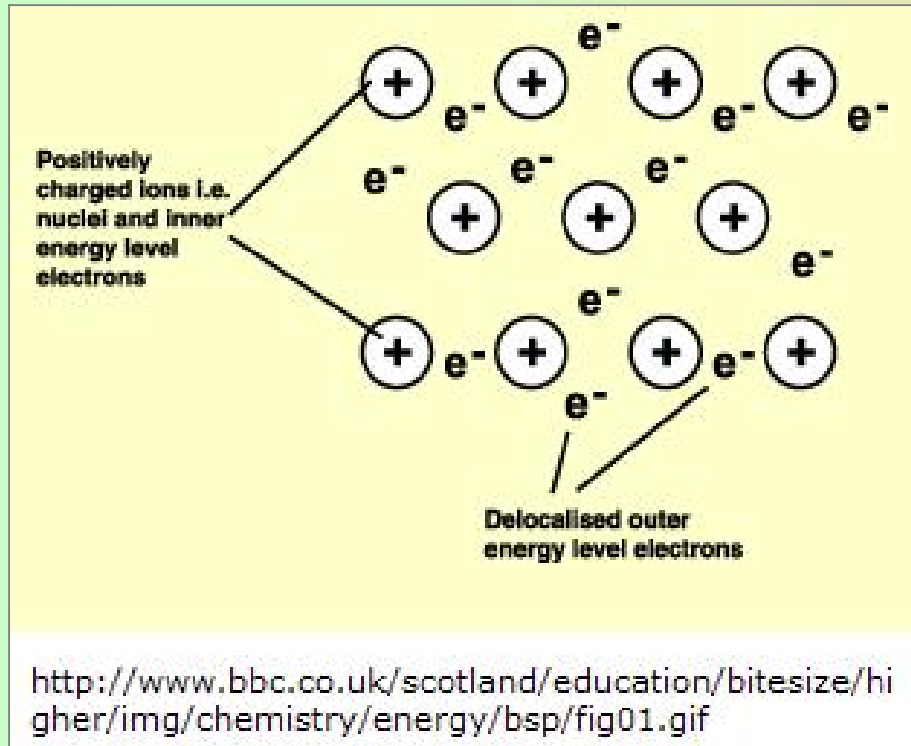


# Metallic Bonding



## Electron-Sea Model for Metallic Bonding

One very simple model that accounts for some of the most important characteristics of the metals is the electron-sea model.

In this model the metal is pictured as an array of metal cations in a "sea" of valence electrons.

The electrons are mobile and no individual electron is confined to any particular metal ion.

# Metallic Bonding

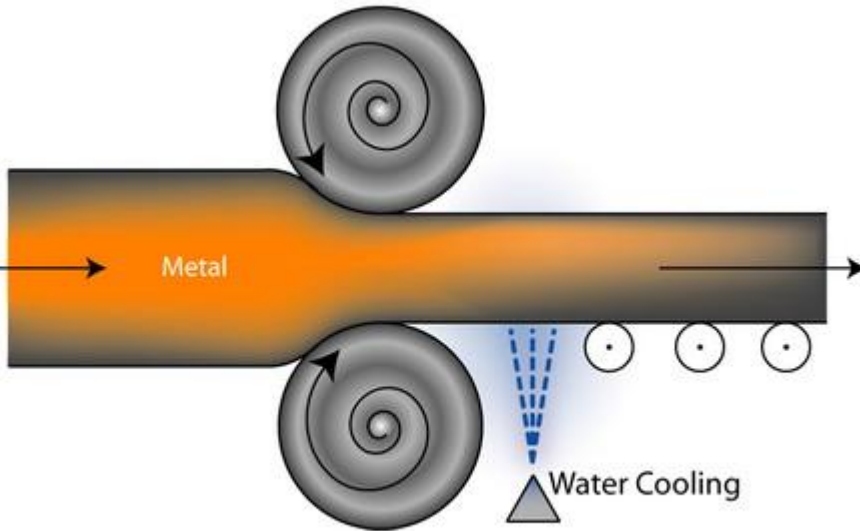
## Physical Properties of Metals

Most metals are solids. Their fusion points can be high. Their solubility in water is low.

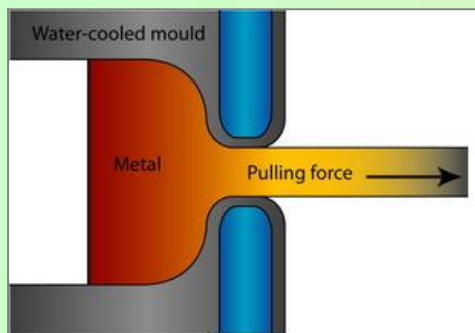
Most metals are **malleable**, which means that they can be hammered into thin sheets, and **ductile**, which means that they can be drawn into wires.

Metals are good conductors of electricity because they have mobile electrons.

Rollers (smooth)



[http://www.doitpoms.ac.uk/tlplib/metal-forming-2/figures/rolling\\_sml.jpg](http://www.doitpoms.ac.uk/tlplib/metal-forming-2/figures/rolling_sml.jpg)



[http://www.doitpoms.ac.uk/tlplib/metal-forming-2/figures/drawing\\_sml.jpg](http://www.doitpoms.ac.uk/tlplib/metal-forming-2/figures/drawing_sml.jpg)



<http://www.mining-technology.com/projects/kgmh/images/kgmh-7.jpg>