

Name Key

**Definitions:**

solute The thing that is dissolved

solvent The thing that does the dissolving

solution : homogenous mixture.

solubility : Ability of a solute to dissolve

1. I can define: solute, solvent, solution, and solubility.

2. I can describe the trend in solubility for solids as the temperature changes.

As the temperature increases, the solubility of a solid increases.

3. I can describe the trend in solubility for gases as the temperature changes.

As the temperature increases, the solubility of a gas decreases

4. I can define: dilute, concentrated, concentration, and electrolyte.

**Definitions:**

dilute : Low amount of solute relative to saturation

concentration : Amount of Moles / liter

electrolyte : Conduct electricity by forming ions in solution

5. I can interpret Table G to determine which solution is the most concentrated or the most dilute.

Which solution is most concentrated?

A) 125.0 g of KI dissolved in 100.0 g of water at 10°C unsaturated

B) 70.0 g of NH<sub>4</sub>Cl dissolved in 100.0 g of water at 70°C supersat.

C) 120.0 g of KNO<sub>3</sub> dissolved in 100.0 g of water at 70°C unsat.

D) 30.0 g of SO<sub>2</sub> dissolved in 100.0 g of water at 90°C supersat

↓  
super by the most grams!

<p>____ 6. I can use Reference Table F to determine if a substance will be soluble in water.</p>	<p>Write "S" for <b>soluble</b> and "NS" for <b>not soluble</b>. Use Reference Table F to determine the solubility of the following compounds:</p> <p>S <sup>(aq)</sup> potassium chlorate      NS <sup>(s)</sup> silver bromide  S <sup>(aq)</sup> lithium carbonate      NS <sup>(s)</sup> calcium carbonate</p>
<p>____ 7. I can use Table G to determine how much solute to add at a given temperature to make a saturated solution.</p>	<p>How many grams of KClO<sub>3</sub> must be dissolved in 100 grams of water at 20°C to make a saturated solution?</p> <p>9 grams (+/- 2) (between 10)</p>
<p>____ 8. I can use Table G to determine if a solution is saturated, unsaturated, or supersaturated.</p>	<p>If 20.0 g of NaNO<sub>3</sub> are dissolved in 100.0 g of water at 25.0°C, will the resulting solution be saturated, unsaturated, or supersaturated?</p> <p>unsaturated</p>
<p>____ 9. I can use Reference Table T to calculate the concentration of a solution in ppm.</p>	<p>What is the concentration, in ppm, of a 2600 g of solution containing 0.015 g of CO<sub>2</sub>?</p> $\frac{0.015}{2600} \times 10^6 = \text{ppm}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>0.77 ppm</p> </div>
<p>____ 10. I can use Reference Table T to calculate the concentration of a solution in molarity.</p>	<p>What is the molarity of 3.5 moles of NaBr dissolved in 500 mL of water? <math>M = \frac{n}{V}</math></p> $M = \frac{3.5}{0.5} = 7M$

\_\_\_ 11. I can use two different systems to define acids and bases.

	Arrhenius	"Alternate Method" (AKA Bronsted-Lowry)
acid	produces $H^+$ in solution	$H^+$ donor
base	produces $OH^-$ in solution	$H^+$ acceptor That basic base

\_\_\_ 12. I can define pH, [ ], hydronium ion, hydroxide ion, and electrolyte.

**Definitions:**  
 pH : measure of  $H^+$  attraction  
 [ ] : concentration  
 hydronium ion :  $H_3O^+$  Equiv. to  $H^+$   
 hydroxide ion :  $OH^-$   
 electrolyte : Breaks into ions + conducts electricity.

\_\_\_ 13. I can give examples of chemical formulas of common acids and bases.

List the chemical formulas of three common acids and three common bases. see Ref. Table.

Acids	Bases
<u>Many answers</u>	

<p>____ 14. I can define neutralization.</p>	<p><b>Definition:</b> neutralization : Reaction B/W acid and a base to create a neutral solution of water + salt.</p>
<p>____ 15. I can identify a neutralization reaction from a list of reactions.</p>	<p>Which of the following equations is a neutralization reaction?</p> <p>A) <math>6\text{Na} + \text{B}_2\text{O}_3 \rightarrow 3\text{Na}_2\text{O} + 2\text{B}</math></p> <p>B) <math>\text{Mg}(\text{OH})_2 + 2\text{HBr} \rightarrow \text{MgBr}_2 + 2\text{HOH}</math></p> <p>C) <math>2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}</math></p> <p>D) <math>2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2</math></p>
<p>____ 16. I can state the name of the laboratory equipment that is used to carry out a titration.</p>	<p>Which piece of laboratory equipment is used to carry out a titration?</p> <p>Buret</p>
<p>____ 17. I can state the purpose of titration.</p>	<p>Why do scientists do titrations?</p> <p>To figure out unknown molarities.</p>
<p>____ 18. I can solve for any variable in the titration equation from Reference Table T.</p>	<p>If it requires <u>56.95 mL</u> of <u>0.0043 M</u> <math>\text{HNO}_3</math> to neutralize <u>34.56 mL</u> of <math>\text{LiOH}</math>, what is the concentration of the <math>\text{LiOH}</math>?</p> $M_A V_A = M_B V_B$ $(0.0043)(56.95) = M_B (34.56)$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math>M_B = </math> <del>0.0043</del>  <u>0.007 M</u> </div>
<p>____ 19. I can state the three types of substances that are electrolytes.</p>	<p><u>Salts</u>, <u>Acids</u>, and <u>Bases</u> are three classes of compounds that are electrolytes.</p>