**SUBJECT**: BASIC TECHNOLOGY

**CLASS**: JSS1

**TOPIC**: HOLDING DEVICES, CUTTING AND PAIRING TOOLS

**Holding Devices**

Woodworking holding devices are the tools used to hold the work piece on the workbench. Woodworkers work on workbenches. It is on these benches that various woodwork constructions are carried out. The centre of the bench is usually lower than its two sides. This area is called a *well* and its function is to accommodate the tools brought from the tool cupboard to the bench top during operations. The tools cannot fall or roll on to the floor or on anyone’s feet because this part is lower than other area of the bench.

**The fittings are**:

1. Bench Vice

It is also called fitter’s vice. It is used to clamp or to hold jobs when the following operations

are to be carried out on the bench – filling, bending, tapping, cutting, assembling parts, etc.



Other types of vice are: Hand Vice

It is used for holding work when performing operations such as drilling, riveting, etc.



Machine Vice

It is fixed to the table of any machine tool. The Care of the Vice

1. Always keep the vice clean.

2. The thread or the screw inside the vice should be oiled regularly.

3. Do not use the vice as an anvil for hammering a job.

4. Always use hand force only to tighten the vice for holding the work piece.

2. Bench Stop

There are many types of bench stops. Some are made of wood while some are made of metals. It is a small strip of wood fixed on top of the bench. It is used to prevent wood from slipping off the bench top during planing.

3. Bench Hook

This is used for holding jobs during cutting and chiseling on the bench. At the same time, it protects the bench top.

4. The Clamps

(a) G-Clamp

This is a metal clamp used for clamping small jobs together. It is called a G-clamp because of its shape which is in the form of letter ‘G’. The clamp is ideal for holding small pieces of wood together.



(b) F-Clamp

This is used like the G-Clamp. The clamp is in the form of the letter ‘F’.



(c) Sash-Clamp

It is a larger clamp used for holding and drawing woods tightly together when assembling or gluing work.



Cutting and Planing Tools

Saws and planes are used in cutting and smoothening wood in the workshop respectively. Saws are tools used for cutting wood. There are two main groups of saws – bench saw and curve cutting saws.

Types of Curve Cutting Saws

Curve cutting saws are:

1. Coping Saw

This is used for cutting curved marked lines on wood. The blades can be adjusted to cut in any direction.



2. Fret Saw

This is used to cut curves in thin wood of 8mm thick or less. It is used to cut plywood.



3. Bow Saw

It is used to cut along curved marked lines but the wood has to be 50mm thick.



4. Compass Saw

It is used for cutting large interior curves.



5. Keyhole Saw

It is used mainly for internal curves where the bow saw cannot be used.



6. Rip Saw

It is used for cutting along the grain of the wood.



7. Tenon Saw

It is used for cutting shoulders to tenon and recesses in board.



8. Dovetail Saw

This is also similar to tenon saw but it is much shorter. It is used for cutting fine joints and also for light sawing.

9. Panel Saw



Used for sawing thin timber across the wood.



10. Cross-cut Saw

Used for cutting across the grain.



Types and Uses of Planes

Bench planes are used to obtain a good, smooth surface and to get the correct size required. Bench planes are:

1. Jack Plane

It is used to smoothen or remove marks from timber. It is used to dress the surface and



2. Trying Plane

It is used to produce flat surfaces and perfectly straight edges.



3. Smoothing Plane

It is used for clearing the surfaces and edges of timbers ready for assembling.



4. Block Plane

It is used for planing small work that is not easily accessible.



5. Spoke Shave

This is an example of a curve-cutting plane used to produce smooth curved surfaces and



ASSIGNMENT

1. Explain the three (3) types of clamp.

2. Explain the structure of a workbench.

3. What is the main use of a saw?

4. Mention eight (8) curve cutting saws.

5. List three (3) different types of clamps you know.

6. Mention three (3) fittings in the work bench.