

II: Chapters 13 and 14 worksheet

1. Match the following terms with their definition:

F	1. A homogeneous mixture of 2 or more substances	a. solute
d	2. What does the dissolving	b. Aqueous solution
a	3. What is being dissolved	c. Saturated solution
b	4. When the solvent is water	d. solvent
e	5. The amount of the compound that dissolves in a certain amount of solvent at a certain temperature.	e. solubility
c	6. Holds the max amount of solute under solution conditions	f. solution
h	7. Solution containing a solute that dissociates into ions.	g. Henry's law
g	8. The solubility of a gas in a liquid increases with increasing pressure	h. Electrolyte solution

Term	Definition	Visual/ example
Molarity		

The # of moles of solute per L of solution

$$M = \frac{\text{moles solute}}{\text{L of solution}}$$

Molality	defined w/ respect to kg of a solvent + moles of a solute	$M = \frac{\text{moles solute}}{\text{kg of solvent}}$
Dilution	water is added to a solution of known concentration to make a larger vol.	$M_1 V_1 = M_2 V_2$
Osmosis	The flow of solvent from a less concentrated solution to a more concentrated solution across a semi-permeable membrane	
Osmotic Pressure	The pressure needed to stop flow of osmosis	
Mass Percent	1) Freezing pt dep- 2) Boiling pt elevation 3) osmotic pressure 4) Vapor Press. lowering	
Colligative Properties		

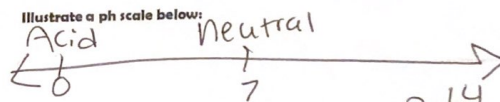
The # of g of solute per 100g of solution

Conjugate Acid	Base that accepts Proton	
Amphiprotic	When the acid donates its proton, the remaining comp is designated as conjugate base	
Neutralization	Acid reacts w/ a base to form salt + water	
Titration	A solution of known conc. is reacted w/ solution of unknown concentration.	

Weak acid, Base	usually have to accept a H^+ ion from H_2O to produce an OH^- ion	
Acidic solution	Concentration of H_3O^+ is greater than OH^-	
Basic Solution	Concentration of OH^- is $>$ than H_3O^+	
Buffer solution	resists changes in pH	

Term	Definition	Image
Equivalence Point	# of OH^- ions = # H^+ ions	
Indicator	Dye that changes color depending on pH	
End point	Point at which the indicator changes color depending on pH	
Strong Acid/ Base		

Illustrate a pH scale below:



Math:

1. Calculate the pOH of an acidic solution with an H_3O^+ of 1.456×10^{-15}

$$pOH = -\log[OH^-]$$

$$pOH = -\log[0.2314 \times 10^{-3}]$$

$$pOH = 3.635$$

$$14 = pOH + pH$$

$$\boxed{10.364} \text{ M}$$

Will completely ionize in H_2O

2. Determine the pH of an acidic solution with an OH^- concentration of 0.2314×10^{-3} .

#1

$$pH = -\log [1.456 \times 10^{-15}]$$
$$pH = -15.16$$
$$14 = pH + pOH$$

$$pOH = 14 - pH$$

$$14 - 15.16$$

$$pOH = -1.16$$