
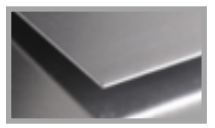



Year 8 Product Design


Ferrous Metals		Metals which contain iron and will rust and will attract a magnet Examples: E.g. cast iron, stainless steel
Non-ferrous Metals		Metals which DO NOT contain iron and will NOT rust and will NOT attract a magnet Examples: copper, aluminium
Alloys		Metals that are a mixture of two or more metals or elements to make a new metal with improved properties Examples: (ferrous alloy) stainless steel, (non-ferrous alloy) brass, bronze

1 Metals are used for different purposes because of the properties have.

Metal	Property	Used for	Reasons
Copper	good conductor of electricity	electrical wires	can pass electricity to the product
Stainless Steel	does not rust	kitchen items and sinks	so it can be washed easily and used hygienically
Stainless Steel	tough	cutlery	so it can withstand impact

Thermoforming Polymers

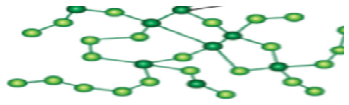
- can be reheated
- can be reshaped
- can be recycled

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Examples: acrylic, HIPS, PVC



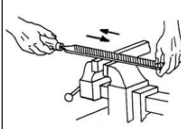



Thermosetting polymers

- can't be reheated
- can't be reshaped
- can't be recycled



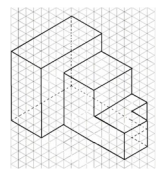
Examples: urea formaldehyde, polyester resin

2 Metal working tools

Scribe		Used to draw around a template onto metals to show where to cut to show where to cut
Junior Hacksaw		A saw used for cutting straight lines in woods, metals and plastics
File Filing		A tool used on material to small amounts to make it smooth. You can cross file and draw file.
Riveting		A permanent method of joining metals
Emery cloth		Coated abrasive on a cloth backing used on metals (instead of sandpaper)
Power drill		A power tool used to drill holes through materials

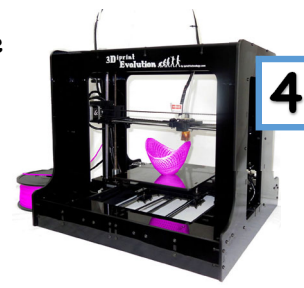
Top tips for isometric drawing:

- Use the grid
- Start with the corner
- You must have vertical lines (no horizontal)
- Make sure you have parallel lines



3d printing: Additive Manufacturing

Step 1: create a 3D CAD drawing. It is sliced into very thin layers using specialist software



Step 2: heat the polymer filament and extrude it out of the nozzle

Step 3: build the prototypes in very thin layers of filament until complete. It will build from the bottom up, with the build platform moving one slice lower as each layer is created.

Advancements in technology (like 3D printing) is a great thing for manufacturers! Products are made more **accurately** and more **consistently** than if people were making it.

However, people will often **lose their jobs** as technology replaces them.

People may need to **retrain** and **learn new skills** for new jobs that are available.