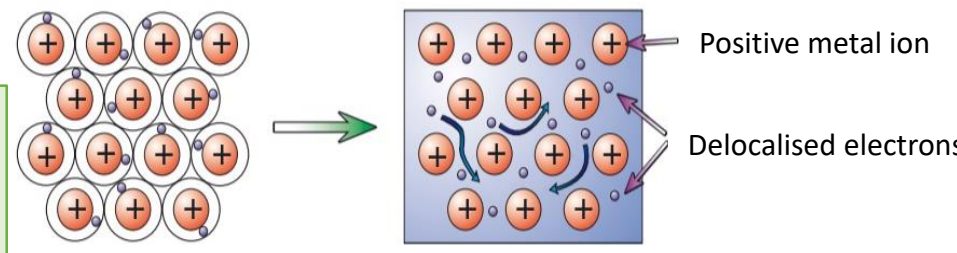


Chemistry: Metallic bonding & Giant Metallic Structures

Key word	Definition
Delocalised electrons	Bonding electrons that are no longer associated with any particular atom.
Positive metal ions	A metal atom with has lost its outer electron(s).
Giant metallic structure	A large three dimensional structure made of many positive metal ions and delocalised electrons.
Metallic Bonding	Electrostatic forces of attraction between positive metal ions and negative electrons.
Alloy	A metal mixture made from two or more metallic elements.
Shiny	A surface which reflects light.
Hard	Not easily broken or bent.
Malleable	Can be hammered into shape.
Ductile	Able to be pulled into a wire.
Sonorous	Able to make a ringing sound.

Structure of metals

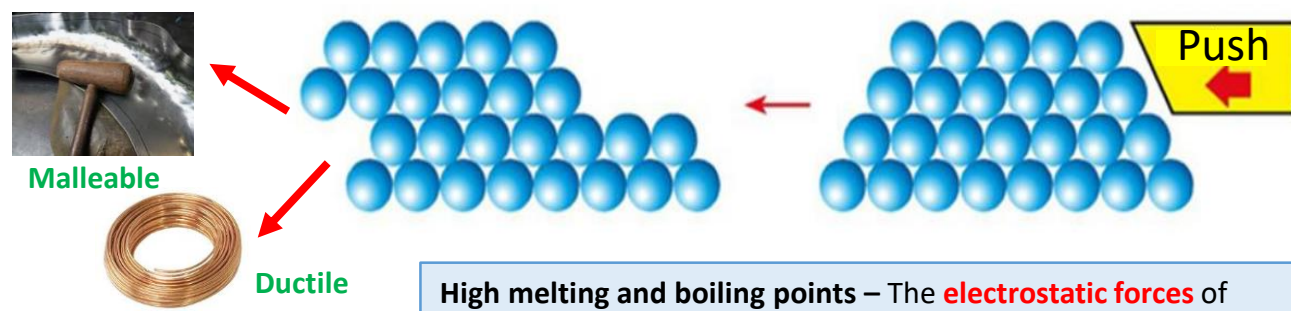
Metals consist of a **giant metallic** structure. The atoms in a metal are arranged in a **regular pattern** and are closely packed together.



Metallic bonding – the outer shell electrons become **delocalised** and surround the **positive metal ions**. There is a strong **electrostatic force of attraction** between them.

Properties of metals

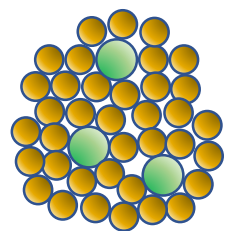
Malleability – **Layers** of pure metal atoms **slide** over each other when pressure is applied.



High melting and boiling points – The **electrostatic forces** of attraction between the metal ions and delocalised electrons are very **strong**, so need a **lot of energy** to be **broken**.

Alloys – a **mixture** of two or more metals or a metal and another element.

Corrosion Resistant



Conduct electricity – metals have **delocalised** electrons which can carry the **electrical charge** or **thermal energy** throughout the structure.



Conduct Electricity

Other properties



Shiny



Conduct Heat



Sonorous

