



# Computers

## Merit Badge Workbook

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](mailto:craig@craiglincoln.com). Requirements revised: 2006, Workbook updated: March 2009.

Scout's Name: \_\_\_\_\_ Unit: \_\_\_\_\_

Counselor's Name: \_\_\_\_\_ Counselor's Ph #: \_\_\_\_\_

1. Discuss with your counselor the tips for online safety. \_\_\_\_\_

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2. Explain how the invention of the computer has affected society, \_\_\_\_\_

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science, and technology. \_\_\_\_\_

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In your explanation, give a short history of the computer. \_\_\_\_\_

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3. Do the following:

a. Explain four different uses of computers.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

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

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4. Explain to your counselor the following:

a. The major parts of a computer system

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

b. How the types of files used to store text, \_\_\_\_\_

sound, \_\_\_\_\_

pictures, \_\_\_\_\_

and video are stored in a computer's memory \_\_\_\_\_

5. Do the following:

a. Explain what a program is \_\_\_\_\_

\_\_\_\_\_

and how it is developed. \_\_\_\_\_

\_\_\_\_\_

b. Give three examples of 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
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1 \_\_\_\_\_  
\_\_\_\_\_

2 \_\_\_\_\_  
\_\_\_\_\_

3 \_\_\_\_\_  
\_\_\_\_\_

4 \_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

and how to keep secure information that has been saved on a computer. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

e. Describe how computers are linked to form the Internet and the World Wide Web. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Do THREE of the following:

a. Use a database manager to 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. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

b. Use a spreadsheet program to develop a food budget for a patrol weekend campout. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

c. Use a word processor to write a letter to the parents of your troop's Scouts inviting them to a court of honor. Use the program's mail merge feature to make a personalized copy of the letter for each family. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

d. Use a computer graphics program to design and draw a campsite plan for your troop, OR design a flyer for an upcoming troop event. \_\_\_\_\_

\_\_\_\_\_

e. Using a software package of your choice, develop a short presentation about a topic that has been approved by your counselor. For your presentation create at least 10 slides. \_\_\_\_\_

\_\_\_\_\_

f. Using an Internet search engine, 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. \_\_\_\_\_

\_\_\_\_\_

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. Describe two computer chip-based devices, and explain how they are "smarter" because of the chip and its program. \_\_\_\_\_

\_\_\_\_\_

7. Do ONE of the following:

a. 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. \_\_\_\_\_

\_\_\_\_\_

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. Use a general purpose programming language to write a simple program application of your choice, subject to approval by your counselor. \_\_\_\_\_

\_\_\_\_\_

d. Design a Web page for your troop, patrol, school, or place of worship. You need not post the page to a Web site. However, if you decide to do so, you will first need to get your parent's permission and your counselor's approval, as well as permission from the host site. \_\_\_\_\_  
\_\_\_\_\_

8. For each of the following categories, discuss several related terms: input and output devices, \_\_\_\_\_  
\_\_\_\_\_

storage media, \_\_\_\_\_  
\_\_\_\_\_

memory, \_\_\_\_\_  
\_\_\_\_\_

processors and coprocessors, \_\_\_\_\_  
\_\_\_\_\_

modems or network cards, \_\_\_\_\_  
\_\_\_\_\_

networks, \_\_\_\_\_  
\_\_\_\_\_

World Wide Web and Internet, \_\_\_\_\_  
\_\_\_\_\_

electronic mail, \_\_\_\_\_  
\_\_\_\_\_

Wi-Fi. \_\_\_\_\_  
\_\_\_\_\_

9. Explain the following to your counselor:

a. Why it is not permissible to accept a free copy of a copyrighted computer game or program from a friend \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. The restrictions and limitations of downloading music from the Internet \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

c. Why copyright laws exist \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Pick two career opportunities in the computer field that interest you. Find out what education, training, and experience those positions require. Report what you learn to your counselor.

Opportunity \_\_\_\_\_  
\_\_\_\_\_

Education, training, and experience \_\_\_\_\_  
\_\_\_\_\_

Opportunity \_\_\_\_\_

Education, training, and experience \_\_\_\_\_

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

**Boy Scouts of America:** ► [scouting.org](http://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](http://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>