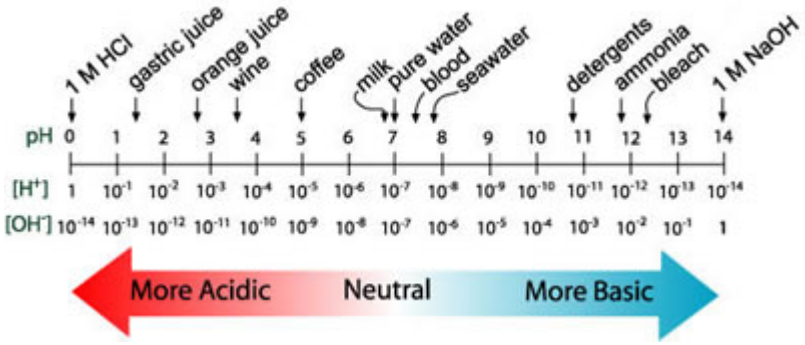
1. Properties of Acids and Bases
2. 3 Definitions of acid/base, compare and contrast definitions, give example compounds
   (a) Arrhenius Acid: solution containing excess H^+ ions.
   (b) Arrhenius Base: solution containing excess OH^- ions.
   (c) Bronsted-Lowry Acid: proton (H^+) donor.
   (d) Bronsted-Lowry Base: proton (H^+) acceptor.
   (e) Lewis Acid: electron-pair acceptor.
   (f) Lewis Base: electron-pair donor.
3. Know the name and formula of the common acids and bases:
   (a) Strong Acids: $HClO_4$, HCl , HBr , HI , HNO_3 , H_2SO_4
   (b) Weak Acids: H_3PO_4 , H_2CO_3 , HF , $HC_2H_3O_2$
   (c) Strong Bases: $NaOH$, KOH , $Ca(OH)_2$, $Ba(OH)_2$
   (d) Weak Bases: NH_3
4. Reactions - DD and SD
   (a) Acid + Metal $\longrightarrow H_2(g)$ + Salt (HNO_3 exception)
   (b) Acid + Base $\longrightarrow$ Salt + H_2O
   (c) Acid + Metal Oxide $\longrightarrow$ Salt + H_2O
   (d) Acid + Metal Carbonate (CO_3) $\longrightarrow$ Salt + H_2O + CO_2
5. Electrolytes: definition, typical compounds, examples of each, effect on colligative properties.
   (a) Strong Electrolyte: 100% dissociation, ($\longrightarrow$), strong acids, strong bases, soluable ionic compounds.
   (b) Weak Electrolyte: < 10% dissociation, ($\rightleftharpoons$), weak acids, weak bases.
   (c) Nonelectrolyte: 0% dissociation (does not form ions), organic molecules
6. Dissociation and Ionization of Electrolytes
   (a) Process of dissociation (recall, like dissolves like)
   (b) Figure 15.2
7. Writing formula (unionized) equations, total ionic equations and net ionic equations.
   (a) Formula equation: standard equation
   (b) Total ionic equation: shows form predominantly present
      i. Strong Electrolytes shown as ions (SA, SB, soluable ionic compounds)
      ii. Weak Electrolytes shown as molecules (WA, WB, molecular compounds)
      iii. Precipitates (insoluable ionic compounds and Gases shown as molecules
   (c) Net ionic equation: shows only species that have reacted (undergone a chemical change), and excludes spectator ions
8. Autoionization of water (it behaves as both an acid and a base).

9. pH scale, and calculations involving pH.
   (a) Identify acidic, basic, and neutral conditions. (Figure 15.4 and Table 15.4)



   (b) Convert between $[H^+]$ and pH (pH = -log$[H^+]$ and $[H^+] = 10^{-pH}$)
   (c) p0H = -log$[OH^-]$,
   (d) Convert between $[H^+]$, $[OH^-]$, pH, and pOH.
   (e) pH + pOH = 14, $[H^+][OH^-] = 1 \times 10^{14}$

10. Titrations/Neutralization reactions
   (a) Neutralization is when [Acid]=[Base]
   (b) Problems - Ex. 15.4-15.6