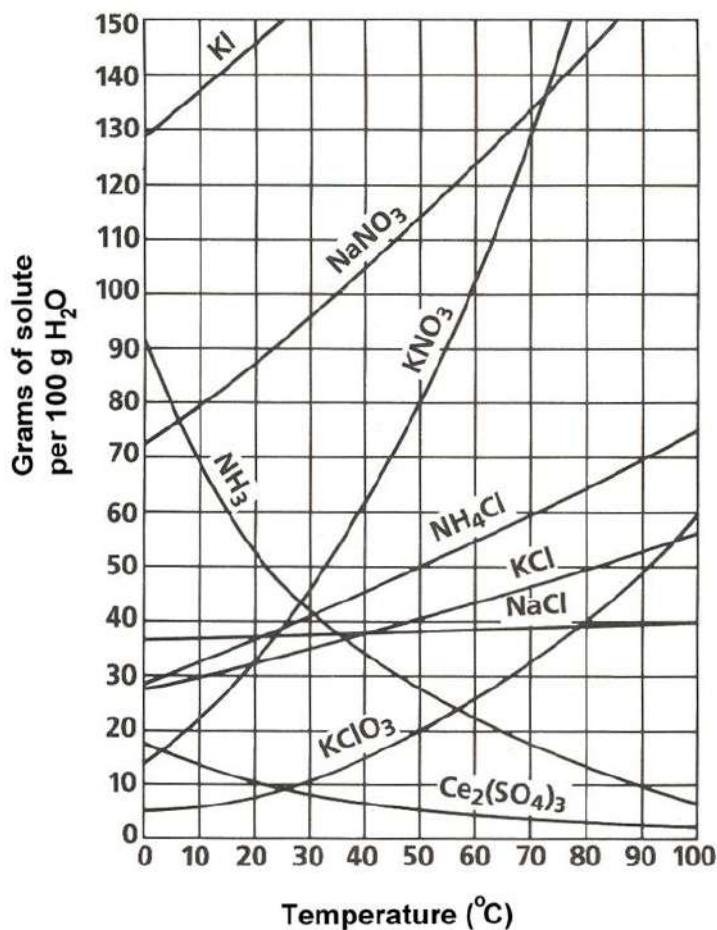


**PS Chemistry: Chapter 22 (Section 3) Solubility Curve** Name \_\_\_\_\_ Period \_\_\_\_\_

Refer to the Solubility Curve graph to answer the following questions.

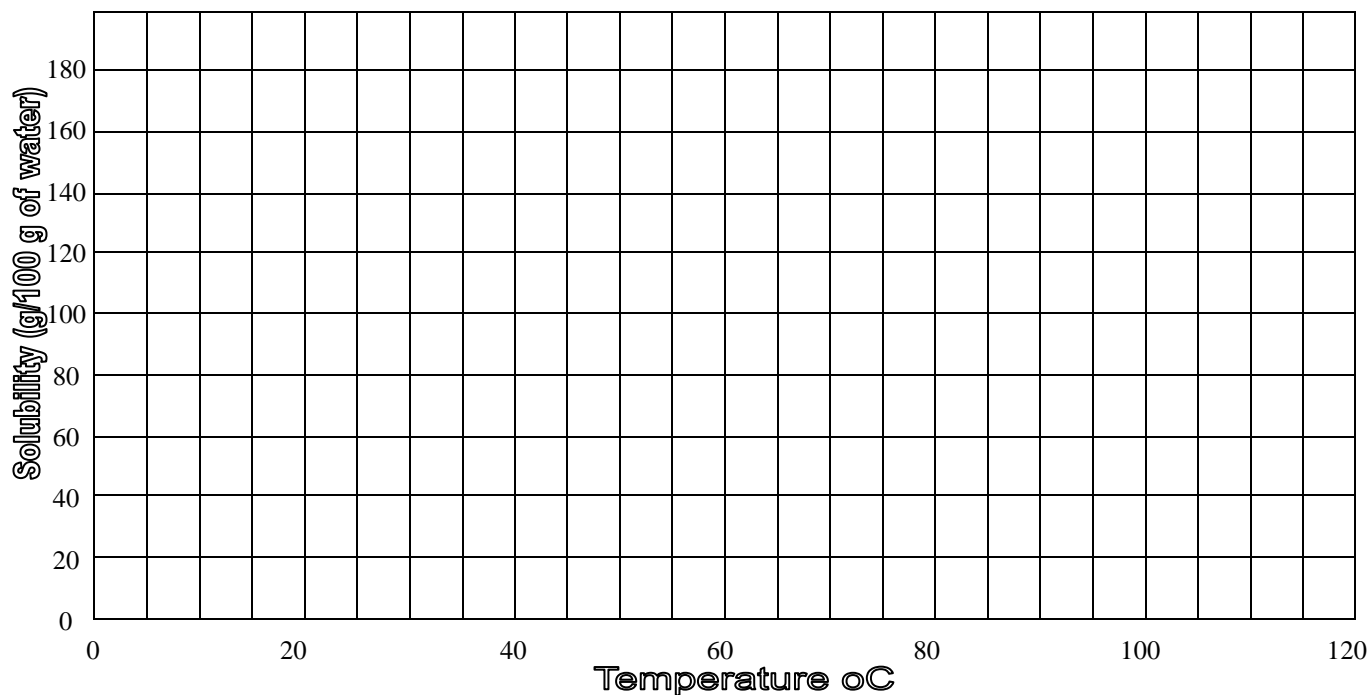
- How many grams of solute are required to saturate 100 g of water in each of the following solutions?
  - KCl at 80°C \_\_\_\_\_
  - KClO<sub>3</sub> at 90°C \_\_\_\_\_
  - NaNO<sub>3</sub> at 10°C \_\_\_\_\_
  - NH<sub>4</sub>Cl at 70°C \_\_\_\_\_
- What is each of the solutions below: saturated, unsaturated or supersaturated? All of the solutes are mixed with 100 g of water.
  - 40 g of NaCl at 50°C \_\_\_\_\_
  - 30 g of NH<sub>3</sub> at 30°C \_\_\_\_\_
  - 80 g of KNO<sub>3</sub> at 60°C \_\_\_\_\_
  - 80 g of NH<sub>4</sub>Cl at 80°C \_\_\_\_\_
- How many grams of KNO<sub>3</sub> per 100 g of water would be crystallized from a saturated solution as the temperature drops from:
  - 30°C to 20°C \_\_\_\_\_
  - 60°C to 40°C \_\_\_\_\_
  - 50°C to 30°C \_\_\_\_\_
  - 50°C to 10°C \_\_\_\_\_
- How many additional grams of NaNO<sub>3</sub> are required to keep each of the following NaNO<sub>3</sub> solutions saturated during the temperature changes indicated?
  - change of 10°C to 30°C \_\_\_\_\_
  - change of 40°C to 80°C \_\_\_\_\_
  - change of 0°C to 10°C \_\_\_\_\_
  - change of 35°C to 85°C \_\_\_\_\_



- At what temperature are the following solutes equally soluble in 100 g of water?
  - NaNO<sub>3</sub> and KNO<sub>3</sub> \_\_\_\_\_
  - NH<sub>3</sub> and KNO<sub>3</sub> \_\_\_\_\_
  - KClO<sub>3</sub> and NaCl \_\_\_\_\_
  - KClO<sub>3</sub> and KCl \_\_\_\_\_
- Which solute is least affected by the temperature changes?  
\_\_\_\_\_
- Which solutes show a decrease in solubility with increasing temperature?  
\_\_\_\_\_

Use the information in the table to graph the solubility curves for the four compounds. Use a different colored pencil for each compound.

Compound	Solubility in g/100 g water			
	0°C	20°C	60°C	100°C
Ba(OH) <sub>2</sub>	1.67	3.89	20.94	101.40
CuSO <sub>4</sub>	23.10	32.0	61.8	114.0
KCl	28.0	34.2	45.8	56.3
NaNO <sub>3</sub>	73.0	87.6	122.0	180.0



Use the information in the table and your graph to answer the following questions.

8. At about what temperature will 100 g of water dissolve equal amounts of potassium chloride and barium hydroxide?  
\_\_\_\_\_
9. At about what temperature will 37 g of both copper II sulfate and potassium chloride dissolve in 100 g of water?  
\_\_\_\_\_
10. If 100 g of sodium nitrate are dissolved in 100 g of water at 60°C, is the solution formed saturated, unsaturated, or supersaturated?  
\_\_\_\_\_
11. If 32 g of copper sulfate are dissolved in 100 g of water at 20°C, is the solution produced saturated, unsaturated, or supersaturated?  
\_\_\_\_\_