

Programming





This workbook can help you but you still need to read the merit badge pamphlet.

This Workbook can help you organize your thoughts as you prepare to meet with your merit badge counselor. You still must satisfy your counselor that you can demonstrate each skill and have learned the information. You should use the work space provided for each requirement to keep track of which requirements have been completed, and to make notes for discussing the item with your counselor, not for providing full and complete answers.

If a requirement says that you must take an action using words such as "discuss", "show",

"tell", "explain", "demonstrate", "identify", etc, that is what you must do.

Merit Badge Counselors may not require the use of this or any similar workbooks.

No one may add or subtract from the official requirements found in Scouts BSA Requirements (Pub. 33216 – SKU 653801).

The requirements were last issued or revised in 2013

• This workbook was updated in June 2020.

Scout's Name:	Unit:
Counselor's Name:	Phone No.: Email:
	http://www.USScouts.Org • http://www.MeritBadge.Org
	mit errors, omissions, comments or suggestions about this workbook to: Workbooks@USScouts.Org estions for changes to the requirements for the merit badge should be sent to: Merit.Badge@Scouting.Org
	re Programming merit badge website, http://www.boyslife.org/programming , provides primation and resources that may assist you in completing the following requirements.
1. Safety Do th	ne following: r counselor your current, up-to-date Cyber Chip.
	Earn the Cyber Chip
	the Cyber Chip can help you learn how to stay safe while you are online and using social networks or the electronic gadgets. Topics include cell phone use, texting, blogging, gaming, cyberbullying, and identity theft. Find out more about the Cyber Chip at www.scouting.org/cyberchip .
Note: A	A workbook for the Boy Scout Cyber Chip is attached at the end of this workbook.
	rst aid and prevention for potential injuries, such as eyestrain and repetitive stress injuries, that could occur gramming activities.
Eyestrain	
Repetitive Stress	
Injuries	

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		Other	
2.	Hist	tory Do the f	following:
С	a.		istory of programming, including at least three milestones related to the advancement or development
С	b.	Discuss with y	your counselor the history of programming and the evolution of programming languages.

Programming

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- 3. General knowledge. Do the following:
- c a. Create a list of 10 popular programming languages in use today and describe which industry or industries they are primarily used in and why.

	Language	Industry	Why is it used?
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

c b. Describe three different programmed devices you rely on every day.

	· · · · · · · · · · · · · · · · · · ·	
1.		
2.		
3.		

- 4. Intellectual property. Do the following:

Program	nmin	g	Scout's Name:				
С	b.	Describe the	difference between licensing and owning software.				
С	C.		differences between freeware, open source, and commercial software, and why it is important to erms of use of each.				
5.		jects Do the					
С	a.	With your cou Debug and de	Inselor's approval, choose a sample program. Modify the code or add a function or subroutine to it. emonstrate the modified program to your counselor				
		The Program	mming merit badge website, http://www.boyslife.org/programming , has a number of sample programs could use for requirement 5a. However, you have the option of finding a program on your own. It's a				
			good idea to seek your merit badge counselor's guidance.				
		Language					
		Environment					
		Industry					
		Program:					

С

0	Modify	, tha	ahoo	or add	a function	or ci	ihnrogran	n to it
C	IVIOUII	uie	coue	ui auu	a iuiiciioii	UI 31	uppiografi	וו נט ונ.

Modification:	
_	emonstrate the modified program
Debugging performed	
periormea	

 $\quad \quad \subset \quad \text{Demonstrate the program}$

С	b.	With your cour from those use functioning pro	nselor's approval, choose a second programming language and development environment, different ed for requirement 5a and in a different industry from 5a. Then write, debug, and demonstrate a ogram to your counselor, using that language and environment.
		Language	
		Environment	
		Industry	
		Program	
		Debugging performed	
		penomieu	

Demonstrate the program

С	C.	With your cour those used for demonstrate a	nselor's approval, choose a third programming language and development environment, different from requirements 5a and 5b and in a different industry from 5a or 5b. Then write, debug, and a functioning program to your counselor, using that language and environment.
		Language	
		Environment	
		Industry	
		Program	
		Debugging	
		performed	

C Demonstrate the program

С	d. Explain	how the programs you wrote for requirements 5a, 5b, and 5c process inputs, how they make decisions				
	based o	n those inputs, and how they provide outputs based on the decision making.				
6.	Careers F	ind out about three career opportunities that require knowledge in programming.				
	1.					
	2.					
	3.	I find out the advection training and apparions required				
С	Pick one and find out the education, training, and experience required. Career					
	Education					
	Ludoution					
	Training					
	Experience					
С	Discuss this	with your counselor and explain why this career might be of interest to you.				

Scout's Name: _____

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You can download a complete copy of the Guide to Advancement from http://www.scouting.org/filestore/pdf/33088.pdf.

Programming



Scouts BSA Cyber Chip Workbook



This Workbook can help you organize your thoughts as you prepare to meet with your counselor. You still must satisfy your counselor that you can demonstrate each skill and have learned the information. You should use the work space provided for each requirement to keep track of which requirements have been completed, and to make notes for discussing the item with your counselor, not for providing full and complete answers. If a requirement says that you must take an action using words such as "discuss", "show", "tell", "explain", "demonstrate", "identify", etc, that is what you must do.

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Scout's	· Nama·		I Init	
				Email:
Con	Please submit errors,		s about this <u>workbo</u>	ritBadge.Org bok to: Workbooks@USScouts.Org nt to: Advancement.Team@Scouting.Org
	yber Chip Requi	rements for Grades 6- el II Internet Safety Pledge on the	-8	card. (BSA Cyber Chip green card; can be
		Internet	Safety Pledge	
		r people online Il media ownership to-face with anyone I meet in the o	digital world unless	s I have my parent's permission
<u> </u>	Write and sign a personalized contract with your parent or guardian that outlines rules for using the computer and mol devices, including what you can download, what you can post, and consequences for inappropriate use.			
	General comments			
	What I can download			

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	What I can post					
	Consequences for inappropriate use					
☐ 3.			riendOrFake), along with two additional videos of your list below}, to see how friends can help each other to stay			
	Post to b	e Private (youtu.be/mBsoODqfQgA)				
		<mark>isions (youtu.be/HLUv8DHt_R4)</mark> Is of Stupid (youtu.be/T6ulH2bWCnY)				
	- Two Kind	Video Name	Date Watched			
	Friend or Fake?					
4 .	As an individual or with your patrol, use the EDGE method to teach internet safety rules, behavior, and "netiquette" to your troop or another patrol. You are encouraged to use any additional material and information you have researched. Each member of the patrol must have a role and present part of the lesson.					
<u> </u>		eader the acceptable standards and proposer your meetings and other Scouting ever	actices for using allowed electronic devices, such as nts.			

Scouts BSA Cyber Chip

Scout's Name: _____

B. Cyber Chip Requirements for Grades 9-12

1. Read and sign the Level II Internet Safety Pledge on the BSA Cyber Chip card. (BSA Cyber Chip green card; can be ordered at www.scoutshop.org.)

Internet Safety Pledge

- 1. I will think before I post
- 2. I will respect other people online
- 3. I will respect digital media ownership
- 4. I won't meet face-to-face with anyone I meet in the digital world unless I have my parent's permission
- 5. I will protect myself online.
- 2. Write and sign a personalized contract with your parent or guardian that outlines rules for using the computer and mobile devices, including what you can download, what you can post, and consequences for inappropriate use.

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General comments					
What I can download					
What I can post					
•					
•					
Consequences for inappropriate use					
mappi opnato doo					

Scouts	BSA Cyber Chip	Scout's Name:				
☐ 3.	Discuss with your parents the benefits and potential dangers tee	nagers might experience when using social media.				
	Give examples of each.					
<u> </u>	Watch three {of the following} "Real-Life Story" videos (<u>www.ns</u> learn the impact on teens.	steens.org/videos.aspx?Brand=Real-Life-Stories) to				
	• Friend or Fake? (youtu.be/Nb1zAY_cc8o)					
	 Post to be Private (youtu.be/mBsoODqfQqA) Split Decisions (youtu.be/HLUv8DHt_R4) Two Kinds of Stupid (youtu.be/T6ulH2bWCnY) 					
	Video Name	Date Watched				
_						
<u> </u>	As an individual or patrol, use the EDGE method and the Studen www.missingkids.org/content/dam/netsmartz/downloadable/stud-internet-safety-rules , behavior, and "netiquette" to your troop or a	entprojectkit/Student_Project_Kit_V1.5.pdf) to teach				
	material and information you have researched. Each member of lesson.	the patrol must have a role and present part of the				

Scouts	outs BSA Cyber Chip				Scout's Name:				
☐ 6.					andards and practices for using allowed electronic devices such as Scouting events.				
	Note:	(www.nets	martz.org)	and com	plete two	new reso	ources to re	commit to n	to Netsmartz let safety and lyber Chip card

When working on merit badges, Scouts and Scouters should be aware of some vital information in the current edition of the *Guide to Advancement* (BSA publication 33088). Important excerpts from that publication can be downloaded from http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf.

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Editor's Note: The text in this form is additional material which is found on the scouting.org website, that does not appear in the 2020 Scouts BSA Requirements booklet (33216 - SKU 653801).

or certificate.