Circuit Diagrams

What is included in a circuit diagram?

Circuit Diagrams

An **electric circuit** is –

A circuit diagram shows –

Series Circuits

How do series and parallel circuits differ?

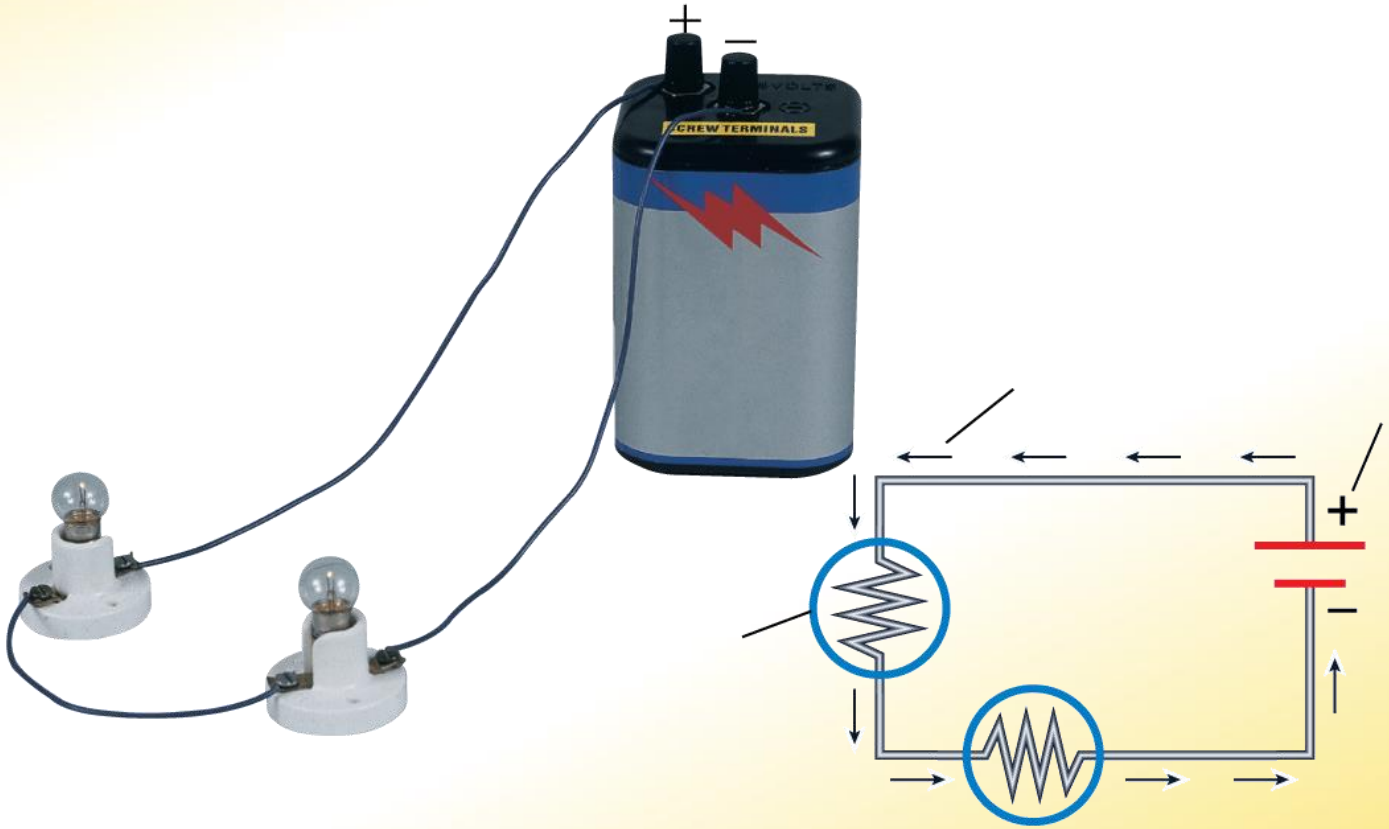
Series Circuits

In a **series circuit –**

If one bulb burns out in a series circuit –

Series Circuits

A series circuit has –



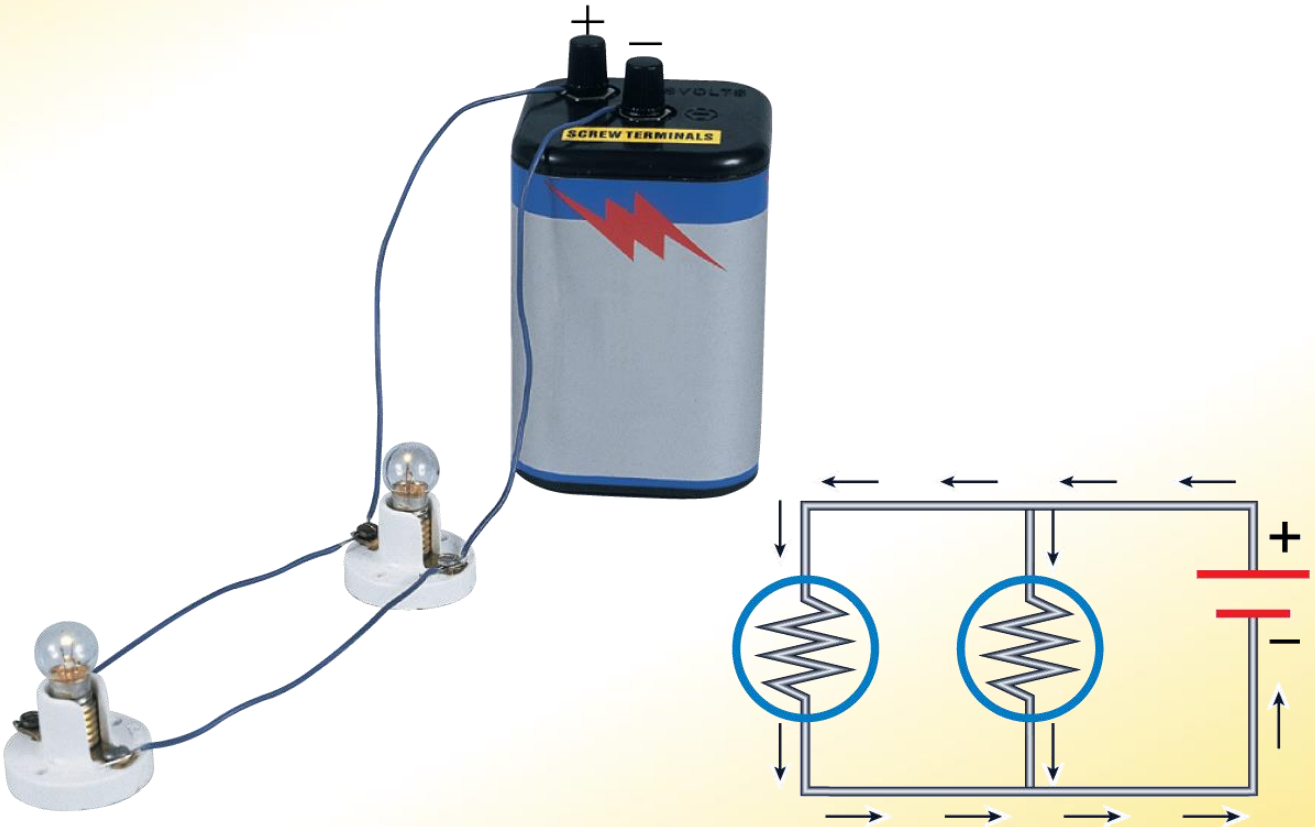
Parallel Circuits

A **parallel circuit** is –

If one bulb in a parallel circuit burns out –

Parallel Circuits

A parallel circuit –



Power and Energy Calculations

How do you calculate electric power and electrical energy use?

Power and Energy Calculations

Electric power is –

The unit of electric power is –

$$P = ?$$

Power and Energy Calculations

Math Practice

1. A clothes dryer uses about 27 amps of current from a 240-volt line. How much power does it use?

Answer:

Power and Energy Calculations

Math Practice

2. A camcorder has a power rating of 2.3 watts. If the output voltage from its battery is 7.2 volts, what current does it use?

Answer:

Power and Energy Calculations

Math Practice

3. A power tool uses about 12 amps of current and has a power rating of 1440 watts. What voltage does the tool require?

Answer:

Power and Energy Calculations

Electrical Energy

$$E = P \times t$$

Electrical Safety

What devices make electricity safe to use?

Electrical Safety

Home Safety

A **fuse –**

A **circuit breaker** is –

Electrical Safety

Grounding –

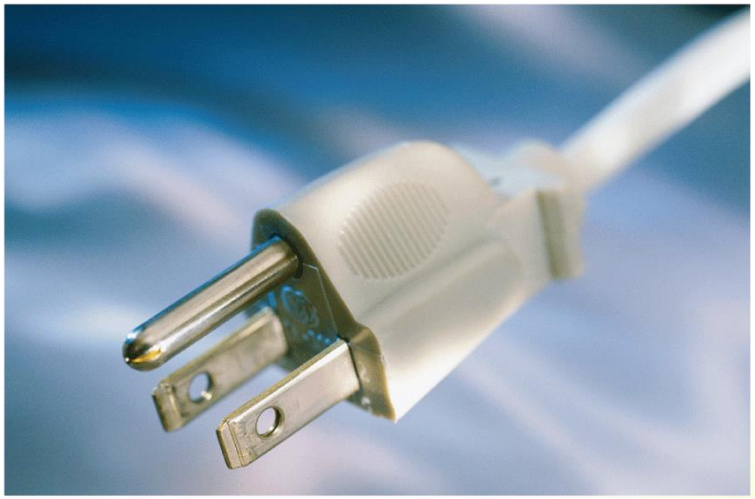
Electrical Safety

A ground-fault circuit interrupter (GFCI) is –

Electrical Safety

Even a small current –

Ground-fault circuit interrupter (GFCI)



Effect of Current on Human Body	
Current Level	**Effect**
1 mA	Slight tingling sensation
5 mA	Slight shock
6–30 mA	Painful shock; loss of muscular control
50–150 mA	Extreme pain; severe muscular contractions. Breathing stops; death is possible.
1000–4300 mA	Nerve damage; heart stops, death is likely.
10,000 mA	Severe burns; heart stops, death is probable.

Assessment Questions

1. A number of light bulbs are connected to an energy source in a series circuit. What will happen to the other bulbs if one of the bulbs burns out?
   a. Nothing will happen.
   b. They will be brighter.
   c. They will be dimmer.
   d. They will turn off.

Assessment Questions

2. A pair of 15-watt computer speakers are connected to a 12-volt power supply. What is the electric current running through the speakers?
   a. 0.8 A
   b. 1.25 A
   c. 12.5 A
   d. 180 A

Assessment Questions

1. A ground-fault circuit interrupter is a switch that opens to prevent overheating when the current in a circuit is too high.

   True
   False