

(Please Print) Scout's Name \_\_\_\_\_ Phone \_\_\_\_\_ Class Time \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

**Electronics**  
**Requirements Sheet**  
**Merit Badge Powwow 2009**

The scout is to read the **Electronics Merit Badge pamphlet before the Powwow** (2004 edition or later). Some requirements may take up to 90 days to complete before coming to the Powwow. Read all the requirements below and bring necessary items to guarantee passing off the merit badge on the day of the Powwow. Bring to class paper, pen or pencil, and any other items asked for. Write your name, merit badge and class time (9:00 or 1:00) on **every** paper or project. (If there are any questions pertaining to requirements, the most recent Boy Scout Requirements handbook will always be used).

**Recommended Requirments to complete before Powwow**

6. Find out about three career opportunities in electronics that interest you. Discuss with and explain to your counselor what training and education are needed for each position.

**Completed:**

6 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

**Requirments that will be passed off at the Powwow**

1. Describe the safety precautions you must exercise when using, building, altering, or repairing electronic devices.
2. Do the following:
  - a. Draw a simple schematic diagram. It must show resistors, capacitors, and transistors or integrated circuits. Use the correct symbols. Label all parts.
  - b. Tell the purpose of each part.
3. Do the following:
  - a. Show the right way to solder and de-solder.
  - b. Show how to avoid heat damage to electronic components.
  - c. Tell about the function of a printed circuit board. Tell what precautions should be observed when soldering printed circuit boards.
4. Discuss each of the following with your merit badge counselor, and then choose ONE of the following and build a circuit to show the techniques used:
  - a. Tell how you can use electronics for a control purpose, and then build a control device circuit.
  - b. Tell about the basic principles of digital techniques, and then build a digital circuit. Show how to change three decimal numbers into binary numbers and three binary numbers into decimal numbers.
  - c. Tell about three audio applications of electronics, and then build an audio circuit.

**Completed:**

1 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

2 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

3 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

4 \_\_\_\_\_  
 Signature of counselor \_\_\_\_\_ Date \_\_\_\_\_

Shows how to read the schematic diagram of the project you chose and, to the best of your ability, explain to your counselor how the circuit you built operates.



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5. Do the following:

- a. Show how to solve a simple problem involving current, voltage, and resistance using Ohm's law.
- b. Tell about the need for and the use of test equipment in electronics. Name three types of test equipment. Tell how they operate.

5 \_\_\_\_\_  
Signature of counselor                      Date



Electronics Test

Please answer the following questions in order to complete **requirement #5**.

1. Please solve the following problem involving current, voltage, and resistance using Ohm's law.

Current (Amperes) = 3

Resistance (Ohms) = 12

How many volts are required? \_\_\_\_\_

2. Tell about the need for and use of test equipment in electronics.

3. Name three types of test equipment and how they operate.

a.

b.

c.

Tell about three jobs in electronics and what training is needed for each job. **Requirement #6** (use back side if necessary)

a.

b.

c.