

Beginners Guide To Woodworking

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Beginner's Tips For Woodworking

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INTRODUCTION

So, you've decided that you want to learn woodworking. You go into the store, and find mass-produced pieces of furniture, and you want to make your own, something original. That's one of the joys of woodworking as a hobby. You can take a few pieces of lumber and other materials, some tools and your imagination, and with your own two hands create a piece of woodcraft that you can be proud of. Quite often, you can even create something for much less than it would cost to buy one at the store.

This hobby of woodworking is growing in popularity, especially among women. More and more, women are picking up saws, drills, and other tools to create unique furniture and accessories for their homes. So, woodworking isn't just for men anymore.

Woodworking isn't limited to making furniture. You can create toys, figurines, and other items out of wood.

Where do you begin in woodworking? Well, there are several ways to get started in this hobby. You could take a class at a community college, or read up on it in books and magazines. Some people simply jump into it and get started. How you begin should depend on how experienced you are with woodworking tools.

This purpose of this book is to guide you in getting started, learning some woodworking terminology, choosing tools and wood, and to set up a workspace. This is not a comprehensive guide, simply a beginner's guide in getting started.

We'll also give you a couple of projects to get you started, and help you in planning your own woodworking projects.

So, come on in, and learn how to get started with woodworking.

YOUR WORK SPACE

You will need to set up a space for your woodworking activities. Many times, people will set up a space for woodworking in their basement or in their garage. In setting up your space, you should consider several things. You'll need to look at the amount of space, access to light and electricity, and organization. If you have any friends who have a woodworking shop set up in their home, and take note of how they are set up. You'll probably have yours set up a bit differently to suit your own needs, but you can get some ideas by looking at how someone else has set up their shop.

You certainly don't need a huge space to work in. However, it will need to be big enough to accommodate you, your work, and your tools. If you plan on working on small pieces, such as toys, then you don't need much space. A small workbench, and a place to store a few hand tools and small power tools would be sufficient. If you want to build furniture and other large pieces, then you'll need a larger space, both for your work, and for the necessary power tools. So, keep in mind what kind of work you'll be doing, and plan your space accordingly.

A well lit workshop is a necessity, both for comfort and for safety. If you're having to squint to see the piece that you're working on, you probably won't enjoy woodworking for too much longer. If your work bench is well lit, you'll easily be

able to see what you're working on. Likewise, you'll want sufficient light for safety reasons. You'll probably be using a lot of sharp tools, and even a chisel or a screwdriver can be dangerous if you can't easily see what you're doing. Having ceiling lights over your power tools and work bench, along with some desk lamps clamped to strategic locations along the work bench will provide you with plenty of illumination.

If you're using power tools, then obviously, you'll want plenty of access to electrical outlets. You'll want a sufficient number of outlets for the power tools that you are using. This will prevent unnecessary extension cords, which can be a tripping hazard. If you do use extension cords, get some retractable extension cords, which will wind up, out of the way when they are not being used. A few outlets along the workbench will also be useful if you need to plug in some extra lighting or handheld power tools. Also, when locating your power tools, you'll want any accessories to be within easy reach. You don't want to set up your table saw at one end of the workshop, and have to walk clear across the room to find your rip fence or a saw blade.

Another thing to keep in mind is the noise generated by power tools. You'll want to locate your work shop where the noise from the tools won't disturb your family or neighbors.

Once you have decided where to locate your work shop, you'll need a workbench. You don't need to spend a lot of money on a fancy work bench. You just need a space where you can lay out your plans, and work. Choose a workbench with a wooden top, or some other non-marking surface that will not get scuffed up. If you can, then get a workbench with storage space and drawers underneath. Many people mount a pegboard behind their work bench to hang their tools on. If you choose to do this, make sure that the bench is not so wide that you cannot easily reach the tools. Also consider the height of the workbench, you'll want to make

sure that whether you are standing or seated, the bench is the proper height to work comfortably.

Just take some time when setting up your workshop, and make sure that you have plenty of space to work. Make sure that you have sufficient light, and access to power. Take the time to set up a safe and comfortable workshop. The more comfortable, the more you'll enjoy your new hobby. Now, once you have your workshop set up, you'll need to turn your attention to wood, which we'll discuss later, and tools.

HAND TOOLS

You'll need a good set of tools to start woodworking. You will certainly want to look for good quality tools that won't fall apart after only a few uses. You don't need to invest a lot of money in tools to begin. You would be surprised at how much you can do with just a good set of hand tools. After all, before the electric motor, people were building furniture, wagons and carts, and even buildings with nothing more than hand tools. You don't need every tool available for every project, so you can just build up your toolbox as needed.

The following will give you the basics of handtools that you should have for your woodshop.

Saws:

You probably already know what saws do... they cut things. In woodworking, however, there are many different saws for many different jobs.

Crosscut saws and rip saws look very much alike, however, they are designed for different purposes. The

crosscut saw is made to cut across the grain of a piece of wood, while a rip saw is designed to cut in the direction of the grain.

A backsaw is a saw with a rigid blade, designed to make very straight cuts in a piece of wood. Back saws can be used with a miter box, to accurately cut wood at different angles.

Coping saws have very narrow blades, so that you can cut intricate designs in wood. You can use them to cut a pattern in the middle of a piece of wood, by drilling a hole in the wood, passing the saw blade through the hole, and then inserting the blade in the saw frame.

Planes:

Planes are sharp blades held in a wooden or metal frame. The end of the blade extends below the frame, and can be adjusted. Planes range in size from 10 inches up to 22 inches, depending on their purpose.

Planes are generally used to smooth the wood or to reduce the thickness of a piece of wood. Some planes also have blades designed to cut a channel in a piece of wood.

When you buy a wood plane, you'll want to buy one with a sturdy frame that holds the blade securely in place. The plane should also be comfortable to hold and to use. Planes come in several different sizes, but you certainly don't need to buy one in every size. One smoothing plane should be sufficient. You can always buy more as you need them.

Chisels:

Chisels are tools with a flat blade with a square cut edge. They are used for removing unwanted wood, and for

carving. The chisel is held in one hand, while the other hand holds a hammer, striking the handle of the chisel and driving it into the wood.

Chisels come in various sizes, the larger chisels being used to rough out a shape, while smaller chisels are used in finishing the shape, and adding detail.

Other types of chisels, called gouges, are also available. These chisels have a U-shaped blade, rather than a square blade, to create concave carvings in the wood. Other sizes and shapes of chisel are also available for carving and shaping wood.

As with planes, you don't need to run out and buy every size of chisel that you can find. Choose a few chisels that will suit your needs. If you're going to be using the chisels to carve large openings in a piece of wood, you'll need large chisels. If you plan on doing a lot of small detailed work, then a few smaller chisels will do.

Screwdrivers:

A good set of screwdrivers is invaluable for woodworking. A lot of woodwork is screwed together, so you'll want a few different sizes of both flat head and Philips head screwdrivers. A good electric screwdriver will make driving screws a lot easier than using only hand tools.

Measuring & Accuracy Tools:

If you want a quality piece of work, you'll need to make sure that you properly measure your wood, and then you put the pieces of wood together accurately. To do so, you'll need a good set of measuring tools.

A metal straight edge will help to measure and mark the wood accurately. A small straight edge can be used for

measuring smaller pieces of wood, while a larger straight edge will serve for larger pieces of wood.

Tape measures are invaluable for measuring longer pieces of wood. You should look for a tape measure $\frac{3}{4}$ " wide or wider, so that the tape will remain rigid so that you can measure accurately. If your tape is bending and flexing, you won't get an accurate measurement. You can find tape measures with markings at 1 foot or 16 inch intervals. For woodworking, you'll probably want one marked at 12 inches. The ones marked at 16 inches are intended for construction, with the 16 inch markings making it easy to locate studs.

Square corners are essential in many woodworking projects. A carpenter's square will help you to keep those corners straight. A typical square is 24 inches long, with a 16 inch tongue. A try square is a metal tongue attached to a wooden handle. They are small enough to fit into tight areas, and then can assure accurate marks on the wood when you're ready to cut.

A level is an important tool in making sure that things are straight. You can find levels in many shapes and sizes, the most common size being 24 inches. Levels typically have both vertical and horizontal vials, and some have 45 degree vials as well. Inside each vial is a liquid, with a bubble. When the bubble is centered between the two lines, your work is level.

Clamps:

Unless you happen to have a few extra hands, you'll need some way to hold your materials. You'll need something to hold the wood while you're working on it, and you'll need to hold pieces of wood together when you're gluing them.

A good bench vise is important to hold the wood while you're using a saw or a plane. It just isn't safe to try to hold a piece of wood with one hand, while you're trying to cut it with the other hand. A vise with a 7-9 inch opening should work just fine. You'll want a vise with wooden jaws or inserts to keep from damaging the wood. If you can't find a vise with wood inserts, you can simply place some scrap lumber between the jaws and your work to keep from scratching or denting the wood.

You'll need some clamps to hold things in place while you're joining pieces of wood together. If you're gluing the wood together, a set of clamps will ensure a nice tight joint. If you are screwing or nailing pieces together, then a set of clamps will hold things in place while you're working. A set of c-clamps or small hand clamps will hold smaller pieces together. For larger pieces, you can get a set of bar clamps or pipe clamps to hold the wood together. Instead of a fixed length, pipe clamps can be set to any size you need, depending on the length of the pipe you use.

These are the basic hand tools that you'll want to have in your toolbox to begin woodworking. Just buy the tools as needed, rather than trying to stock your toolbox all at once. When you go to buy your tools, make sure that they are comfortable to hold, since you will be using them quite a bit. You certainly won't have fun woodworking if your tools hurt your hands.

Now that you have an understanding of basic hand tools for woodworking, we'll turn our attention to power tools.

POWER TOOLS

As stated earlier, you certainly can get started in woodworking with just some simple hand tools. If you're

really serious about woodworking, though, some good power tools will make things easier and faster for you. As with hand tools, you certainly don't need to rush out and spend a lot of money on power tools. You can just buy what you need as you need it. Be sure to buy quality tools. Good power tools are solidly built, and they will have sufficient power to get the job done.

Power tools can be divided into two categories, handheld and stationary. For many jobs a small hand held tool will do the job, but for others you'll need a larger, stationary piece of equipment.

Handheld Power Tools

Electric Drill:

A good electric drill is an essential addition to any woodworking shop. The most common use is to drill holes in wood. There are many attachments for an electric drill to increase the versatility. You can buy paint mixers, sanders, screwdrivers, grinders and many other attachments to extend the use of your drill.

A good drill to start with, would be a 3/8", variable speed, reversible, corded drill. Make sure you have a long enough extension cord to reach the parts of your shop where you may need to use the drill. You can also buy cordless drills, which take their power from a rechargeable battery pack. If you do buy a cordless drill, make sure that it has enough power to do the job.

Circular Saws:

A circular saw is a saw with a circular blade, rotating at high speed. Circular saws are generally used for straight cuts through a piece of wood. A variety of blades are

available, depending on what cut needs to be made. Some blades are designed to make a quick, rough cut through a piece of wood, while others are designed to make cleaner cuts without leaving rough edges. The fewer teeth on a blade, the rougher and quicker the cut. Conversely a blade with more teeth generally cuts slower but more cleanly. Other blades are available for cutting through concrete or other materials, although you probably won't need a masonry blade for woodworking.

Many circular saws have a base which is adjustable, so that the blade can cut at an angle, rather than just a straight 90 degree cut. This is useful if you need the edge of the cut beveled. Some saws also come with a guide, which rides along the edge of the piece of wood, ensuring a straight, parallel cut.

Jigsaws:

A jigsaw, or saber saw has a narrow blade, which moves up and down to make a cut. Because of the narrow blade, jigsaws can cut curves as well as straight lines. Like circular saws, the base of the jigsaw can be tilted to cut at angles. Guides are available for saber saws for making straight cuts parallel to the edge, as well as guides to cut circles and curves of a consistent radius. Jigsaws can also be used for inside cuts. You can simply drill a hole in the middle of the piece of wood, and then insert the blade of the jigsaw and start cutting.

As with circular saws, the number of teeth per inch determines how fast and how cleanly the saw will cut. The width of the blade on a saber saw determines how sharp a curve can be cut. A narrower blade will cut a much sharper curve than a wider blade.

Routers:

A router is an extremely useful tool in the woodshop. Routers are used to carve out material in a piece of wood, or to shape the edges. There are many different bits available for different types of work. A straight bit is useful in carving grooves in a piece of wood, or carving a recess in the wood. For shaping the edges of your wood, you can choose from a wide variety of shapes, from simple to complex.

Sanders:

At some point in time, you'll want to sand your work, to make it nice and smooth. Electric sanders are much faster and easier to use than a hand held sanding block, or just a piece of sandpaper. There are two kinds of handheld sanders.

A belt sander carries a belt of sandpaper around two rollers. These sanding belts come in a variety of grades, from rough to smooth, for a variety of sanding needs. Generally a belt sander can remove a lot of material in a short amount of time, and they're good for sanding large areas.

A sheet sander has a sheet of sandpaper attached to a vibrating pad. These are less aggressive than belt sanders, and are better used for a final smoothing. Sheet sanders come in various sizes. Larger sanders are used for larger areas, while small detail sanders are also available for getting into corners and small areas.

Other sanders include sanding disks, which can be installed on your electric drill, or small sanding drums, intended for use on a drill or a small rotary tool.

Stationary Power Tools

Table Saw:

The table saw is the workhorse of the wood shop. The table saw consists of a sturdy frame with a work table. Mounted underneath the table is a motor and a circular blade, which can be adjusted for various depths and blade angles. Attachments are available to allow a wide slot to be cut in the piece of wood. Table saws come with a rip fence, so that you can accurately cut pieces to the right size. A miter gauge holds wood at a precise angle to the blade, allowing straight or angled cuts.

With a table saw, you can quickly cut a large piece of wood into smaller pieces. You can do this yourself, if you have some support for the wood, or you can get someone to help hold the large pieces of wood, and help you to guide them through the saw.

Jigsaw:

A stationary jigsaw serves the same purpose as a handheld jigsaw, or a coping saw. It is used to cut intricate curves and shapes in a piece of wood. A thin saw blade is pulled up and down by the motor. The thinner the blade, the sharper the curves that can be cut. These saws are not designed for a lot of heavy cutting, but more for intricate detail.

Radial Arm Saw:

A radial arm saw is a circular saw which is mounted on an arm, which can be moved to any angle needed. The saw itself can also be tilted to various angles. These saws are useful in cutting compound angles on a piece of wood. A radial arm saw is good for cutting a lot of identical pieces

from a long, narrow piece of wood. If you attach a wooden block, or a stop to the table, you can be sure that all the pieces of wood that you cut will be the same length.

Band Saw:

A band saw is another saw designed to cut curves in a piece of wood. The saw blade is a narrow, ribbon shaped blade, attached at each end to form a continuous band. This band goes over rollers at the top and bottom. As with other saws, the width of the blade determines how sharp a curve can be cut. Also the number of teeth per inch determines how quickly and cleanly the saw will cut.

Band saws are versatile, and generally are good to have in the shop. The downside however, is that they can be difficult to set up, and it is not as easy to change the blade on a bandsaw as it is with other saws, such as a table saw.

Belt Sander:

A stationary belt sander is very similar to the handheld belt sander. A belt goes around two rollers, which move the belt. The work to be sanded is supported on a table, and pressed against the belt. As with handheld belt sanders, a stationary belt sander can remove a lot of material.

Disk Sander:

A disk sander is like the belt sander, except the sanding medium is on a rotating disk, rather than a belt. Again, the work is supported on a table, and pressed against the sanding disk.

Spindle Sander:

Spindle sanders are useful for sanding inside curves of a woodworking piece. A spindle sander has a table, with a

motor mounted underneath. A cylinder with a sanding drum mounted on it sticks up through the table. Different sized drums are available for spindle sanders. For larger pieces you can use a larger drum, for smaller pieces and smaller curves you can get a smaller, narrower sanding drum.

Jointer:

A jointer consists of two tables, with a rotating knife in between them. One of the tables is set at the same level as the knives, while the feed table is set lower. Jointers are used to plane the edges of a piece of wood. This will ensure a straight and true edge.

Planer:

A planer is used to straighten the faces of a piece of wood, and make the wood thinner. The wood is passed between a pair of rotating knives, one above the wood, and one below it. If your wood is slightly too thick, the planer will remove material to make the wood thinner. A planer will also ensure that the faces of the wood are smooth and flat.

Drill Press:

A drill press is a drill, mounted in a frame with a work table. A handle on the side brings the drill down to the table, where your work is supported. A drill press is much more precise than a handheld drill. The table can be tilted, so that holes can be drilled at different angles. Drum sanders and other attachments can be used with the drill press for sanding and finishing a piece of woodwork.

Lathe:

A lathe is one of the most fun tools to use. There is just something about the feeling of warm wood shavings cascading over your hands as you work on a lathe. A piece

of wood is clamped into the lathe horizontally. When the lathe is turned on, it rotates the wood. Various chisels and gouges are then held against the wood to shape it. Lathes are typically used in creating table or furniture legs, or turning a square piece of wood into a cylinder. Bowls and other vessels can also be created on a lathe.

Power tools can certainly be fun to use, and they certainly look impressive sitting in your shop, but you shouldn't spend a lot of money on power tools that you won't need. Evaluate the kind of woodworking that you'll want to do, and buy your tools accordingly. If you're going to be doing a lot of small projects, with small pieces of wood, then a scroll saw or band saw will serve you better than a table saw. Conversely, if you're making furniture, and working with larger pieces of wood, then a table saw will definitely serve you well.

So, now that you've bought your tools and set up your woodshop, you need something to work on. In a wood shop, the obvious material needed is... wood.

KNOW YOUR WOODS

Of course, woodworking involves wood. Different types of wood are suitable for different projects. You should know some of the differences in different types of wood, how they are used, and what you should look for in wood for your woodworking projects.

Wood is generally classified as hardwood or softwood, depending on what tree it comes from.

Hardwoods:

Hardwood comes from deciduous trees. These are the broad leaf trees, which may bear fruits or nuts, and lose their leaves in the fall. Deciduous trees are often seen growing in regions with a temperate climate.

Hardwood lumber includes:

Walnut

Walnut is a family of trees known for the nuts and the lumber it produces. Walnut is a strong lumber, with a fine texture. Walnut resists warping and shrinking. That is why walnut is used for making wall paneling, cabinets, gunstocks, as well as veneered and solid furniture.

Cherry

Cherry trees are well known for their small red fruits, and are closely related to fruit bearing trees like plums, peaches, apricots and almonds. Cherry wood is fine textured, and like walnut is shrink and warp-resistant. Wood from a cherry tree will redden when exposed to sunlight. Cherry ages well and is commonly used in making cabinets, furniture handles, novelties and boat trims.

Maple

Maple is a common ornamental tree, often seen lining streets. They are used as ornamental trees, because of the brightly colored leaves in the fall. The tree is native to Northern America and Europe. It also produces quality timber which is finely textured but is hard and strong. The lumber shrinks moderately, and the fact that it is durable is ideal for flooring, especially in bowling alleys.

Softwoods

Softwoods come from coniferous trees. These are trees with needles and cones, and remain green all year. Softwoods are commonly used for structures while hardwood is used for decorations.

Some known softwood lumbers include:

Pine

Pines trees are one of 210 evergreen trees which produce cones, timber and pulpwood. Pine does not shrink warm or swell, and is easy to work with, due to the uniform texture. Pine is commonly used in building houses, boxes, and furniture.

Redwood

Redwoods are huge evergreen trees, also known as Sequoias that are known for their reddish brown trunks that can grow up to 100 ft. Redwood is durable, and resistant to decay. Because of this, redwood is commonly used in building outdoor furniture, fencing, and house sidings. Redwood is also used indoors for paneling and veneering.

Spruce

Spruce trees grows in the north, along the edges of the Arctic forest. Spruce is resistant to decaying, shrinks moderately, and it has a nice finish. Because spruce is lightweight, it is used in spars and masts in boats, and for wooden parts in airplanes.

Cedar

Cedar is closely related to some of the trees previously mentioned. Cedars have thick, scaly needles. Despite the relationship to spruce, there are features that distinguish the two. Cedar wood has a sweet odor, and is easy to work with. Because of the scent, cedar is often used in storage chests and closet linings.

Knowing the types of wood that you may be working with is important, but you'll also want to know how to choose lumber. You'll need to know what to look for, and how to choose the proper lumber for your woodworking project. Here are some of tips to follow when it comes time to choose your wood.

Know the different classes and types of wood

As stated above, there are two classes of wood, hardwood and softwood.

Hardwoods are flower-bearing plants with broad leaves. Softwoods come from conifers. They don't have flowers, but they bear seeds.

These aren't the only things that set them apart. Constitution-wise, hardwood produces more attractive lumber because of the patterns produced by the various types vertically aligned cells. This is the reason why most hardwoods are used as materials in furniture and decorative items.

Softwood, on the other hand is used as framework in structures, and as flooring material. Contrary to its name, most of the softwoods are harder and stronger than hardwoods.

Woods are classified into two grades, select grade and common grade.

Select lumber is nearly free of any knots and blemishes. Because of the lack of blemishes, select grade lumber is used when there is a need for a nice appearance.

Common grade lumber may have flaws and knots that may affect the appearance of the wood. Because of this, common grade lumber is used in construction, and in projects where the appearance isn't important.

Different woods are better suited for different projects because of their characteristics. Knowing these characteristics can help you to choose the proper lumber for your woodworking project.

Pine is easy to cut and sand, and can be easily stained in a variety of colors. Pine is also very stable and durable.

Poplar does not have many pores, making it an ideal wood for a project that needs painting. The lack of pores will give a very smooth look when painted.

Cedar, because of its sweet odor and attractive appearance make it a good choice for building storage chests. Cedar is also commonly used to build fences.

Redwood, because of its resistance to decay makes it ideal for building outdoor furniture and fencing.

The grain pattern in hard woods, such as cherry, oak, and maple make them a good choice for accents in woodwork.

2. Be aware of the deformations and defects of the wood.

The quality of work will be affected by flaws and deformations in your wood. You'll want to look for the following flaws.

Physical deformities, such as twisting and bending can affect your work. If it is not too severe, the wood can be run through a planer or jointer to straighten things out.

Knots are not necessarily a bad thing, and can sometimes add to the appearance of your work. They can weaken the wood, however. You'll want to check for knots, and evaluate how big they are, and how they will affect the work, both structurally and cosmetically.

Splits in the wood should be cut off immediately. If not, then the split may continue and widen.

When you go to the lumber store, look through the racks of wood, and find one that suits you. Just because a piece of wood is in front, doesn't mean that you have to choose that one. Look through the available wood on the rack.

Look through the rack, and try to find a piece of wood that has a grain pattern that will suit your work. Look for any knots or splits that may affect the work. You don't have to simply choose the first piece of wood that you see.

So, now that you know what to look for in wood, and how you can use different types of wood, you'll be able to choose the proper wood for your project.

SAFETY IN THE SHOP

Woodworking is supposed to be a fun hobby. It isn't any fun making a trip to the emergency room, however. If you want to start woodworking, there are some things that you should

keep in mind to keep yourself safe. Remember that you'll be working with sharp tools, and there will likely be particles of sawdust and wood flying around, as well as fumes from paints and varnishes.

One of the most important safety rules in the shop, is to wear eye protection. Any time that you are using power tools, or chiseling or scraping wood, sawdust particles and wood shavings can fly around. A pair of safety glasses can keep those particles out of your eyes. For some power tools, a full face shield may be a better choice, especially if there is a lot of sawdust produced. Safety glasses and goggles are not expensive, and they may prevent you from losing an eye.

Some power tools are extremely noisy, and could cause hearing damage. You should also invest in hearing protection to protect your ears.

If you have long hair, be sure to tie it back so that it cannot get caught in tools when you are using them. Likewise be careful of loose clothing and jewelry. Roll up your sleeves and remove any jewelry that may get caught in machinery. If you have small children, it would be a very good idea to keep tools out of their reach.

Check your tools before using them. If the handles are loose, repair them first, or discard the tool. Make sure that the blades are sharp. Dull blades take a lot more force to use, and can cause serious injury.

Be sure that you read the manuals for your power tools, and that you fully understand how to safely operate them. Take the time to learn how to properly set up any safety equipment, such as safety guards, feather boards, push sticks and guides. Learn how to properly align and set up the rip fence on the saw, so that boards won't get stuck, and possibly kick back into your face. Let your power tools stop

running when you're done. Don't assume that because the power is off, the tool is safe. A spinning blade, even without power can cause severe injury.

Pay attention to what you're doing. If you're cutting wood on a table saw, your attention needs to be on where your hands are and where the blade is. Wait until you're done cutting to take your eyes off of the blade. You should be rested and alert when using power tools. Do not work with them if you're tired. And you definitely should not be working with power tools after drinking. Wait until you're done for the day to relax with a beer.

Keep your shop clean. Be sure to sweep up frequently, so that you don't trip or slip on anything. Make sure that your shop is well ventilated. Paint and solvent fumes can cause health hazards, so you'll want to make sure your shop has plenty of fresh air. Put your tools away when you're done using them, you don't want that utility knife to be knocked off the bench and puncture your foot. If you have extension cords running across the floor, be aware of their location so that you don't trip.

Woodworking can be fun and safe. You just need to make sure that you take some precautions to keep it safe.

CREATING JOINTS

It is a good idea when learning woodworking to learn how to make solid joints between two pieces of wood. Here are three basic joints that you will be using in woodworking.

The Butt Joint.

The butt joint is the simplest woodworking joint. It consists of two pieces of wood that are butted together, then joined with nails, screws or glue. For beginners, this is a good joint to use, since it does not require expensive equipment or in-depth knowledge of woodworking.

Although a butt joint does offer a quick finish, there is a downside. A butt joint does not offer very much structural strength. If a butt joint is required to bear very much weight, the nails could soon pull out.

The Dowel Joint.

A dowel joint is a good choice for joining two flat pieces of wood together to form a larger flat surface.

To make a dowel joint, take two pieces of wood the same length, and decide which side will be the top, and which will be the bottom of each piece. Mark the top side of each piece of wood so that you remember which side is which.

Clamp the two pieces of wood together, bottom side to bottom side. Make sure that the two surfaces along which you plan to join the pieces of wood are even with each other.

Draw a line down the middle edge of each surface to be joined. Be sure that the line is the same on both pieces of wood, so that the joint will be nice and even. Once the line has been drawn, use a set square to mark lines across the grain of the wood. The intersections of the lines will show where the dowel holes are to be drilled.

Be sure to use enough dowels for your work. The heavier the load that is to be carried, the more dowels

should be used. Two is the minimum, and a good rule of thumb is one dowel per foot.

Once the lines have been drawn, drill holes at each intersection. Use a drill bit that matches the diameter of the dowel being used, to ensure a tight fit. You can take a long dowel, and cut pieces as needed, or you can buy dowels specifically made for dowel joints. Drill your holes just over half as deep as the length of the dowel being used.

After your holes are drilled, unclamp the two pieces of wood. Glue the dowels into the holes on the first piece of wood. Then run some glue along the full length of the second piece of wood, making sure to get some glue into the holes.

Push the two pieces of wood together, making sure that the top sides of both pieces are facing up. Clamp the two pieces tightly overnight. You may want to also clamp the pieces to a flat surface to make sure that they do not warp while the glue dries.

The Slotted Tenon Joint

Typically, the slotted tenon joint is used to fix shelves into the walls of a shelving unit. It is also often seen to fix a back panel in a cabinet, or the bottom in a drawer.

In a slotted tenon joint, only one piece of wood needs to be worked on to create a strong, tight joint. That piece of wood has a slot cut into it that is the same width as the second piece of wood. The second piece is then pushed into the slot to make a strong joint.

Commonly, the slot is cut into the first piece of wood using a router. A chisel can be used, but it will take much longer, and the slot will not be as neat and even. For thinner grooves, a circular saw can be used. Just set the depth of

the cut so that the wood is not cut all the way through. You just need to cut a slot in the wood. When you cut the slot, whether with a router or a circular saw, be sure you don't cut the slot too wide. You can always widen it if it is too narrow, but you can't narrow it if it is too wide.

These are just three of many joints that you can use to fasten pieces of wood together. The advantage of these three, is that they do not take a lot of specialized equipment, and they do not require extensive knowledge of wood working. There will be time enough for you to learn other joints later as you become more skilled. Right now, let's get to your first project.

A MAGAZINE RACK

A magazine rack is a relatively easy project for beginners. It is a simple project that can easily be completed in a weekend. A magazine rack doesn't require much wood so you may even be able to make it out of the scraps of wood lying around in your workshop.



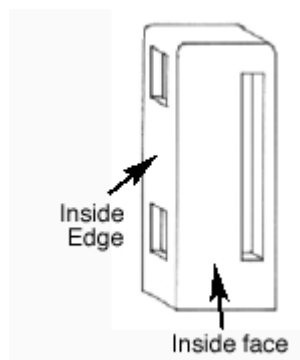
Construction

Tools required: sander, router

Wood required:

Description	Qty	Width	Thickness	Length
Legs	4	2 1/4" (57 mm)	3/4" (19 mm)	15" (381 mm)
Top supports	2	2" (51 mm)	1/2" (13 mm)	16 1/2" (419 mm)
Center top support	1	1 1/2" (38 mm)	1/2" (13 mm)	19 1/4" (489 mm)
Center bottom support	1	1 1/2" (38 mm)	1/2" (13 mm)	16" (406 mm)
Bottom Supports	2	2" (51 mm)	1/2" (13 mm)	19 1/4" (489 mm)
Side edging	4	3/4" (19 mm)	1/4" (6 mm)	6 1/4" (159 mm)
Sides (plywood)	2	6 3/4" (171 mm)	1/2" (13 mm)	9" (229 mm)
Base (plywood)	1	7" (178 mm)	1/2" (13 mm)	16" (406 mm)

The best place to begin this woodworking project is with the four leg pieces. Take one of the four legs and using your router make the following slots in it:



1. On the inside ($3/4$ ") edge, make a slot that is $1/4$ " deep and $1/2$ " wide that runs from $1/2$ " from the top of the leg to $2\ 1/2$ " from the top. This rout should be $1/8$ " in from each side. This slot will accommodate the top support that runs along the length of the rack.

2. On the same side as step one, make a slot that is $1/4$ " deep and $1/2$ " wide that runs from 4 " from the bottom of the leg to 6 " from the bottom. Again, this slot should be $1/8$ " in from each side and it will accommodate the bottom support.

3. On the wide inside ($2\ 1/4$ ") face, make a slot that is $1/2$ " wide, $1/4$ " deep and that runs from $4\ 3/4$ " from the bottom to $13\ 3/4$ " from the bottom. The slot should be $1/2$ " in from the outside edge of the leg (i.e. the edge that did not have routs 1 and 2 put into them).

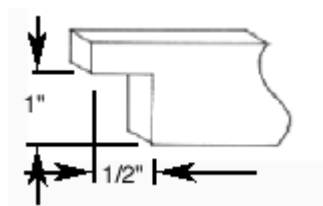
Once you have made all of these slots, square off the rounded corners so that the sides, bottom and top slot tightly into them. Sand the leg rounding off the edges to give a softer look to the project. Then, repeat the above steps for the other three legs.

Before making the grooves, make sure you have marked out the correct sides so that the inside edges all match up (i.e. face each other so that the top and bottom supports can be slotted in).

Next we need to make the slots in the bottom supports that will accommodate the base plywood. Cut a slot on the inside face (2 ") that is $1/4$ " deep and $1/2$ " wide. This slot should begin $1/2$ " from the lower edge and should be 16 " long (therefore it should begin $1\ 5/8$ " from either end of the piece. Repeat this for the second of the bottom supports, squaring off the rounded ends of the slot to allow the base to fit in tightly.

Now assemble one side, gluing the bottom and top supports into two of the legs to build on complete side. Then assemble the second side by repeating this step. Once the glue is dry, connect these front and back constructions to the plywood sides and the base, again gluing them together.

You now have the main shape of the magazine rack completed. Glue the thin side edging pieces to the top and bottom of the plywood sides, thus hiding the plywood's edging. Now cut the center top support to the correct shape by cutting out a block from each end, as shown in this diagram.



Once cut to shape, sand the piece to round off the edges and then glue it on top of the two plywood sides, half way between the front and back.

Finally, sand off the center bottom support and then glue into place on the plywood base, again half way between the front and back support (and therefore matching the position of the top center support).

Give the entire unit a thorough sanding and then stain and wax.

NOTE: If you don't have a router, you can still put together this piece using screws and putty for fill. Make sure you label the pieces and assemble according to the picture using butt joints.

Let's look at another good beginning piece of furniture.

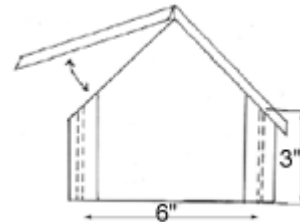
A BIRD FEEDER

This particular feeder is designed to take bird seed, rather than the more typical left-over food scraps. The advantage of this style is that it can be filled up infrequently as it can store several weeks' worth of food at a time. The bird feeder is made out of pine and is stained to suit its locale. You can also paint it to fit your style and taste.

Construction

Tools required: jigsaw, drill

Wood list (Pine):



Description	Qty	Depth	Width	Length
Sides	2	3/4"	6"	6"
Roof parts	2	3/4"	5 1/2"	7"
Base	1	3/4"	8"	12"
Corner pieces	4 (dowel)	3/4"	3/4"	4"
Pole Stoppers	2	3/4"	3"	3"
Pole	1 (dowel)	1 1/2"	1 1/2"	6'
Plastic glass	2	1/8"	2 7/8"	6"
Hinges	2	1/2" deep		

First, the four corner pieces must have a quarter of the length cut out. The easiest way to do this is to clamp the corner piece in a vise and saw along the length until the

saw

cut is half way through the pole. Then rotate the corner piece by 90 degrees, re-clamp, and then cut through again until the waste quarter is loose. Repeat this procedure for all four corner pieces.

Glue a corner piece to each end of the side piece, ensuring that the base of the corner piece is aligned with the base of the side piece. However, there must be a thin gap between the corner piece and the end of the side piece that will allow the plastic glass to slot in (see diagram).

Once this is dry cut the side pieces to the correct shape for the roof. The roof should be at a 45 degree incline, reaching to a point in the middle.

Now cut the roof pieces to the required size. The apex of the roof should be angled by 45 degrees so that the two roof pieces rest snugly against each other. Then attach two small hinges between the two roof pieces (cutting a small slot so that the hinges do not cause a large gap between the roof pieces).

Cut the base piece to the desired shape. An irregular shape works well rather than trying to cut a geometrically-pleasing shape. Cut a hole in the middle of the base piece that is just large enough to accept the main pole.

Now it is time to fasten everything together. Slot the plastic glass into each end of the side pieces and attach this four-walled construction to the base by screwing up from the underside of the base (two screws in each side piece should be adequate). Then rest the roof on top of this construction, and screw one side of the roof into the side pieces. The other roof side is obviously not attached as this should hinge up to allow for the bird food to be added.

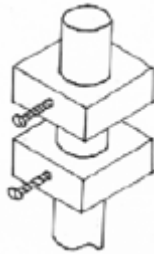
Then, wedge small pieces of wood into the base of the

gap along which the plastic glass slides. This is done to

create a gap between the base and the plastic glass, through which the bird food will spill out onto the base.

Finally, stain the wood to the desired color and varnish. As said before, you can also paint the feeder to your own style.

To attach the main pole, make a hole in the pole stoppers that is just large enough to accept the pole. Then place one pole stopper on each side of the base hole, and pass the main pole through these three pieces. Screw through each pole stopper into the main pole and this adequately fix the pole to the base (see diagram).



A WORKBENCH

This workbench is simple to build and solid so it won't move around as you work on it. It is also small enough to fit in most workshops.



You'll need:

Part	Item	Dimensions
A	Top	198 x 48 x 1800mm
B	Corner brackets	90 x 35 x 240mm
C	Side top rails	148 x 48 x 800mm
D	Front/back top rails	90 x 35 x 1400mm
E	Coach bolts, nuts and washers	5/16 x 4 1/2 5/16 x 6 1/2
F	Side bottom rails	90 x 35 x 800mm
G	Legs	98 x 98 x 900mm
H	Front/back bottom rails	90 x 35 x 1400mm
I	Shelf	800 x 1470 x 19mm
J	Bench stop	90 x 35 x 300mm

Tools

- Claw hammer (570g)
- Smoothing plane (no. 4)
- Marking gauge

Combination square
Steel tape (3 meters)
Three beveled-edge firmer chisels (10mm, 18mm, 32mm)
Cross-cut saw (650mm long)
Tenon saw (300mm long)
Nail punch (3mm)
Set of twist drills
Set of screwdrivers (slotted, pozi, Phillips)
Oil stone
Sanding cork

Variable-speed power drill
Jigsaw
Circular saw

Here's how:

1. Cut to length the four legs (**G**) and mark in housings for top and bottom rails (**D and H**). The top housing is 148mm x 48mm deep; the lower one 90mm x 35mm deep. Set your circular saw to the right depth and cut on the waste side of the lines you marked. Cut a series of parallel lines about 12mm apart between the housing marks and knock out waste. Smooth each housing with a chisel or rasp.
2. Cut to length front and back top and bottom rails (**D and H**), align them in their housing and pin in place with nails. Drill through both legs and rails as shown and bolt rails to legs. Check frame is square by measuring the diagonals.
3. Cut and clamp side rails (**C and F**) to the front and back frame, then drill and insert the longer bolts. Tighten all nuts securely and check the table doesn't rock.
4. Cut out four corner brackets (**B**) with 45-degree angles. A miter saw will be useful for this or set a circular saw to cut at 45 degrees. Screw brackets in place flush with top of

rails. At this stage the bench frame should be completely rigid.

5. Cut the bottom shelf (**I**) to suit the dimensions of the bench. Notch out 35mm x 133mm in each corner to clear the legs. The shelf can be screwed in place or left loose.

6. Cut the five pieces for the top (**A**). Move them around to get a good fit for the edges and hold them in place with a nail. Screw them to the bench frame with 100mm screws,

two in each end, sunk slightly below the surface. Use a plane to smooth any major irregularities.

7. Prepare a bench stop (**J**) as shown in the detail. Find the center and measure 60mm and 200mm from one end of a length of 90mm x 35mm pine. Drill an 8mm diameter hole at these points. Draw two lines joining the holes and cut along lines with a jigsaw to form a slot. Smooth the cut with a file or sharp chisel. Bevel the end at 45 degrees. Cut bench to a length of 300mm.

8. Locate the bench stop where you want it. Right-handed people generally prefer the stop at the left-hand end of the bench and left-handed people vice-versa. Make sure you avoid the braces. Hold the bench stop against the front rails and mark around it on the underside of the bench top. Transfer this shape to the top of the bench.

Drill two holes in opposite corners and cut out the rectangular hole. Insert the bench stop and make sure it slides smoothly. Adjust with a file or chisel as necessary. Hold the bench stop so it is flush with the bench top and drill a hole through the front rail at the top of the slot. Insert a carriage bolt with a washer and wing nut to allow the bench stop to be raised and lowered easily.

9. Workbenches are usually not finished with paint or a clear finish as it could mark other items which are built on the

bench.

Finally, let's look at a plan for some simple shelving units that can be put together in no time!

SHELVING

This is probably the most common woodworking project that people want to build. Who can't use more storage?

The best part about this project is that you can use standard size wood (2 x 3's) for the main framework and it can be put together without using complicated joinery.

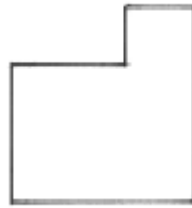
Construction

Tools required: Jigsaw, sander, drill

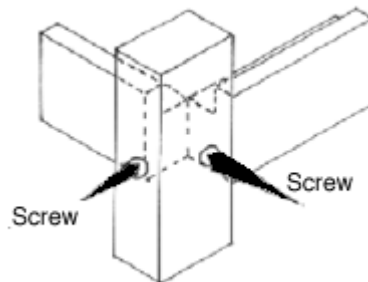
Wood required:

Description	Qty	Thickness	Length	Width
Main legs (2x3)	6	1 1/2"	72"	2 1/2"
Front and back supports	10	1 1/2"	96"	2 1/2"
Side supports	10	1 1/2"	15"	2 1/2"
Shelves (plywood)	5	1/2"	18"	98"

The first step is to prepare the front, back and side supports. These pieces need to have a 1/2" deep slot routed out of them that is 1" wide (see diagram). The shelves will fit into these slots, thus giving a nice finished look to the shelving rather than showing the edge of the plywood.



Once you have cut out all of the slots, it is time to construct the two side frameworks. To construct a side frame, take two of the leg supports and lay them flat on the floor so that the 2 1/2" width is showing. Then, attach the side supports (with the routed groove pointing up and inwards) by gluing and screwing through the 2 1/2" width (see diagram).



Ideally, the side supports should be attached at even intervals (every 30"), but you can modify this to suit your own requirements. Repeat for the other side, taking care to

ensure that the routed groove points towards the middle of the shelving unit. Take the time to ensure that all joints are square; otherwise you may end up with a shelving unit that leans!

Once the sides are complete (and the glue has dried) it is time to attach the front and back supports. Again, these are attached using glue and screws, and should match the heights of the side pieces. Once attached, the result should be a complete frame. To strengthen this frame, take one of the two remaining leg pieces and attach it in the middle of the front frame by simply gluing and screwing into the support pieces. This will stop the unit from sagging in the middle.

Take the shelving pieces (which should be cut to shape as mentioned in the wood list) and cut a small notch out of

the corner of each one. This notch should be a 1" by 1" square and will allow the shelves to sit snugly against the four corner legs. Now, place the shelves into place. To do this, slide them in from the back (the front central leg makes it impossible from the front).

Once all shelves are in place, and everything looks okay, attach the final leg to the center of the back frame (thus matching the front one). Sand the unit thoroughly and paint if so desired.

Where To Find More Woodworking Plans

I've given you a few woodworking plans in this e-book, but you're certainly going to want more. There are many sources available for woodworking plans.

Your local hardware or home improvement store will probably have woodworking plans available. You can

probably find a few free plans available, as well as books containing woodworking plans. Take a trip to your local store, and see what they have available. One advantage to getting your plans from your home improvement store, is that you can also buy any tools or supplies while you are there.

The internet is another great place to find woodworking plans. There are many thousands of plans available online. You can find two great sources for woodworking plans online here:

[Woodworking 4 Home, 14,000 Plans](#)

[Ted's Woodworking, 16,000 Plans](#)

These sites have thousands of plans available for any skill level, from beginners to experienced woodworkers. You can find plans for small projects or larger projects, like garden sheds. Just one of these sites will give you enough projects and ideas to keep you busy for years.

You can also type "woodworking plans" into a search engine, and you'll find a large number of sites with woodworking plans available.

WHAT IF SOMETHING GOES WRONG

One of the fears that you may encounter as a new wood worker, is the fear of messing up your project. One of the best ways to tackle that apprehension is to think outside the box. You will probably decide to start with something simple (but may not know which projects have simple joinery) and then set out on a search for preprinted plans to make such- and-such.

If personal help is not available, it can be very

frustrating. One thing that has worked for many others, and may work for you, is to simply forget other people's plans, and design your own project. It isn't as hard as one might think, because there are always some kinds of limiting parameters to start with.

A bookshelf must be 10" deep so the books will slide into it, and shelf spacing will match the height of your tallest books, plus one inch for finger room. A curio shelf will be sized by the space available to accommodate it, or by the objects to be displayed on it. Bed frames should fit standard mattress sizes, and doors...well, there are your openings to measure.

So don't be afraid to begin these projects on your own. You will find a lot of knowledge online and in printed form. If the project doesn't turn out as you'd planned, you can always start over, and you will have learned from the mistakes that you made. We often learn more from our mistakes in working wood than from easy successes.

Why not try to design your own piece? You may find it helpful to draw out your idea on a piece of paper. What if it were this way, or that way? A good sketch will show you how ideas can come together, it can show you what will not work. Then, if you know the shelf must fit a space five feet high overall, the number of shelves to include will be dictated by the height of the items to be stored. Heavy or larger items (or spaces) usually go near the bottom of a unit, to anchor it physically as well as visually. Spaces can also be broken up and not continuous across the entire front.

Designs can also be planned based on what wood a woodworker may have available. You may have plenty of wood scraps from other projects sitting around your shop. If

you have several 2x4s sitting around, an Early American or pinewood look may be called for. Be certain to carefully square up any stock. Construction castoffs are easily ripped to usable dimensions on a table saw, but learn the safety procedures for your machine before trying to rip long boards.

You don't have to entirely design your own project from scratch. You may choose to start with an existing plan, and adapt it to your own use. You may see the ideal blanket chest, sofa table or display case, and then think "But I want mine to be..." and redesign the entire structure to suit your needs. Don't be afraid to trust your instincts and be

innovative in making a piece. Educate yourself; ask questions of others on woodworking forums or at clubs and guilds. You'll soon surprise yourself with how much you can do.

FINISHING YOUR PROJECT

Now that you've completed your woodworking project, you need to think about finishing it. A proper finish will protect the wood, and will enhance the appearance. Some woodworkers choose to stain the wood, while others will choose paint. Both have their advantages and disadvantages. Stains will darken the wood to varying degrees, depending on the stain and how many coats are applied, but still is a wood tone finish. Paint comes in many colors, so you have your choice of a color other than just brown.

Regardless of what finish you want to use, you'll need to sand the wood. For flat surfaces, you can sand them by hand, but a power sander would make things much faster. Inside curves can be sanded by hand or with a spindle or

drum sander. For small curves, you can find small sanding drums for electric drills or rotary tools. You will want to use a few different grades of sandpaper. Start with a coarse grade of sandpaper, and work your way to the finer grades for the finishing sanding. You don't need to use every grade of sandpaper available, just choose a coarse grade, a couple of medium grades, and then a fine grade for the finishing work.

When you choose your finish, whether paint or stain, or choosing a varnish, you'll want to choose something that dries fairly quickly, to avoid having dust stick to the wet surface, and leaving unsightly spots. You should also test the paint or stain on a piece of scrap wood, to make sure

that the finish will be to your liking. Always work in an area with plenty of ventilation. Be sure to properly clean your brushes afterwards, and properly dispose of any rags used in staining.

If you choose to use paint, you may want to first apply a coat of primer. A coat of primer will help the paint to stick. Paint can be applied either with a brush, or a spray gun, or you may find a color you like in spray cans. Don't try to apply a thick coat of paint all at once. Apply a thin coat, and allow it to dry before applying another coat. You should lightly sand between each coat of paint, to make sure the surface is smooth. Take your time, and you'll get a much better finish.

Instead of covering the surface of the wood, stains simply darken the wood, for a darker wood tone than the unstained wood. When you stain a piece of wood, the wood grain will still show through. Stains are generally applied to the surface with a rag. Put some of the stain on the wood, and wipe it in with the rag. Again, you'll want to lightly sand the wood between coats of stain to ensure a smooth finish. After the final coat has dried, you will want to add a coat of

varnish or shellac to protect the wood.

Whether you've built a birdhouse, a bookshelf, or something else entirely, a proper finish will make it look much more attractive. Just be sure to make sure that the finish that you choose will provide adequate protection for your project.

CONCLUSION

So, now that you have an idea on what tools you'll need to get, and how to choose the wood for your project, all that is left is to find some good woodworking plans, and

get to work. Visit your local home improvement stores, like Lowes or Home Depot. You'll find an extensive line of plans at these stores. You can also find many plans online

Once you've started in woodworking, you may not want to stop. Just remember to take your time to create a beautiful piece of work. Don't rush things, stay safe, and take pride in your work.

When you've finished your first piece of woodworking, you should be proud, you created it with your own two hands. We've given you several suggestions to help you choose your wood, buy your tools, and get started on woodworking. So, get your plans, get your wood, and get started. Stay safe, and Happy Woodworking!

Resources

Woodworking Plans

[Woodworking 4 Home, 14,000 Plans](#)

[Ted's Woodworking, 16,000 Plans](#)

Power Tools & Equipment

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