

YEAR 9 DESIGN TECHNOLOGY: CATAPULT CONUNDRUM



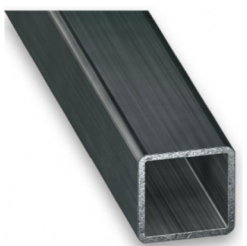

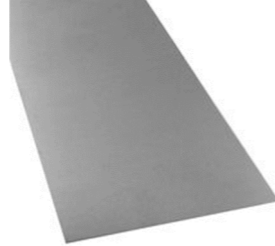

A GROUPS OF METALS

	Group	Definition	Types
1	Ferrous Metal	<ul style="list-style-type: none"> Contain Iron Rusts Magnetic 	Cast Iron, Low Carbon Steel (Mild Steel), High carbon steel (Tool Steel)
2	Non Ferrous Metal	<ul style="list-style-type: none"> Does not contain iron Does not rust Not Magnetic 	Copper, Aluminium, Tin, Lead,
3	Alloy	<ul style="list-style-type: none"> A mixture of two or more metals Improved properties 	Brass, Pewter, High Speed Steel, Stainless Steel

B PROPERTIES

	Term	Definition
1	Property	An attribute, quality, or characteristic of something.
2	Hardness	The ability to resist scratching (abrasive wear) and indentation.
3	Ductility	The ability to be drawn (pulled/stretched) into a long strand without snapping.
4	Malleability	The ability of a material to change shape through compression without cracking, tearing or splitting.
5	Conductivity	The ability to conduct (Transfer) heat and electricity
6	Tough	The ability of a material to resist impact forces.


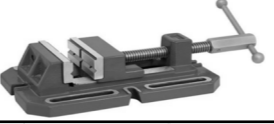





C METAL STOCK FORMS

1	Square Tube	2	Flat Bar	3	Sheet	4	Threaded Rod
							

D METAL PROPERTIES

	Metal	Properties	Uses
1	Mild Steel Ferrous	Hard, Tough, Ductile, Easily Machined.	Screws, Nails, Nut, Bolts.
2	Tool Steel Ferrous	Very hard & keeps an edge well, Less ductile than mild steel.	Garden & Workshop tools, Blades, Cutting Tools.
3	Copper Non-Ferrous	Very ductile and malleable, excellent conductivity.	Wires/Electrical cables, Plumbing supplies
4	Aluminium Non-Ferrous	Light weight, Excellent strength to weight ratio, ductile.	Pots, pans, car body panels, bike frames, drinks cans, foil and take-away trays.
5	Tin Alloy	Soft, malleable, ductile and good electrical conductor.	Can production, sheet material & protective coating.
6	Pewter Alloy	Low melting point, very malleable, easy to cast.	Dishes, church vessels, decorative items (no longer in common use).
7	Stainless Steel Alloy	Hard, very smooth and difficult to weld, does not rust.	Cutlery, kitchen and medical equipment.

E TOOLS/TECHNIQUES

	Picture	Name	Function
1		Hacksaw	For cutting metal.
2		Machine Vice	Used for holding metal when drilling.
3		Centre Punch	Used to mark the centre of a hole when drilling, makes a dimple.
3		Tin Snips	For snipping thin sheet metal.
4		Scriber	For marking lines on metal.
5		Flat File	For filing metal.
6		Chamfer	To flatten a sharp edge. Often a 45°.