

ACID-BASE REACTIONS

Bronsted-Lowry acid is proton (H⁺) donor, and **Bronsted-Lowry base** is proton (H⁺) acceptor

Conjugate Acid	Conjugate Base
HF	F ⁻
H ₂ S	HS ⁻
NH ₄ ⁺	NH ₃
HCO ₃ ⁻	CO ₃ ⁻²
HC ₂ H ₃ O ₂	C ₂ H ₃ O ₂ ⁻
H ₂ PO ₄ ⁻	HPO ₄ ⁻²
CH ₃ NH ₃ ⁺	CH ₃ NH ₂
HSO ₄ ⁻	SO ₄ ⁻²

Often involves formation of H₂O, but not always

Always involves formation of an ionic compound (salt)



REDOX REACTIONS

Involve transfer of electrons from one substance to another

→ Species that loses electrons is **oxidized**

◆ Oxidation number goes up

→ Species that gains electrons is **reduced**

◆ Oxidation number goes down

Oxidation number of **fluorine (F)** is always -1 in all compounds

Other **halogens (Cl, Br, I)** are usually -1, but have a positive oxidation number when bonded to oxygen (O) or fluorine (F)

Hydrogen (H) is +1 when bonded to other nonmetals, but -1 when bonded to metals

Oxidation number of **oxygen (O)** is usually -2, except in compounds known as peroxides that contain O₂⁻² ion, when oxidation number for oxygen is -1

In a **polyatomic ion**, sum of oxidation numbers of all atoms is equal to charge on ion

Oxidation half-reaction shows **loss of electrons**

Reduction half-reaction shows **gain of electrons**

If you add two half reactions together, number of electrons lost should equal number of electrons gained

→ Check to make sure charges on left and right side are equal