



ELECTRONICS MERIT BADGE WORKBOOK

This Scoutmaster Bucky Merit Badge Workbook is based off the 2021 Scouts BSA Requirements.

Consider also using the Electronics 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/electronics/>

Scout's Name:

REQUIREMENT 1: Describe the safety precautions you must exercise when using, building, altering, or repairing electronic devices.

REQUIREMENT 2: Do the following:

REQUIREMENT 2A: Draw a simple schematic diagram. It must show resistors, capacitors, and transistors or integrated circuits. Use the correct symbols. Label all parts.



REQUIREMENT 2B: Tell the purpose of each part.

REQUIREMENT 3: Do the following:

REQUIREMENT 3A: Show the right way to solder and desolder.

REQUIREMENT 3B: Show how to avoid heat damage to electronic components.



REQUIREMENT 3C: Tell about the function of a printed circuit board. Tell what precautions should be observed when soldering printed circuit boards.

REQUIREMENT 4: Do the following:

REQUIREMENT 4A: Discuss each of the following with your merit badge counselor:

REQUIREMENT 4AI: How to use electronics for a control purpose



REQUIREMENT 4AII: The basic principles of digital techniques

REQUIREMENT 4AIII: How to use electronics for three different audio applications

REQUIREMENT 4B: Show how to change three decimal numbers into binary numbers and three binary numbers into decimal numbers.

REQUIREMENT 4C: 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.



REQUIREMENT 4CI: A control device

REQUIREMENT 4CII: A digital circuit

REQUIREMENT 4CIII: An audio circuit

REQUIREMENT 5: Do the following:



REQUIREMENT 5A: Show how to solve a simple problem involving current, voltage, and resistance using Ohm's law.

REQUIREMENT 5B: Tell about the need for and the use of test equipment in electronics. Name three types of test equipment. Tell how they operate.

REQUIREMENT 5C: Demonstrate to your counselor how to read the colored bands of a resistor to determine its resistance value.

REQUIREMENT 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.