**YEAAR 10 BASIC TECHNOLOGY**

**STRAND:HAND TOOLS AND APPLIANCES**

**Lesson 1: Geometrical Tools**

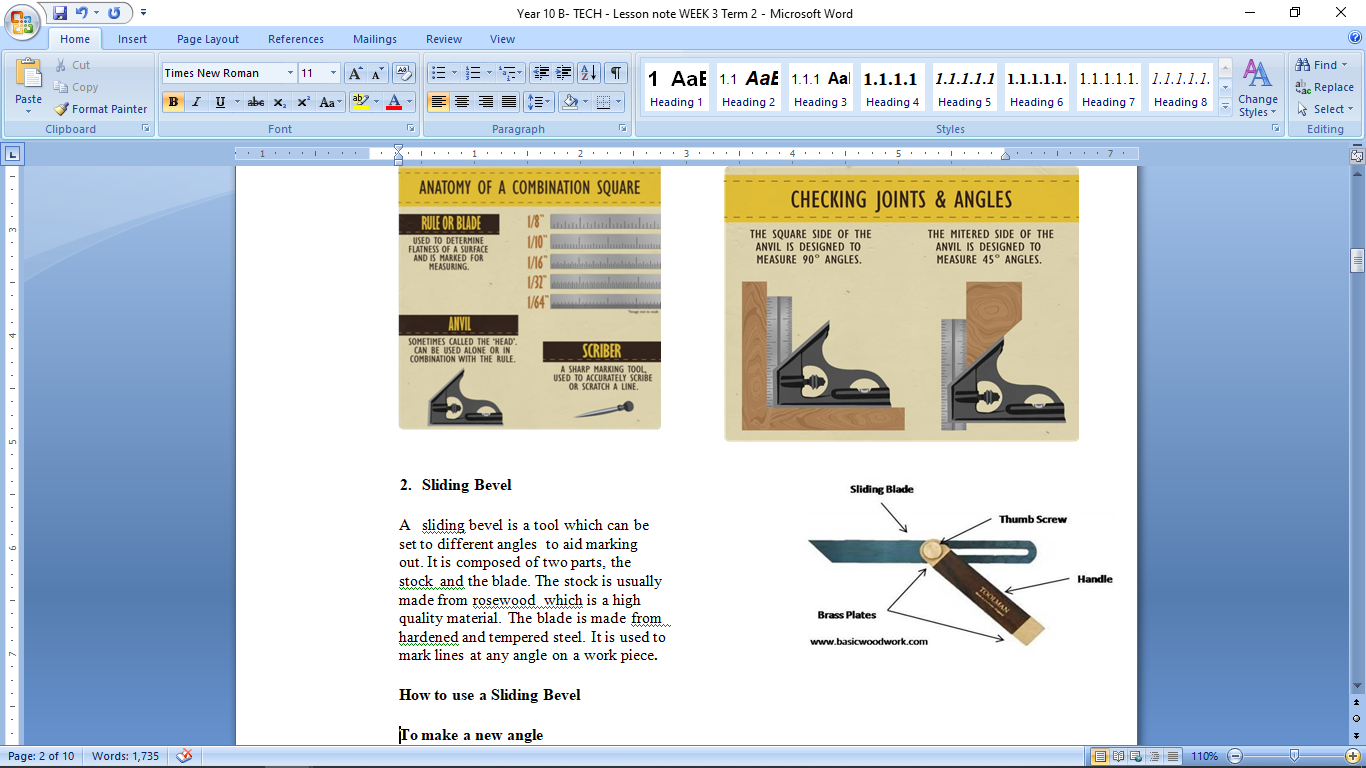
**Learning Outcome: Identify the tools & its uses**

1. **Combination Square**

* A combination square is a tool used for multiple purposes in woodworking.
* The combination square can be used for leveling,
* As a try square, to determine the squareness of a piece of joint
* It can also be used as a [saw](http://www.bobvila.com/sections/home-improvement/articles/537-how-to-use-a-saw-properly/article_pages/1) guide.

**2. Sliding Bevel**

* A sliding bevel is a tool which can be set to different angles to aid marking out.
* It is composed of two parts, the stock and the blade. The stock is usually made from rosewood which is a high quality material. The blade is made from hardened and tempered steel. It is used to mark lines at any angle on a work piece**.**



**How to use a Sliding Bevel**

**To make a new angle**

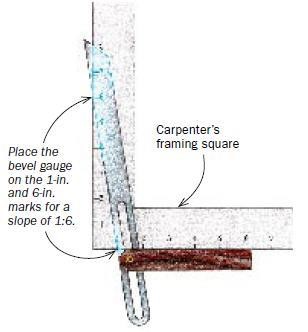
1. Loosen the wing nut adjustment so that the blade is free to rotate.
2. Swing the blade until the desired angle between the handle of the bevel and the blade side is made. This may be best achieved by placing a protractor on the inside of the bevel itself (*so that the protractor is resting on the wing nut*) and measuring out the desired angle.
3. Lock the T bevel into place by tightening the wing nut.
4. Lay the T bevel on your working surface and draw the angle by tracing along the inside of the T bevel blade and handle.
5. Cut away.

**To transfer an existing angle**

1. Loosen the wing nut adjustment so that the blade is free to rotate.
2. Lay the T bevel against the surface of the angle cut to be copied.
3. Rotate the inside edge of the blade to the existing angle until it matches the angle being transferred.
4. Tighten the wing nut until it locks the blade and handle in position.
5. Place the T bevel on the working surface and transfer the angle.
6. Draw out the angle by tracing along the bevel on the inside edge of the blade and handle.

**Setting the sliding Bevel to a slope of 1:6 for a d**

**ove tail joint**

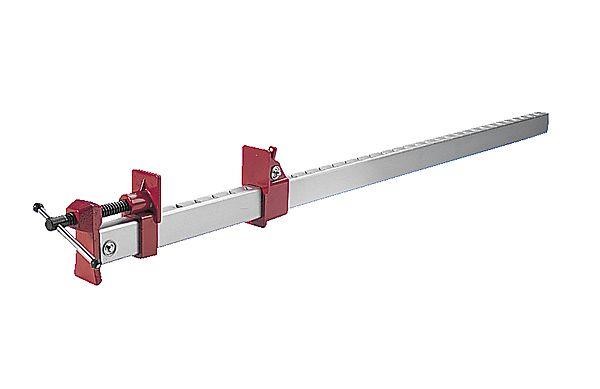


**Lesson 2**: Holding & Supporting tools

**Learning Outcome:** Understand the use of the tools & its parts

1. **Sash Cramps**

* Sash clamps are used to clamp work together when it is glued. They vary in size and are normally used in pairs.



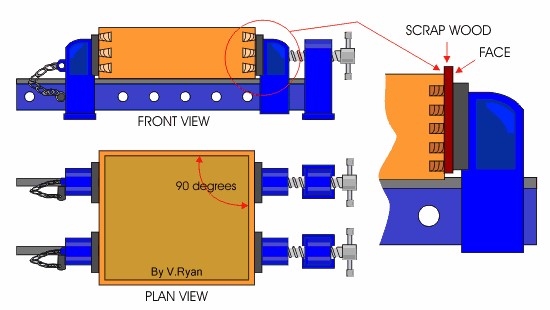
Head

Slide

Bar

Thread

* When in use, the sash clamp is placed below the work to be glued / assembled.
* The slides are arranged on either side and scrap wood is placed between each face and the work. This protects the work when the thread is tightened.



**Lesson 3:** Hand Saws

**Learning Outcome:** Identify the types of saws & its use

* Hand saws are hand-held tools, manually-driven, that are designed to cut through softer materials mainly wood.
* There are many different types of hand saws that vary based on how and what they cut.

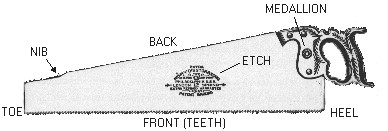
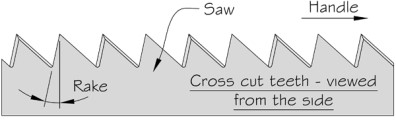
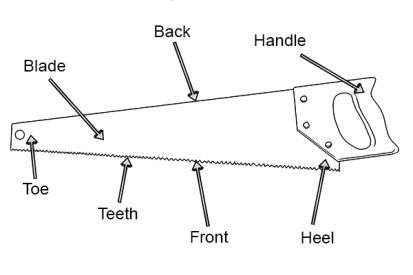
**(i) Keyhole Saw**

* A keyhole saw is perfect in cutting holes in wood and curves.
* It is used for cutting holes in soft woods or in drywall, such as cutting a hole in a wall for a new electric switch.



Blade

1. **Cross Cut Saw**



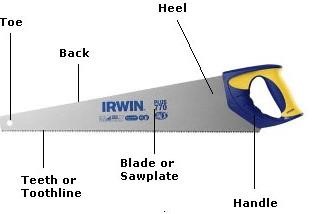
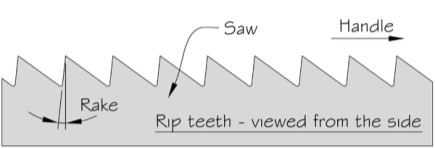
* A cross cut saw has wide alternating bevel teeth perfect for rough cutting on wood grains where tearing out is not important.
* It is used to cut large pieces of timber or cuts through a tree across the grain of timber.

1. **Panel Saw**

* Panel saws are perfect for cutting small pieces of wood.
* It is especially used for cutting light boards like plywood across the grain.

1. **Rip Cut Saw**

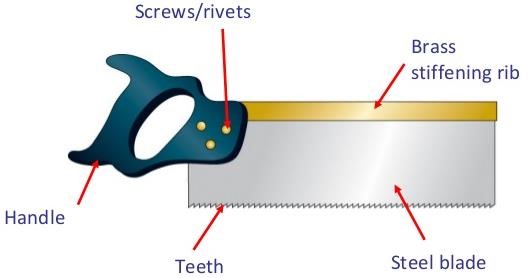
* A rip cut saw is an aggressive, push stroke handsaw with sharpened teeth top.



* It is specially designed for making cut parallel to the direction of the wood grain.

1. **Back Saw**

* Back saws are used for trimming and fine woodcutting.

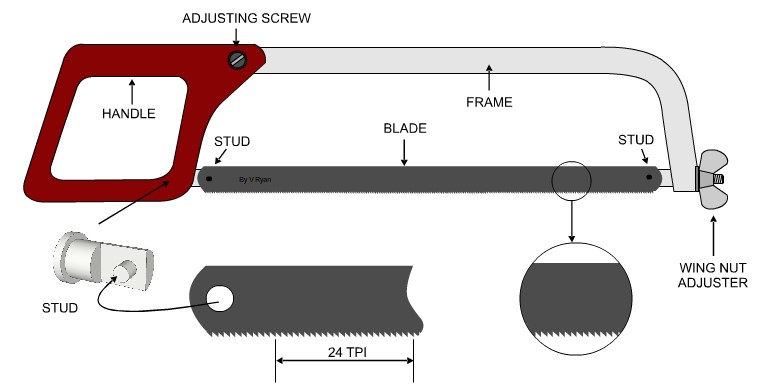
Its teeth are smaller compared to other types of hand saws

* It is used for making fine accurate cuts in small pieces of wood such as cutting of joints, angles with and across the grain.

1. **Coping Saw**

* Coping saws are perfect for cutting complex patterns on wood.

frame



blade

handle

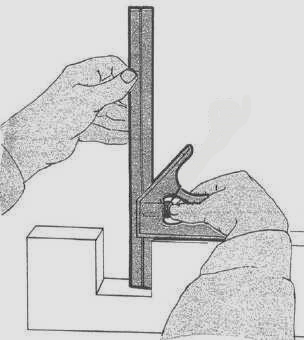
* A coping saw is a pull stroke hand saw.

1. **Hacksaw**

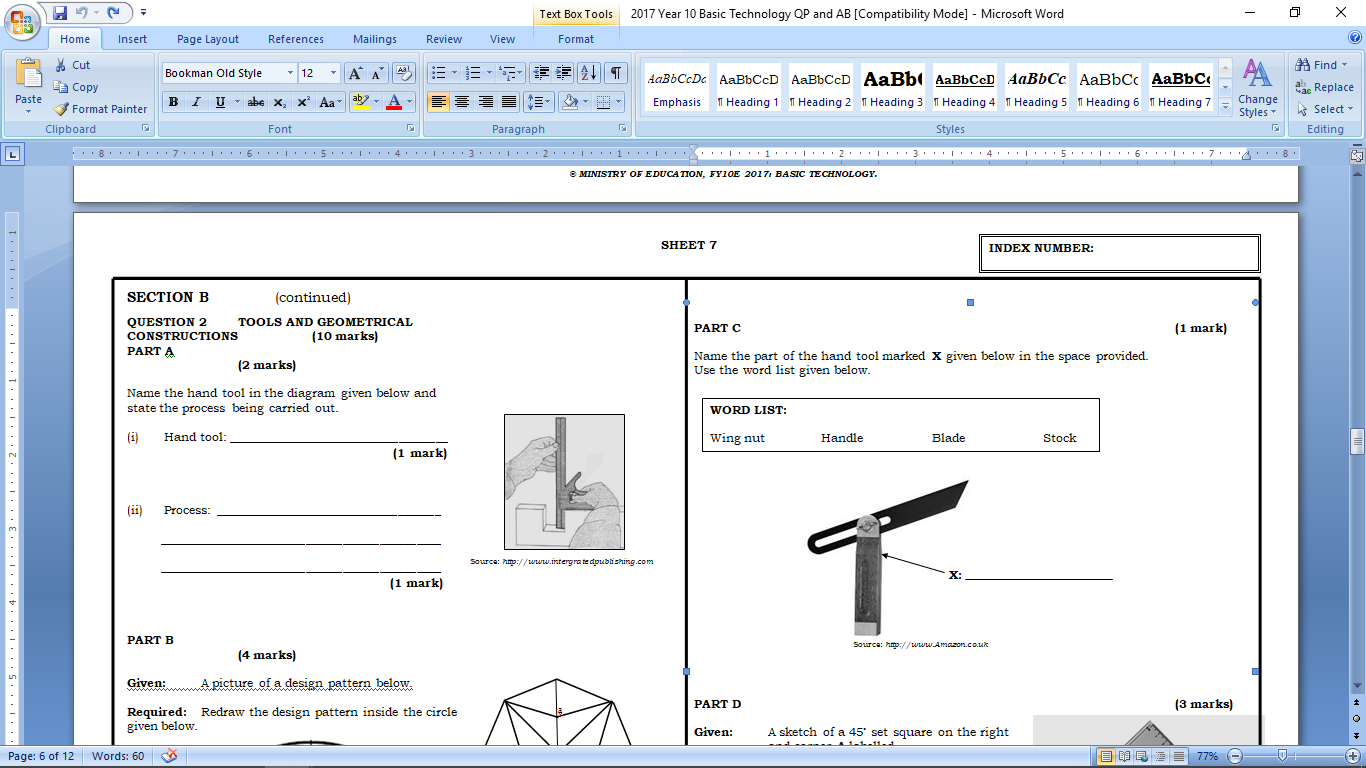
* Hacksaws have fine, disposable blades held in Tension by front and back pins.
* It is used to cut rods, bars, angle plates to required lengths and sheet metals to specific size and shape.

ACTIVITY

1. Name the hand tool in the diagram given below and state the process being carried out.



1. Name the part of the hand tool marked **X** given below



1. **Given:** A sketch of a 45° set square on the right and corner **A** labelled.

**Required:** Redraw the set square to a scale of 1:1 starting from corner **A** given below.

