Ionic, Covalent and metallic Bonding, Structure and **Properties**

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-One element will transfer its electrons, to give it a full outer shell, to another element, to give that a full outer shell.

-Electrostatic attraction between a cation (positive metal ion) and an anion (a negative non-metal ion)

-They form in a 3D lattice structure.

e.g. 2Na + $Cl_2 \gg 2NaCl$



Isoelectronic- the same number of electrons

-Are insulators in solid form as the ions are stuck in position ale couk -But when melted or dissolved in water that the state of the s et electricity because the ions are free to move.

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tain many strong ionic bonds.

-A lot of energy is needed to b

Metallic Bonding

-A metallic bond is the electrostatic attraction between a positive metal ion and the sea of delocalised negative electrons.



Properties:

-Malleable- the ability to be bent or shaped. A metal can change shape due to the ions being arranged in layers. This allows the ions to slide over each other without breaking the metallic bonds between the metal ions and the sea of delocalised electrons.

-Lustrous or shiny