



Electronics Merit Badge Workbook

SCOUTMASTER BUCKY

Scouts participating in a Scoutmaster Bucky merit badge opportunity, whether online or in person, should consider using the Electronics merit badge pamphlet for discovery and knowledge, along with the class preparation pages for clarifications, insights, and expectations.

<https://scoutmasterbucky.com/merit-badges/electronics/electronics-pamphlet.pdf>

<https://scoutmasterbucky.com/merit-badges/electronics/electronics-cpp.pdf>

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

Notes:

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.



Electronics Merit Badge Workbook

SCOUTMASTER BUCKY

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

Consider using the [Electronics Merit Badge Pamphlet](#) for preparation information

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

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

Consider using the [Electronics Merit Badge Pamphlet](#) for preparation information

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

REQUIREMENT 3c: Tell about the function of a printed circuit board.

Notes:

REQUIREMENT 3c: Tell what precautions should be observed when soldering printed circuit boards.

Notes:



SCOUTMASTER BUCKY

REQUIREMENT 4a1: Discuss how to use electronics for a control purpose with your counselor.

Notes:

REQUIREMENT 4a2: Discuss the basic principles of digital logic with your counselor.

Notes:



SCOUTMASTER BUCKY

REQUIREMENT 4a3: Discuss how to use electronics for three different analog applications with your counselor.

ANALOG APPLICATION #1:

Notes:

ANALOG APPLICATION #2:

Notes:

ANALOG APPLICATION #3:

Notes:

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

Notes:



SCOUTMASTER BUCKY

DO ONE OF THE FOLLOWING (4C1, 4C2, or 4C3) FOR REQUIREMENT 4C

REQUIREMENT 4c: **CHOOSE ONE OF THE FOLLOWING THREE PROJECTS:** 1. a control device 2. a digital circuit 3. an analog circuit. 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.

Don't forget to bring any work you have done in preparation to share with your merit badge counselor
Consider using the Electronics Merit Badge Pamphlet for preparation information

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

Notes:

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

Don't forget to bring any work you have done in preparation to share with your merit badge counselor
Consider using the Electronics Merit Badge Pamphlet for preparation information

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

Notes:



Electronics Merit Badge Workbook

SCOUTMASTER BUCKY

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.

TEST EQUIPMENT #1:

Name:

How it operates:

TEST EQUIPMENT #2:

Name:

How it operates:

TEST EQUIPMENT #3:

Name:

How it operates:



Electronics Merit Badge Workbook

SCOUTMASTER BUCKY

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

Consider using the [Electronics Merit Badge Pamphlet](#) for preparation information

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

REQUIREMENT 5d: Explain the differences between Through Hole and Surface Mount assembly technologies and give three advantages of each.

Notes:

THROUGH HOLE ASSEMBLY TECHNOLOGY:

Advantage #1:

Advantage #2:

Advantage #3:

SURFACE MOUNT ASSEMBLY TECHNOLOGY:

Advantage #1:

Advantage #2:

Advantage #3:



Electronics Merit Badge Workbook

SCOUTMASTER BUCKY

REQUIREMENT 6: Identify three career opportunities that would use skills and knowledge in Electronics.

Career Opportunity #1:

Career Opportunity #2:

Career Opportunity #3:

REQUIREMENT 6: Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field.

Selected Career Opportunity:

Training Requirements:

Education Requirements:

Certification Requirements:

Experience Requirements:



Electronics Merit Badge Workbook

SCOUTMASTER BUCKY

Expenses associated with:

REQUIREMENT 6: Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career.

Prospects for Employment:

Starting Salary:

Advancement Opportunities:

Career Goals:

REQUIREMENT 6: Discuss what you learned with your counselor and whether you might be interested in this career.

Notes: