

# A Beginners Guide to Woodworking Components and Tools

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# Nails

Nails are a useful component for temporarily bonding pieces of timber together or as a combination with adhesives, although they are not very good as a securing method on their own.

They are available in a range of different types and sizes so you should ask your supplier which is the best for you before buying. All of the nails that are shown below are the most common types used for woodworking and are usually the best.

## **Bullet Head:**

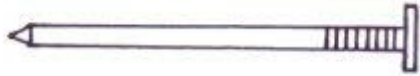


The bullet head is one of the most versatile and common types used in woodwork. It is a general purpose component that comes in a range of sizes but the head allows for it to be punched below the timbers surface to conceal it. They are commonly used in framing, furniture, wood panelling and planks because of their features.

## **Weathertex:**



The Weathertex is more suitable for outdoor use because it is galvanised to prevent rusting and staining. Its head is countersunk similar to a screw so it works well when hammered into timber and it is also suitable for timber framing.

**Flathead:**

This component is also very common and is most likely to be seen on fences, softwoods and thin timber. Their flat head makes it easier to hammer them straight and they have more surface area so it gives increased accuracy when hammering.

**Timbergrip:**

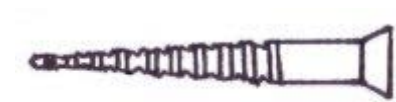
Timbergrips are similar to screws as they have a specially designed head which allows them to be hammered below the timbers surface. They also have a thread to increase their holding power. This type of component is better suited for harder timbers and areas where more securing strength is required like woodwork joints.

# Screws

Screws are more useful than nails when you need to secure wood together. Their large thread allows them to hold the timber tightly and when used with PVA glue the timber or joint is almost inseparable.

There are three main types used in woodworking and they are available with three different drive types as shown below.

## Countersunk:



The countersunk head is usually the most common type used because its unique head allows it to be inserted below the timbers surface and sometimes it is covered with dowel to create a feature.

This head is also easy to use because its head helps to guide the component down. A hole should be pre drilled first though to ensure it stays straight and to prevent the timber from splitting.

## Round Head:



The round head design has a dome shaped head and therefore is not used for and is not able to be properly countersunk. They are usually used when the countersunk type isn't needed and because the head sits on the surface of the timber they can be used as a decorative feature.

## Raised Head:



The raised head design is a cross between a countersunk and round head because it has both features. This allows the component to be countersunk down far enough so that the slight dome on top is flush with the timber. They can also be used as a decorative feature

.

### **Slotted Drive:**



The slotted drive head is the most basic and simple design as it is essentially just a straight groove. This drive type is very easy to use and if the correct sized screwdriver is used they are hard to strip. This design is also most commonly seen in the countersunk or round headed components.

### **Phillips Head:**



The Phillips head is probably the most used type of drive because they allow the user to apply more force without slipping but if the correct sized screwdriver is not used they are easy to strip. These types of drives are found on any of the above components.

This drive type is also very popular to use in cabinet making or

carpentry and it is also used in some woodwork joints to create a really strong joint, for example it can be used on a butt joint with adhesives.

### **Pozidrive:**



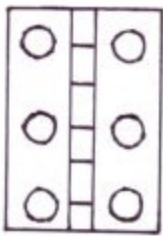
The Pozidrive is probably the least common drive type because it requires a special type of screwdriver although a Phillips head can sometimes be used. Its design looks similar to the Phillips head but it has some extra grooves which help to prevent stripping giving it the best driving force.

# Hinges

Hinges are an excellent timber fitting and are used to make components such as doors or lids work. They are designed to be hinged onto two pieces of timber to create an opening and closing feature such as doors and they can support large amounts of weight.

They come in a range of types and sizes to suit all needs and applications so the best way to find the best type for your needs is to ask your supplier.

## **Butt:**

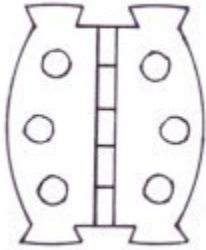


This type is the most simple and basic one available, they usually come in sizes ranging from 13mm to 150mm and are most likely to be seen on areas such as cabinet doors because they are strong and easy to attach although they cannot be adjusted.

These components are suitable for just about any type of woodwork project because they are very easy to attach and have a simple yet strong design.

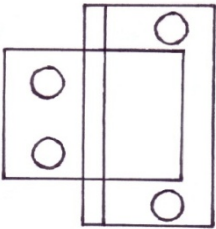


### **Butterfly:**



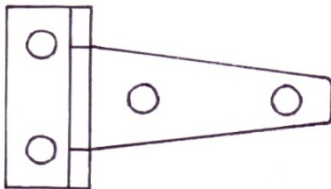
Butterfly fittings are basically a butt hinge though they are designed to be fancy shapes rather than simple. They are also more of a decorative piece than general purpose one and aren't as strong as butt hinges so they are used on smaller things that are made to be more aesthetically pleasing like jewellery boxes.

### **Flush:**



These are designed to do what their name suggests which is sit flush and they also do not require a recess to be cut. They are not as strong as some other fittings but are lightweight so the best application for these components are on areas such as small cupboard doors or small basic woodwork projects.

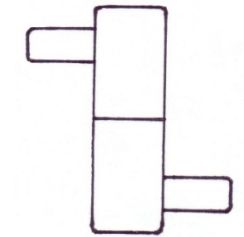
### **Tee:**



These are shaped like a tee and can be found on areas such as metal or timber sheds. They are used because they give good strength and

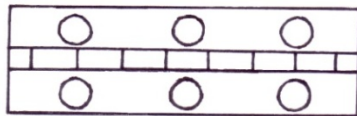
support to the door and are fairly easy to attach but give little security because the fixing screws are exposed.

### **Barrel:**



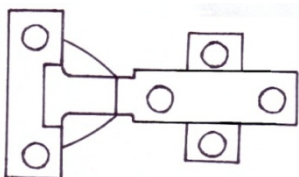
This type of fitting consists of two parts and the first has a threaded section which screws into the second section that contains a pre drilled hole. This screw and thread feature assembly makes the component very easy to fit and dismantle. They also allow for a larger swinging action so are more suitable for areas such as two way swinging doors.

### **Piano:**



These hinges come in a range of lengths but are the largest type of its kind which is because they are used along large areas such as lids or desk tops. Components like these give good support along the whole edge and are very strong so are suitable for heavy objects.

### **Concealed:**



These fittings are the most complicated and work well with

manufactured boards. They are designed to be fitted on the inside so that they cannot be seen.

This means that their best application is on areas such as cupboard doors which is where you will mostly see them. They can also be adjusted which makes them excellent for cupboards or other furniture.

## Tools

# Hand Tools

All of the pictures and information about hand tools shown below is a rough guide to show some of the most common and useful hand held tools used in woodwork.

There are pictures to show each tool but not to show the different types available of the same tool because it is only a guide. Some hand tools have been left out because I am focusing on ones that are specifically woodwork tools.

## **Chisel:**

### What it's used for:

A chisel has a chamfered blade on the end that is driven into the material to remove unwanted timber or to carve it out. Force to the chisel is either applied by hand or can be increased by using a mallet to strike the back of the chisel.

### Parts it consists of:

These hand tools are made of metal which allows the blade to be sharpened when it becomes blunt. The handle is also usually metal with a rubber case for comfort and grip although some chisel handles are made from plastic or wood. The chisels blade can be a range of widths to suit almost any type of cut that needs to be made.

# Clamps:

## What it's used for:

Clamps are fastening devices used to create inward pressure to secure objects or materials together to prevent movement or separation.

Clamps are usually used to hold things like woodwork joints together until an adhesive that has been applied has dried or to secure objects to things such as benches. Some clamps are known as cramps but they still have the same purpose which is to hold or secure something.

## Parts it consists of:

There are many different types of clamps such as bar clamps, sash cramps, G cramps, quick grips and pipe clamps just to name a few and all of those clamps work in a similar fashion. Most clamps are metal with some plastic inserts and they work with a turning handing which brings the two sides closer together applying pressure to the object being clamped.



## Hammer:



### What it's used for:

Hammers come in a variety of types but they all have the same purpose which is to deliver an impact or force such as pounding or striking to an object. The most common uses for these hand tools include driving nails, breaking up objects and fitting parts.

### Parts it consists of:

The head of a hammer is made from strong metals because the front is the part which is used for striking and the back may have one of many different components which could be a claw or ball. The handle is usually made of metal as well and covered with rubber for comfort or grip but it can also be made from wood.

## Hand Saw:



### What it's used for:

A hand saw comes in many different styles but they are all operated by hand movement and they are used to cut materials with its blade. Common tasks for hand saws include cutting straight edges, making angled cuts and cutting curves although different types of saws are needed to carry out all of these tasks.

### Parts it consists of:

All saws have handles which can be made from plastic, wood or metal

and they all have blades which are metal and serrated for cutting different materials. Saws can have different sized blades which can be really skinny like a coping saw for cutting curves or very fat like a tenon saw for making straight cuts.

## **Mallet:**



### What it's used for:

Mallets are very similar to hammers because they look almost identical only with a bigger head and they are also used to deliver an impact only the difference is they do not damage the object being struck like a hammer does so they are really good for knocking wood into place.

### Parts it consists of:

A mallet's head is made from wood or rubber and it contains no metal so that it doesn't damage the material you are working with which makes it a useful hand tool for moulding materials.

## **Marking Gauge:**



### What it's used for:

A marking gauge is used to mark lines across timber and it works by adjusting the gauge to increase or decrease how far a line is from the edge of the timber.

Parts it consists of:

Marking gauges are mainly wooden and they have two parts, the first is a shaft which has something sharp sticking out of the end like a nail for marking and a head which slides up and down the shaft to increase or decrease measurements and it can also be locked into place with a plastic or metal screw.

## Marking Knife:



What it's used for:

A marking knife is one of the most simple hand tools which is used to sever the fibres of wood when it is drawn over a line, this creates a very neat and accurate edge when the timber is cut with a saw because the saw follows the crease made from the knife.

Parts it consists of:

A marking knife can be thin and fully metal with a sharp blade on the end although they usually have a wooden or plastic handle connected to the steel blade to increase this hand tools comfort and accuracy.

## Nail Punch:



What it's used for:

Nail punches are metal rods which have a small blunt edge which is placed on a nail while the back of the punch is struck with a hammer to drive the nail below the timbers surface.

There is also another version of the nail punch called a centre punch but this is used to mark the centre of something like a hole before drilling.



### Parts it consists of:

the nail punch is basically a small metal rod which is shaped at one end and is able to drive nails below a surface. Both ends are blunt and at the back of the nail punch the metal is wider to allow for a hammer to strike it without slipping off.

## **Planer:**



### What it's used for:

A planer is used to shape or thin out a piece of timber by removing small amounts of wood and it can also remove rough patches of timber. this type of hand tool is good for removing the amounts of timber that cannot be removed by sandpaper.

### Parts it consists of:

Common planers that many people buy are metal with a double wooden handle feature to increase the user's precision and efficiency. There is a small rectangular hole at the bottom of the planers metal base which houses the adjustable blade.

## Sandpaper:



### What it's used for:

Sandpaper is used to remove a small amount of material to either create a smooth surface or to remove a layer of something such as paint.

This is a hand tool that is best used with a sanding block because it is more comfortable for the user and it creates a flat surface of the sand paper to be wrapped around.

### Parts it consists of:

Sandpaper is a basic hand tool which is just paper with abrasives attached to it with an adhesive. Sandpaper is available in different grit sizes which are shown by a number on the back.

Low numbers like 40 means it is very coarse and higher numbers like 300 means it is very fine which will give a smoother finish. The numbers on the back of sandpaper simply means how many abrasive particles there are per inch of sandpaper.

## Screwdriver:



### What it's used for:

Screwdrivers are woodwork tools that are used for driving screws into materials or for securing or loosening parts on machinery.

### Parts it consists of:

Screwdrivers come in a range of lengths and they have plastic handles which are sometimes covered with rubber and a metal shaft that has one of three main drive types on the end.

These drive types can be flat heads, Phillips heads or pozidrives but you will most likely only see two of these drive types in woodwork which are flat heads and Phillips heads.

## **Sliding Bevel:**



### What it's used for:

This hand tool is used for marking angled lines on a piece of timber and it can be adjusted to almost any angle. It works by holding the stock against the timber and moving the blade to the desired angle.

### Parts it consists of:

The sliding bevel contains two parts which include the blade made from steel and the stock which is usually made from wood. It has a locking feature so that when the angle you want is achieved it can be locked into place. Dovetail joints are an example of something that a sliding bevel is excellent for marking out.

## Tape Measure:



### What it's used for:

A tape measure is a common hand tool used to measure lengths of wood with ease and it has a locking feature to prevent it from rolling back into the case. Tape measures come in a range of lengths which can be from as little as a metre to as much as over 10 metres.

### Parts it consists of:

A tape measure has either a metal case or a tough plastic or rubber case so that it does not break when dropped from high places and it contains a flexible metal ruler available in a range of many lengths that can roll and unroll. These features enable the tape measure to be small and portable so it can be carried in a pocket.

## Try Square:



### What it's used for:

Try squares are woodwork tools used for drawing perfectly straight lines on materials such as wood and they can also be used to see how straight a piece of wood's edge is either before or after it has been cut.

### Parts it consists of:

Try squares have two parts and the first is a wooden handle which is placed against the edge of an object and the second part is a broad

metal blade facing  $90^\circ$  to the handle which is used to create the straight lines or to check the squareness of an object.

# Power Tools

All of the pictures and information about power tools shown below is a rough guide to show some of the most common and useful power tools used in woodwork.

There are pictures to show each tool but not to show the different types available of the same tool because it is only a guide. Some tools have been left out because I am focusing on ones that are specifically used or can be used for woodwork.

## **Belt Sander:**



What it's used for:

A belt sander or portable belt sander is very similar to a finisher because that also sands with a belt only the belt sander is smaller and portable.

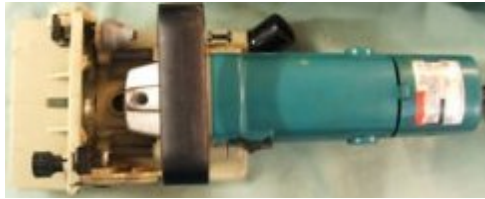
A belt sander is also similar to an orbital sander only it uses a sanding belt to sand where an orbital sander uses one piece of sandpaper. A belt sander also creates scratches if it is used against the wood's grain but it removes more material than an orbital sander.

Parts it consists of:

Belt sanders also have plastic cases but they use a motor that turns a

pair of drums where a sanding belt is mounted. They also allow for a dust collection bag to be fixed to the back of the sander to collect the sawdust made from sanding.

## **Biscuit Cutter:**



What it's used for:

A biscuit cutter or biscuit joiner is used to cut the oval shaped holes in a piece of timber where the biscuit shaped pieces of timber are then inserted. It can be adjusted for different widths of timber and it is also very portable.

Parts it consists of:

The biscuit cutter has a hard plastic case and a metal base where the metal circular saw blade comes from. The circular saw blade only comes out a certain depth to cut the oval shaped holes.

## Circular Saw:



What it's used for:

Circular saws are similar to jigsaws only the blade is round and much larger which means it is better for straight cuts. The circular saw is a much quicker alternative to a hand saw and it is more portable than a table saw.

Parts it consists of:

Like jigsaws it has a hard plastic or rubber casing and it also has a transparent plastic guard to prevent injuries. The blade is also large but not as large as a drop saw or table saw blade and it can be easily changed when it is blunt or damaged.

## Drill:



What it's used for:

There are two types of drills and they are ones with cords and ones



without cords.

The drills with cords are usually more powerful and do not need to be charged but the cordless drills are usually lighter and more portable. Drills are used for drilling holes or inserting and removing screws from a material.

Parts it consists of:

Most drills have a very tough plastic outer case for affordability and to resist breaking from drops. Drills work with drill bits which are inserted into the end of the drill and there are two types where one is for drilling holes and the other is for inserting or removing screws.

## **Electric Planer:**



What it's used for:

Electric planers are the same as hand planers only they work automatically which makes planing much faster and easier. Electric planers also serve the same purpose as a hand planer which is to remove timber for smoothing a surface or to thin out a piece of wood.

Parts it consists of:

These power tools have plastic cases and less metal than hand planers although more expensive models may contain more metal components. They also look very similar to a regular planer which means they are easy to use have great stability and accuracy when

using it.

## **Jigsaw:**



What it's used for:

Jigsaws are power tools used for cutting curves much like a coping saw as it uses a similar sized blade only it cuts much quicker. Straight lines can be more challenging to cut and you can usually change the speed that the blade is moving.

Parts it consists of:

Jigsaws have hard plastic and rubber casings and most have the ability to have a dust collection bag attached to it. The blades are also very easy to change when they are broken or worn down.

## **Nail Gun:**



What it's used for:

Nail guns do the same job as a hammer which is to drive nails into a

material only they do it more efficiently and quickly.

Hammers are smaller and more portable but nail guns considerably cut effort and working time. They also have safety mechanisms to prevent the user from injuring themselves.

Parts it consists of:

Nail guns drive nails into materials with gas or air pressure which is why they are so powerful and because of that reason they are usually all metal but some more affordable or more portable models may contain more plastic components.

A number of nails can be loaded into the gun so that the user can continually work with it unlike a hammer.

## **Orbital Sander:**



What it's used for:

Orbital sanders are a unique and excellent sanding tool because they are small and portable but are also much quicker than hand sanding.

Orbital sanders rotate in a similar way to a disc sander only they use a random orbital sanding pattern and this feature allows the orbital sander to smooth out the timber without leaving behind deep scratches.

This means that you can sand two pieces of timber that are connected at right angles or sand against the grain and not worry about marks.

Parts it consists of:

Like most other power tools orbital sanders have a hard plastic or rubber case but they also have a soft base where sandpaper is attached.

Orbital sanders also only require a piece of sandpaper unlike belt sanders and they also suck up the sawdust when sanding through holes in the base of the tool.

## **Router:**



What it's used for:

Routers are a portable and unique power tool because they can create curved edges and mill out timber making them very useful.

Routers contain router bits which allows the user to cut a hole in a piece of timber instead of using another power tool like a jigsaw or it can be used to create patterns and curve edges like you would see on a fancy coffee table.

Parts it consists of:

Routers have two handles for stability and they have a plastic case with a metal base plate. The depth of cuts can be adjusted and there are many different sorts of metal router bits that can mill out larger holes or create bigger or different patterns or curves.

# Machinery

All of the pictures and information about machinery shown below is a rough guide to show some of the most common and useful machines used in woodwork.

There are pictures to show each machine but not to show the different types available of the same machine because it is only a guide. Some machines have been left out because I am focusing on ones that are specifically used or can be used for woodwork.

## Band Saw:



### What it's used for:

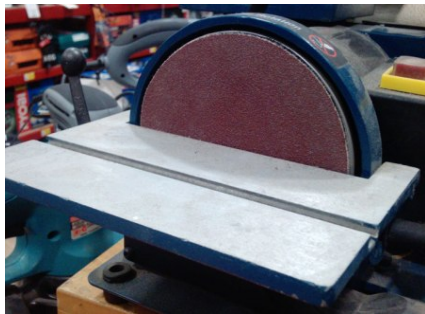
A bandsaw is a piece of machinery that is used to cut angled or curved shapes on a piece of wood. The band saw has the same function as a jigsaw only it is much larger and instead of moving the saw to cut the wood like on a jigsaw you move the wood around the blade.

### Parts it consists of:

A bandsaw actually has a continuous metal blade inside its casing that is rotated around with wheels. Because of this when the blade is damaged a new band needs to be bought and installed which is a bit more difficult than installing separate blades.

A bandsaw has a base which supports the timber when cutting and the user can either free cut or run their timber along a rail which is used to cut timber at the same width.

## **Disc Sander:**



### What it's used for:

A disc sander is machinery that is used to sand the end grain of a piece of timber. It uses a circular sanding motion to sand the wood which is why it is only good for end grain because it makes deep scratches on faces or edges that are sanded with the machine.

### Parts it consists of:

Disc sanders use a large sanding disc to sand the end grain of timber and it spins at high speeds in a circular clockwise motion which prevents the timber from flying out of your hands.

If a piece of timber is sanded on the wrong side of the sanding disc it will be very hard to hold and will probably come loose from your grip.

## **Drop Saw:**



#### What it's used for:

Drop saws are one of the most common machines that people buy for cutting timber because they are versatile and easy to use.

The drop saw replaces the hand saw because it is much quicker and can cut or trim large piece of timber and the blade can also be turned at an angle for cutting things like mitre joints.

Drop saws come in a range of sizes and prices but usually the more expensive models are the larger and more advanced ones.

#### Parts it consists of:

The drop saw cuts with a circular blade like on a table saw and they can be a range of different sizes. A drop saw is used by placing a piece of timber on its base and pulling the handle down while pressing the trigger to cut.

Almost all drop saw machinery now come with the feature of being able to turn the blade on an angle for angled cuts with another handle or button at the base of the machine. The drop saw also has a retractable plastic guard to prevent accidents when cutting.

# Linisher:



## What it's used for:

A linisher is the machine version of a portable belt sander and it works exactly the same way as one. This machine is the opposite to a disc sander which is only for end grain where the linisher is for the edges and faces of a piece of timber.

Because the linisher is used to sand the edges and faces of timber you have to make sure you are sanding with the grain or the linisher will leave deep scratches on your timber.

## Parts it consists of:

The linisher works like a portable belt sander which is with some drums that are turned at high speed causing a sanding belt that is mounted on the drums to turn at high speed as well.



# Mortising Machine:



## What it's used for:

A mortising machine is a special type of machine that has a special drill bit which can bore out square holes.

Mortising machinery is designed specifically to make mortises for mortise and tenon joints and they are much more quick and easy to use than making the joint with a mallet and chisel.

## Parts it consists of:

A mortising machine is really just a bench mounted pedestal drill that can only make square holes. There are only a few different sized mortising drill bits and the machine is operated the same way as a pedestal drill.

## Pedestal Drill:



### What it's used for:

Pedestal drills are like a much larger version of a cordless drill only they are either bench mounted or they stand on the floor.

Pedestal drills are much more accurate than any other drilling method because the user has the ability to clamp down what they are drilling and they can drill holes in larger materials.

### Parts it consists of:

Pedestal drills also use a motor to rotate a drill bit at high speed and they can take any sized drill bit.

Instead of a trigger operation pedestal drills work with a button and the user then pulls the handle down to lower the drill bit so it is a good idea to secure the object down with a vice or clamp.

## Scroll Saw:



### What it's used for:

This machinery is very similar to jigsaws and band saws only they are used for cutting much smaller and thin pieces of timber that are too hard or difficult to cut with a bandsaw or jigsaw.

The scroll saw sounds a bit like a waste of money but it is used to cut more intricate curves and shapes that cannot be achieved with a bandsaw or jigsaw and take too long with a coping saw.

### Parts it consists of:

The scroll saw also has a base like a band saw where the wood is fed to the blade only it is more compact than a band saw and the blade isn't as long.

The scroll saw also does not have a continuous blade like a band saw it uses individual blades like a jigsaw which means they are easier to change and are usually cheaper.

## Table Saw:



### What it's used for:

Table saws are one of the most versatile and useful pieces of machinery used in woodwork because they can cut large pieces of timber or manufactured boards with ease. Table saws can also cut angles and they are able to trim or square off the ends of timber.

### Parts it consists of:

A table saw has a height adjustable circular blade that comes out of the base of the machine. Most table saws have two runners and one slides up and down the base to give the user extra support and stability when cutting.

Table saws are usually more expensive machinery because they are very versatile, quite large and contain mostly all metal components.

# Thicknesser:



## What it's used for:

A thicknesser is used to smooth rough timber or reduce its thickness and it is the machine equivalent for a hand planer or electric planer only it can plane much larger pieces of timber much quicker than the other two planers.

A thicknesser can be easily adjusted to suit different thicknesses and it has an almost limitless choice of thicknesses.

## Parts it consists of:

A thicknesser works with two rollers that feed the timber into the blades and then push it out after it has been thicknessed.

In the middle of this machinery is a height adjustable set of blades which are used to remove certain amounts of timber depending on the adjustment settings of the machine.