

## CHAPTER OVERVIEW

### 20: Electric Circuits

#### Learning Objectives

- Understand how a battery works.
- Understand Kirchhoff rules and how to apply them.
- Understand how to model a circuit with resistors and/or capacitors.
- Understand how an ammeter and voltmeter function, and how to model them.

In this chapter, we develop the tools to model electric circuits. This will allow us to determine the current and voltages across different components, such as resistors and capacitors, within a circuit. We will also discuss how a battery can provide a current at a fixed potential difference, and how one can construct devices to measure current and voltages.

#### prelude

If two outlets in your house are connected to the same circuit, are the outlets connected in series or in parallel?

- A. series
- B. parallel

[20.1: Batteries and Simple Circuits](#)

[20.2: Kirchhoff's rules](#)

[20.3: Applying Kirchhoff's rule to model circuits](#)

[20.4: Measuring current and voltage](#)

[20.5: Modeling circuits with capacitors](#)

[20.6: Summary](#)

[20.7: Thinking about the Material](#)

[20.8: Sample problems and solutions](#)

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