



Computers

Merit Badge Workbook



Thank you for your interest in participating in our upcoming merit badge workshop. We are very excited to be able to offer this workshop to help you complete the necessary requirements to earn your badge while also carrying out the hands-on activities in an enriching and fun way. This workbook describes the workshop's activities and prerequisites. Most of these prerequisites are primarily research and reading activities that will better prepare you for the merit badge workshop.

Activities we will complete in the workshop are colored blue.

Prerequisites are colored red.

BEFORE you attend this merit badge workshop you MUST do the following prerequisites:

Item 3

Item 4

Item 5

Please note: The merit badge counselor will not sign "blue cards" for scouts not demonstrating completed prerequisites on this workbook.



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This workbook can help you but you still need to read the merit badge pamphlet (book). No one can add or subtract from the Boy Scout Requirements #33216. Merit Badge Workbooks and much more are below: [Online Resources](#).
Workbook developer: craig@craiglincoln.com. Requirements revised: 2010, Workbook updated: March 2011.

Scout's Name: _____ Unit: _____

Counselor's Name: _____ Counselor's Ph #: _____

1. Discuss with your counselor the tips for online safety. _____

2. Give a short history of the computer. _____

Explain how the invention of the computer has affected society, _____

science, and technology. _____

3. Do the following:

a. Describe four uses of computers outside the home.

- 1 _____
- 2 _____
- 3 _____
- 4 _____

b. Describe three ways you and your family could use a personal computer other than for games and entertainment.

- 1 _____
- 2 _____
- 3 _____

4. Explain the following to your counselor:

a. The five major parts of a computer.

Part	Explanation
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

b. How text, _____

sound, _____

pictures, _____

and video files are stored in a computer's memory _____

c. How file compression works _____

and how compression affects the quality of the file. _____

d. Describe two computer chip-based devices, _____

and describe how they are "smarter" because of the chip and its program. _____

5. Do the following:

a. Explain what a program or software application is _____

and how it is developed. _____

b. Name three programming languages, and describe their uses.

Language	Uses
----------	------

1 _____	_____
---------	-------

2 _____	_____
---------	-------

3 _____	_____
---------	-------

c. Name four software packages you or your family could use, and explain how you would use them.

Packages	Uses
----------	------

1 _____	_____
---------	-------

2 _____	_____
---------	-------

3 _____	_____
---------	-------

4 _____	_____
---------	-------

d. Discuss ways you can help protect a computer from viruses _____

and how to protect the information stored on a computer. _____

e. Describe how computers are linked to generate and access the Internet and the World Wide Web. _____

6. Do THREE of the following:

a. Using a spreadsheet program, develop a food budget for a patrol weekend campout. _____

b. Using a word processor, write a letter to the parents of your troop's Scouts inviting them to a court of honor. _____

c. Using a computer graphics program, design and draw a campsite plan for your troop. _____

d. Using a computer graphics program, create a flier for an upcoming troop event, incorporating both text and some type of visual such as a photograph or illustration. _____

e. Using an Internet search engine (with your parent's permission), find ideas about how to conduct a troop court of honor or campfire program. Print out a copy of the ideas from at least three different Web sites. Share what you found with your counselor, and explain how you used the search engine to find this information. _____

f. Using a presentation software program of your choice, develop a report about a topic that has been approved by your counselor. For your presentation, create at least 10 slides. _____

g. Using a digital camera, take a picture of a troop activity. Transfer the picture file to a computer and use photographic software to make it small enough to send easily as an e-mail attachment. Then, using a computer connected to the Internet (with your parent's permission), send an e-mail to someone you know. In your message, include the photograph as an attachment. Verify that the person received your e-mail and was able to view the attachment. _____

- h. Using a database manager, create a troop roster that includes the name, rank, patrol, and telephone number of each Scout. Show your counselor that you can sort the register by each of the following categories: rank, patrol, and alphabetically by name. _____

7. Do ONE of the following:

- a. Using a database program of your choice, create a troop roster that includes the name, rank, patrol, and telephone number of each Scout. _____

Create a form within the database manager to access each Scout's information individually. Show your counselor how the form works. _____

- b. Using a software package of your choice for computer aided design (CAD), create an engineering-style drawing of a simple object. Include the top, bottom, and at least one side view and the dimensions. _____

- c. Create a blog and use it as an online journal of your Scouting activities, including group discussions and meetings, campouts, and other events. Your blog should have at least five entries and two photographs or illustrations. You need not post the blog to the Internet, but you will need to share it with your counselor. If you decide to go live with your blog, you must first share it with your parents AND counselor and get their approval. _____

- d. Create a Web page for your troop, patrol, school, or place of worship. Include at least three articles and two photographs or illustrations. Your Web page should have at least one link to a Web site that would be of interest to your audience. You need not post the page to the Internet. However, if you decide to do so, you must first share it with your parents AND counselor and get their approval . _____

- e. Visit a business or an industrial plant that uses computers. Observe what tasks the computers accomplish, and be prepared to discuss what you have learned. _____

8. Explain the following to your counselor:

- a. Why copyright laws exist. _____

b. Why it is not permissible to accept a paid, copyrighted computer game or program from a friend unless the game or program is considered freeware or shareware. _____

Explain the concepts of freeware and shareware. _____

c. The restrictions and limitations of downloading music from the Internet. _____

9. Find out about three career opportunities in the computer industry. _____
1. _____
2. _____
3. _____

Pick one and find out the education, _____

training, _____

and experience required for this profession. _____

Discuss this with your counselor, and explain why this profession might interest you. Report what you learn to your counselor.

Online Resources (Use any Internet resource with caution and only with your parent's or guardian's permission.)

Boy Scouts of America: ► scouting.org ► [Guide to Safe Scouting](#) ► [Age-Appropriate Guidelines](#) ► [Safe Swim Defense](#)
► [Scout](#) ► [Tenderfoot](#) ► [Second Class](#) ► [First Class](#) ► [Rank Videos](#) ► [Safety Afloat](#)

Merit Badge Books: www.scoutstuff.org *Please don't post workbooks on your site. Please instead post links to these:*

MeritBadge.org: <http://meritbadge.org/wiki/index.php/MBW> -or- usscouts.org: <http://www.usscouts.org/mb/worksheets/list.asp>

Requirement Resources

These resources and much more are at: <http://meritbadge.org/wiki/index.php/Computers>

1. [How to Keep Children Safe Online](#) From McAfee Protection
2. [A Timeline of the History of the Computer](#) - [A History of the IEEE Computer Society](#) - [Computer History](#) - [Computer History Museum](#) - [The Virtual Museum of Computing](#) - [Historic Computer Images](#) - [CHAC History Pages](#) - [The History of Computers](#) - [Encarta: History of Computers](#)
- 3a. [Uses of Computers](#)
- 3b. [Uses of Personal Computers](#)
- 4a. [Parts of a Personal Computer](#) - [Computer hardware](#)
- 4b. [File Formats](#) - [Wotsit.org](#)
- 5a. [Computer Programs](#)
- 5b. [Programming Languages](#) - [A Complete List of Programming Languages](#)
- 5c. [Software Applications](#)
- 5d. [Computer Virus](#)
- 5e. [Internet](#) - [How Internet Infrastructure Works](#) **Lesson Videos:** [Internet Explorer](#)
6. [OpenOffice.org](#) is a freeware office suite that includes word processing, spreadsheet, presentation and database programs. It can opening and savesave to Word, Excel, Access, and PowerPoint files.
[Google Docs](#) contains basic spreadsheet, word processor and presentation software. It imports Microsoft Word, Excel and PowerPoint formatted files. Requires only a web browser and a (free) Google account.
- 6a. See the sample duty roster table in the [Camping Worksheet](#) Req. 4b.
- 6b. See the sample food list & cost table in the [Cooking Worksheet](#) Req. 3c & 5b.
[Microsoft Excel](#) - Many great tutorials on using Excel. **Lesson Video:** [Create a Budget in an Excel Spreadsheet](#)
- 6c. **Mail Merge Lesson Video:** [Mail Merge Word and Excel](#)
[Microsoft Word](#) - [Mail Merge in MS Word](#) - Great Microsoft Word tutorials.
- 6e. The [Citizenship in the Community](#) #8 *public presentation...of your community* could be given as a [Communications](#) #3 *five-minute speech* using the techniques from [Photography](#) #4b to *produce a picture story* and [Art](#) #1 to *tell a story with...pictures* which could be developed into the **Computers** #6e *short presentation*.
[Microsoft PowerPoint](#) - Great Microsoft PowerPoint tutorials.
Lesson Videos: [PowerPoint Presentation Basics](#) - [PowerPoint Presentation](#) - [More PowerPoint](#)
- 6f. [Court of Honor](#) samples and links to a number of other sites.
Here are Campfire [songs](#), [skits](#), and [cheers](#).
- 6g. [Irfanview](#) is free (no cost) to download and use (though not Open Source).
[Paint.net](#) is a free image editing and photo manipulation program for Windows PCs. It supports layers, unlimited undo, special effects, and a wide variety of powerful tools.
[Picasa](#) is free photo organization and editing tool from Google that can help you make web pages, slide shows and share your photos. A similar application for the Macintosh is [iPhoto](#).
For those looking for more advanced photo editing software (or those using Linux) there's [The G.I.M.P.](#). It is a good choice for those who can't use or afford Adobe Photoshop.
[Microsoft Outlook](#) great email tutorials.
Lesson Videos: [Outlook Email](#)
- 6h. Sample Computer chip based devices: [Cell Phone](#) - [MP3 Player](#) - [DVD Players](#) - [Cars](#) - [Palm OS Devices](#)

7b. [Sketchup](#) is a "3D modeling software tool that's easy to learn, simple to use, and lets you place your models in [Google Earth](#)".

[QCAD](#) A free trial copy of QCad is available for downloading. The trial copy does have certain limitations (such as terminating after 10 minutes of use) but should suffice for this requirement and give a scout the chance to try a CAD program.

7d. [NVU](#) - free html editor with [WYSIWYG](#) capability for building web pages. Also, Linux users can use [Quanta Plus](#) (which is also open source, and similar to NVU.)

[HTML Programming](#) - great tutorials.

[Notepad++](#) - A more stable free HTML editor also with WYSIWYG and a spacebar HTML tag entry

8. [Glossary of Computer Terms - Online Dictionary of Computing](#)

9b. [DRM](#) Information on music copyright protection.

10. [Computer Science Career Guide](#)

General Resources

Macworld: <http://www.macworld.com>

PC Magazine: <http://www.pcmag.com>

PC World: <http://www.pcworld.com>

American Society for Engineering Education: <http://www.asee.org>, <http://www.engineeringk12.org>

The Computer History Museum: <http://www.computerhistory.org> The Computer Society: <http://www.computer.org>

Institute of Electrical and Electronics Engineers: <http://www.ieee.org>

International Intellectual Property Alliance: <http://www.iipa.com> Recording Industry Assn of Amer.: <http://www.riaa.com>

The Internet Society: <http://www.isoc.org>

World Wide Web Consortium: <http://www.w3c.org>