

b. Tell the purpose of each part.

Resistor:

Capacitor:

Transistor:

Integrated circuit:

Other?:

3. Do the following:

- a. Show the right way to solder and desolder.
- 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. Do the following:

a. Discuss each of the following with your merit badge counselor,

i. How to use electronics for a control purpose.

ii. The basic principles of digital techniques

iii. How to use electronics for three different audio applications.

- b. Show how to change three decimal numbers into binary numbers and three binary numbers into decimal numbers.

- c. Choose ONE of the following three projects. For your project, find or create a schematic diagram. To the best of your ability, explain to your counselor how the circuit you built operates.
 - i. A control device
 - ii. A digital circuit.
 - iii. An audio circuit.

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.

1.	
2.	

3.

c. Demonstrate to your counselor how to read the colored bands of a resistor to determine its resistance value.

6. Find out about three career opportunities in electronics that interest you.

1.
2.
3.

Discuss with and explain to your counselor what training and education are needed for each position.

1. Training:

Education:

2. Training:

Education:

3. Training:

Education:

When working on merit badges, Scouts and Scouters should be aware of some vital information in the current edition of the *Guide to Advancement* (BSA publication 33088). Important excerpts from that publication can be downloaded from <http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf>. You can download a complete copy of the *Guide to Advancement* from <http://www.scouting.org/filestore/pdf/33088.pdf>.