- 1. Write and balance the molecular equation, predicting the products by assuming that the cations trade anions.
- 2. Write the ionic equation by separating strong electrolytes into their constituent ions.
- 3. Write the net ionic equation by identifying and canceling specatator ions on both sides of the equation.

4.3: Acid-Base Reactions

Strong AcidsStrong Bases	
HC1	LiOH
HBr	NaOH
HI	КОН
HNO ₃	RbOH
HClO ₃	CsOH
HClO ₄	$Ca(OH)_2$
H_2SO_4	$Sr(OH)_2$
	$Ba(OH)_{2}$

Arrhenius Acid: substance that increases H⁺ concentration when added to water Arrhenius Base: substance that increases OH⁻ concentration when added to water ^^ These are useful, but restricted to the behavior of compounds in an aqueous solution Brønsted Acid: a substance that donates a proton (H⁺) Brønsted Base: a substance that accepts a proton (H⁺) Hydronium Ion: a hydrated proton (H₃O⁺) Monoprotic Acid: an acid with one ionizable protons Triprotic Acid: an acid with two ionizable protons Triprotic Acid: an acid with more then (we enizable protons Polyprotic Acid: an acid with more then (we enizable protons Neutralization Reactions: a reaction tervicen an acid and a base Salt: an ionic compound made up of the cation from a base and the anion from an acid

Arrhenius Acids	Arrhenius Bases
HX(aq)	Ionic compound containing: OH^- , CO_3^{2-} , or
	HCO ₃
$H_a X_b O_c$	NH ₃

4.4: Oxidation-Reduction Reactions

Oxidation-Reduction (Redox) Reaction: a chemical reaction in which electrons are transferred from one reactant to another

Oxidized: loss of electrons, making it more positive

Reduced: gain of electrons, making it more negative

Half-Reaction: the separated oxidation and reduction reactions that make up the overall redox reaction

*Although these two processes can be represented by separate equations, they cannot occur separately. For one species to gain electrons, another must lose them, and vice versa.

Reducing Agent: a species that can donate electrons

Oxidizing Agent: a species that accepts electrons

Oxidation Number (or Oxidation State): the charge an atom would have if electrons were transferred completely

*Elements that show an *increase* in oxidation number are oxidized, whereas the elements that show a *decrease* in oxidation number are reduced.

*Because compounds are electrically neutral, the oxidation numbers in any compound will sum to zero.

Assigning Oxidation Numbers