



Programming Merit Badge Workbook

SCOUTMASTER BUCKY

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

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

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

REQUIREMENT 1 REQUIRES PARENT / GUARDIAN PERMISSION.

REQUIREMENT 5 REQUIRES COUNSELOR GUIDANCE.

REQUIREMENT 1a: View the [Personal Safety Awareness "Digital Safety" video](#) (with your parent or guardian's permission.)

PARENT/GUARDIAN PERMISSION: IS REQUIRED.

Parent's / Guardian's Name

Phone or Email

Parent's / Guardian's Signature

Date

☐

permission

<https://www.scouting.org/training/youth/scouts-bsa/>

choose the Digital Safety option

Notes:



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REQUIREMENT 1b: Discuss first aid and prevention for the types of injuries that could occur during programming activities, including repetitive stress injuries and eyestrain.

REPETITIVE STRESS INJURIES:

Prevention:

Symptoms:

Treatment:

EYESTRAIN:

Prevention:

Symptoms:

Treatment:



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REQUIREMENT 2: Discuss with your counselor the history of programming.

Notes:

REQUIREMENT 2: Discuss with your counselor the evolution of programming languages.

Notes:



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REQUIREMENT 2: Discuss with your counselor at least three milestones related to the advancement or development of programming over time.

Notes:

REQUIREMENT 3a: Create a list of five popular programming languages in use today and describe which industry or industries they are primarily used in and why.

Programming Language	Industry / Industries used in	For What or Why



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REQUIREMENT 3b: Describe three different programmed devices you rely on every day.

Device #1:

Device #2:

Device #3:

REQUIREMENT 4a: Explain the four types of intellectual property used to protect computer programs.

Intellectual Property Type #1:

Intellectual Property Type #2:

Intellectual Property Type #3:

Intellectual Property Type #4:



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REQUIREMENT 4b: Describe the difference between licensing and owning software.

Notes:

REQUIREMENT 4c: Describe the differences between freeware, open source, and commercial software.

Freeware:

Open Source:

Commercial Software:

REQUIREMENT 4c: Describe why it is important to respect the terms of use of each.

Notes:



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BE SURE TO BRING A LAPTOP (NO PHONES, TABLETS, ETC.) FOR USE DURING THE CLASS. FAILURE TO DO SO WILL LIKELY RESULT IN NOT BEING ABLE TO COMPLETE REQUIREMENT 5.

THIS LAPTOP SHOULD HAVE YOUR PROGRAMMING LANGUAGES AND ASSOCIATED APPLICATIONS LOADED AND READY TO SHARE WITH YOUR MERIT BADGE COUNSELOR.

The Programming merit badge website at: www.scoutlife.org/programming, has a number of resources that you could use for requirement 5a. You also have the option of finding a coding language on your own.

It's a good idea to seek your merit badge counselor's guidance

REQUIREMENT 5a: With your counselor's guidance, select a programming language and development environment. Write or modify a program, debug and demonstrate, and explain the selected programming language and development environment. The program must take input and produce output based on computations and decisions made on the input. Debug and demonstrate the program to your counselor. Explain how each program processes inputs, makes decisions based on those inputs, and provides outputs based on computations and decision making.

Be sure to bring your code and a device to share it on to share with your counselor

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

REQUIREMENT 5b: With your counselor's guidance, select a second programming language and development environment, different from that used in requirement 5a. Write or modify a program, debug and demonstrate, and explain the selected programming language and development environment. The program must take input and produce output based on computations and decisions made on the input. Debug and demonstrate the program to your counselor. Explain how each program processes inputs, makes decisions based on those inputs, and provides outputs based on computations and decision making.

Be sure to bring your code and a device to share it on to share with your counselor

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

REQUIREMENT 5c: With your counselor's guidance, select a third programming language and development environment, different from those used in requirement 5a and 5b. Write or modify a program, debug and demonstrate, and explain the selected programming language and development environment. The program must take input and produce output based on computations and decisions made on the input. Debug and demonstrate the program to your counselor. Explain how each program processes inputs, makes decisions based on those inputs, and provides outputs based on computations and decision making.

Be sure to bring your code and a device to share it on to share with your counselor

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!



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REQUIREMENT 6: Find out about three career opportunities that require knowledge in programming.

Career Opportunity #1:

Career Opportunity #2:

Career Opportunity #3:

REQUIREMENT 6: Pick one and find out the education, training, and experience required. Discuss this with your counselor.

Selected Career Opportunity:

Education Requirements:

Training Requirements:

Experience Requirements:

REQUIREMENT 6: Explain why this career might be of interest to you.

Notes: