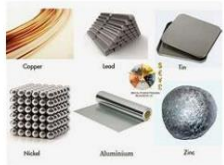








Bolt Man





Ferrous Metal	a metal of mixed composition which mostly contains iron, which makes these metals magnetic such as steel
Non-ferrous metal	A metal which does not contain iron. Often more lightweight such as aluminium and not magnetic
Aluminum	Aluminium is a chemical element with the symbol Al. It is often used for drink cans
Metal forming	The bending and folding of metal to create new shapes
Templates	a shaped piece of rigid material used as a pattern for processes such as cutting out, shaping, or drilling.
Jigs	a device for holding and supporting a work piece in a machine tool and for guiding the cutting tool

Properties of metals and non-metals	
Metals	Non-metals
High melting point	Low melting point
Good conductors of heat	Poor conductors of heat
Form basic oxides	Form acidic oxides
High density	Low density
Sonorous	Not sonorous
Ductile and malleable	Brittle

Tools & Equipment

	Hacksaw The junior hacksaw is used to cut and shape metals, tube and some plastics. Where thicker and more robust materials are to be cut, a full-size hacksaw is used.
	File Hand files are used to smooth rough edges. The file is used to remove any sharp metal burrs to make the edges safer.
	Brazing Steel can be joined by brazing. Brazing gives a permanent joint. Two steel parts are joined by heating them to 'red' heat and then applying a brazing rod to the joint. The brazing rods melts at a lower temperature than the steel and so it melts to form a molten liquid. This liquid brazing rod then flows along the joint between the two steel parts.
	Wire wool Before it can be brazed, steel must first be cleaned so that grease and dirt is removed. Wire wool or emery cloth are the most suitable abrasives to clean the areas to be joined.

NAME	COMPOSITION	PROPERTIES	USES
Aluminium	pure metal	Good strength/weight ratio, malleable and ductile, difficult to weld, non-toxic, resists corrosion. Conducts heat and electricity well. Polishes well.	Kitchen foil, saucepans, drinks cans, etc. 
Mild Steel	Iron + 0.15 - 0.35% carbon	Ductile, malleable & tough, high tensile strength, poor resistance to corrosion. Easily welded.	Car bodies, washing machine bodies, nuts & bolts, screws, nails, girders, etc. 
Stainless Steel	Iron + chromium nickel magnesium	Tough and hard, corrosion Resistant. Wears well, difficult to cut, bend and file.	Cutlery, sinks, teapots, dishes, saucepans, etc. 