



ELECTRICITY MERIT BADGE WORKBOOK

This Scoutmaster Bucky Merit Badge Workbook is based off the *2020 Scouts BSA Requirements*.

Consider also using the Electricity merit badge class preparation page for clarification and expectations when participating in a Scoutmaster Bucky merit badge opportunity (online or in-person).

<https://scoutmasterbucky.com/merit-badges/electricity/>

Scout's Name:

REQUIREMENT 1: Demonstrate that you know how to respond to electrical emergencies by doing the following:

REQUIREMENT 1A: Show how to rescue a person touching a live wire in the home.

REQUIREMENT 1B: Show how to render first aid to a person who is unconscious from electrical shock.



REQUIREMENT 1C: Show how to treat an electrical burn.

REQUIREMENT 1D: Explain what to do in an electrical storm.

REQUIREMENT 1E: Explain what to do in the event of an electrical fire.

REQUIREMENT 2: Complete an electrical home safety inspection of your home, using the checklist found in the *Electricity* merit badge pamphlet or one approved by your counselor. Discuss what you find with your counselor.



REQUIREMENT 3: Make a simple electromagnet and use it to show magnetic attraction and repulsion.

REQUIREMENT 4: Explain the difference between direct current and alternating current.

REQUIREMENT 5: Make a simple drawing to show how a battery and an electric bell work.

REQUIREMENT 6: Explain why a fuse blows or a circuit breaker trips. Tell how to find a blown fuse or tripped circuit breaker in your home. Show how to safely reset the circuit breaker.



REQUIREMENT 7: Explain what overloading an electric circuit means. Tell what you have done to make sure your home circuits are not overloaded.

REQUIREMENT 8: Make a floor plan wiring diagram of the lights, switches, and outlets for a room in your home. Show which fuse or circuit breaker protects each one.

REQUIREMENT 9: Do the following:

REQUIREMENT 9A: Read an electric meter and, using your family's electric bill, determine the energy cost from the meter readings.



REQUIREMENT 9B: Discuss with your counselor five ways in which your family can conserve energy.

REQUIREMENT 10: Explain the following electrical terms: volt, ampere, watt, ohm, resistance, potential difference, rectifier, rheostat, conductor, ground, circuit, and short circuit.

REQUIREMENT 11: Do any TWO of the following:

REQUIREMENT 11A: Connect a buzzer, bell, or light with a battery. Have a key or switch in the line.



REQUIREMENT 11B: Make and run a simple electric motor (not from a kit).

REQUIREMENT 11C: Build a simple rheostat. Show that it works.

REQUIREMENT 11D: Build a single-pole, double-throw switch. Show that it works.

REQUIREMENT 11E: Hook a model electric train layout to a house circuit. Tell how it works.