Name _____ Date _____ Period _____

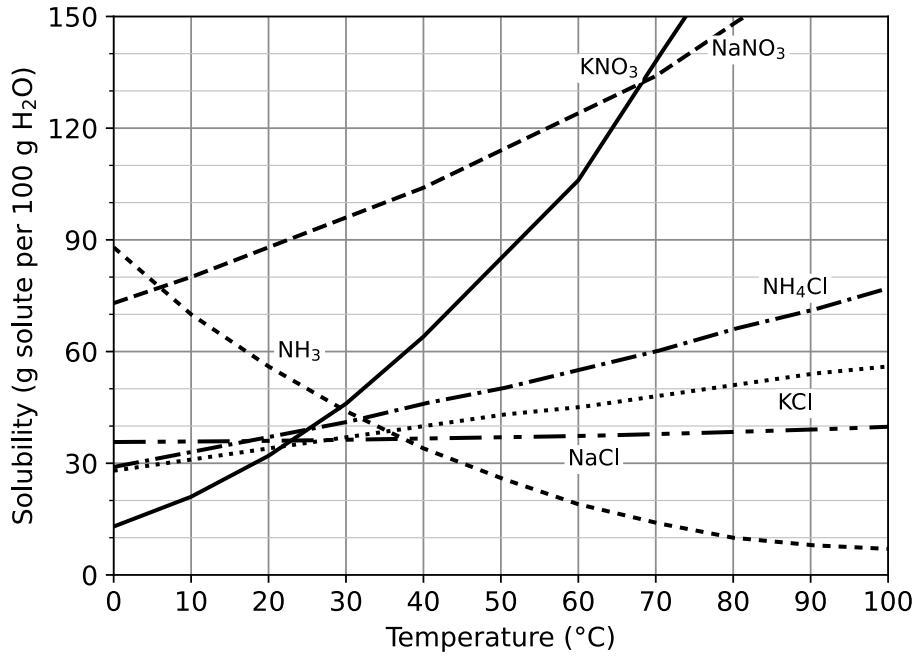
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Solubility Curves

Chemistry

Use the solubility curves in problem 1 for every question. Solubility is in grams of solute per 100 g of water. Show the readings you take from the graph.

1. Read the graph. The first row is done for you.



Solute and temperature	**Grams per 100 g H_2O**
NH_4Cl at 70 °C	60 g
KNO_3 at 40 °C	
$NaNO_3$ at 10 °C	
NH_3 at 20 °C	

2. Label each solution unsaturated, saturated, or supersaturated. The first row is done for you.

Dissolved in 100 g of water	**Curve reading**	**Label**
60 g KNO_3 at 40 °C	64 g	unsaturated
85 g KNO_3 at 50 °C		
90 g $NaNO_3$ at 10 °C		
30 g KCl at 60 °C		

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3. (a) Which solute is a gas? How can you tell from its curve? (b) Which solute is most soluble at 10 °C? (c) Which solute's solubility changes the least from 0 °C to 100 °C?

4. A saturated solution of KNO_3 in 100 g of water is cooled from 60 °C to 20 °C. What mass of KNO_3 crystallizes? Is the solution at 20 °C saturated?

5. At what temperature do 50 g of NH_4Cl just saturate 100 g of water?

6. What mass of NH_4Cl dissolves in **50 g** of water at 70 °C to make a saturated solution?

7. A solution has 40 g of KNO_3 dissolved in 100 g of water at 50 °C. How many more grams of KNO_3 must dissolve to saturate it?

8. How many grams of water are needed to make a saturated solution with 36 g of KCl at 40 °C?

Hint: put grams of water on top of the ratio.

9. Explain why an open soda goes flat faster on a hot day than in the refrigerator.

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