

# HERRAMIENTAS PARA MEDIR, MARCAR Y TRAZAR

## Tools 1. Tools for measuring, marking and drawing

This family of tools are used for measuring the size of objects, or for making indications on a material about the shape and dimensions of a project.

Some tools for measuring, marking and drawing

### Scribing tool

This device is similar to a pencil and can be used to leave visible and long-lasting scratches on metal surfaces.



*Scribing tool*

### Metal drawing compass

Used to scratch circles or arches on metal surfaces and to carry measurements from one piece to another.



*Metal drawing compass*

### Graduated steel ruler

Used for making measurements. It is made from metal so that it can withstand work conditions in a workshop.



*Graduated steel ruler*

### Tape measure

Used for measuring distances. It contains a graduated metal tape that rolls up inside the case. Tapes are usually 2 to 3 metres long, although some tapes measure 5 metres or more.



*Tape measure*



*Two types of square*

### Square

Used to make perpendicular lines and check if an angle is 90 degrees.

### Level

Used to check that a surface is horizontal, vertical, or forms a 45 degree angle.



*Vertical level*

*Horizontal level*

*45° level*

## Questions

1. Draw the tools shown in this unit and add their names.
2. See if you can name these tools in a language other than English. Add these names to your illustrations for exercise 1.

## HERRAMIENTAS DE CORTE

### Tools 2: Cutting tools

These are tools that enable you to cut materials so that you can obtain the size you need. The most common tools in this family are the saws, scissors, and cutters.

#### Some cutting tools

##### Handsaw

Consisting of a handle and a wide cutting blade. Used for making straight cuts in wood.



##### Hacksaw

A metal arch tightly holding a very fine saw blade. Used for cutting thin pieces of wood and plywood. It can make straight or curved cuts.



##### Metal saw

The teeth on this saw are very fine and it can be used to cut metal, plastic, or wood.



##### Electric jig saw

This is the most common type of electric saw. It cuts using the action of a small blade that quickly goes up and down. It can cut in straight lines or curves. It is usually used to cut wood, although with special blades it can cut harder materials.



##### Electrician's scissors

These scissors have short strong blades. They are used to cut and peel cables. The handle is covered in plastic to protect the user from electrical shocks.



##### Sheet metal shears

These shears have long blades and handles. They are used to cut metal sheets.



##### Cutter knife

This is a very sharp knife supported inside a plastic or metal handle. It is useful for cutting paper, cardboard, and thin plastic materials.



### Questions

1. Draw the tools shown in this unit and add their names.
2. See if you can name these tools in a language other than English. Add these names to your illustrations for exercise 1.

# HERRAMIENTAS DE PERCUSIÓN

## Tools 3. Percussion tools

Percussion tools are used to hit a material and change its shape, bend it, break it, or fit it into another piece of material, etc. The most commonly used percussion tools are the ball-peen hammer, cross-peen hammer, club hammer, rubber mallet, and the claw hammer.

Some percussion tools



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### Ball-peen hammer

Used for bending metal, eliminating deformations in metal sheets, and making rivets, etc. Often used by blacksmiths and mechanics.



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### Cross-peen hammer

One of the sides of the hammer head is wedge shaped. This means it can be used to hit small nails or nails in difficult to reach areas. Often used by carpenters and window-makers.

### Club hammer

Often used by builders on construction sites. Its large steel head gives it considerable weight and it can be used to break bricks, alter stonework, and position posts.



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### Rubber mallet

Used to hit delicate materials, or when no visible 'hit' mark is wanted. The head is sometime made from nylon, a more rigid plastic, and it is then called a nylon mallet.

### Claw hammer

A hammer designed for hitting nails. Bent nails can be easily removed by using the curved 'claw'.



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*The 'claws' on this hammer are used to pull out nails.*

## Questions

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# HERRAMIENTAS PARA DESBASTAR Y PULIR

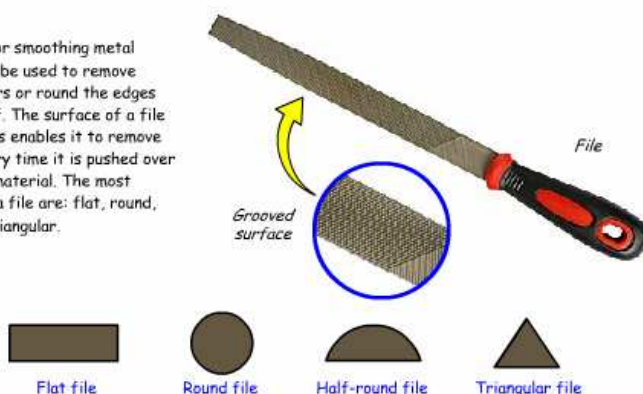
## Tools 4. Tools for filing and polishing

These are tools used to make a material thinner, shape it, or giving it a final polish.

### Some tools for filing and polishing

#### File

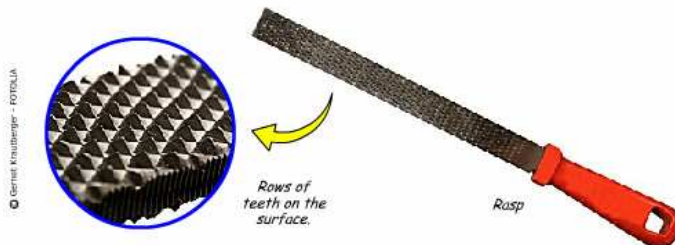
The file is used for smoothing metal or wood. It might be used to remove dangerous splinters or round the edges of a table or shelf. The surface of a file is grooved and this enables it to remove tiny particles every time it is pushed over the surface of a material. The most common types of a file are: flat, round, half-round, and triangular.



Types of file - according to their cross sections.

#### Rasp

Rasps are used to reduce the thickness of wood or give it a shape. They look similar to files, but have rows of triangular teeth on the surface instead of grooves. Rasps cut quickly into wood, but leave behind coarse surfaces that must be smoothed with finer tools - such as files. They cannot be used on metal.



#### Sandpaper

Sandpaper contains tiny grains of abrasive material stuck to its surface. These grains scratch the surface of an object when they are rubbed against it. Sandpaper is usually used after filing to give the final finish to pieces of wood, metal, and other materials. The smaller the grains: the smoother the resulting surface. There are various kinds of sandpaper - depending on the coarseness of the grains.



Smoothing the edge of a board by rubbing with sandpaper.

#### Electric sander

Sanding large surfaces by hand is a difficult and slow task. For this reason, electric sanding machines are often used. The photo shows one of the most common types of electric sander - an orbital sander.



Sanding a board with an orbital sander.

### Questions

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# HERRAMIENTAS DE PERFORACIÓN

## Tools 5. Drilling tools

These tools are used to make holes. Let's look at some of the most common drilling tools.

### Some drilling tools

#### Gimlet

This is the simplest drilling tool. It can be turned by hand to make holes in wood and other soft materials.



#### Portable drill

This power drill is driven by an electric motor. An accessory called a 'drill bit' spins rapidly to make the holes. There are different types of drill bit according to the hardness of the material (wood, metal, brick, etc) to be drilled. These drills obtain their energy through a cable plugged into an electrical socket.



#### Rechargeable cordless drill

This tool is easier to use than the drill shown above because it does not have a cable. Energy is stored in a battery. However, these types of drills are not as powerful as drills with electrical cords.



#### Column drill

These are permanently fixed on benches or desks. They are more powerful and precise than portable drills, and are used in industrial workshops.

### Questions

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# HERRAMIENTAS DE SUJECIÓN

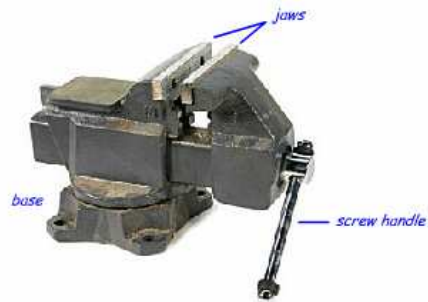
## Tools 6. Holding tools

Before working with some materials it is necessary to ensure that they are firmly held with a tool. Here we can see the most common holding tools.

### Some holding tools

#### Vice or vise

This tool is fixed to a work bench. It can grip objects strongly between its jaws.



#### Clamp

A clamp can be used to hold two pieces together - for example, when gluing pieces of wood together. The C-clamp is usually smaller and is used for holding narrow objects together.

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clamp



C-clamp

#### Universal pliers

Used to firmly grip an object before bending, or stretching, etc. Its jaws have teeth for gripping cylindrical objects and also have an area for cutting wires or cables.



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#### Long nose pliers

There are many types of pliers in addition to universal pliers. One of the most common types are called long nose pliers and these are used for holding small objects.

## Questions

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# HERRAMIENTAS PARA ATORNILLAR

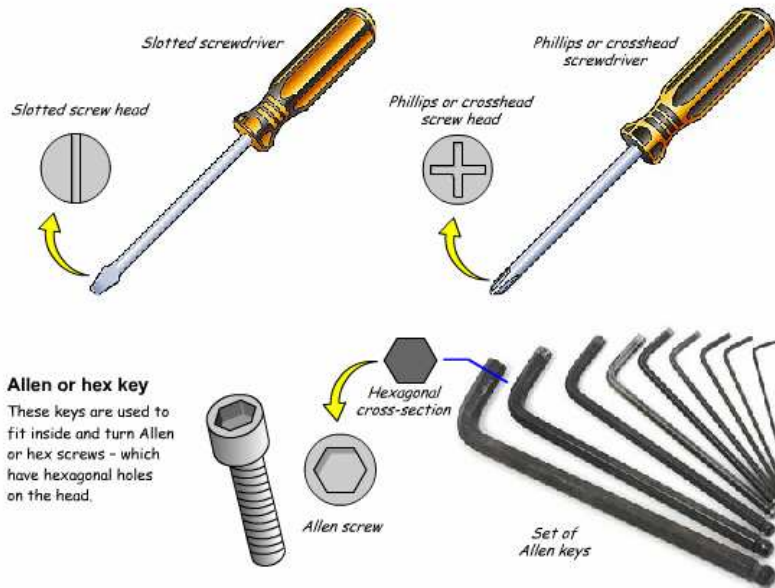
## Tools 7. Screwdrivers and wrenches

These tools are used to attach and detach pieces that are held together with screws and nuts. They are several common types.

Some screwdrivers and wrenches tools

### Screwdrivers

Used to put and remove screws. There are many types of screw heads - although the most common are slotted and Phillips (also called 'crosshead'). Both are shown below.

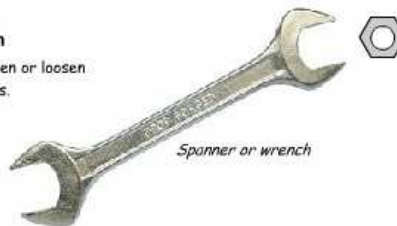


### Allen or hex key

These keys are used to fit inside and turn Allen or hex screws - which have hexagonal holes on the head.

### Spanner or wrench

These are used to tighten or loosen hexagonal nuts and bolts. Spanner or wrench.



### Adjustable spanner or wrench

This tool is also used with hexagonal nuts and bolts, but unlike ordinary spanners or wrenches, the jaws can be opened or closed to fit any size of nut or bolt.



## Questions

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