



Identify materials:



Copper



Brass



Lead



Zinc



Carbon Steel



High Speed Steel



Aluminium



Stainless Steel



Titanium



Concrete



GRP



Carbon Fibre

Describe material classifications:

Ferrous Metal - are metals that have an iron content in them for example mild steel, cast iron etc. (**FE**rrous = Iron)

Non-Ferrous Metal - are metals that do not have an iron content in them ie aluminium, copper, tin

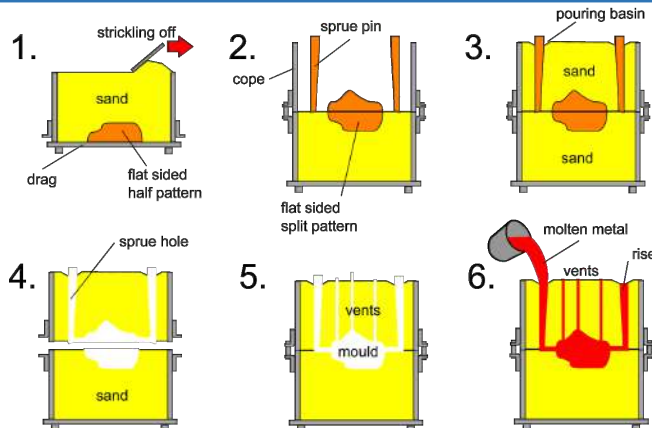
Thermoplastic - is a family of plastics (polymers) that can be heated, formed and allowed to cool into complex shapes. The heating process can be repeated.

Thermosetting Plastic - once heated, processed and allowed to cool **cannot** be reheated and the process repeated. These plastics (polymers) tend to burn if attempted to be re-heated.

Smart Material - are materials that react to a change (or react) in their environment such as stress, heat, uv light, electrical current, moisture etc.

Composite - is a combination of two or more (very different) materials that when joined create a material with enhanced physical or chemical properties.

Ferrous	Non-Ferrous	Composite
Carbon Steel	Copper	Concrete
High Speed Steel	Brass	Carbon Fibre
Stainless Steel	Lead	GRP (Glass Reinforced Plastic)
	Zinc	
	Aluminium	
	Titanium	



Sand Casting Process

- 1) Place half of the pattern in the sand and create a mould.
- 2-3) Create the second half of the mould – including holes for pouring the metal + to release air.
- 4-6) Remove the pattern, clamp the mould together and pour in the molten metal.
- 7) Break away the sand from around the part.