# Year10 term1: Metals

**Week 1: Ore**
Rock found in the earths crust which contains metal
**Extraction**
Metal needs to be removed from the ore it is found in. This is done by crushing the rock and smelting (heating the rock to incredibly high temperatures so that the metal melts and can be separated from the rock.
**Stock forms**
This is the shapes/forms of metals that are produced for people/manufacturers to use. E.g. sheet, bar, rod, plate, tube and some more complicated structures such as H beams, L beams, I beams and T bars. Products will be made from the most suitable stock form.

**Week 2: Ferrous**
A metal that contains mostly IRON. Ferrous metals are magnetic and will rust.
**Non-ferrous**
A metal that does not contain IRON. Non– ferrous metals are not magnetic and do NOT rust.
**Alloys**
A mixture of two or more metals or elements (one of which must be metal). Combining the metals improves their properties. They can be sub categorised as ferrous alloys or non ferrous alloys.

**Week 3:Non– renewable**
Once dug up the ores which contain the metals cannot be replaced.
Use of energy
It takes a incredibly high temperatures to melt metals this contributes to pollution and contributes to global warming. This happens at both the stages of extraction metals from its ore and in turning the metals into products.
Extraction
Digging up the ores destroys natural habitats of wildlife/plants. Visually damages to landscape—holes created leaves scares on the land.

Week 4: Recycling
Metals can be recycled. Recycling metal products into new products takes less energy that making a new product from raw materials.
Repair
Metal products can be repaired reducing the need to replace products as often
Durability
Products made from metal are durable and last a long time. This means they will need replacing less often

**Week 5: Ferrous metals**
Cast iron: has a hard surface but a brittle core. It is strong and can be cast into intricate shapes such as vices, roadside grids and manhole covers.

Low carbon steel: has good tensile strength, is malleable but has poor resistance to corrosion. It is used extensively in the car industry and in steel structures

High carbon steel; is harder than low carbon steel, but brittle. It is used in the manufacture of tools.

**Week 6: Non Ferrous metals**
Aluminium: is lightweight, soft, ductile and malleable. It is used extensively in the manufacture of aircraft, canned drinks and bike frames.

Copper: is ductile, malleable and an excellent thermal and electrical conductor. It is easily soldered and is resistant to corrosion. It is used extensively in the plumbing industry for pipes and fittings. It is used in the manufacture of wire.

Zinc : is highly resistant to corrosion, has a low melting point and is easily worked, but it is weak as a pure metal. It is often used as a coating on steel (galvanising) to protect against corrosion. It is used in die casting.

Tin: is highly resistant to corrosion, has a low melting point and is easily worked, but it is weak as a pure metal. It is often used as a coating on steel to protect against corrosion. It is used as a coating on food cans. It is also used in soft solder.