WEEK: FOUR AND FIVE.
SUBJECT: BASIC TECHNOLOGY.
CLASS: JSS2.
TOPIC: METALWORK HANTOOLS.

METAL WORK HANDTOOLS

Metalwork hand tools are items that are used in the process of performing metalwork operations.

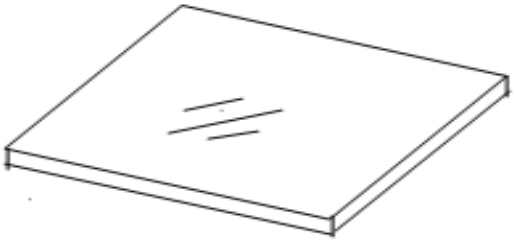
Categories of metalwork hand tools

1. Marking out tools
2. Measuring tools
3. Driving tools
4. Cutting tools
5. Holding tools
6. Boring tools etc.

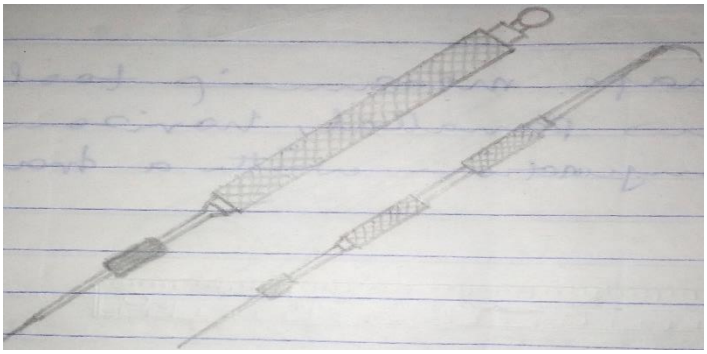
MARKING OUT TOOLS

These are metalwork hand tools that are used in making indentation on metalwork piece(s). Some of them are; surface plate, scriber, odd-leg caliper etc.

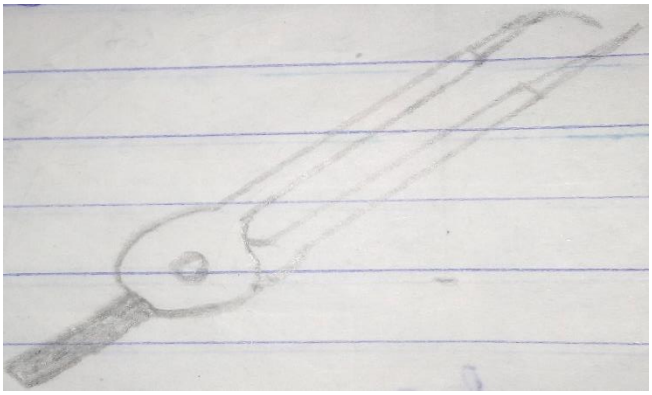
1. **Surface plate**: This is a small table with a flat and smooth surface, it is used to test whether a surface is flat enough. It is also used as a surface to mark out metals.



2. **Scriber:** A scriber is made of tool steel and has a sharp point to scratch a line on a metal work piece.



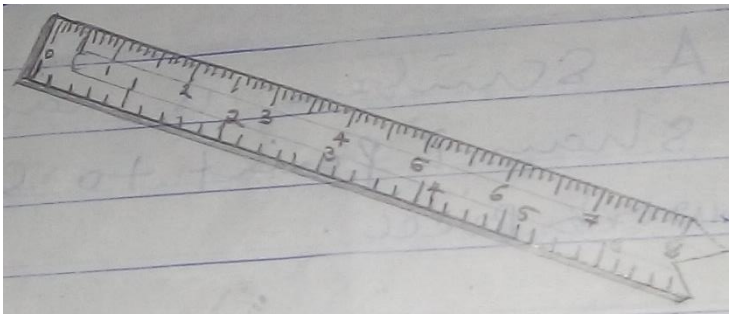
3. **Odd-leg caliper**: This is used in scribing a line around a metal workpiece. It can also be used for marking the centre of the end of a bar or for drawing parallel lines to edge of a bar.



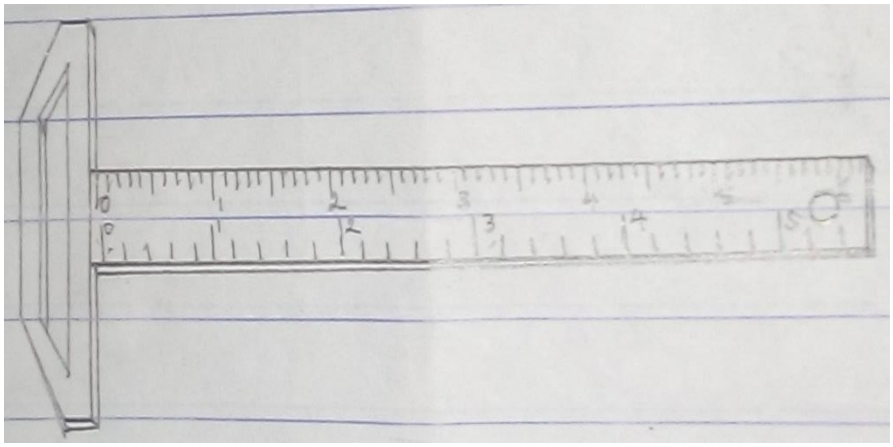
MEASURING TOOLS

These are tools used to determine value of quantities in this case, length or angles. They include; steel rule, protractor, tee-square etc.

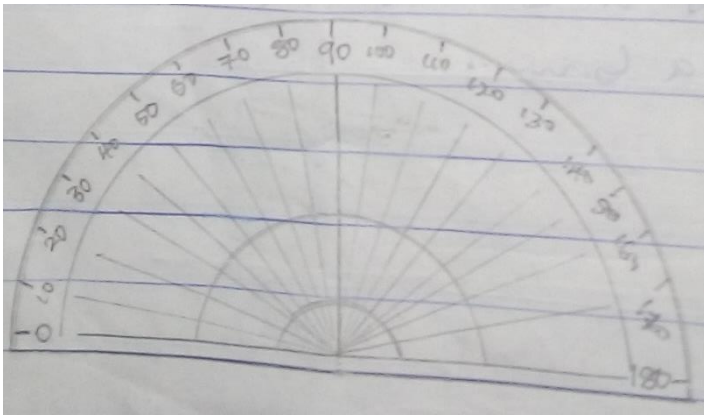
1. **Steel rule (Engineer's rule)**: It is made of carbon steel or stainless steel. The size is commonly 300mm and 150mm lengths.



2. **Tee-square**: This is a 'T' shape measuring tools used to measure and draw parallel, horizontal or vertical line in conjunction with a drawing board.



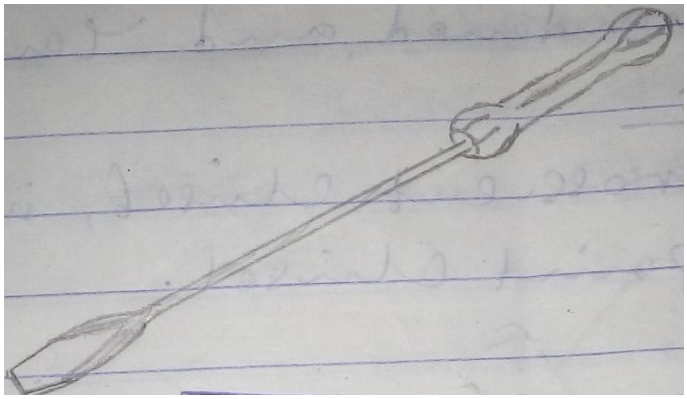
1. **Protractor**: This is a device or tool used to measure angles in degree (°). It is shaped like a semi-circle.



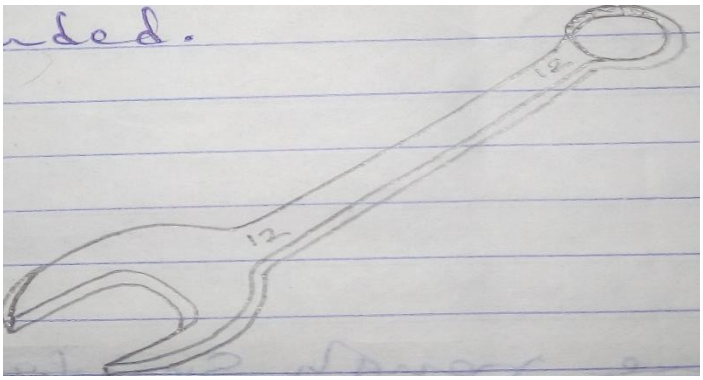
DRIVING TOOLS

These are tools that are used to screw in or out devices like nails, screws or nuts etc. Examples are; screw drivers, spanner, hammer etc

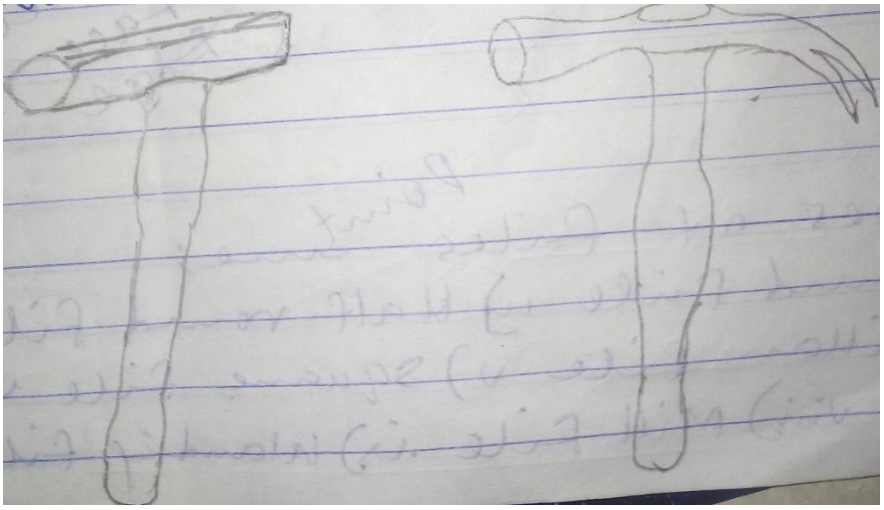
1. **Screw driver**: This is used for inserting and removing screws. It is made of tools steel.



2. **Spanner**: This is used in driving in and out nuts or bolts. It could be single ended or double ended.



3. **Hammer**: This is to forceful drive in nails into a work piece using gravity. The types of hammer include; Straight peen head, ball peen head, blocking head, planishing head etc. In general, hammers are made of two materials. The head, high carbon steel with 0.6% carbon and the handle of wood or metals.



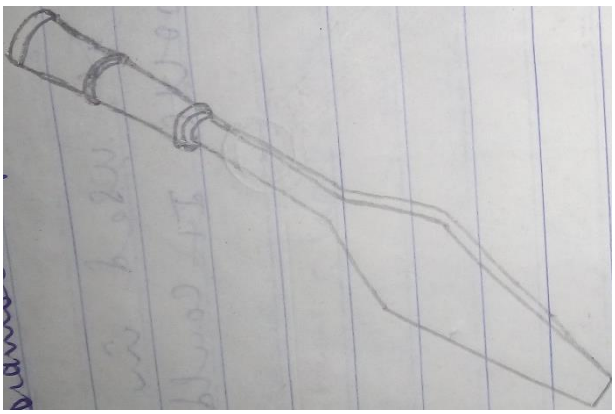
CUTTING TOOLS

These are tools used to dismember a work piece according to intended sizes. They include; chisels, files, saws etc

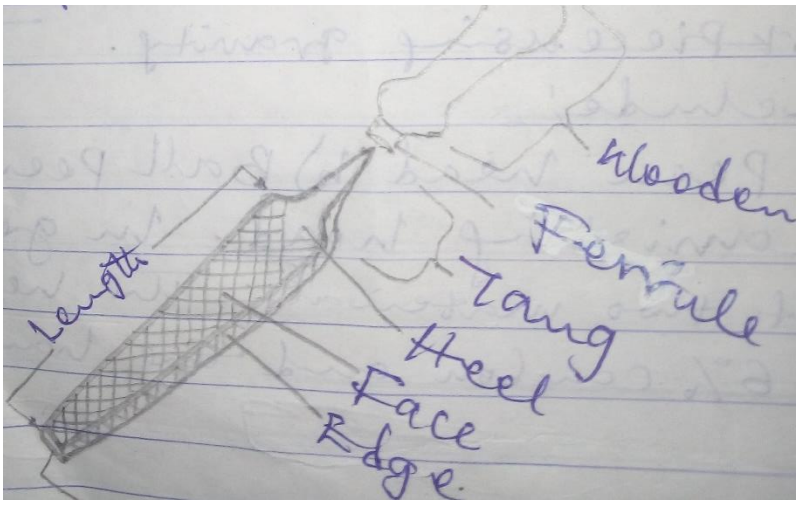
1. **Chisels**: This is made of octagonal tools steels. They are hardened and tempered.

Types of chisels: i. flat chisel ii. Cross-cut chisel iii. Half-round chisel iv. Diamond point chisel

1. Chisel



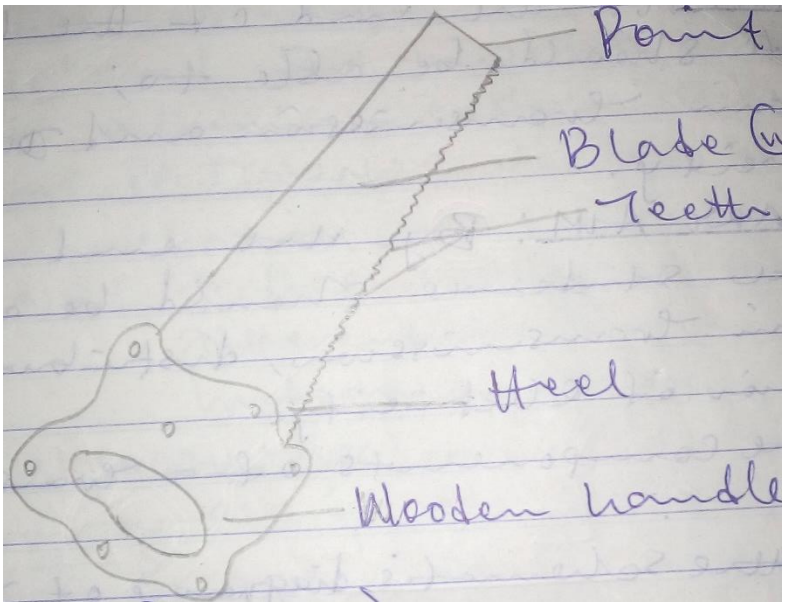
2. **Files**: These are rough surface cast steel metal work tools.



Types of files are;
Round file, half round file, triangular file, pillar file, square file, flat file, needle file, mill file, warding file, knife file, raffler file, abrafile, round or rat-tail file etc.
Files are grouped under; i) cut and ii) shape

2. **Saw**: This is a flat toothed metal used to cut workpieces by frictional action

Types of saw
1) Hack saw (2) junior hack saw (3) brass back saw (4) piercing saw (5) dovetail saw etc



ASSIGNMENT:

1. **Make a sketch of a hack saw and label it.**
2. **List any other five types of hammer that exist.**