

PENANG SANGAM HIGH SCHOOL

P.O.BOX 44, RAKIRAKI

WEEK 23 WORKSHEET

Subject: Basic Technology

Year/Level: 10

Strand	BT10.6 JOINTS AND PROCESSES
Sub Strand	BT10.6.2 METALWORK JOINTS
Content Learning Outcome	BT10.6.2.1 Identify and state the use of complex metalwork joints and develop confidence in skillful construction of the joints incorporated in tasks, projects and other artifacts.

LESSON NOTES

JOINTS AND PROCESSES

METALWORK JOINTS

Sheet metal is simply metal formed into thin and flat pieces. It is one of the basic forms used in metalworking, and can be cut and bent into a variety of different shapes. Sheet metal is available in flat pieces or as a coiled strip. Sheet metal has uses in car bodies, airplane wings, medical tables, roofs for buildings and many other things.

Types of joints in metalwork:

The most useful way to permanently join two pieces of metal together is to weld them. However, the use of fasteners, rivets, screws and solders are also very widely used in the sheet metal industry.

Fasteners

A fastener is a device that mechanically joins two or more metals together. Nuts and bolts, washers, screws and rivets provide a convenient method of securing parts.



Source: Photographed

Riveting

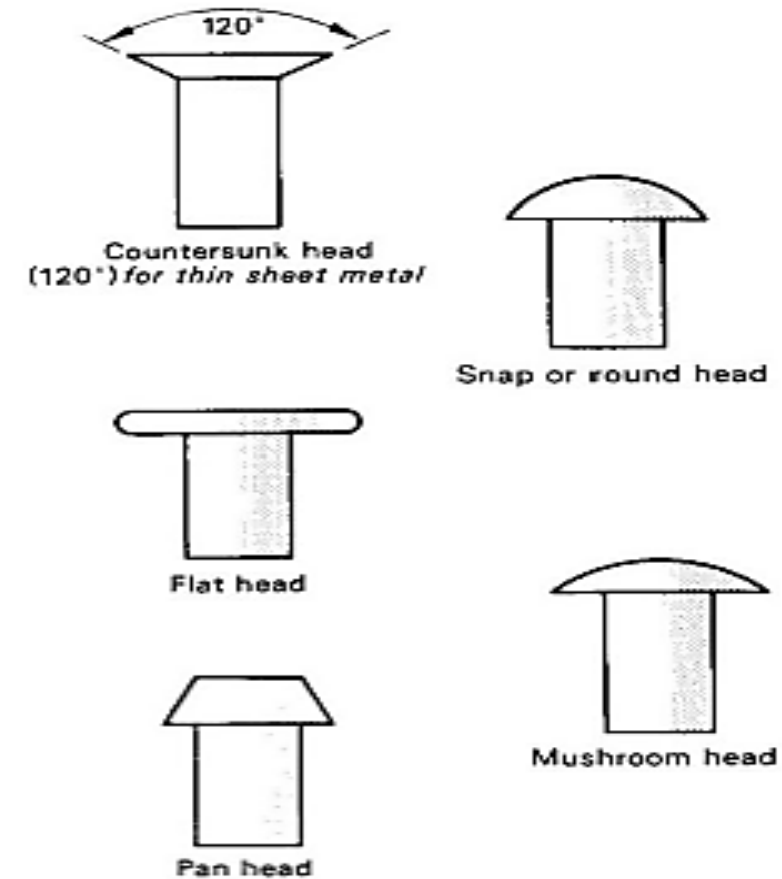
Riveting is a simple way to join metal parts together. Rivets are made of soft iron for general engineering; aluminium alloy for aircraft work and soft aluminium or copper for non-metallic substance.

Rivets are described according to:

- Shank** - solid, tubular, or special type such as Riv-Nut
- Metals** - copper, aluminium alloy and soft steel,
- Shape of head**
- Diameter of shank**
- Length of shank**

Types of rivets

- Countersunk rivets** - are useful where streamlining is needed, as in air-planes.
- Roundhead rivets** - are used where a strong union is required but where the projection of the head causes no concern.
- Flathead rivets** - are used in such constructions as fuel tanks.
- Mushroom head rivets** - are used where it is necessary to shorten the height of the rivet head above the metal surface, as for example in aircrafts.
- Pan head rivets** - are very strong, and are, therefore, widely used for girders and heavy constructional engineering.



Source: Basic Engineering – R. L.

Pop Rivet

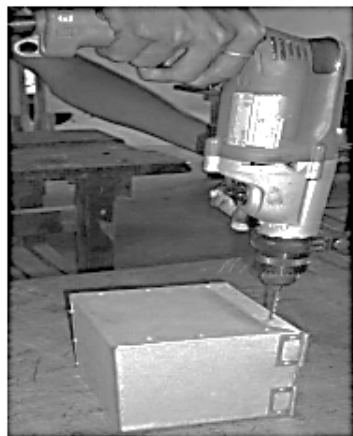
There are many different types, sizes and composition of rivets which are used for various needs, from plastic to wood, as well as metal.

The pop or blind rivet is used in these types of application. Pop or blind rivets have a tubular shape with a mandrel through the center. One end looks like a long nail. A special tool or gun is used to smash the rivet and cut off the long end.

Using a rivet gun can be a highly effective method of attaching various materials, especially metal together in a permanent way. Though the materials can be separated by simply drilling out the rivets, this is not a difficult process, however you should take care when riveting and do not rush, as this could be a hazard, especially to people who do not know what they are doing.

Pop rivet guns can be very inexpensive to use as are the rivets. You can buy with the tool or separately. It may be beneficial to get a good quality rivet tool from the start, however a cheaper one will be sufficient depending on the work at hand.

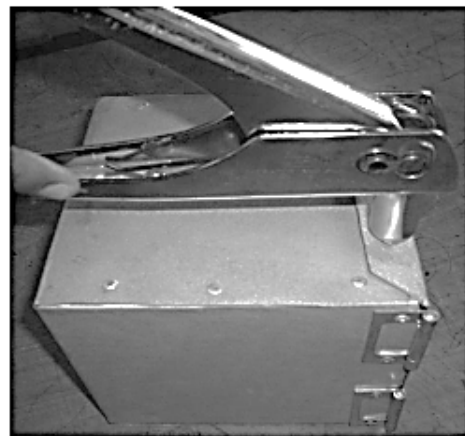
A pop-rivet gun



Drilling for rivet



Inserting rivet to pop rivet gun



Riveting

STUDENT ACTIVITY

1. Identify and explain **five** different types of rivets.

THE END