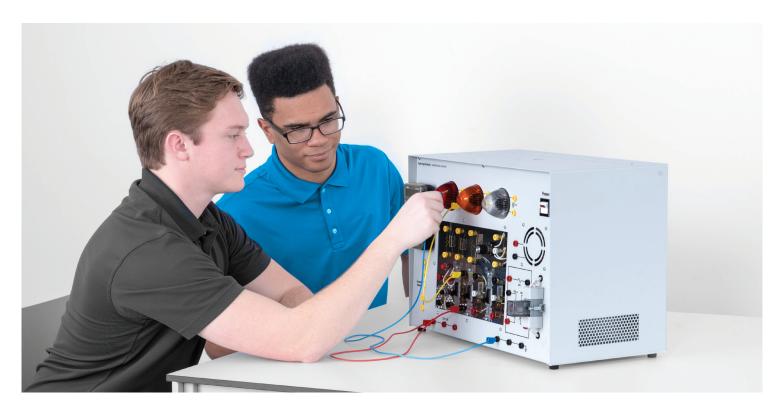
# **Integrative STEM Education**

# **Exploring Electricity**





### Highlights

- Explore and practice the skills needed to work with electricity.
- Wire and test electric circuits.
- Solve electrical problems typically found in both residential homes and commercial industry.
- Design innovative solutions to real-world problems, challenges, and needs.

### **STEM Connections**

In the STEM Exploring Electricity course, students discover how the four disciplines connect as they explore and practice the skills needed to work with electricity.

Once they are familiar with electric circuits, they will have the opportunity to design innovative solutions to real-world problems, challenges, and needs.

#### Science

- Voltage
- Current
- Curren
- ResistancePower
- Series and parallel circuits

#### Technology

- Electric lights
- Resistors
- Switches
- Relays
- Motors
- Digital multimeter

#### **Engineering**

- Electrical circuit design
- Wiring and testing electric circuits

#### Math

- Ohm's law
- Total voltage, current, resistance, and power in series and parallel circuits

## **Integrative STEM Education**

## **Exploring Electricity**

#### **STEM Exploring Electricity**

The purpose of the STEM Exploring Electricity course is to challenge students to design electric circuits that are required to solve electrical problems typically found in both residential homes and commercial industry.

As students explore and practice the skills needed to work with electricity, they will gain some of the basic knowledge required to work as licensed electricians or electrical contractors, or to become electrical engineers.



Upon completion of the STEM Exploring Electricity course, students will be able to:

- Gain an understanding of electric voltage, current, resistance, and power in series and parallel circuits.
- Practice wiring and testing electric circuits by connecting lamps, resistors, and electromechanical components, such as switches, a relay, and a motor.
- Demonstrate how to use a digital multimeter.
- Design electrical circuits to solve real-world problems.
- Apply Ohm's Law to calculate voltage, current, resistance, and power in series and parallel circuits.

#### **Equipment and Supplies**

- Multimedia presentation
- MindSight installation and user guide
- Exploring Electricity training system
- 4mm leads: 30 cm long, 60 cm long, 90 cm long

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