Solubility Worksheet #2 Level 1

Name _____ Date_____

We have considered some conditions that allow solutes to dissolve in solvents, but we have not yet considered the solubility of a solute. **Solubility is defined as the maximum mass of solute that can dissolve in a certain quantity of solvent <u>at a specified temperature</u>**. Below is a data table that shows the solubility of ammonium chloride (NH_4Cl) at various temperatures. Use the data table to construct a line graph. Remember to set up your axes and label appropriately.

Water Temperature (°C)	Maximum Mass of Ammonium Chloride that can be dissolved in a 100 grams of water (g)
0	30
20	37
40	46
60	55
80	65
100	76

When making a graph of data, the independent (manipulated) variable is represented on the x-axis and the dependent (responding) variable is represented on the y-axis.

1. Label the x-axis "Temperature (°C)."
2. Label the y-axis "Amount of Ammonium Chloride Dissolved (grams)."
3. Choose appropriate scales and increments for your axes.
   The x values range from _____ °C.
      The y values range from _____ g.
   You may use increments of 5, 10, 20 or whatever you think is appropriate. Remember that every data point we have does not have to fall exactly on one of your numbered lines.
4. Plot data points and draw a best-fit line through your data points. A best-fit line is a line that goes through the data points such that the number of data points above the line is about the same as the number below the line. Some of the data points should be on the line.
5. Add a title to the graph.

Solubility Worksheet #2 Level 1
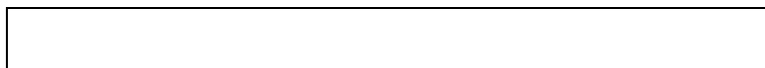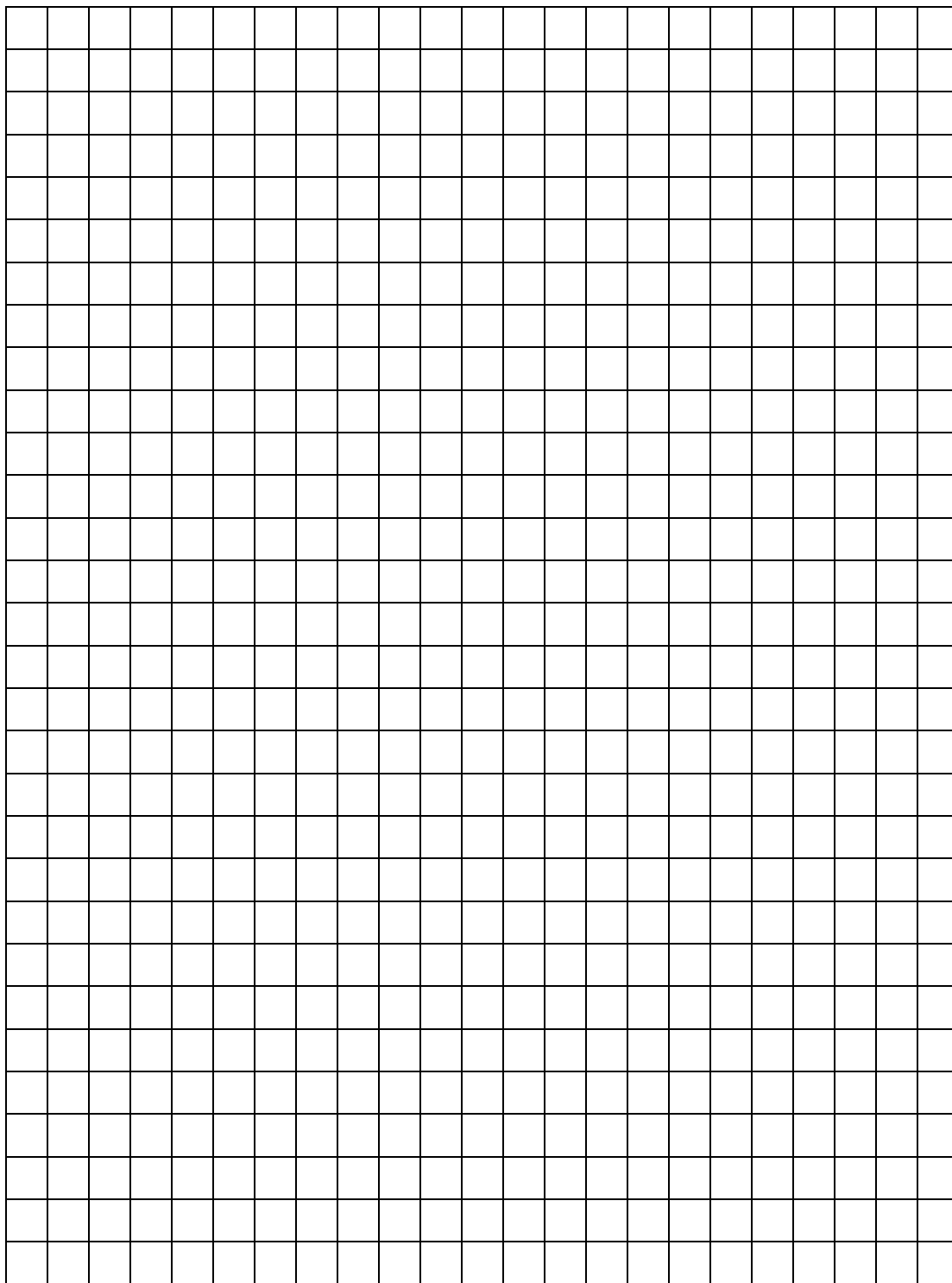
Solubility Worksheet #2 Level 1

Analysis

1. How many grams of ammonium chloride will dissolve at a temperature of 70°C _____ grams

2. What temperature would be necessary to dissolve 50 grams of ammonium chloride? _____ °C

3. As the water temperature increases, does the amount of ammonium chloride that will dissolve in 100 grams of water increase or decrease?

   _____

4. Suppose you tested a different salt (for example potassium nitrate) and found that more of that salt could dissolved in 100ml of water at 50°C. Does that necessarily mean that more potassium nitrate would dissolve in 100 ml of water at 10°C?. _____ Explain your answer.

   _____

   _____

   _____

   _____

   _____

   _____

5. Suppose you tested a different salt (for example potassium chloride) and found that less of that salt could dissolved in 100ml of water at every temperature tested. Add a line on your graph representing the solubility curve of this salt. (Use a different color.) Is the line representing the solubility curve of this salt necessarily parallel to that of ammonium chloride? _____ Explain your answer.

_____

_____

_____

_____

_____

_____