WOODWORK MERIT BADGE

NOTE TO COUNSELOR

🛡️ SAFETY NOTE

Primary Safety Concerns:
Woodwork involves the use of tools and potentially hazardous materials. Follow the current Scouting America SAFE Checklist and Guide to Safe Scouting.

Before Woodwork Activities:

Supervision.

- The Woodwork merit badge counselor should have knowledge of woodworking equipment, safe industry procedures, and applicable local, state, and federal regulations regarding woodworking and finishing, as well as specific guidance from Scouting America in the Guide to Safe Scouting and SAFE Project Tool Use.

Assessment.

- Hazardous jobs and certain tool and equipment use must be limited to adults at least 18 years old. Counselors recruited to teach this merit badge must have experience with the tasks and tools required. Reference the Safe Project Tool Use document to ensure tool use is otherwise age-appropriate.
- As a rule, Scouting activities may not include activities for youth that, by law, they would not be allowed to do in the workplace.
- It is also important to obey restrictions manufacturers impose or suggest for the use of their tools or other products, or potentially hazardous chemicals such as paints, stains, lacquers, etc.

Fitness.

- Counselors should be aware of and accommodate youth participants who may be allergic to wood dust or particles and finishing supplies.

Equipment and Environment.

- Counselors should ensure tools are properly sharpened and well-maintained, and that manufacturers' operating guides are available when applicable.
- Counselors should provide participants with a clutter-free,well-ventilated work area.
- Counselors should ensure all participants are wearing safety gear for eye protection and hearing protection, as well as gloves, dust masks, and other appropriate Personal Protective Equipment.
- Long hair should be tied back or secured, loose jewelry removed, and loose clothing removed or secured.

COUNSELOR NOTE

Purpose:
Help the Scout acquire skills, build confidence, and a sense of accomplishment as they learn to use woodworking tools safely in fun and useful projects. Help them explore the source and properties of a ubiquitous and highly adaptable renewable resource.

Teaching Tips

The Home Depot's *Path to Pro Skills Explorers* provides video resources for leaders to use in teaching skilled trades merit badges, including electricity, painting, emergency prep, gardening, plumbing, woodwork, and others. Register today!

Home Depot - Path to Pro | Skills Explorers

- **Use the Edge Method!** Woodwork is a wonderful context to demonstrate the power of explaining and demonstrating safe tool use, guiding them through woodworking projects, enabling them to plan and construct useful and attractive projects.
- **Start small and build up:** Begin with projects and tasks that enable Scouts to familiarize themselves with tools and materials, then combine them in more complex and satisfying challenges.
- **Emphasize general techniques:**
  - Teach Scouts to cut on the waste side of a line so the final piece matches the desired length.
  - Sand with the grain: Show how cross-grain scratches ruin finishes.
  - Pre-drill pilot hoes: Prevent splitting near the board end.
  - Test finishes on scraps: Always have students try stains and oils on offcuts.

Helpful Resources:

- Woodwork Merit Badge pamphlet
- Current Woodwork requirements
- Scouting America Guide to Safe Scouting
- Scouting America SAFE Checklist
- SAFE Project Tool Use



Web team: Concise Requirement Wording: Woodwork Merit Badge Overview

Woodwork Merit Badge Overview

Woodworking combines practical skills, careful planning, and creativity. As you explore this merit badge, you will learn about wood as a material, become familiar with woodworking tools and techniques, and use plans and measurements to turn ideas into finished projects.

You will also explore how timber becomes lumber, how different woods are suited to different purposes, and how skilled woodworkers use their knowledge to create useful and lasting objects.

Character Development:

The Woodwork merit badge fosters character development by giving Scouts the chance to practice patience, responsibility, and attention to detail. It encourages you to work carefully and safely, solve problems when things do not go as planned, and take pride in doing a job well.

Designing and building projects also develops creativity and perseverance as you work step by step from an idea to something you can use, share, or give to others.

Did You Know?

According to research reported in the Smithsonian magazine (2023), woodworking goes back almost half a million years. Archaeologists in Zambia discovered two shaped logs fitted together about 476,000 years ago, the oldest known evidence of wood being used to build a structure.

What Is Woodwork?



Woodwork is the skill of making, shaping, joining, and finishing objects made from wood. It can involve anything from building a simple box or useful household item to making furniture,

toys, decorative pieces, and other carefully crafted projects.

Good woodworking starts with understanding the material. Different woods have different qualities, and the way wood is measured, cut, shaped, joined, and finished all affects the final result.



You don't need a large workshop or lots of equipment to get started with woodwork. Basic hand tools such as a saw, hammer, plane, and brace and bit can be used to build useful projects while helping you learn how wood behaves.

Key Topics in Woodwork



These are some of the topics you will cover in the woodwork merit badge:

- **Wood and lumber:** Learn where wood comes from, how timber becomes lumber, and how different types of wood are selected for different uses.
- **Workshop safety:** Understand common hazards and how safe working practices and protective equipment help prevent injuries.
- **Tools and techniques:** Learn how woodworking tools are used, cared for, stored, and kept in good working condition.
- **Measuring and planning:** Use accurate measurements and working drawings to plan projects before construction begins.
- **Building projects:** Develop practical woodworking skills by cutting, shaping, joining, and assembling wood.

- **Design and craftsmanship:** Create your own project and work toward an accurate, useful, and well-made result.
- **Woodworking careers:** Explore the skills, training, and opportunities involved in professional woodworking and carpentry.

Now that you have been introduced to woodwork, let's learn about woodwork health and safety.

CLICK button to next requirement

1. Do the following:

Web team: Concise Requirement Wording: Health & Safety



Health and Safety



Tools used to cut, drill, and shape wood can cause serious injuries if they are not used safely. Power tools can also cause burns or electric shock, so it is important to recognize the hazards involved in woodworking and take appropriate precautions.

In this requirement, you will explore:

- Woodworking hazards: How to recognize common risks and anticipate, help prevent, mitigate, and respond to them.
- Safe tool use: Precautions for choosing, checking, handling, and using tools safely.
- First aid and protective equipment: How to respond to common woodworking injuries and protect your eyes, hearing, and lungs.
- Totin' Chip: The responsibilities involved in safely carrying, caring for, and using woods tools.

Now that you have had an overview of health and safety, let's explore likely hazards.

CLICK button to next requirement

(a) Explain to your counselor the most likely hazards you may encounter while participating in woodwork activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards. Explain what precautions you should take to safely use your tools.

Web team: Concise Requirement Wording: Likely Woodwork Hazards



Woodworking Hazards



Hazards can come from the tools and equipment you use, the materials you work with, and the way your work area is set up. Some of the most likely hazards include sharp cutting edges and moving parts, unsecured wood, flying chips and sawdust, loud noise, electricity, fumes, and distractions.

Thinking about these hazards involves four steps:

- **Anticipate:** Think about what could go wrong before you begin.
- **Help prevent:** Take steps to stop an incident from happening.
- **Mitigate:** Reduce the chance of harm or make the possible consequences less serious.
- **Respond:** Know what to do if something does go wrong.

Flying Debris, Dust, and Noise



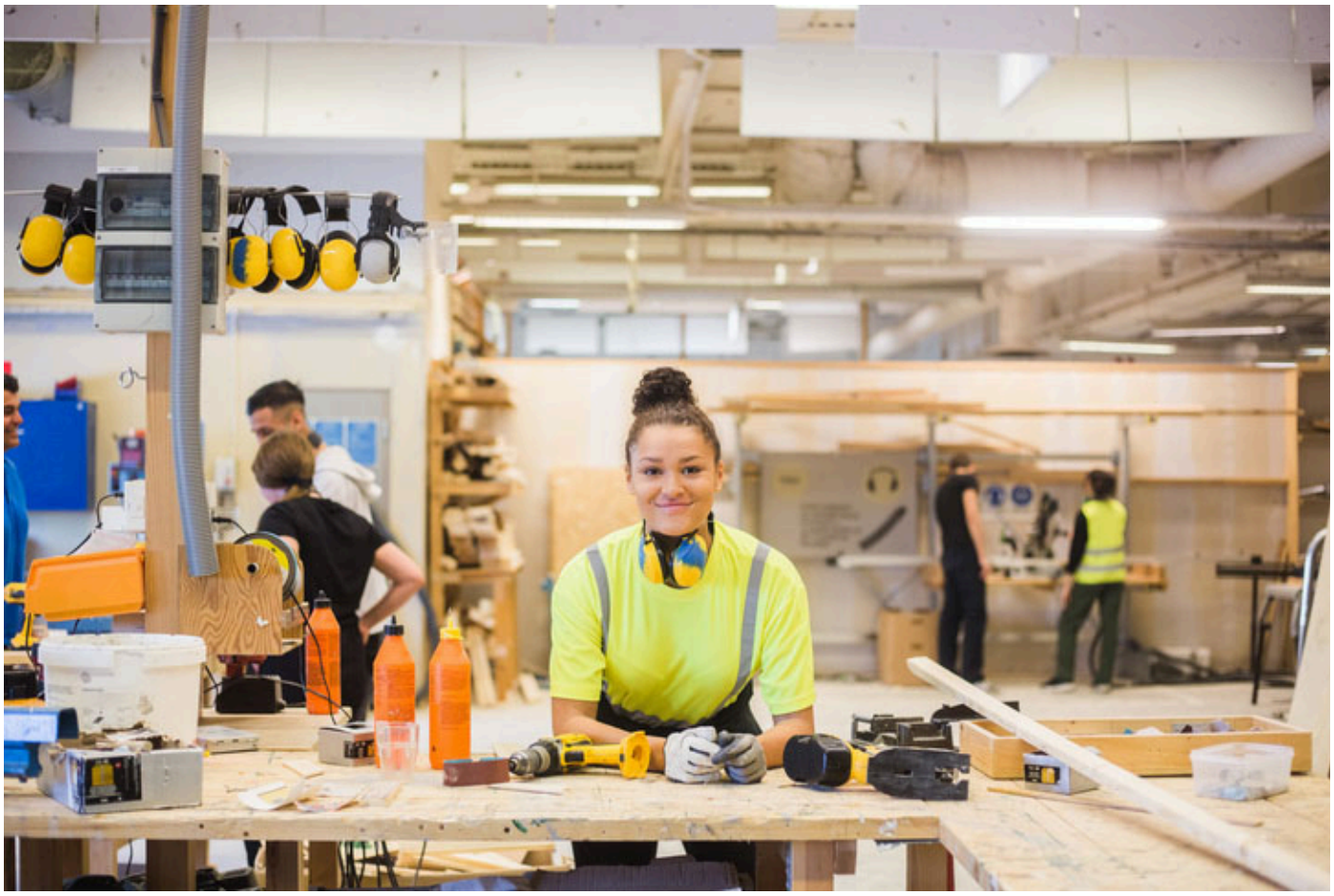
Anticipate: Think about whether the task could produce flying wood chips, sawdust, or loud noise.

Help prevent: Set up the work correctly and use the appropriate protective equipment for the task. Wear appropriate dust protection including safety glasses, dust mask and hearing protection for power tools.

Mitigate: Limit your exposure to dust and loud noise, and keep others clear of the immediate work area.

Respond: Stop working if debris gets into your eyes or you experience breathing or hearing problems and get help as needed.

Loose Clothing, Jewelry, or Long Hair



Anticipate: Check your clothing, jewelry, and hair before working around tools or equipment with moving parts.

Help prevent: Remove loose jewelry, secure loose clothing, and tie back long hair.

Mitigate: Keep your clothing and body clear of moving parts while equipment is operating.

Respond: Stop the equipment if it is safe to do so and get help immediately if anything becomes caught.

Fumes and Ventilation



Anticipate: Consider whether glues, adhesives, paints, varnishes, or other products could give off harmful fumes.

Help prevent: Work in a properly ventilated area and follow the instructions for the product you are using.

Mitigate: Use appropriate respiratory protection when needed and reduce your exposure to fumes. N95 dust masks do not remove fumes and vapors. Use of an approved activated carbon cartridge mask for work involving vapors and fumes.

Respond: Stop working and move away from the source if you feel unwell. Tell a responsible adult and get further help if needed.

Unsecured Wood or Loss of Control



Anticipate: Think about how the wood needs to be held and supported before you begin cutting, drilling, or shaping it. Check that your tools are sharp. Dull tools require more force to use, which makes them harder to control and more likely to slip.

Help prevent: Secure the wood with clamps or a vise as needed, and support boards properly when sawing.

Mitigate: Keep a firm grip on handheld tools and stop if the wood becomes loose or unstable.

Respond: Put the tool down or switch it off safely before securing the workpiece again.

Sharp Tools and Moving Parts



Anticipate: Identify where blades, bits, cutting edges, moving parts, and your hands will be while you work.

Help prevent: Keep your hands clear of cutting edges and moving parts, and work away from your body.

Mitigate: Keep guards in place and stop if you begin to lose control of the tool or workpiece.

Respond: Stop work, make the area safe, and get appropriate help if an injury occurs.

Electricity



Anticipate: Look for wet conditions, damaged equipment, and power cords that could interfere with the work.

Help prevent: Never use a power tool in a wet or damp area. Use properly grounded equipment. Ensure a suitable adult is supervising the use of electric tools in accordance with Scouting policy.

Mitigate: Keep power cords away from blades and other moving parts.

Respond: Stop work and disconnect the power if it is safe to do so. Get adult or emergency help when needed.

Clutter, Distractions, and Tiredness



Anticipate: Check that the work area is clear and that you are ready to concentrate before you begin.

Help prevent: Keep your workspace orderly and put tools away safely when they are not being used.

Mitigate: Stop working if you become distracted, tired, or sleepy.

Respond: Put the tool down or switch it off safely before dealing with a distraction or taking a break.

Using Tools Safely



Safe woodworking also means choosing, checking, and using each tool correctly.

- Use the right tool for the job and learn how to use it correctly before you begin.
- Check your tools before use. Keep them clean, sharp, well maintained, and in good working condition. Most cutting tools are designed to be sharp. Use of dull cutting tools can be more dangerous due to excessive effort needed to make them work as designed.
- Follow the manufacturer's instructions for the tool you are using.
- Keep safety guards in place.
- Disconnect power tools before making adjustments or changing parts.
- Use only tools that Scouts your age are permitted to use and follow Scouting America's requirements for adult supervision.

Safety Reminder

Scouts under 18 may not operate hazardous powered woodworking equipment such as band saws, drill presses, table saws, or circular saws. When Scouts under 18 use permitted power tools, they must be supervised by a mature adult who is experienced in using the tool.

Now that you have discovered likely woodwork hazards, let's find out about woodwork-related first aid.

CLICK button to next requirement

(b) Show that you know first aid for injuries that could occur while woodworking, including splinters, scratches, cuts, severe bleeding, and shock. Tell what precautions must be taken to help prevent loss of eyesight or hearing, and explain why and when it is necessary to use a dust mask.

Web team: Concise Requirement Wording: Woodwork-Related First Aid



First Aid – Minor Injuries



Even when you work carefully, injuries can happen. Keep a first-aid kit nearby and know how to respond to common minor woodworking injuries.

Splinters

1. Remove the splinter with tweezers.
2. Wash the area with soap and water.
3. Apply antiseptic.
4. Cover the wound with an adhesive bandage.

Scratches and Minor Cuts

1. Wash the wound with soap and water.
2. Apply antiseptic.
3. Cover it with an adhesive bandage to help keep it clean.

First Aid – Serious Injuries

Even though they are rare occurrences, it is important to understand what to do if there is a serious injury.

Severe Bleeding

Severe bleeding can quickly become life-threatening.

1. **Stay safe:** Make sure the scene is safe. Avoid contact with blood if possible; use protective wear (e.g., gloves, eyewear/face shield, or another barrier if available.
2. **Get help:** Tell someone to call 911 and get an adult and a first-aid kit.
3. **Stop the bleeding:** Put gauze, a clean cloth, or clothing directly on the wound
   - Press hard and continuously
   - Keep pressing — don't keep lifting the dressing to check the wound
   - If blood soaks through, keep pressure on the wound and add more material on top
4. **Assess if you should use a tourniquet:** If it is life-threatening bleeding from an arm or leg and you have been trained to use a tourniquet, use a manufactured tourniquet. Follow its instructions. Do not loosen or remove it after it is applied.
5. **Stay with the person:** Keep the person as comfortable and appropriately warm as possible. Watch for changes in breathing or responsiveness and follow the directions of the 911 dispatcher.
6. **Don't do more than you know how to do:** If you have not been trained in wound packing or other advanced bleeding-control techniques, don't improvise them. Keep pressure on the bleeding and follow the emergency dispatcher's instructions.

Shock

Shock can occur after severe bleeding or another serious injury and is a medical emergency. Signs can include pale, cool, or clammy skin, rapid breathing, a rapid weak pulse, restlessness or confusion, dizziness, and thirst.

- Treat the injury causing the shock, such as controlling severe bleeding.
- Call or send someone for medical help.
- Help the person lie down and monitor their breathing.
- Keep the person warm with a blanket, coat, or other covering.



Resources
Find out more about first aid using the First Aid merit badge materials.

Scouting America: First Aid merit badge

Protect Your Eyes, Hearing, and Lungs



Woodworking can expose your eyes and ears to hazards and create dust that you could breathe into your lungs. Using the right protective equipment can help prevent lasting damage.

Protect Your Eyes

Wear safety glasses when:

- Hammering
- Chiseling
- Sanding
- Using power tools (with appropriate supervision)

Safety glasses help protect your eyes from wood chips, dust, and other flying material. Safety glasses should have an ANSI Z87 impact rating.

Protect Your Hearing

Wear hearing protection when using power tools. Many power tools produce enough noise to damage your hearing. Noisy environments above 85 decibels requires hearing protection with a 20 - 30 decibel noise reduction. For comparison a normal conversation is 60 decibels.

Wear a Dust Mask

A dust mask helps prevent you from breathing sawdust and other wood particles into your lungs. Dust masks with an N95 rating are best.

Wear a dust mask whenever sanding, sawing, or doing other work that produces wood dust.



A dust mask protects against particles such as sawdust. When working indoors with glues, adhesives, paints, varnishes, or other products that can give off fumes, use proper ventilation and the appropriate respiratory protection for the product.

Now that you have become familiar with woodwork-related first aid, let's earn the Totin' Chip recognition.

CLICK button to next requirement

(c) Earn the Totin' Chip recognition.

Web team: Concise Requirement Wording: Totin' Chip



Totin’ Chip



The Totin’ Chip shows that you understand how to carry, care for, and use woods tools safely and responsibly. To earn it, you will learn the woods tools safety rules in your Scouts BSA Handbook and demonstrate proper handling, care, and use of a pocketknife, ax, and saw.

1. Read and understand woods tools use and safety rules from the Scouts BSA handbook.
2. Demonstrate proper handling, care, and use of the pocketknife, ax, and saw.
3. Use knife, ax, and saw as tools, not playthings.
4. Respect all safety rules to protect others.
5. Respect property. Cut living and dead trees only with permission and good reason.
6. Follow the Outdoor Code.



Resources

Review the Totin' Chip webpage.

Scouting America: Totin' Chip

Now that you have considered woodwork health and safety, let's investigate the origins and types of wood.

CLICK button to next requirement

1. Do the following:

Web team: Concise Requirement Wording: Wood



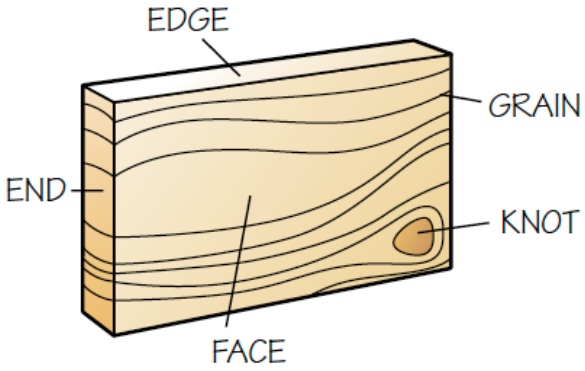
All About Wood



Every piece of wood used in a woodworking project was once part of a living tree. Trees use water and minerals from the soil, carbon dioxide from the air, and energy from sunlight to grow and produce wood.

Wood is a versatile material that can be used to make everything from buildings and furniture to toys, artwork, and musical instruments. Different woods have different qualities, and understanding where wood comes from and how it behaves can help you choose the right material for a project.

Getting to Know a Piece of Wood



- **Grain:** The pattern of lines, curves, and shading created as the tree grows. Grain usually runs lengthwise along a board.

- **Face:** The wide surface of a board.
- **Edge:** The narrow surface of a board.
- **End grain:** The grain visible at either end of a board.
- **Knot:** A hard area in the wood where a branch grew from the tree. Knots can change the wood's appearance and may affect how easy it is to work.

Now that you have had an overview of wood, let's explore timber and lumber.

CLICK button to next requirement

(a) Describe how timber is grown, harvested, and milled. Tell how lumber is cured, seasoned, graded, and sized.

Web team: Concise Requirement Wording: Timber and Lumber



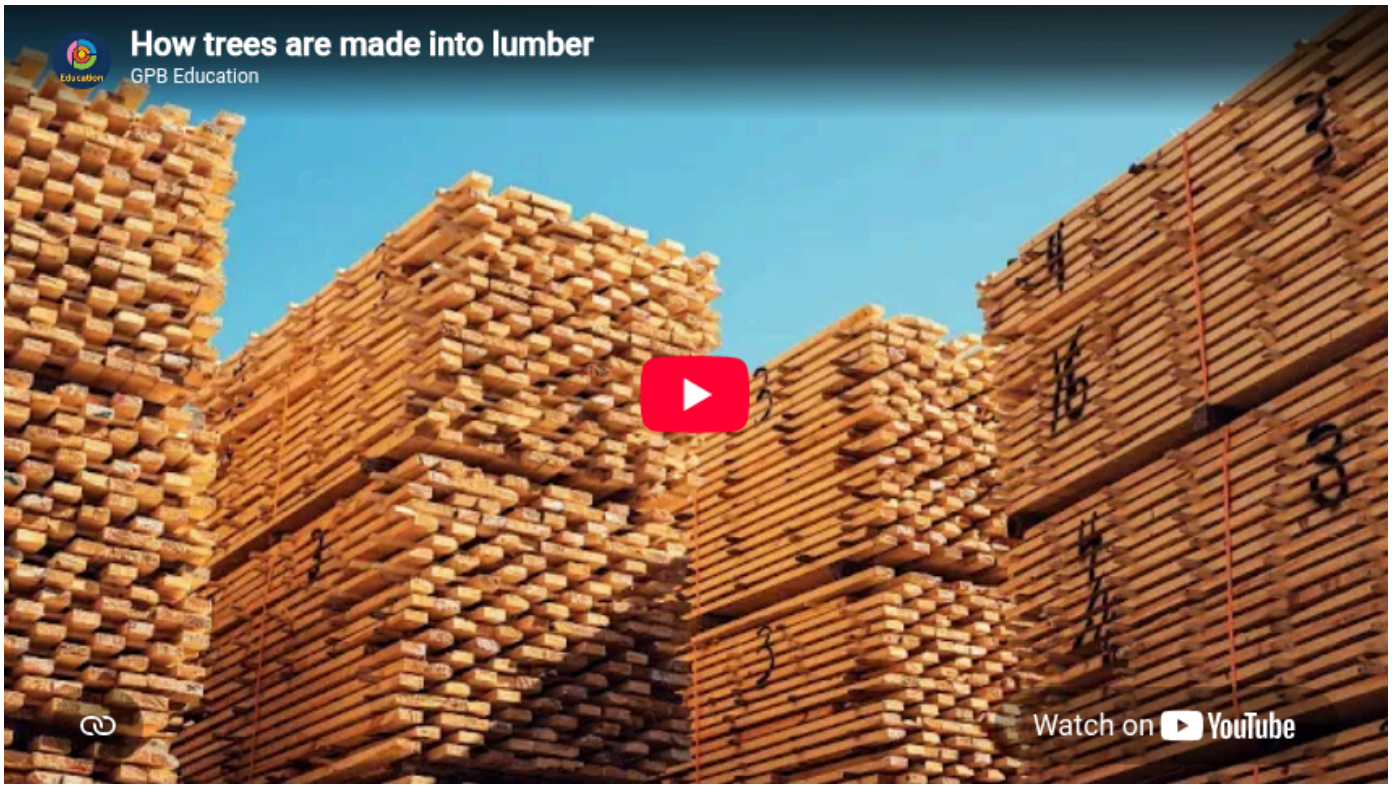
Timber and Lumber



The process of creating wood for woodworking involves several stages, from growing and harvesting trees to milling, drying, grading, and sizing the boards.

?	**What Is Timber?** Standing trees and their wood are called **timber**.
?	**What Is Lumber?** Once timber has been cut and prepared for use, it becomes **lumber**.

Watch the Process for Trees Being Made into Lumber



Growing Timber



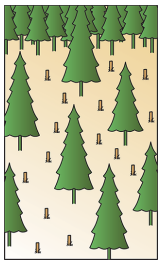
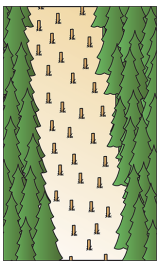
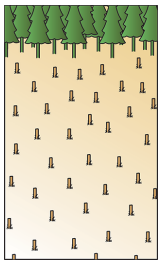
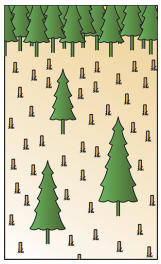
Foresters grow trees as a crop, although trees take much longer to mature than most farm crops.

- Trees can be grown from seeds or young trees called seedlings.
- Seedlings may be raised in a nursery for one to four years before being planted in a forest.
- Depending on the type of tree and how it will be used, trees may grow for five to 30 years or longer before they are ready to harvest.

Harvesting Timber



When trees are ready to harvest, foresters decide which trees should be cut and how the forest will be managed afterward. Four common harvesting methods are described below.

Selection Cutting	Shelterwood Cutting	Clear-Cutting	Seed Tree Cutting
			
Small groups of mature trees are removed to make room for younger trees to grow, while many larger trees remain standing to produce seeds.	Mature trees are removed in stages over a number of years. Some trees remain temporarily to provide shade and shelter for newly planted trees.	All the trees in a section of forest are removed. Foresters may replant the area, or new trees may grow from the stumps of harvested trees. The new trees grow in full sunlight and form a stand of trees that are about the same age.	Most trees are removed, but a few mature trees are left scattered across the area to provide seeds for new growth.
Examples: American beech, sugar maple, and hemlock may be harvested this way.	**Examples:** Oak, ponderosa pine, and white pine can benefit from this method.	**Examples:** Aspen, jack pine, and lodgepole pine can be managed using clear-cutting.	**Examples:** Loblolly pine, longleaf pine, and other southern pines can be harvested using this method.

Milling Timber



After selected trees are cut down:

1. The branches are removed and the trunks are cut into manageable logs.
2. The logs are transported to a sawmill.
3. At the mill, the bark is removed.
4. Saws cut the logs into boards.
5. The new boards, called **green lumber**, are edged and trimmed to straighten the sides and make standard lengths.

Curing and Seasoning Lumber



To **cure** or **season** lumber means to dry it. Lumber needs to be dried because wood that contains too much moisture can warp.

There are two main methods:

- **Air drying:** Lumber is stacked outdoors so that sun and moving air gradually dry it.
- **Kiln drying:** Lumber is placed in a kiln where temperature, moisture, and air movement are controlled. This dries the wood more quickly and consistently than air drying.

Grading Lumber

Lumber is graded to describe its quality, appearance, or strength. Knowing the grade can help you choose lumber that is suitable for your project.

Type of lumber	What the grade tells you	Examples
Hardwood 	Based largely on how much clear, usable wood the board contains. Higher grades have fewer defects such as knots, holes, or splits.	FAS (Firsts and Seconds), Selects, No. 1 Common
Appearance-grade softwood 	Focuses on appearance, including blemishes and the quality of the color and grain.	A, B, C, D; may also be called Select, Finish, Prime, or Clear
Common softwood 	Used where structural strength is not crucial, such as shelving, siding, or paneling.	No. 1 Construction, No. 2 Standard, No. 3 Utility
Structural softwood 	Graded according to the load the lumber can carry. It is used for structural parts such as posts, beams, studs, and rafters.	Select Structural and Nos. 1–3



Fine woodworking may call for attractive lumber with few defects, while lumber used as part of a structure may need a grade that confirms its strength.

Sizing Lumber

Lumber is sold in standard lengths, widths, and thicknesses. The size used to name a piece of lumber is called its nominal size.

Lumber is measured before it is dried and surfaced smooth. Because drying causes wood to shrink and surfacing removes more material, its finished dimensions are smaller than its nominal dimensions.

For example, a board called a 2 × 4 is not actually 2 inches thick and 4 inches wide. Its finished dimensions are usually about 1½ inches × 3½ inches.

Calculating Board Feet

Here's how to calculate the board feet in an **8-foot 2 × 4** using its nominal dimensions (the labeled size of the board before it is planed and surfaced).

Formula:
Thickness × Width ÷ 12 × Length = Board Feet

Example:
2 × 4 = 8
8 ÷ 12 = 0.67
0.67 × 8 = **5.33 board feet**

So, an 8-foot 2 × 4 contains about **5.33 board feet**.



Did You Know?

Woodworkers may also measure lumber using a unit called a board foot. A board foot measures the volume of wood rather than simply its length.

Now that you have discovered timber and lumber,
let's find out about different kinds of wood.

CLICK button to next requirement

(b) Collect and label blocks of six kinds of wood useful in woodworking. Describe the chief qualities of each. Give the best uses of each.

Web team: Concise Requirement Wording: Types of Wood



Types of Wood



Different kinds of wood have different strengths, appearances, and working qualities. Collecting and comparing samples will help you become familiar with which woods are best suited to different woodworking projects.

Wood falls into two main groups:

- **Hardwoods** come from broadleaf trees such as oak, maple, walnut, cherry, and birch.
- **Softwoods** come from conifers such as pine, cedar, spruce, and Douglas fir.



Try to choose a variety of woods for your six samples so you can compare their different qualities and uses.

Where to Find Wood Samples



You may be able to find small wood samples from a:

- Carpenter or cabinetmaker
- Lumberyard
- Building center
- Home project center

You can also use suitable scrap wood from the garage or workshop of a family member or friend, but always ask before taking it.

Wood Qualities: What to Look For



As you examine each wood sample, think about qualities such as:

- Strength
- Hardness or softness
- Weight
- Grain and color
- Flexibility
- Durability
- Stability
- How easy it is to work

These qualities help determine whether a wood is a good choice for furniture, tools, construction, carving, outdoor projects, or other uses.

Template

Use the **Wood Sample Guide** to compare examples of hardwoods and softwoods, their chief qualities, and their common uses. The guide also includes space to record information about your six chosen samples.

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Requirement%20Resources/Woodwork/Req%202b%20Wood%20Guide.pdf

Examples from the guide include:

- **Oak:** Heavy, very strong, hard, and durable. Commonly used for furniture, cabinets, floors, and building parts.
- **Black walnut:** Strong, hard, heavy, dark, and fine-grained. Often used for fine furniture, cabinets, and interior trim.
- **White pine:** Soft, smooth-grained, and easy to work. Commonly used for interior trim and doors.
- **Red cedar:** Soft, easy to work, durable, and resistant to rot and insects. Often used for outdoor and storage projects.

Now that you have become familiar with wood, let's dive into tools, equipment, and their maintenance.

CLICK button to next requirement

3. Do the following:

Web team: Concise Requirement Wording: Tools, Equipment & Maintenance



Tools, Equipment & Maintenance



Good woodworking starts with knowing your tools. Using the right tool correctly helps you work safely and accurately, while regular care and proper storage keep tools working as they should. Cutting tools also need to stay sharp so they can cut cleanly without requiring unnecessary force.



Did You Know?

A sharp cutting tool can be safer and easier to control than a dull one. A dull edge requires more force, which can make the tool more likely to slip.



The tools shown in requirement 3(a) are examples of common woodworking tools. You should be prepared to show the proper care, use, and storage of the woodworking tools and equipment that you own or use at home or school, even if they are not included here.

Safety Reminder

Power tools are potentially dangerous. Scouts under 18 may use only power tools permitted under Scouting safety rules, and any permitted power tool must be used with appropriate adult supervision.

Now that you have had an overview of woodworking tools, equipment, and maintenance, let's explore tools and equipment in more detail.

CLICK button to next requirement

(a) Show the proper care, use, and storage of all working tools and equipment that you own or use at home or school.

Web team: Concise Requirement Wording: Tool and Equipment Care



Tool and Equipment Care



Using the right tool for the job makes woodworking easier, safer, and faster. Learning to use tools correctly and taking good care of them also helps them work better and last longer.

Good tool care helps tools work properly and last longer.

- Keep tools clean.
- Keep tools properly lubricated where appropriate.
- Protect metal surfaces from corrosion. A light film of rust-inhibiting oil can help protect suitable metal tools.
- Keep cutting tools sharp and in good condition.
- Check tools before use and do not use damaged equipment.
- Follow the manufacturer's care and maintenance instructions for equipment when applicable.

As you review the tools below, think about any care they might need.

Measuring and Checking Tools

Tape Measure (Shown Below) or Rule



Use a rule or tape measure to measure wood accurately.

How to use it:

- Place the rule so its measurement marks are close against the wood.
- Use a soft-lead pencil to mark the measurement.
- Make a short dash in the direction of the cutting line rather than marking the point with a dot.

Try Square



A try square helps you mark and check 90-degree angles and make sure an edge or end is square.

How to use it:

- Hold the thick handle firmly against the edge of the board.
- Let the blade lie across the face or end of the board.
- Check whether the end of the board lines up exactly with the blade.
- To mark a square cutting line, hold the handle against the edge and draw along the blade.

Carpenter’s Square



A carpenter's square, or framing square, is a larger square.

How to use it:

- Use it to mark or check right angles.
- It is particularly useful for boards that are too wide for a try square.

Combination Square



A combination square has a movable head that can be locked in position along its rule.

How to use it:

- Use it like a try square to mark or check a 90-degree angle.
- Use its 45-degree setting when you need to mark a 45-degree angle.
- A combination square is also useful to mark boards at a specific measurement repeatably.

Level



A level checks whether a board, shelf, or other workpiece is level or plumb.

How to use them:

- Use a level to check whether something is horizontal, or **level**.
- Use it to check whether something is vertical, or **plumb**.
- A plumb line is a different option to check vertical alignment. When its weighted string hangs freely, it forms a vertical line.

Fastening and Holding Tools

Hammer (Claw Hammer Shown Below) and Mallet



Both tools are used for striking, but they have different jobs. Wear safety glasses when using a hammer and nail set.

Claw hammer: Use it to drive and remove nails.

How to drive a nail:

- Hold the nail by the shank, well below the head.
- Tap it lightly two or three times until it stands by itself.
- Move your hand clear.
- Swing from the elbow and strike the nail head squarely.
- Stop striking when the nail head is flush with the wood. Do not strike the wood after the nail is flush.

How to remove a nail:

- Slip the claw under the nail head.
- If needed, place a piece of scrap wood beneath the hammer head to protect your project.
- Keep your other hand clear of the hammer and nail as you remove the nail.
- Pull back on the handle to draw out the nail.

Mallet: A mallet usually has a wooden or rubber head. Use it for striking wood or woodworking tools, such as tapping a chisel. Do not use it to drive nails.

Nail Set



A nail set is used to drive a nail slightly below the surface of the wood. It is often used with finishing nails when a project will be stained or varnished.

How to use it:

- Drive the finishing nail as close to the wood surface as possible without denting the wood.
- Place the point of the nail set on the nail head.
- Tap the nail set to drive the nail head below the surface.
- Fill the small hole with wood filler when appropriate.

Screwdrivers: Standard/Slotted (Top Image) and Phillips (Bottom Image)



Two common types are the standard, or slotted, screwdriver and the Phillips screwdriver.

How to use them:

- Match the screwdriver tip to the type of screw.
- Choose the correct size.
- Make sure the tip fits properly into the screw head.
- Do not use a tip that is too wide, too narrow, or too thick. A poor fit can damage the screw head or wood and may cause the screwdriver to slip.

Vises (Shown Below) and Clamps



Vises and clamps hold wood securely while you cut, shape, fasten, or glue it.

How to use them:

- Secure the wood before cutting or otherwise working on it.
- Use clamps to hold pieces together while joining them with nails, screws, or glue.
- A vise attached to a workbench can also hold the work securely.
- If you use a machinist's vise, place scrap wood between the vise jaws and your project to protect the wood.

Cutting and Shaping Tools

Handsaws (Japanese Saw Shown Below)



Different handsaws are designed for different kinds of cuts. Choosing the right saw can make your work easier and more accurate.

- **Ripsaw:** Use for cutting with the grain, lengthwise along a piece of wood.
- **Crosscut saw:** Use for cutting across the grain, such as when cutting a board to length.
- **Backsaw:** Use for precise cuts and fine work, such as joinery. Its thin blade is reinforced by a metal strip along the back.
- **Japanese saw:** Unlike conventional handsaws, which cut on the push stroke, a Japanese saw cuts on the pull stroke. Its thinner blade can provide good control with less effort.

How to use them:

Secure the wood, keep the saw aligned with your cutting line, and use smooth, controlled strokes without forcing the blade.

Coping Saw



A coping saw has a thin, replaceable blade that can be angled, making it useful for cutting curves and interior shapes. **How to make an interior cut:**

- Bore a hole at least 1/4 inch wide just inside the shape you want to cut.
- Remove the blade from the coping saw frame.
- Pass the blade through the drilled hole.
- Reattach the blade to the frame.
- Saw along the marked cutting line.

Rasp



A rasp has sharp teeth for removing wood and smoothing rough surfaces.

How to use it:

- Push the rasp forward across the surface you want to shape or smooth.
- Lift it away from the wood for the return stroke.
- Repeat as needed. A rasp cuts as it moves forward.

Chisel



A chisel has a strong, flat blade with a beveled cutting edge. It is used to chip, shave, and shape wood.

How to use it:

- Remove small amounts of wood rather than cutting too deeply.
- Start the blade slightly inside your guideline.
- Push the chisel by hand when possible.
- If you need more force, tap the handle with a wooden mallet.
- Always direct the cutting edge away from your body and hands.

Plane



Planes are used to smooth and straighten rough or uneven surfaces or remove small amounts of thickness or width.

Common types include:

- **Smoothing plane:** For general smoothing.
- **Jack plane:** For planing longer pieces of wood.
- **Block plane:** For smoothing end grain and trimming smaller pieces.

How to use it:

- Secure the wood with a vise or clamps.
- Hold the plane with one hand on the handle and the other on the knob.
- Push it firmly along the entire length of the wood without lifting it during the cutting stroke.
- Apply more pressure to the front of the plane as you begin the cut.
- Apply more pressure to the back as you finish.
- Plane with the grain. If the plane sticks, digs in, or lifts chips, turn the wood around and try the opposite direction.
- Allow only a small amount of the blade to project below the sole.
- Use a sharp blade.
- When you are not using the plane, rest it on its sole to help avoid damaging the blade.

Drilling Tools

Hand Drill (Shown Below) and Brace and Bit



Both tools are used to bore holes in wood by hand.

- **Hand drill:** Uses cutting bits or twist drills for smaller holes, generally up to 1/4 inch.
- **Brace and bit:** Uses larger **auger bits** to bore larger holes.

How to use them:

- Keep the drill or bit straight as you bore the hole.
- Apply pressure straight into the wood rather than sideways to avoid bending or breaking the bit.
- When using a brace and bit, you can help prevent splintering by drilling until the tip of the bit just appears on the opposite side.
- Turn the wood over and finish the hole from the other side.

Electric Drill



An electric drill can make drilling easier.

How to use it:

- Secure the workpiece before drilling.
- Make a small starting dent in the wood to help prevent the bit from skittering across the surface.
- Put a thick piece of scrap wood beneath the drilling area to protect your work surface when the bit breaks through.
- Let the drill do the work rather than forcing it with excessive pressure.
- Keep the drill running as you finish the hole.
- Reduce pressure as the bit approaches breakthrough and maintain control of the drill.
- Gently withdraw the bit while it is still turning to reduce the chance of it binding in the hole.

Sanding Tools

Sanding Block



A sanding block helps keep sandpaper flat against the surface of the wood.

How to use it:

- Wrap the sandpaper securely around the sanding block.
- Sand with the grain of the wood.
- Begin with a coarser grit when more material needs to be removed.
- Move to finer sandpaper to produce a smoother finish.

If you don’t have a store-bought sanding block, make one from a block of wood about 6" x 3½" x 1". Pad the top and bottom with cork or felt to protect the work. Wrap the sandpaper around the block and hold it against the sides of the block as you work.

Orbital Sander



An orbital sander has a flat sanding pad that moves in short, rapid strokes.

How to use it:

- Secure the workpiece before sanding.
- Wear a dust mask.
- Do not press down on the sander. Let the weight of the tool do the work.
- Start the sander before placing it on the workpiece.
- Keep it moving continuously over the surface.
- Whenever possible, sand with the grain.
- Begin with coarse sandpaper and finish with finer paper.
- Keep the sander running as you lift it from the wood before switching it off. This helps prevent gouges in the surface.

Tool and Equipment Storage



Proper tool storage is essential for tool maintenance and safety.

- Store metal tools safely indoors rather than leaving them outside.
- Give every tool a secure storage place.
- Put tools away when you finish using them.
- Do not leave tools lying around where they could be damaged or become a hazard.
- Store tools so cutting edges and other easily damaged parts are protected.



A well-cared-for tool is easier and safer to use. Clean up your work area and return each tool to its proper place at the end of every woodworking session.

Now that you have discovered different tools, let's find out about different sharpening cutting edges.

CLICK button to next requirement

(b) Sharpen correctly the cutting edges of two different tools.

Web team: Concise Requirement Wording: Tool Sharpening



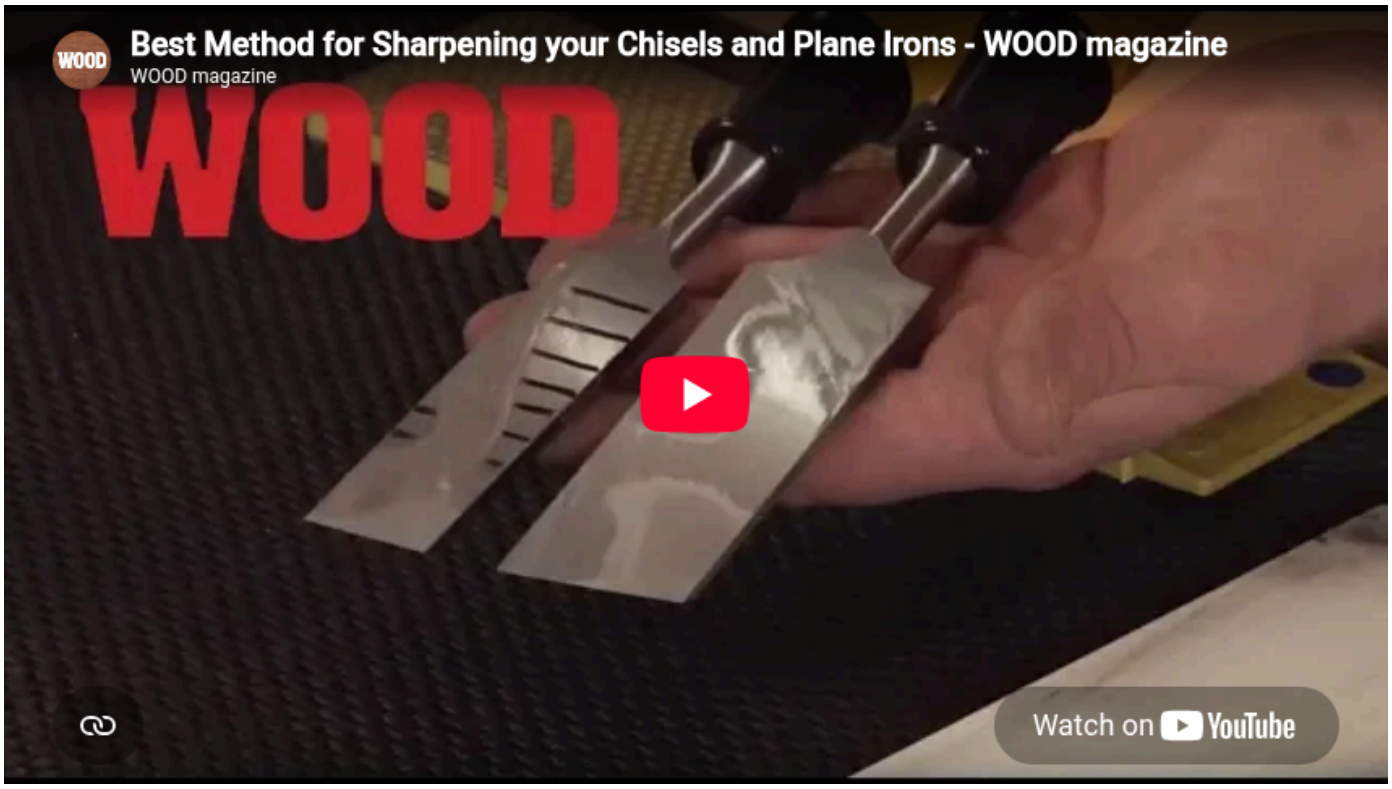
Tool Sharpening

Sharp cutting tools are easier to control and produce better results. A dull blade requires more force and is more likely to slip, which can damage your work or cause an injury.

Safety Reminder

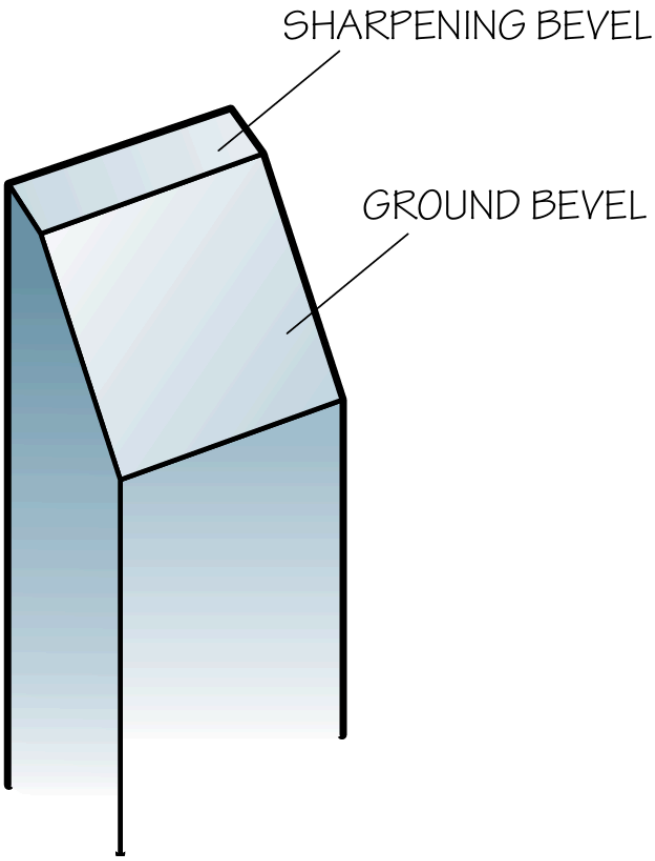
- Secure the stone so it cannot move while you sharpen
- Keep your fingers and hands away from the cutting edge while sharpening
- Follow the sharpening stone manufacturer's instructions, including the recommended lubricant
- Keep the cutting edge pointed away from your body
- Use controlled strokes and do not force the chisel
- Wear eye protection if the sharpening method or manufacturer's instructions indicate a risk of particles or splashing

Detailed Demonstration of Tool Sharpening



Most wood-cutting tools have two bevels at the cutting edge:

- **Ground bevel (also called primary bevel):** The larger, main bevel of the blade.
- **Sharpening bevel (also called secondary bevel):** The smaller bevel at the cutting edge. This is the bevel you work on when sharpening.





Did You Know?

You should never throw cutting tools into a toolbox. Rough handling can nick and dull freshly sharpened edges.

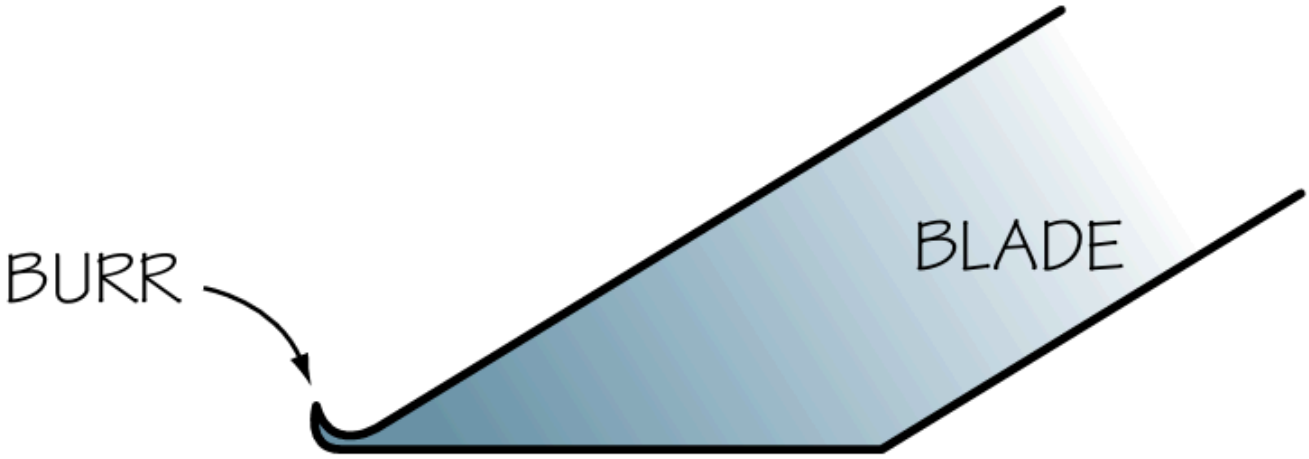
Using Sharpening Stones

A sharpening stone, or whetstone, is used to restore a sharp cutting edge. Follow the manufacturer's instructions for the sharpening stone, including the recommended lubricant. Secure the stone so it cannot move while you sharpen. Keep your fingers and hands away from the cutting edge while sharpening.

When needed, work through progressively finer stones:

1. Rough or coarse
2. Medium
3. Fine
4. Smooth or polishing

Finish by stropping the edge on a piece of leather. This removes the thin wire edge, or **burr**, left by sharpening.



Resources

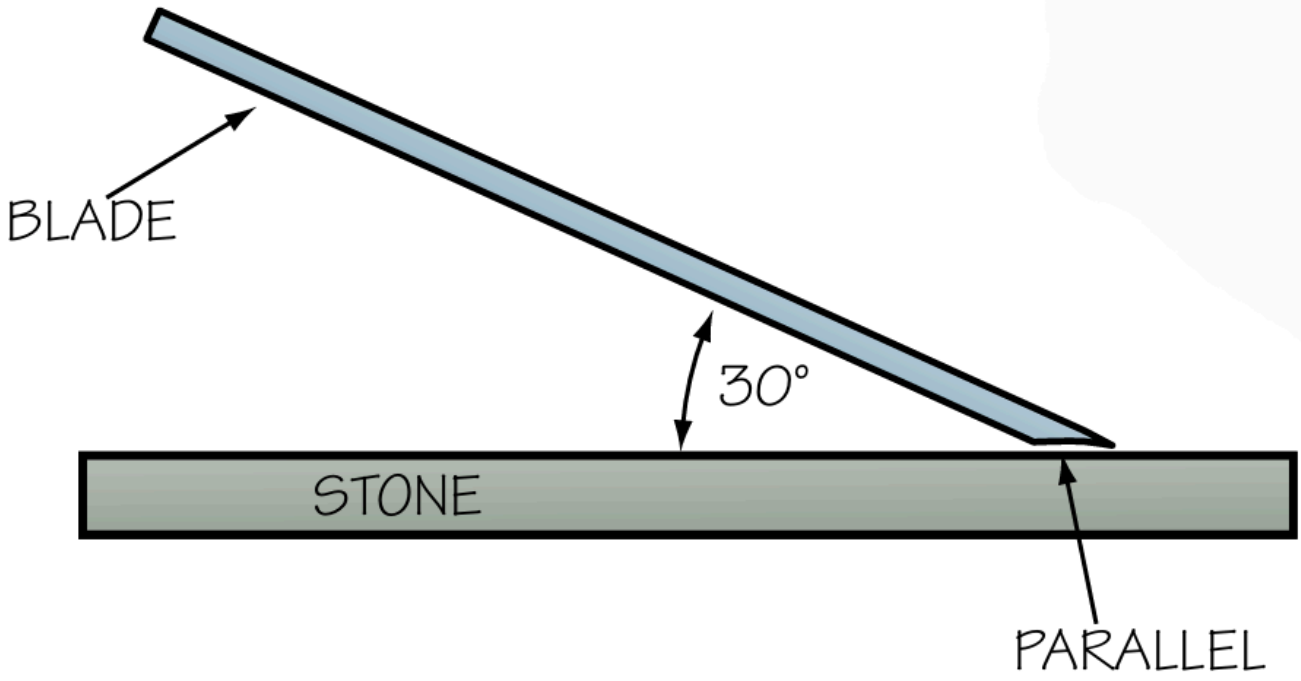
For more about sharpening stones and leather strops, see the Wood Carving merit badge pamphlet

Scouting America: Wood Carving Merit Badge

Sharpening a Plane

Remove the cutting iron, or blade, from the plane before sharpening it.

Example: 30-degree sharpening angle

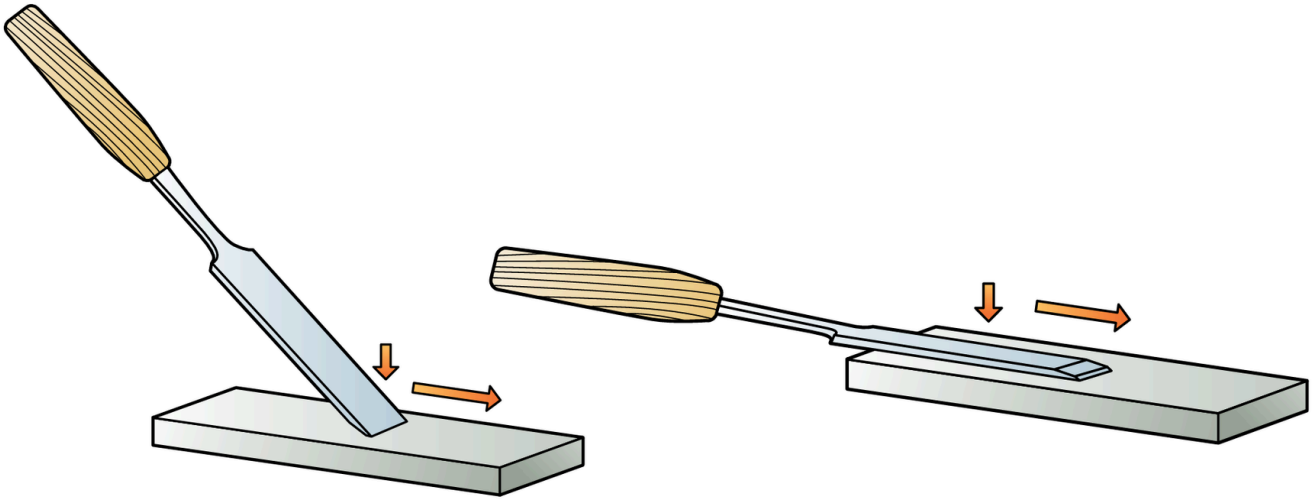


How to sharpen it:

- Lay the cutting iron facedown on the whetstone.
- Slowly raise the blade until the sharpening bevel sits flat against the stone.
- Keep the sharpening angle constant and parallel to the stone.
- Move the blade across the stone with the cutting edge facing away from you.
- Turn the blade over onto its flat side.
- Keep the back of the blade flat against the stone and push it forward.
- Finish by stropping the edge on leather to remove the burr.

Sharpening a Chisel

A chisel is sharpened using the same basic technique as a plane iron.



How to sharpen it:

- Set the sharpening bevel against the stone at the correct angle.
- Keep that angle constant as you push the chisel forward across the stone.
- On the return stroke, pull the chisel back lightly without applying pressure.
- Turn the chisel over and keep its flat side completely flat against the stone.
- Stone both sides as needed.
- Finish by stropping the cutting edge to remove the burr.



Once you find the correct sharpening angle, keep it constant. Rolling or changing the angle as you sharpen can prevent you from producing an even, sharp edge.

Now that you have become familiar with tools, equipment, and their maintenance, let's make something from wood.

CLICK button to next requirement

4. Using a saw, plane, hammer, brace, and bit, make something useful of wood. Cut parts from lumber that you have squared and measured from working drawings.

Web team: Concise Requirement Wording: Make Something Useful



Make Something Useful



This project enables you to develop and practice your woodworking skills. You will work from a drawing, accurately prepare lumber, and use several hand tools to turn the pieces into a finished, useful item.

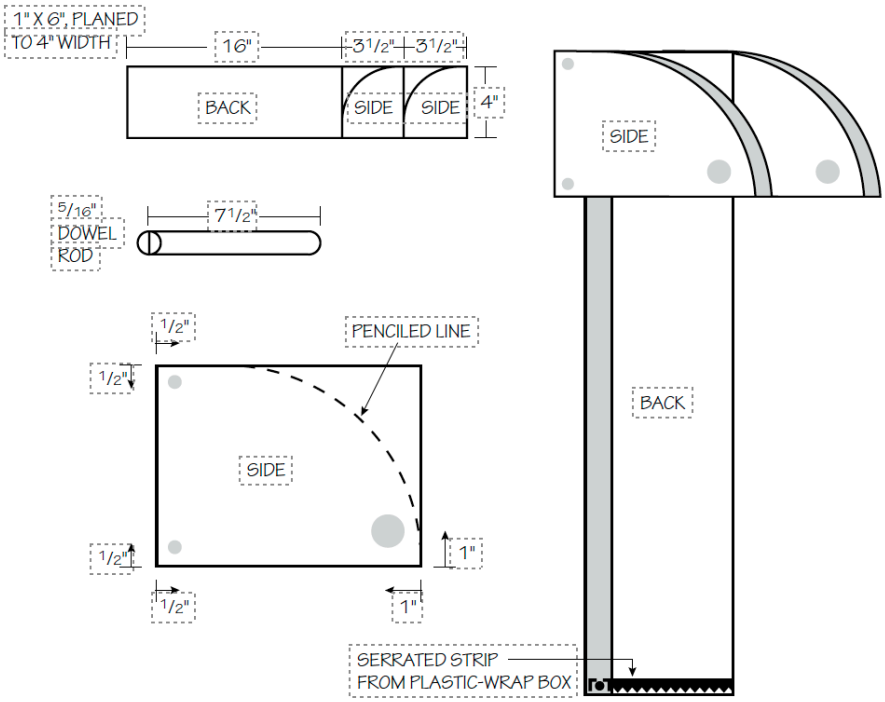
Refer back to requirement 3 if you need a reminder of how to identify and use a saw, plane, hammer, brace, and bit.

The woodwork merit badge pamphlet provides complete illustrated instructions for making a to-do list holder, a project designed to meet this requirement. However, you may choose another useful woodworking project as long as it includes all the required tools, squaring and measuring lumber, and working from drawings.

How To Create a Working Drawing

A working drawing is a detailed, accurate sketch that shows the size and shape of the project, the dimensions of each piece, and how the pieces fit together. This example is for the to-do

list holder.



To make or use a working drawing:

- Sketch the project: Show the overall shape and the main parts.
- Add the views you need: A simple project may need only a front and top view or a front and side view. More complex projects may need top, front, and side views.
- Add dimensions: Mark the length, width, thickness, hole locations, and other measurements needed to make each part.
- Show how the parts fit together: Include enough detail to understand where pieces join and how the project will be assembled.
- Use the drawing as your guide: Refer back to it as you measure, mark, cut, drill, and assemble each piece.

Your drawing does not need extra views if they do not add useful information. Include enough detail to clearly show how to cut and assemble the project.

How To Square, Measure, and Cut Lumber



Before cutting the parts for a project, you need a straight, square edge and end to measure from. This gives you a reliable starting point and helps the pieces fit together correctly.

1. Check and Square the Lumber

- Check the end and edges of the board with a try square.
- If an end is not square, mark a square line across the board.
- Saw away the excess wood and use a plane if needed to bring the edge accurately to the line.
- Use the squared end as your starting point for later measurements.

2. Measure and Mark

- Check the working drawing for the dimensions of the part you are making.
- Measure from a squared end or edge.
- Mark the measurement with a pencil.
- Use a try square or straightedge to extend the mark into an accurate cutting line.
- Measure twice before you cut. Accurate measuring and squaring at the beginning can save a lot of time correcting mistakes later.

3. Cut and Plane

- Wear appropriate eye protection when sawing, planing, or performing other woodworking tasks that may produce chips or dust.

- Secure the lumber before cutting.
  - Keep your hands clear of the cutting path and position the work so the tool cannot contact your body if it slips.
- Saw carefully along the marked cutting line.
- When you need to plane an edge to an exact size, cut slightly outside the line so there is a small amount of wood left to remove.
- Plane down to the marked line.
- Check the finished piece for size and square before moving on.



When accuracy matters, leave a little extra wood when you saw and remove the final amount with a plane. It is much easier to remove a small amount of wood than to replace wood that has been cut away.

Project Example: To-Do List Holder



The woodwork merit badge pamphlet includes complete working drawings and illustrated instructions for making a to-do list holder. The outline below shows the main stages of the project. Use the pamphlet for the exact measurements and full instructions.

1. Gather Your Materials

You will need:

- Appropriate safety gear, including eye protection
- A piece of 1" × 6" or wider lumber
- A wooden dowel
- Wood glue
- Finishing nails
- A short serrated metal cutting strip
- A roll of adding-machine or printing-calculator paper

2. Collect Your Tools and Equipment

This project uses several types of woodworking tools, including:

- **Measuring and marking:** Tape measure, pencil, straightedge, and try square
- **Holding:** C-clamps and a vise
- **Cutting and shaping:** Ripsaw, crosscut saw, coping saw, and smoothing plane
- **Drilling:** Brace and bit and hand drill
- **Assembly:** Hammer

3. Prepare the Lumber

Use the working drawing to mark the required width. Rip the board slightly outside the line, plane the edge accurately to size, and check that the board is square.

4. Measure and Cut the Parts

Measure from the squared end and use the working drawing to mark and cut the two side pieces and the back.

5. Drill and Shape the Side Pieces

Mark the hole locations, secure the wood, and use the brace and bit to bore the required holes. Mark and cut the curved upper edges with a coping saw.

6. Prepare for Assembly

Drill the smaller pilot holes needed for the finishing nails and drill the hanger hole in the back piece.

7. Assemble the Holder

Use wood glue and finishing nails to attach the side pieces to the back. Clamp the project while the glue dries.

8. Finish the Project

Finish the wood as desired, then add the dowel, paper roll, and serrated cutting strip.

Now that you have made something useful, let's create your own woodworking project.

CLICK button to next requirement

5. Create your own woodworking project. Begin by making working drawings, list the materials you will need to complete your project, and then build your project. Keep track of the time you spend and the cost of the materials.

Web team: Concise Requirement Wording: Woodworking Project

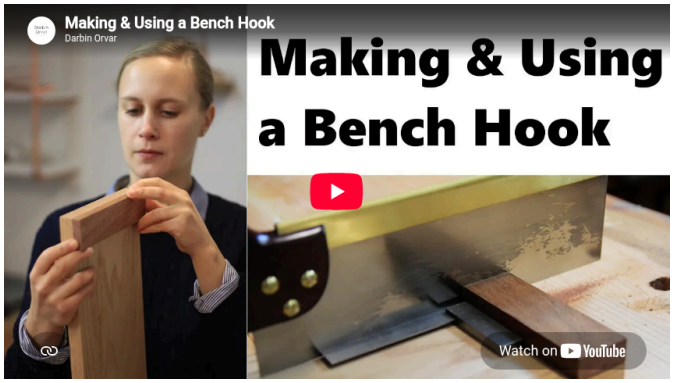
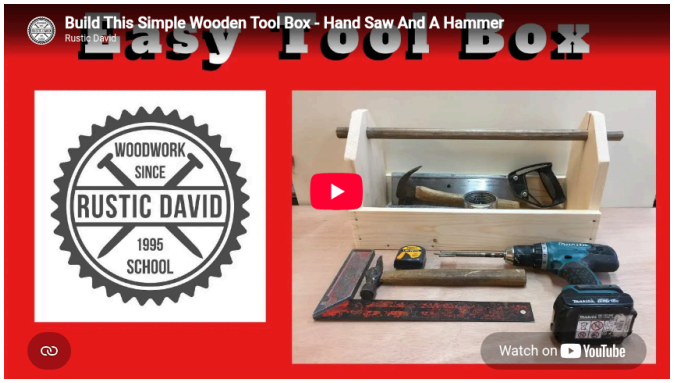


Create Your Own Woodworking Project



Now it is your turn to plan and build a woodworking project of your own. Choose something you would enjoy making or something that would be useful to you, your family, or another group.

Need some inspiration? The Woodwork merit badge pamphlet includes drawings for several possible projects that you can use, including a tool rack, workbench, sawhorse, stool, doorstop, broom rack, bookrack, shelving, and other useful items. You can also look online for project ideas using safe digital practices. If a parent or guardian gives permission, you can register for free access to Common Woodworking, which offers projects designed to be made with hand tools.

Brief Video (4 minutes) – How To Make a Bench Hook	Detailed Video (21 minutes) – How To Make a Tool Box
	

1. Plan Your Project

Before you start building, think through what you want to make and how the different parts will fit together.

Consider:

- What will the finished project be used for?
- What size should it be?
- What pieces will you need to make?
- How will the pieces be joined?
- What tools will you need?

2. Make Working Drawings

Create working drawings before you cut any wood. Include the measurements and views needed to show the shape of the project, the dimensions of its parts, and how the pieces fit together. For intricate shapes or repetitive parts consider making a full size paper or wood template of this piece.

Refer back to **requirement 4** for more information on creating and using working drawings.

3. Make a Bill of Materials

A **bill of materials** is a list of everything you will need to build your project. Preparing the list before you start can help you buy the correct materials and keep track of your costs.

For each material, record:

- Quantity
- Item and its use
- Size
- Length, where applicable
- Cost

Remember to include hardware and other supplies, such as screws, nails, hinges, knobs, or glue, when your project requires them.

4. Build Your Project

Use your working drawings as your guide as you measure, cut, shape, join, and finish the pieces.

- Work carefully and check measurements before cutting.
- Follow the tool safety practices you learned earlier.
- Check your project against your drawings as you work.
- If you change the design while building, update your drawings or notes so you have an accurate record of what you made.

5. Keep Track of Your Time and Costs

Record the time you spend designing and building your project and the amount you spend on materials. Keep receipts where possible.

At the end, add up your **total time** and **total material cost**.



Template

The Woodworking Project Planner and Record helps you plan your project and keep records for any woodworking project. Use it as is or as inspiration for your own approach.

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Requirement%20Resources/Woodwork/Req%205%20Woodworking%20Project%20Planner%20and%20Record.pdf

Now that you have undertaken a woodworking project, let's do two more projects

CLICK button to next requirement

6. Do TWO of the following:

(a) Make working drawings of a project needing beveled or rounded edges and build it.

(b) Make working drawings of a project needing curved or incised cuttings and build it.

(c) Make working drawings of a project needing miter, dowel, or mortise and tenon joints and build it.

(d) Make a cabinet, box, or something else with a door or lid fastened with inset hinges.

(e) Help make wooden toys for underprivileged children OR help carry out a woodworking service project approved by your counselor for a charitable organization.

Web team: Concise Requirement Wording: Woodworking Project Options

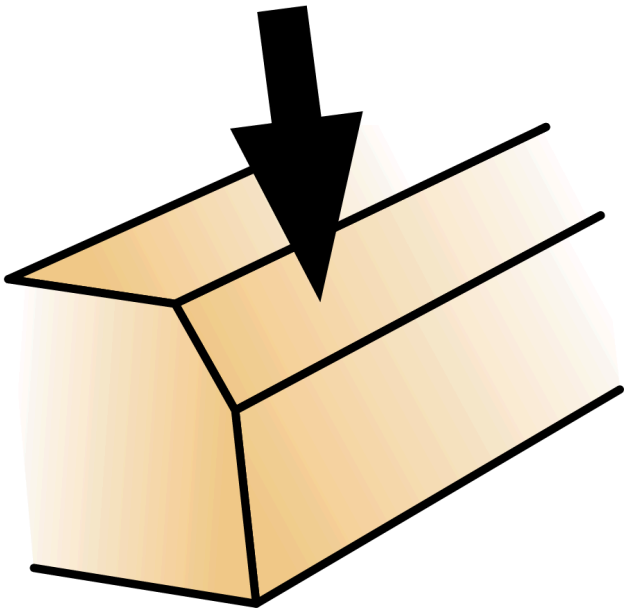


Requirement Overview

This requirement gives you the chance to try more advanced woodworking techniques. Read through the five options and choose two to complete.

For options (a), (b), and (c), remember to make working drawings before you begin building. Refer back to requirement 4 if you need a reminder about working drawings.

(a) Beveled or Rounded Edges



Bevel

A **bevel** is an angled edge cut or shaped into a board. It may be added for appearance or to help one piece fit against another.

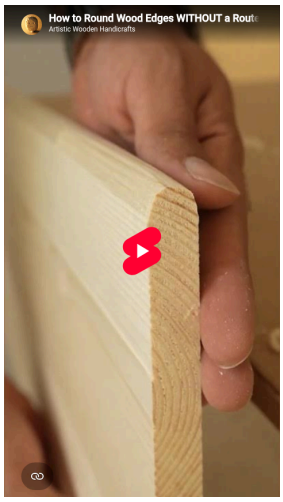
To make a beveled edge:

- Mark a line showing the angle you want to create.
- Secure the wood in a vise.
- Use a smoothing or block plane to remove wood gradually.
- Check your work frequently so you do not remove too much.

A **rounded edge** takes this process further. Plane away the sharp edge to create the rounded shape, then sand it smooth with the grain.

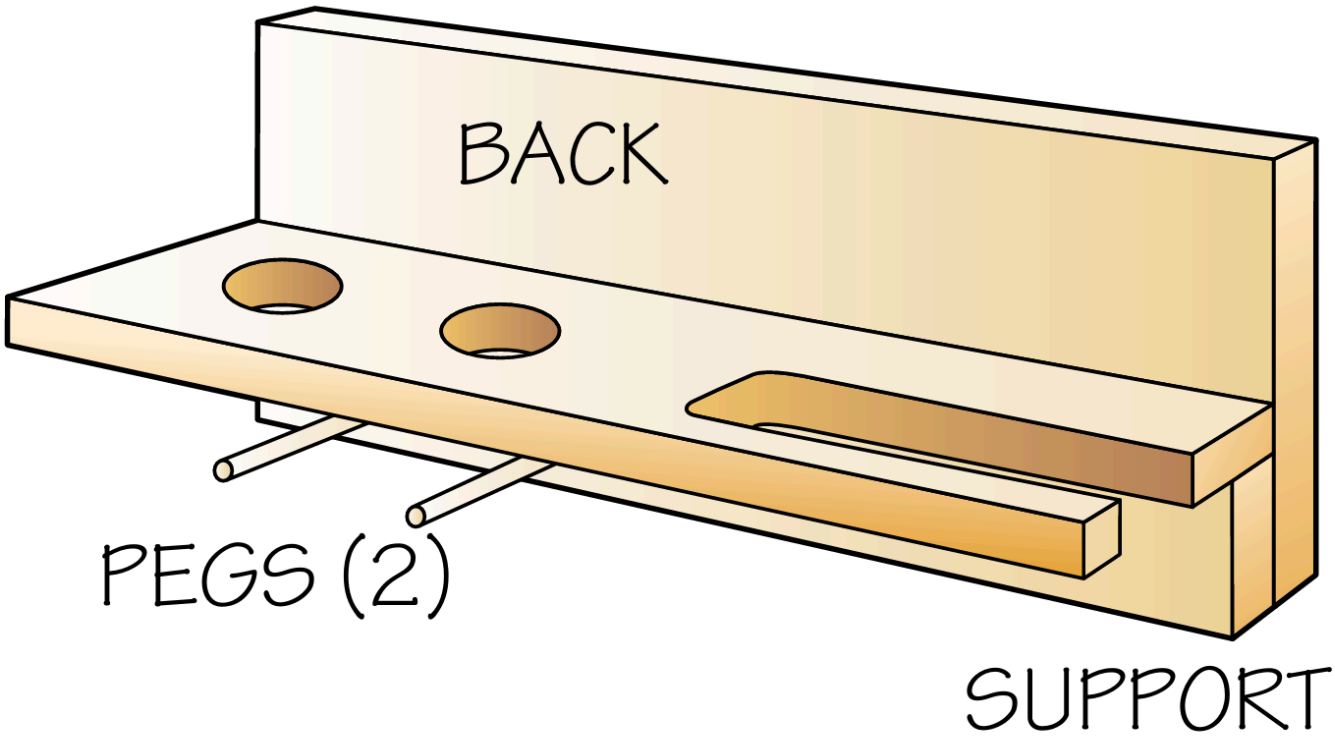
Project ideas: A picture frame with beveled edges or a stool with rounded edges.

Short on How to Bevel a Board with a Plane



(b) Curved or Incised Cuttings





Wood does not always have to be cut in straight lines.The sketch shows a rack for holding a baseball bat, balls, and mitts with cuttings.

Curved cutting: A curved or irregular shape cut into or around a piece of wood. A coping saw is useful for making curved cuts.

Incised cutting: A deep, sharply defined notch cut into the edge of a piece of wood.

Mark the shape accurately on your working drawing and wood before you begin cutting.

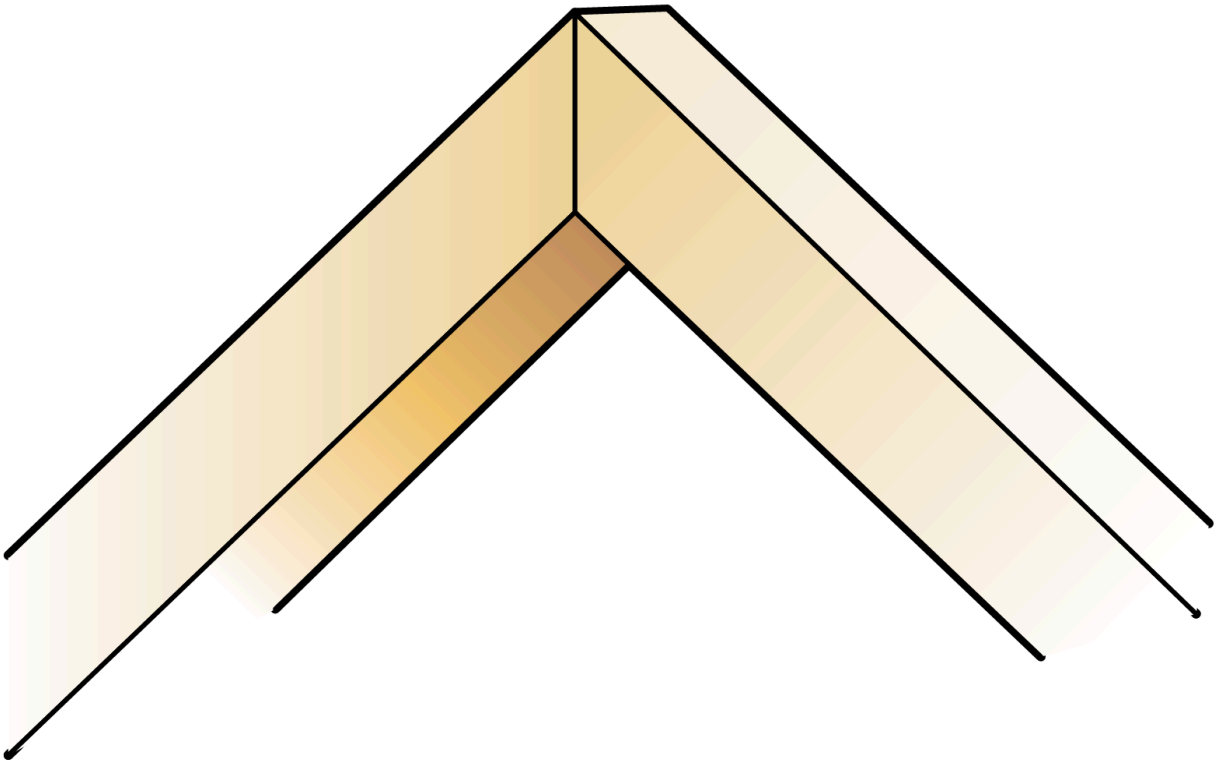
Project ideas: A table with a curved top or a rack with curved or incised cuttings.

(c) Miter, Dowel, or Mortise and Tenon joints



For this option, make a project that uses a **miter, dowel, or mortise and tenon joint**.

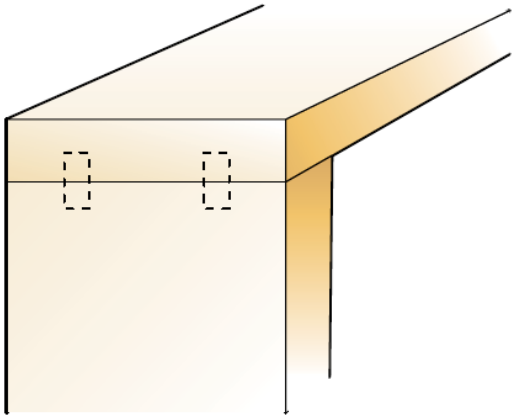
Miter Joint



A miter joint joins two pieces at an angle. For a square 90-degree corner, each piece is cut at **45 degrees**. A miter box can help guide the saw accurately.

Miter joints are often used where appearance matters, such as picture frames and trim.

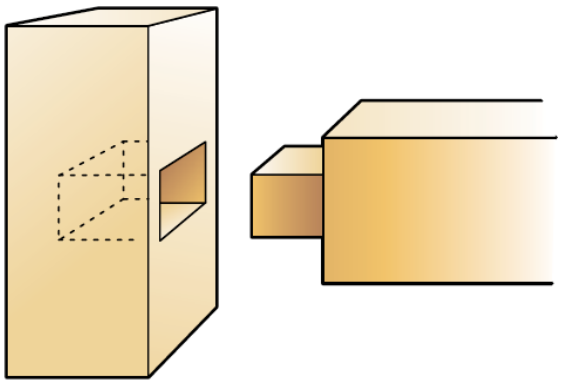
Dowel Joint



A dowel joint uses wooden dowels to connect pieces of wood.

1. Drill matching holes the same size as the dowels.
2. Apply glue to the dowels and joining surfaces.
3. Insert the dowels into one piece.
4. Fit the second piece over the projecting dowels.
5. Clamp the pieces until the glue dries.

Mortise and Tenon Joint



A mortise and tenon joint has two matching parts:

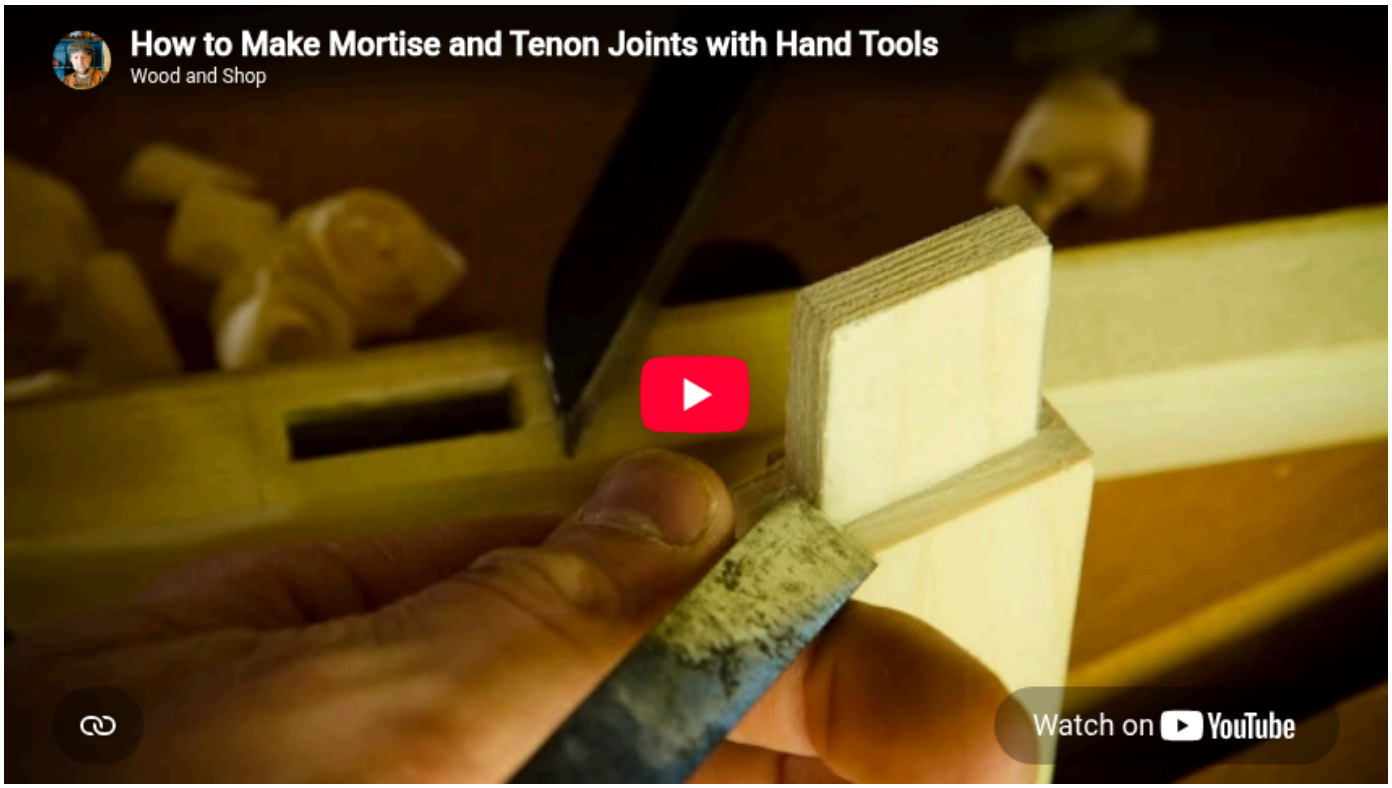
- **Mortise:** A hole cut into one piece of wood.
- **Tenon:** A projecting part shaped on another piece to fit into the mortise.

To make the mortise, drill to the required depth and use a sharp chisel to remove excess wood and square the corners. Mark the tenon carefully and use a backsaw to cut it to shape.



Mortise and Tenon Joint: Think of “tenant”—someone who dwells inside a place—to help you remember that the tenon (the peg) goes inside the mortise (the hole).

Detailed Video (8 minutes) Demonstrating How to Make a Mortise and Tenon Joint



Project ideas: A picture frame with miter joints, a stool with mortise and tenon joints, shelves with dowel or mortise and tenon joints, or a small table with dowel joints.

(d) Project with Door or Lid Fastened with Inset Hinges



An inset hinge sits in a shallow recess, called a **gain**, cut into the wood so the hinge leaf fits into the surface.

How to inset a butt hinge:

1. Put the door or lid in position.
2. Position the hinges and mark where they will sit on both pieces.
3. Mark the width and depth of each gain.
4. Score around the marked area with a chisel and wooden mallet.
5. Make shallow cuts with the grain and carefully chisel out the gain.
6. Position the hinge and insert one screw in each hinge first.
7. Check that everything fits and moves correctly before installing the remaining screws.

Project ideas: The wood duck nest box in the Woodwork merit badge pamphlet can meet this option when made with inset hinges. You can also make a cabinet, box, or another project with a door or lid attached using **inset hinges**.

(e) Service Project



A good service project starts with finding out what is actually needed. Your merit badge counselor or Scoutmaster may know of a woodworking project that could help your community.

Places to ask include:

- Your school
- A religious institution
- The organization that operates your troop
- A charitable organization in your community

You may also be able to work with other Scouts on a larger woodworking Good Turn. Woodworking skills can be used to create useful projects for your home, troop, school, or community. Scouts have used woodworking skills to build projects such as:

- Benches and picnic tables
- Outdoor classrooms
- Little Free Libraries
- Garden planters
- Information kiosks
- Shelters, sheds, and other outdoor structures

For more ideas, explore the wood projects in the **Scout Life Eagle Scout Project Showcase** to see woodworking projects completed by Scouts.

If You Choose to Make Toys

Talk through your idea with your counselor or Scoutmaster before you begin. They can help you decide what to make and how the finished toys can reach children who will use them.

If you need ideas or plans:

Look for wooden-toy plans in woodworking books, such as *Classic Wooden Toys: Step-by-Step Instructions for 20 Built-to-Last Projects*, 2nd edition, by Jim Harrold (2020) or other reliable resources.

The Woodwork merit badge pamphlet includes plans for a small wooden paddle boat as one possible starting point.

Consider working with an organization that serves families in need to arrange delivery of the finished toys.



Find the need first, then choose the woodworking project. That helps make sure your time and skills produce something that will actually be useful.

How to Make Wooden Toys



Now that you have done two more woodworking projects, let's learn about careers.

CLICK button to next requirement

7. Do ONE of the following:

Web team: Concise Requirement Wording: Careers and Hobbies



Careers and Hobbies



Woodworking skills can take you in different directions. You might use them in a skilled trade or woodworking career, continue developing them as a hobby, or put them to work helping others. For this requirement, choose the path that interests you most and explore where it could lead.



Did You Know?

Woodworking can become an art form. American woodworkers such as Sam Maloof, George and Mira Nakashima, and Wendy Maruyama are known for furniture and artwork that combine practical woodworking skills with distinctive design.

Now that you have had an overview of careers and hobbies, let's identify career opportunities.

CLICK button to next requirement

(a) Explore careers related to this merit badge. Research one career to learn about the training and education needed, costs, job prospects, salary, job duties, and career advancement. Your research methods may include—with your parent or guardian's permission—an internet or library search, an interview with a professional in the field, or a visit to a location where people in this career work. Discuss with your counselor both your findings and

what about this profession might make it an interesting career.

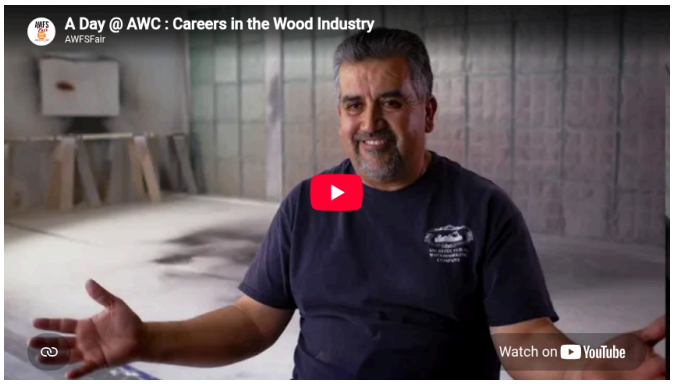
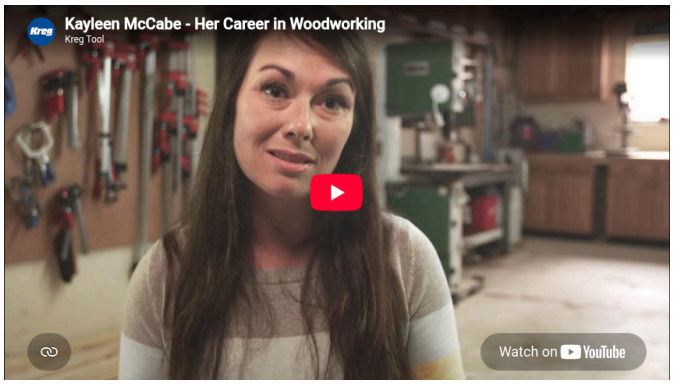
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Careers

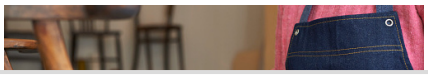


Woodworking careers range from detailed custom work completed by hand to construction and manufacturing that uses modern computer-controlled equipment.

Woodworkers at a Company in L.A. Talk About Their Roles	Kayleen McCabe Describes Her Career in Woodworking
	

Career Options

Career	What They Do
Cabinetmaker 	Cuts, shapes, assembles, and installs cabinets and other wood products. Some cabinetmakers create custom pieces from design through installation.
Finish Carpenter 	Completes detailed interior carpentry such as installing doors, windows, trim, paneling, flooring, stairs, and cabinets.
Furniture Maker 	Builds furniture ranging from individual handcrafted pieces to products made in larger woodworking shops.
Furniture Finisher 	Finishes, refinishes, and repairs furniture, including preparing surfaces and applying stains, sealers, and protective finishes.
Custom Woodworker	Designs and builds one-of-a-kind furniture and other objects, often combining traditional woodworking skills with modern tools and techniques.

	
Production Woodworker 	Produces wood products in a manufacturing setting and may set up or operate computer-controlled woodworking equipment.

Career Questions

Find Out About	Questions to Investigate
Job duties	What would you actually do during a typical working day?
Education and training	Is an apprenticeship, technical program, college course, certification, or on-the-job training needed?
Cost	Would you have to pay for tuition, tools, equipment, certifications, or other training?
Job prospects	Are opportunities expected to grow or decline? Are jobs available where you live?
Salary	What is typical starting pay? What might an experienced worker earn?
Career advancement	Could you specialize, become a supervisor, manage projects, or eventually start your own business?

Resources

Review the supporting material for requirement 2 in the Scholarship Merit Badge Digital Resource Guide **to find out more about different research methods, interview techniques, and a checklist to organize an educational visit.**

Visit the U.S. Bureau of Labor Statistics Occupational Outlook Handbook to research the details of any career, including training and education needed, costs, job prospects, salary, job duties, and career advancement.

Use CareerOneStop tools to help find a career that suits you, whether related to woodwork or another field.

Find out more about woodwork training and apprenticeships in the Extended Learning section of this digital resource guide.

Now that you have explored careers, let's consider hobbies.

CLICK button to next requirement

(b) Explore how you could use knowledge and skills from this merit badge to pursue a hobby, volunteer activity, or healthy lifestyle. Research any training needed, expenses, and organizations that promote or support it. Discuss with your

counselor what short-term and long-term goals you might have if you pursued this.

Web team: Concise Requirement Wording: Hobbies

Hero image



Hobbies



Woodworking does not have to become your career. It can be a lifelong creative hobby, a way to make useful things for yourself and others, or a skill you use in community service.

You could use woodworking skills to:

- **Build useful projects** for your home, troop, or family.
- **Develop woodworking as a creative hobby**, making furniture, toys, boxes, gifts, or decorative pieces.
- **Learn traditional hand-tool skills** and take on increasingly challenging projects.
- **Repair or restore furniture** and give older wooden items a new life.
- **Volunteer your skills** to make or repair items for schools, charities, community groups, or other organizations.
- **Make items for others**, such as toys, benches, shelving, garden projects, or storage.

Research	Organizations	Goals
		
Find out what training, tools, materials, workspace, and costs are involved. For example, you might research a beginner woodworking class, the cost of basic hand tools, or what materials you would need for furniture making, carving, or restoration.	Look for clubs, guilds, classes, makerspaces, community groups, or charities that support the activity. Examples might include a local woodworking guild, the American Association of Woodturners, a community education program, or a service organization that needs woodworking help, like Habitat for Humanity.	Set short and long term goals and keep track of them. For example, your short-term goal might be to learn a new joint or complete another woodwork project. Your long-term goal might be to develop a specialty, build a home workshop, or use your skills regularly in community service.

Now that you have learned about careers, let's review some extended learning.

CLICK button to next requirement

Extended Learning

Web team: Concise Requirement Wording: Extended Learning



Explore Woodworking Training and Apprenticeships



If you enjoy woodworking, there are several ways to keep developing your skills. Depending on the type of work that interests you, you might learn through a technical program, an apprenticeship, or training provided by an employer.

Technical and Woodworking Programs

High schools, technical schools, community colleges, and other postsecondary programs may offer training in woodworking, cabinetmaking, carpentry, construction, or related fields. Programs can provide hands-on experience with measuring and layout, joinery, cabinet construction, shop drawings, wood properties, and modern woodworking equipment.

Carpenter and Cabinetmaker Training

The United Brotherhood of Carpenters and Joiners of America (UBC) provides apprenticeship and advanced training through regional training centers. Its crafts include general carpentry as well as **millworkers and cabinetmakers**. Training centers offer apprentice classes and additional skills and certification courses.

Resources

Find out more about apprenticeships.

ApprenticeshipUSA: Jump Start Your Career Through Apprenticeship

Home Depot Provides Free Woodwork Classes

If you are age 12 or younger, The Home Depot Kids Workshops are a free way to get more hands-on experience building projects and using basic tools. A different project is offered at participating stores on the first Saturday of each month.

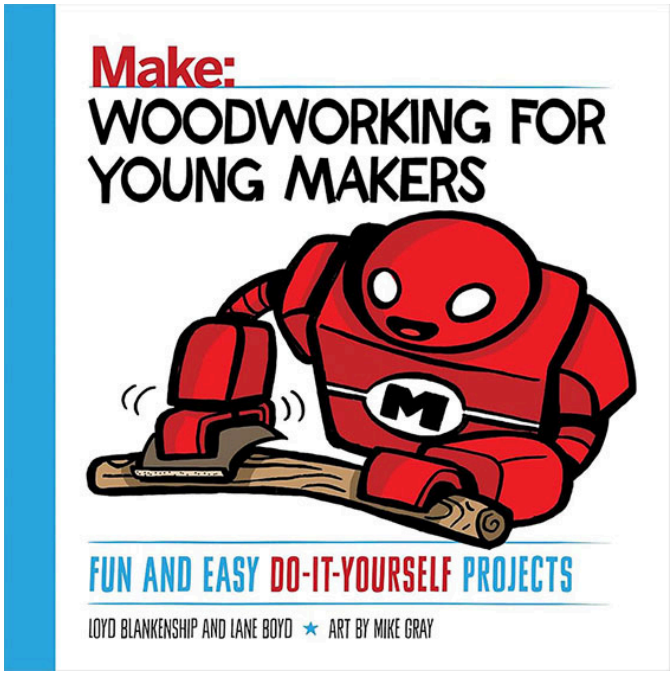
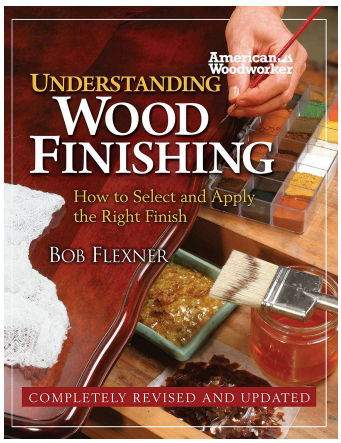
Completing a small project can give you more practice following plans, assembling parts, and seeing how individual pieces come together to make something useful or fun.

Older Scouts can explore The Home Depot's Free Livestream & On-Demand DIY Workshops on a range of home improvement projects.

With your parent or guardian, check the schedule and register for a workshop near you.

Further Reading on Woodworking

These books offer further ideas for projects and details of how to finish your wood.

Blankenship, Loyd, and Lane Boyd. *Woodworking for Young Makers: Fun and Easy Do-It-Yourself Projects*. Maker Media, Inc., 2017.	Flexner, Bob. *Understanding Wood Finishing: How to Select and Apply the Right Finish*, 3rd rev. ed. Fox Chapel Publishing, 2021.
	

Safety Reminder

Woodworking books may demonstrate tools or equipment that are not permitted for Scouts of every age. Follow Scouting America tool-use rules and the safety guidance provided in this resource when choosing tools and projects.