



Name _ Example!

Period ALL Date 1/27/09

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Introduction to Bonding

A chemical bond is when two atoms join together through the sharing of valence electrons or electromagnetic energy. Atoms form bonds because then their valence electron shells are full.

Bonding Comparison Chart

| | IONIC | COVALENT | METALLIC |
|---------------------------------|--|---|---|
| Types of Atoms Involved | Metals and nonmetals | Nonmetals | Metals and metals |
| Method of Bond Formation | Positive ions bonding with negative ions...Transfer of Electrons | Sharing valence electrons | Valence electrons are shared among atoms...A Sea of Electrons |
| Type of Structure | Crystalline | Molecular | Crystalline with electrons moving throughout all atoms |
| Physical State | Solid | Gases, liquids, or low melting point solids | Solid |
| Melting Point | High melting point | Low melting point | High melting point |
| Solubility in Water | Soluble | Insoluble | Low solubility |
| Electrical Conductivity | High (as liquid) Low (as solid) | Won't conduct | Relatively high conductivity |
| Other Properties | Most are hard | Flammable | Malleable |
| Image | | | |