CHEMISTRY ♦ SPRING 2015 ♦ DR. BRESLYN **www.breslyn.org**	Name: Date:
Acids taste sour, corrosive, conduct electricity, react with metals, and produce hydrogen ions (H^+) in solution. **Bases** are bitter, slippery to touch, and conduct electricity, and produce hydroxide ions (OH^-) in solution. Adding acids and bases results in a **neutralization reaction**. The products area salt and water. (e.g. $HCl + NaOH \rightarrow NaCl + H_2O$) **pH** is a measurement of the acidity of a solution. $pH = -\log[H^+]$ $[H^+]$ is the concentration of the hydrogen ions expressed in mol/L. Water normally has $[H_+] = 10^{-7}$ due to the ionization of water molecules. Acid Neutral Base 1 ← 7 → 14	
Arrhenius Acids and Bases: Acids increase the amount of H+ in solution. Bases increase the amount of OH- in solution. $HCl\ (g) \rightarrow H^+\ (aq) + Cl^-\ (aq)$ $NaOH\ (s) \rightarrow Na^+\ (aq) + OH^-\ (aq)$ **Bronsted Acids and Bases:** Acids donate a proton (H^+). Bases accept a proton. $NH_3 + H_2O \rightarrow NH_4^+ + OH^-$ In this case NH_3 accepts a proton and is a base.	Bronsted's theory is more general and applies to a more situations. For example, NH_3 is a base because it can accept a proton. Arrhenius' theory can't explain this event.
Strong acids and **strong bases** dissociate (break apart or ionize completely) in H_2O. **Weak acids** and **weak bases** dissociate (or ionize) only partially in water. Concentrated does not equal strong! It can be concentrated but not ionize much.	**Strong Acids**: HCl, H_2SO_4, HNO_3 **Strong Bases**: NaOH, KOH **Weak Acids**: amino acids, CH_3COOH, citric acid **Weak Bases**: NH_3, $Ca(OH)_2$
Important Equations $pH = -\log[H^+]$ $pOH = -\log[OH^-]$ $pH + pOH = 14$	
We can use acid/base **indicators** to determine pH. These change color depending on the pH of the sample. In research labs pH meters are used to determine the pH of samples.	**reD litmus = aciD** **Blue litmus = Base**
Titration: a technique used to determine the concentration of an acid or base solution. By adding a known molarity and volume (M_1V_1) to an unknown concentration and known volume (M_2V_2) we can determine the concentration of the unknown. $M_1V_1 = M_2V_2$	