

2018 Merit Badge College
Columbia-Montour Council
ELECTRONICS



NOTES FOR SCOUTS: **LIMITED TO 20 SCOUTS**

1. Scouts are required to obtain the Electronics merit badge book, study its contents and be prepared to discuss all requirements with the counselor.
2. **All items listed in bold type are prerequisites that MUST be completed prior to the event and emailed to your counselor at least 2 weeks before MBC.**
3. Scouts are required to download and use the Workbook, and have all requirements filled out before they arrive the day of the event, which may be downloaded at <http://www.MeritBadge.org>.
4. Counselor: Clinton Myers, cmyers@phoenixcon.com

Electronics merit badge requirements



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 desolder.
 - b. Show how to avoid heat damage to electronic components.
3. **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.Show how to read the schematic diagram of the project you choose and, to the best of your ability, explain to your counselor how the circuit you built operates.

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.**
- 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.**

NOTE: Requirement 4-Bring components if you have them