

## Manufacturing



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## Hand tools



### An introduction to the most common workshop tools

The Design and Technology workshop contains many types of hand tools for many different tasks. Below is just a selection of the most common ones that you will use within the schools workshop. I have included quick explanations of the tools for more information please click on the more information links provided.

Tool	Use	Image
<p><b>Coping saws</b> - <a href="#">More information &gt;&gt;</a></p> <p>Coping saws are used for cutting different types of wood or plastic. They are very good at cutting curved shapes in wood or plastic. You can also use an electric jigsaw to cut curves. Coping saws can be tricky to use you need to keep the saw in a horizontal position for it to cut correctly. Coping saw blades can be easily broken if used incorrectly. You can replace the blade by unscrewing the handle on the saw.</p>	Used for cutting curved shapes in wood or plastic.	
<p><b>Try-square</b> - <a href="#">More information &gt;&gt;</a></p> <p>The wood workers try-square is used for marking straight lines on wood. The try-square is pushed against a straight edge of wood and a marking knife or pencil is used to cut a straight line across the wood. The try square has a brass face plate which is added to its stock. The metal section attached to the stock or handle is called the blade.</p>	Used for marking out straight lines on wood.	
<p><b>Tenon saw</b> - <a href="#">More information &gt;&gt;</a></p> <p>The Tenon saw is quite heavy; this weight of the saw as well as the forward cutting motion enables the saw to cut relatively easily. The Tenon saw is a type of back saw this is because it has a steel or brass back to the saw. The tenon saw is generally used for cutting mortise and tenon joints. The tenon saw is good at cutting straight lines in wood.</p>	Used for cutting mortise and tenon joints and straight lines on wood.	
<p><b>Chisel</b> - <a href="#">More information &gt;&gt;</a></p> <p>A chisel is used to remove wood by carving it. A chisel has a shaped cutting end made of metal and a wooden handle. The chisel is pushed into the wood using a mallet to gain force. Chisels are named by the shape of the chisel the main types are bevel, firmer and paring.</p>	Used for carving or shaping wood.	

<p><b>File</b> - <a href="#">More information &gt;&gt;</a></p> <p>Hand files are used to smooth rough or sharp edges on material. Files can be used to smooth metals or woods. Files are made from high carbon steel so that they are tougher than the material that they are filing. Hand files are held within the hand and are pushed flat to the surface of the material. The file is then pushed forwards and back to smooth the material.</p>	<p>Used to smooth rough or sharp edges from metal or wood.</p>	
<p><b>G-Clamps</b> - <a href="#">More information &gt;&gt;</a></p> <p>G-Clamps are indispensable within the workshop for holding and securing work. They are available in many sizes and are used for securing work to the surface of a bench. They are also used to hold wood together while the glue is drying.</p>	<p>used for securing work .</p>	
<p><b>Steel rule</b> - <a href="#">More information &gt;&gt;</a></p> <p>Steel rules are more accurate than plastic rulers. Steel rules measurements start at the beginning of the rule unlike plastic rulers whose measurements start around half a centimetre from the beginning.</p>	<p>Used for measuring and marking out work.</p>	
<p><b>The Pillar Drill</b> - <a href="#">More information &gt;&gt;</a></p> <p>A Pillar drill is a fixed drill that is mounted or fixed to a floor so it cannot be pushed over. It can drill larger pieces of material quickly and easily. It is made up of a base, a pillar, a table and a drill head. The drill table can be adjusted vertically and is moved up and down depending on what you are drilling. A pillar drill can only drill down at 90 degrees unlike a hand drill, however it is very stable and is relatively safe as you can clamp your work to the table.</p>	<p>Used to drill larger pieces of material quickly and easily.</p>	
<p><b>The Fretsaw</b> - <a href="#">More information &gt;&gt;</a></p> <p>The fretsaw is used to cut wood and plastic it can cut curves like a coping saw. The best fretsaws are manufactured by a company called 'Hegner' in Germany. A fretsaw's blade vibrates up and down to create the cutting motion. When using a fretsaw you should always use goggles you should also not force the material when cutting as the blades can be easily broken.</p>	<p>Used to cut curves in material.</p>	



Quiz time!

Mr DT says 'Read the text above and then answer these questions below'. Write your answers on a sheet of paper, don't forget to write your name on the sheet!:-

- 1.) What are Coping saws used for?
- 2.) What tool do we use for marking straight lines on wood?
- 3.) Why is the Tenon saw also called a back saw?
- 4.) What tool do you use with a chisel to create more force?
- 5.) What are files made from?
- 6.) Why are G-clamps indispensable in a workshop?
- 7.) What apart from the material is the difference between a steel rule and a plastic ruler?
- 8.) Why a Pillar drill is often fixed into the floor?
- 9.) What is a Fretsaw used for?
- 10.) Name the two tools from above that do the same job?



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