

ELECTRONICS MERIT BADGE WORKBOOK

This Scoutmaster Bucky Merit Badge Workbook is based off the current *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 2 A: Draw a simple schematic diagram. It must show resistors, capacitors, and transistors or integrated circuits. Use the correct symbols. Label all parts.

REQUIREMENT 2 B: Tell the purpose of each part.

REQUIREMENT 3: Do the following:

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

Completed

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

Completed

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

Function of a printed circuit board

What precautions should be observed when soldering printed circuit boards

REQUIREMENT 4: Do the following:

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

REQUIREMENT 4 A I: How to use electronics for a control purpose

REQUIREMENT 4 A II: The basic principles of digital techniques

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

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

Completed

REQUIREMENT 4 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

Selected project

Found or created a schematic diagram

How the circuit you built operates

REQUIREMENT 5: Do the following:

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

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

The need for and the use of test equipment in electronics

First type of test equipment and how it operates

Second type of test equipment and how it operates

Third type of test equipment and how it operates

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

Completed

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.

Training and education needed for first career

Training and education needed for second career

Training and education needed for third career