PENANG SANGAM HIGH SCHOOL

P. O. BOX 44, RAKIRAKI

LESSON NOTES - 23

SCHOOL: PENANG SANGAM HIGH **SUBJECT: BASIC TECHNOLOGY** **YEAR/ LEVEL: 9**

Strand	BT9.4: HAND TOOLS AND MATERIALS
Sub - Strand	BT9.4.2 HARDWARE, SHARPENING
Content Learning Outcome	Identify the hardware, their parts and uses, develop skills in use of the hardware in tasks and projects. Identify and make appropriate and safe use of readily available finishes and finishing materials. Identify and apply sharpening skills in care and maintenance of basic hand tools.

Leather

Leather is a durable and flexible material created via the tanning of animal rawhide and skin, primarily cattle hide. Usually available with the hair removed.

Today, most leather is made of cattle skin, but many exceptions exist. Lamb and deer skin are used for soft leather in more expensive apparels.

Deer and elk skin are widely used in work gloves and indoor shoes.

Pig skin is used in apparel and on seats of saddles. Buffalo, goats, alligators, dogs, snakes, ostriches, kangaroos, oxen, and yaks may also be used for leather.

Leather is a product with high environmental impact, most notably due to:

- The impact of livestock.
- The heavy use of polluting chemicals in the tanning process.

Uses and Benefits of Leather

Leather is a naturally versatile material which is warm in winter and cool in summer. Genuine leather provides the service and durability.

Leather is used to prepare leather apparel and leather garments like leather jackets, leather coats, leather lingerie, leather pants and leather undergarments.




HARDWARE

Nails

These are used to hold wood parts together. Nails should generally be driven in a slanting direction, as they hold better than if driven straight. To do a satisfactory job, the nails must be the correct type.

Box or Clout nail: They are used for box and crate construction.

Spring Head (Roofing nail): Used for fixing corrugated roofing and wall cladding.

Panel Pins: Fixing thin timber and manufactured boards.

Wiggle nail or Corrugated Fastener: Used for strengthening edge to edge joints and also for holding frames of cheap flush panel doors and carcase constructions.

Rivets: Is a permanent method of fastening two or more pieces of sheet metal together.

Screw

These are available in a wide variety of sizes, types, metals and finishes.

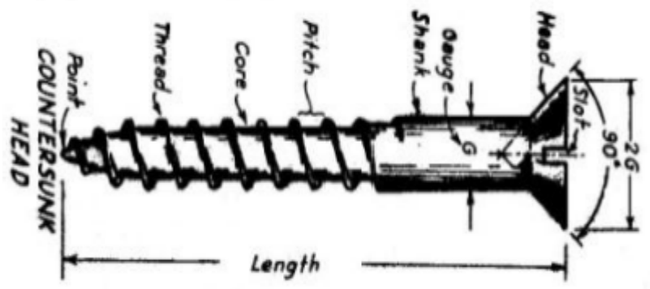
The parts of a screw are:

The head gives the screw its name, such as round head, countersunk and raised head.

The shank is the body of the screw which is threaded to a point for about two thirds of its length. The shank determines the thickness of the screw.

The thread is the spiral groove which draws the screw into the timber and provides its holding power. Three types of screws are in general use:

- Countersunk head
- Round head
- Raised head



Countersunk and round head screws are usually made of brass or steel finished.

Countersunk head – is used when the head is required to be flush with or below the surface of the wood. Round head- mainly used for fastening metal fittings to work.

Raised head –They are very decorative and can be easily removed easily without damaging the surface surrounding the screw.

Finishes

Finishes are materials which are applied to give an eggshell gloss.

Varnish

Varnish is a transparent coating material. When spread on the surface of the material, they dry to form a glossy or shiny film. They are generally applied with brush, spray gun or rubber.

Stains

Timber may be stained for the following reasons:

a) To color the wood.

b) To imitate a more costly wood.

c) To enhance the beauty of the grain.

Sharpening Tools

Oilstones

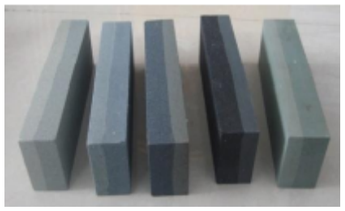
Natural oilstones

Available in two grades: hard and soft, with the coarser stone used for softer honing operations.

To prevent overheating during sharpening, a lubricant is necessary.

Artificial oilstones

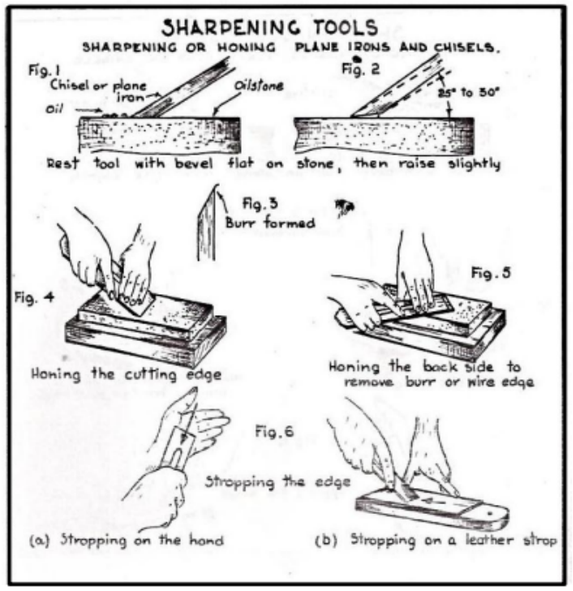
These are made from silicon carbide or aluminum oxide.



Sharpening or Honing

The process of sharpening or horning must be carried out carefully to obtain a fine keen edge.

Sharpening Operation



Sharpening Saws

(a) Jointing and Topping

If the teeth are found to be uneven, it is necessary to joint the saw i.e. to run a file along the tops of the teeth until they are all of even height.

(b) Reshaping

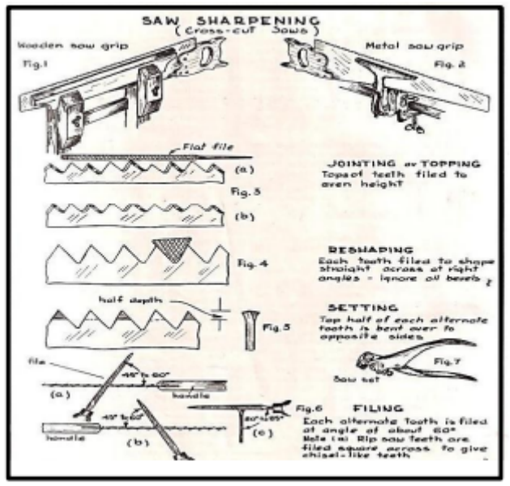
Shaping becomes necessary if the teeth are irregular but not necessary after every time the saw is sharpened. Place the saw in the saw vice and file all the teeth, working from one side of the saw. File straight across with the file at right angles to the blade.

(c) Setting

Setting is always necessary after jointing and shaping.. It is the process of bending the adjacent teeth to the opposite sides so that the cut or the kerf made by the saw is slightly wider than the blade.

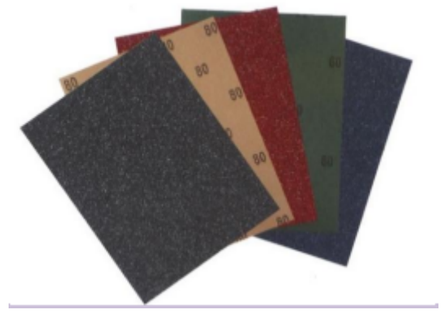
Sharpening or filing

Use a taper saw file with the correct size. Fix the saw in a saw vice, handles to the right with the gullets about 4mm above the jaw. Place the file in the gullet in the left of the first tooth bent towards you. Swing the handle of the file to the left keeping the file at the same angle and parallel to the floor, file in each alternate gullet.



Abrasives

Most of the finishing work is carried out using abrasives. Abrasives are used before applying any finish. There are many types of abrasives available but in this chapter we will look at the three common types.



Garnet

It is for hand and machine sanding and is made from natural crushed garnet stone for sanding wood, glass, provides sharp cutting edges, cuts quick, long lasting and does not build up heat that may burn finishing's or the wood.

Glass Paper

Glass paper grit is made from crust glass and bottles. They are first crust graded and are glued on paper or cloths backing.

Backing material

The backing material is usually cloth or paper. The cloth variety is more expensive but lasts longer under hardy conditions.

Wet and Dry Paper

Wet and dry paper is abrasive material used for sanding metal paint and other hand finishing jobs.

SHORT ANSWER QUESTIONS

1. Name the nail which is used in box and crate constriction.

   _____

   _____

2. State one use and benefit of leather.

   _____

   _____

3. Label the parts of the screw given below.

A _____

B _____

C _____

4. Name one sharpening tool.

   _____

   _____

5. Explain the term **Countersunk head.**

   _____

   _____

THE END

6. Explain therm ***finishes*.**

   _____