## Materials

- Timber
  - Hardwoods
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## Useful web links

**Wikipedia**

Read a Wikipedia article about metallic materials.

View the Wikipedia metal page >>

**BBC Bitesize**

Revise more about metals at the BBC bitesize site.

View the bitesize timbers page >>

**Technology student**

Ferrous and non ferrous metals explained by technology student..

# Ferrous metals

### Ferrous metals

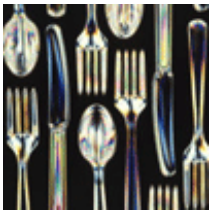
Ferrous metals are metals that consist mostly of iron and small amounts of other elements. Ferrous metals are prone to rusting if exposed to moisture. Ferrous metals can also be picked up by a magnet. The rusting and magnetic properties in ferrous metals are both down due to the iron. Typical ferrous metals include mild steel, cast iron and steel.


Magnet

### Metal Alloys

Alloys are substances that contain two or more different metals and occasionally other elements. The metals are carefully chosen and mixed to achieve specific properties these include reducing the melting point making the alloy light weight, etc.


Alloy Key Ring

| Metal type | Metal uses | Melting point | Example product |
|---|---|---|---|
| **Mild steel** - A ductile and malleable metal. Mild steel will rust quickly it is in frequent contact with water. Properties – iron mixed with 0.15-0.29% carbon. Learn more >> | Used as Nuts and bolts, Building girders, car, bodies, gates, etc. | 1600°C |  |
| **Cast iron** - Is a very strong when it is in compression and is also very brittle. Properties – It is re-melted pig iron with small quantities of other metals. It consists of 93% iron and 4% carbon plus other elements. Learn more >> | Used as car Brake discs, car cylinders, metalwork vices, manhole covers, machinery bases eg: The pillar drill. | 1200°C |  |
| **High carbon steel / Tool steel -** Is a very strong and very hard, resistant to abrasion. It is also known as 'high carbon' steel or 'medium' steel. Properties – Up to 1.5% carbon content. Learn more >> | Used for hand tools such as screwdrivers, hammers, chisels, saws, spring and garden tools. | 1800°C |  |
| **Stainless steel** - is very resistant to ware and water corrosion and rust. Properties – It is an alloy of iron with a typical 18% chromium 8% nickel and 8% magnesium content. Learn more >> | Used for kitchen sinks, cutlery, teapots, cookware and surgical instruments. | 1400°C |  |

View the tec student metal page >>

| | | | |
|---|---|---|---|
| **High speed steel -** is a metal containing a high content of tungsten, chromium and vanadium. However it is very brittle but is also very resistant to wear. Learn more >> | Used for drill bits, lathe tools, milling cutters on milling machines. It is used where high speeds and high temperatures are created. | 1400°C |  |


**Mr DT says 'Read the text above and then answer these questions below'. Write your answers on a sheet of paper, dont forget to write your name on the sheet!:-**

1). What are the properties of a ferrous metal?
2.) What is a metal alloy?
3.) What is the main problem with mild steel?
4.) What is cast iron used for?
5.) Why is it good to make hammers out of high carbon steel?
6.) Why is it good to make cutlery out of stainless steel?
7.) What are the problems with high speed steel?
8.) What is the melting point of high speed steel?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