

Drafting

Merit Badge Workbook



Merit badges are earned by doing: reading the pamphlet, practicing the skills, and showing your counselor what you have learned.
This workbook gives you a place to organize your notes and track your progress along the way.
Merit badge counselors may not require the use of this or any similar workbook.
You still must satisfy your counselor that you can demonstrate each skill and have learned the information.
Use the space under each requirement to note what you have done and what you want to talk about, not to write out full answers.
When a requirement says discuss, show, tell, explain, or demonstrate, that is what you must do.
No one may add to or subtract from the official requirements found on scouting.org (Guide to Advancement 7.0.4.8).
Scouting America last updated this badge's requirements page on September 19, 2025.
Requirements change from time to time. Double-check scouting.org before you start.

Scout's name: _____ Unit: _____ Date started: _____

Counselor's name: _____ Phone no.: _____ Email: _____

Links marked "Scouting America resources" are the ones Scouting America shares on its official badge page.
This workbook is unofficial and not endorsed by Scouting America.

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1. Format TWO sheets of drawing paper with proper borders and title blocks—one for your manual project (see requirement 2) and one for your lettering project (see requirement 5).

Scouting America resources: Technical Drawing—Border and Title Block (video)

(a) Make a rough sketch for each of your project drawings to determine the correct size of paper to format.

Scouting America resources: How to Calculate Scale, Papers Size and Maximum Drawing Size (video)

Paper size for each project

Project	Paper size I picked	Why it fits my drawing
Manual project		
Lettering project		

My rough sketches (draw here or attach)

(b) Using either single-stroke vertical or slant Gothic lettering, fill in all important information in the title block sections of the formatted paper.

Scouting America resources: Border, Title Block and Lettering (video)

Lettering style (vertical or slant) _____ Date finished _____

- ☐ Title block filled in on my manual project sheet
- ☐ Title block filled in on my lettering project sheet

Requirement 1 completed on _____ counselor initials _____

2. Using the formatted sheet of paper you prepared for your manual project, produce a pencil drawing as it would be used for manufacturing. Fill in all title block information. The manual drawing may be any one of the following drawing types:

☐ **(a)** Architectural: Make a scale drawing of an architectural project. The architectural drawing may be a floor plan; electrical, plumbing, or mechanical service plan; elevation plan; or landscaping plan. Use an architect's scale and show dimensions to communicate the actual size of features. Include any important sectional drawings, notes, and considerations necessary for construction. Properly print a bill of materials for at least three of the raw materials or components in the project.

Scouting America resources: How to Sketch a Floor Plan | COMPLETE Beginner's Guide!! Step by Step (video)

What I drew _____ Scale I used _____ Date finished _____

Bill of materials

Item	Material or component	Quantity

☐ **(b)** Mechanical: Make a scale drawing of some mechanical device or interesting object. The mechanical drawing may be of the orthographic (third-angle) or isometric style. Use an engineer's scale and show dimensions to communicate the actual size of features. Include any important sectional drawings, notes, and manufacturing considerations. Properly print a bill of materials for at least three of the raw materials or components in the assembly.

Scouting America resources: Isometric Drawing Made Easy: How to Draw Isometric Views with Orthographic Projections (video)

Device or object I drew _____ Style (orthographic or isometric) _____

Scale I used _____ Date finished _____

Bill of materials

Item	Material or component	Quantity

☐ **(c)** Electrical: Draw a simple schematic of a radio or electronic circuit. Properly print a bill of materials including all of the major electrical components used in the circuit. Use standard drawing symbols to represent the electronic components.

Scouting America resources: How to Draw an Electrical Circuit in AutoCAD (video)

Circuit I drew _____ Date finished _____

Bill of materials

Component	Value or part number	Quantity

Requirement 2 completed on _____ counselor initials _____

3. Produce a computer-aided design (CAD) drawing as it would be used in manufacturing. Fill in all title block information. The CAD drawing may be any one of the following drawing types:

☐ **(a)** Architectural: Make a scale drawing of an architectural project. The architectural drawing may be a floor plan; electrical, plumbing, or mechanical service plan; elevation plan; or landscaping plan. Use an architect's scale and show dimensions to communicate the actual size of features. Include any important sectional drawings, notes, and considerations necessary for construction.

Scouting America resources: AutoCAD 2D Basics - Tutorial to Draw a Simple Floor Plan (Fast and Effective!) (video)

What I drew _____ CAD software I used _____

Scale I used _____ Date finished _____

☐ **(b)** Mechanical: Make a scale drawing of some mechanical device or interesting object. The mechanical drawing may be of the orthographic (third-angle) or isometric style. Use an engineer's scale and show dimensions to communicate the actual size of features. Include any important sectional drawings, notes, and manufacturing considerations.

Scouting America resources: Technical Drawing Tutorial - Prepare a Perfect Mechanical Drawing for Machinists (video)

Device or object I drew _____ Style (orthographic or isometric) _____

CAD software I used _____ Scale I used _____ Date finished _____

☐ **(c)** Electrical: Draw a simple schematic of a radio or electronic circuit. Properly print a bill of materials including all of the major electrical components used in the circuit. Use standard drawing symbols to represent the electronic components.

Scouting America resources: How to Draw an Electrical Circuit in AutoCAD (video)

Circuit I drew _____ CAD software I used _____

Bill of materials

Component	Value or part number	Quantity

Requirement 3 completed on _____ counselor initials _____

4. Do the following:

(a) Present a copy of your drawings from requirements 2 and 3, either in paper or digital format to your counselor. Your counselor will return a redlined version of your drawings indicating to add/remove/change a feature, material, BOM QTY, etc.

Date I presented _____ Paper or digital _____

Changes my counselor redlined

(b) Make the correction from the redline, identify it on the drawings with a revision marker, and add a revision block.

Scouting America resources: AutoCAD II 25-19 Revision History Blocks (video)

Revisions I made from the redline

Rev	What I changed	Date

☐ Correction made
☐ Revision marker added on the drawing
☐ Revision block added

Requirement 4 completed on _____ counselor initials _____

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5. Discuss with your counselor how fulfilling requirements 2, 3, and 4 differed from each other. Tell about the benefits derived from using CAD for requirements 3 and 4. Include in your discussion the software you used as well as other software options that are available.

How the requirements differed

Requirement	How it went and how it was different
2: manual drawing	
3: CAD drawing	
4: redline and revision	

Benefits of using CAD for requirements 3 and 4

Software I used

Other software options I found

Requirement 5 completed on counselor initials

6. Using single-stroke slant or vertical Gothic lettering (without the aid of a template or lettering guide), write a brief explanation of what you consider to be the most important benefit in using CAD in a particular industry (aerospace, electronics, manufacturing, architectural, or other). Use the experience gained in fulfilling requirements 2 through 5 to support your opinion. Use the formatted sheet of paper you prepared in requirement 1 for your lettering project.

Industry I chose Lettering style (vertical or slant)

My notes and rough draft (my final explanation goes on my formatted sheet)

Requirement 6 completed on counselor initials

7. Do ONE of the following:

☐ **(a)** Visit a facility or industry workplace where drafting is part of the business. Ask to see an example of the work that is done there, the different drafting facilities, and the tools used.

Scouting America resources: Benefits of AutoCAD to Manufacturing Design Workflow (video)

Place I visited Date

Who showed me around

Examples of work, drafting facilities, and tools I saw

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(1) Find out how much of the drafting done there is manual and how much is done using CAD. If CAD is used, find out what software is used and how and why it was chosen.

Manual and CAD drafting there, and the software they use and why

(2) Ask about the drafting services provided. Ask who uses the designs produced in the drafting area and how those designs are used. Discuss how the professionals who perform drafting cooperate with other individuals in the drafting area and other areas of the business.

Drafting services, who uses the designs, and how people work together

(3) Ask how important the role of drafting is to producing the end product or service that this business supplies. Find out how drafting contributes to the company's end product or service.

How drafting contributes to their end product or service

☐ **(b)** Using resources you find on your own such as at the library and on the internet (with your parent or guardian's permission), learn more about the drafting trade and discuss the following with your counselor.

Scouting America resources: Tracing the Evolution of Technical Drawings: From Da Vinci to CAD (website)
The Evolution of Drafting (video) · A Walk Through the History of CAD (video)

Resources I used (library, websites)

(1) The drafting tools used in the past—why and how they were used. Explain which tools are still used today and how their use has changed with the advent of new tools. Discuss which tools are being made obsolete by newer tools in the industry.

Drafting tools of the past

Tool	Why and how it was used	Still used today, changed, or obsolete

(2) Tell what media types were used in the past and how drawings were used, stored, and reproduced. Tell how the advent of CAD has changed the media used, and discuss how these changes affect the storage or reproduction of drawings.

Past media, and how drawings were used, stored, and reproduced

How CAD changed the media, storage, and reproduction

(3) Discuss whether the types of media have changed such that there are new uses the drawings, or other outputs, produced by designers. Briefly discuss how new media types are used in the industry today.

New media types, new uses for drawings, and how they are used today

Requirement 7 completed on _____ counselor initials _____

8. Identify three career opportunities that would use skills and knowledge in Drafting. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

Scouting America resources: Drafter | Careers That Work (video) · 23 Different Types of Drafting Jobs (Plus Salary Information) (website)

Three careers that use drafting

Career	How it uses drafting skills

Career I picked _____

The career I picked

What I researched	What I found
Training	
Education	
Certification requirements	
Experience	
Expenses	
Prospects for employment	

The career I picked (continued)

What I researched	What I found
Starting salary	
Advancement opportunities	
Career goals	

Might I be interested in this career? Why or why not

Requirement 8 completed on _____ counselor initials _____

Counselor sign-off

Your counselor signs your blue card or approves the badge in Scoutbook, and your unit records it. This line is for your own records.

Counselor's signature _____ Date completed _____

Official Scouting America resources

Scouting America resources: Drafting merit badge page (requirements and resources) · Drafting merit badge pamphlet (free PDF)
All merit badges



Made by Cole at ScoutSmarts.com, an Eagle Scout who loves helping Scouts.
Spot an error or a requirement change? Tell me at scoutsmarts.com/contact.
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