



ELECTRICITY MERIT BADGE WORK SHEET (BYU/UVU PowWow)

Scout's Name

Instructor's Name

Scout's Address

City

State

ZIP

Instructions

- 1) The Scout is to review the merit badge book before the first week of PowWow.
- 2) Bring this work sheet, paper, and pencil or pen each week.

Requirement Instructions*

- 1) Requirement 1 will be passed off during the two sessions of PowWow.
- 2) Requirement 2 will be passed off during the two sessions of PowWow.
- 3) Requirement 3 must be completed **before** PowWow begins and will be passed off the **first** week.
- 4) Requirement 4 must be completed **before** PowWow begins and will be passed off the **first** week.
- 5) Requirement 5 must be completed **before** PowWow begins and will be passed off the **first** week.
- 6) Requirement 6 will be passed off during the two sessions of PowWow.
- 7) Requirement 7 will be passed off during the two sessions of PowWow.
- 8) Requirement 8 (draw if needed) should be completed as **homework** between the sessions of PowWow.
- 9) Requirement 9 should be completed as **homework** between the sessions of PowWow.
- 10) Requirement 10 will be passed off during the two sessions of PowWow.
- 11) Requirement 11 must be completed before PowWow begins and will be passed off the **second** week.

*All requirements may be subject to change by the merit badge counselor based on time constraints at the PowWow session. Please listen to all instructions given by the instructor to be aware of any changes.

Requirement 1

Initial

A. Show your counselor how to rescue a person who is touching a live wire in the home.

Describe how you would do this.

B. Show your counselor how to render first aid to a person who is unconscious from electrical shock.

Describe how you would do this.

C. Show your counselor how to treat an electrical burn.

Describe how you would do this.

D. Explain what to do in an electrical storm:

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

Requirement 2

Initial

Use the checklist found in the Boy Scout Requirements handbook or one approved by your counselor to complete an electrical safety inspection of your home. Discuss what you find with your counselor and write a summary of your discussion on the back of this page.

Requirement 3**Initial**

Make and use a simple electromagnet. Explain the process of making your electromagnet.

Use your electromagnet and the space below to explain magnetic attraction and repulsion.

Requirement 4**Initial**

Explain the difference between direct current and alternating current.

Requirement 5**Initial**

Use the back of this page to make a simple drawing to show how a battery and an electric bell work.

Requirement 6**Initial**

Explain why a fuse blows or a circuit breaker trips.

Tell how to find a blown fuse or a tripped circuit breaker in your home.

Describe how you would change the fuse or reset the circuit breaker safely.

Demonstrate to your counselor how you would safely change the fuse or reset the circuit breaker safely.

Requirement 7**Initial**

Explain what overloading an electric circuit means.

Tell what you have done to make sure your home circuits aren't overloaded.

Requirement 8**Initial**

Sketch the floor plan of a room in your house on the back of this sheet. Make a wiring diagram of any lights, switches, and outlets. Show the fuse or circuit breaker that protects each.

Requirement 9**Initial**

A. Read an electric meter. What is the reading?

Using your family's electric bill, determine the energy cost from the meter readings. Explain the process.

B. Tell five ways in which your family can conserve energy.

- 1.
- 2.
- 3.
- 4.
- 5.

Requirement 10

Initial

Explain the following electrical terms:

Volt:

Ampere:

Watt:

Ohm:

Resistance:

Potential Difference:

Rectifier:

Rheostat:

Conductor:

Ground:

Circuit:

Short Circuit:

Requirement 11

Initial

You have been given five options for this requirement. Select and complete TWO of them.

Option 1:

Connect a buzzer, bell, or light with a battery. Have a key or switch in the line. Use the back of this page to draw a simple sketch of your project and describe the process.

Option 2:

Make and run a simple electric motor (not from a kit). Briefly explain how you made the motor.

Demonstrate the working motor to your counselor.

Option 3:

Build a simple rheostat.

Describe how you built your rheostat.

Describe how your rheostat works.

Show your working rheostat to your counselor.

Option 4:

Build a single-pole double-throw switch.

Briefly describe how the switch was built.

Show the working switch to your counselor.

Option 5:

Hook a model electric train layout to a house circuit.

Describe the process and how this works:=-.

Merit badge work sheets will not be accepted at the Council Office in place of the official Merit Badge Application Card. Those who do not complete all the requirements should take their partially completed merit badge work sheet and their official application card to their local merit badge counselors for completion.