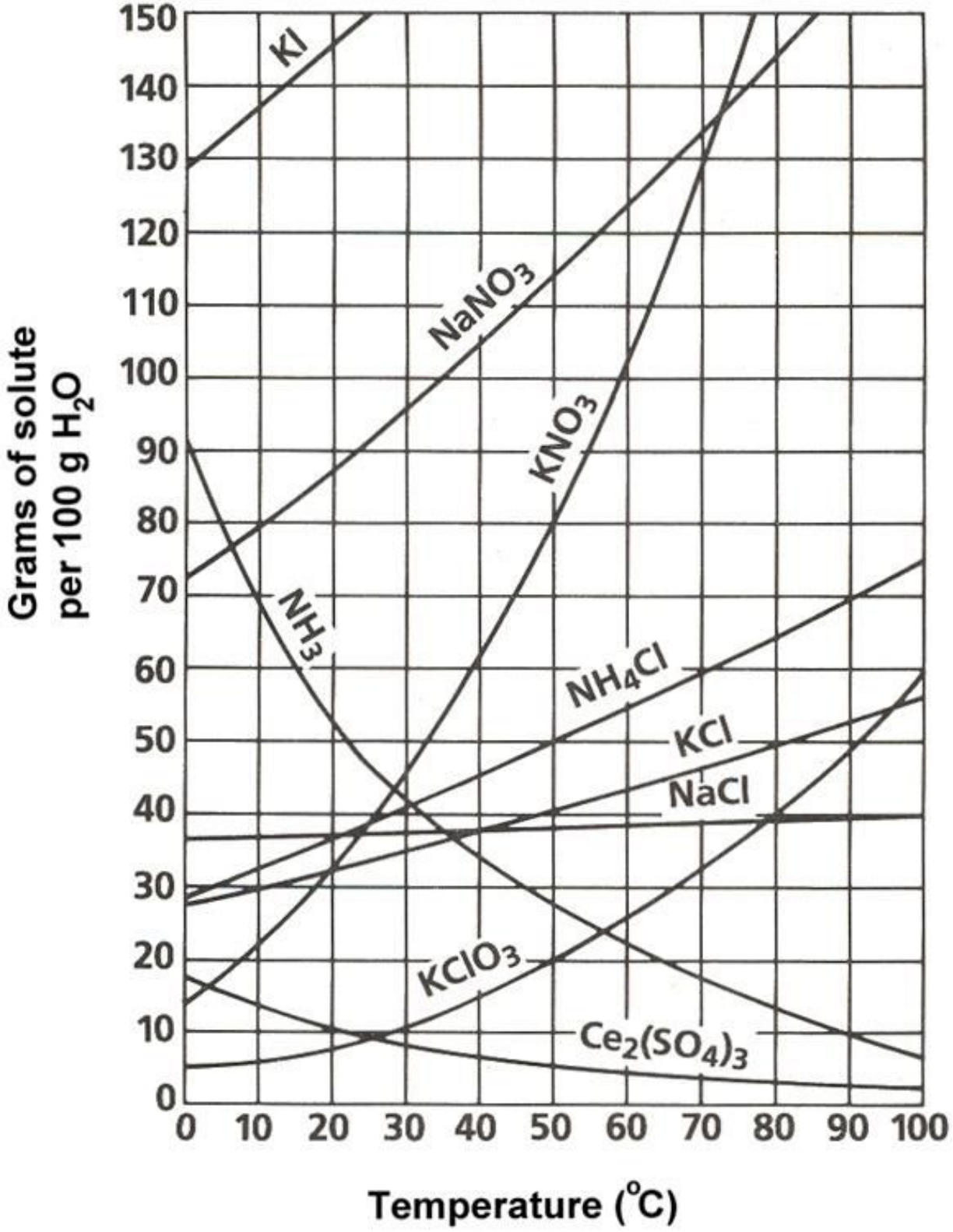
SOLUBILITY CURVE WORKSHEET

Use your solubility curve graph provided to answer the following questions.

1. What is measured on the y axis of the solubility chart? _____
2. What is measured on the x axis of the solubility chart? _____
3. According to the graph, the solubility of any substance changes as _____ changes.
4. List the substances whose solubility decreases as temperature increases. _____ and _____.
5. Which substance is least affected by temperature changes? _____
6. How many grams of ammonium chloride (NH_4Cl) at 50°C? _____
7. _____ and _____ have the same solubility at approximately 78ºC.
8. Which compound is least soluble in water at 10°C? _____
9. How many grams of KNO_3 can be dissolved at 50ºC? _____
10. Are the following solutions unsaturated, saturated, or supersaturated?
    a. 45g of $NaNO_3$ in 100 g of water at 30°C._____
    b. 60g of $KClO_3$ in 100 g of water at 60°C._____
11. How many grams of sodium chloride, NaCl are required to saturate 100 grams of water at 100° C? _____
12. How many grams of $NaNO_3$ are required to saturate 100 grams of water at 90°C?_____
13. How many grams of KI will saturate water at 20°C?_____
14. At what temperature would 25g of potassium chlorate ($KClO_3$) dissolve? _____
15. At what temperature would 55g of NH_4Cl dissolve? _____
16. 89g $NaNO_3$ is prepared at 30°C.
    a) Will all of the salt dissolve? _____
    b) What mass of $NaNO_3$ will dissolve at this temperature? _____
17. If 25 grams of NH_4Cl is dissolved at 50°C, how many additional grams NH_4Cl would be needed to make the solution saturated at 80°C? _____
18. At 50°C, how many grams of KNO_3 will dissolve? _____
19. At 70°C, how many grams of cerium (III) sulfate ($Ce_2(SO_4)_3$) dissolve? _____
20. Determine if each of the following is unsaturated, saturated, or supersaturated.

    a. 55g of NH_3 at 20ºC _____
    b. 10g of $Ce_2(SO_4)_3$ at 10º _____
    c. 125g of KNO_3 at 60ºC _____
    d. 65g of NH_4Cl at 80ºC _____
    e. 12g of NH_3 at 90ºC _____
    f. 80g of $NaNO_3$ at 10ºC _____
    g. 145g of $NaNO_3$ at 80ºC _____
    h. 35g of NaCl at 100ºC _____


Grams of solute per 100 g H_2O
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
KI
$NaNO_3$
KNO_3
NH_3
NH_4Cl
KCl
NaCl
$KClO_3$
$Ce_2(SO_4)_3$
0 10 20 30 40 50 60 70 80 90 100
Temperature (°C)