoms.
4. An electric circuit contains \_\_\_\_\_ that connect its components.
  - a. Wires that connect components of a circuit have \_\_\_\_\_ electric resistance.
  - b. Only a small amount of electric energy is transformed into \_\_\_\_\_ energy by wires, which means that more energy is available for useful devices in the circuit.

**B. Series and Parallel Circuits**

1. A(n) \_\_\_\_\_ circuit is an electric circuit that has only one closed path for an electric current to follow.
  - a. Because there is only one path, when a series circuit is \_\_\_\_\_, all \_\_\_\_\_ turn off.

## Lesson Outline continued

**b.** Adding devices to a series circuit adds \_\_\_\_\_ to the circuit and \_\_\_\_\_ the current in the circuit.

**2.** A(n) \_\_\_\_\_ circuit is an electric circuit that has more than one closed path for an electric current to follow.

**a.** Most circuits in homes are \_\_\_\_\_ circuits.

**b.** In a parallel circuit, each \_\_\_\_\_ has its own path, or \_\_\_\_\_, that connects it to the source.

**c.** If you \_\_\_\_\_ one branch of a parallel circuit, current continues through other branches.

**d.** Adding devices and branches to a parallel circuit \_\_\_\_\_ the total electric current through the \_\_\_\_\_.

### C. Electric Circuits in the Home

**1.** Electric energy is generated at large \_\_\_\_\_.

**2.** Before entering your house through a main \_\_\_\_\_, the main wire passes through a(n) \_\_\_\_\_, which measures the \_\_\_\_\_ used in your home.

**3.** \_\_\_\_\_ and circuit \_\_\_\_\_ are safety devices that keep the \_\_\_\_\_ in a circuit from becoming too high.

**4.** A(n) \_\_\_\_\_ is a safety device in an electric outlet that opens a circuit to stop current flow, which can help protect you from electric \_\_\_\_\_.

### D. Electric Safety

**1.** An electric shock occurs when a(n) \_\_\_\_\_ passes through the \_\_\_\_\_.

**2.** Ways to protect yourself from electric shock include staying away from \_\_\_\_\_ while using electric devices, avoiding using \_\_\_\_\_ cords, and not contacting electric power \_\_\_\_\_.

**Inquiry** **MiniLab**

**LESSON 3: 20 minutes**

## What else can a circuit do?

Look around your kitchen. Electricity can do more than light a few bulbs. We use electricity to generate heat in a toaster, to remove heat from inside the refrigerator, and to chop food in a blender.

**Procedure** 

At each lab station, examine the device displayed. Record your observations in the table shown in the Data and Observations section below.

### Data and Observations

Device	What It Does	Source of Electric Energy	Energy Transformed Into

### Analyze and Conclude

- 1. Select** two devices and compare and contrast their operation.

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- 2.  Key Concept** Discuss the types of energy transformations that occur in electric devices.

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