**Family Characteristic Activity** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chem 332 – O’Dette Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_

**Part 3: Melting and Boiling Points:** The melting and boiling point of an element describes the temperature at which the element changes state from a solid to a liquid and a liquid to a gas. We will be creating two separate plots 1) atomic number versus melting point and 2) atomic number versus boiling point. From these plots we can determine the periodicity of melting and boiling points.

Directions:

1. Obtain melting or boiling point data for the first 20 elements from either a reputable website (see your instructor) or from a colorful periodic table. Be sure to convert to Kelvin (K).
2. Use Excel to list the data in a table like the example below.



1. Use the directions below for graphing using Excel 2010. Make a graph plotting melting point versus atomic number. Make a separate graph plotting boiling point versus atomic number.
2. Print two copies of melting point graph and two copies of boiling point graph. Share these with your lab partner.
3. Connect the data points for atomic numbers in the same family with a different color. Use other different colors for different families.

Questions: (Answer on the back of the graphs)

1. What is the trend for melting point across a period? Down a family?
2. What is the trend for boiling point across a period? Down a family?
3. Carefully look at the periodic table in your classroom or the red, blue and black one used for this activity. How are the trends you discovered depicted on these periodic tables?

Using 2010 Excel for Graphing

Instructions for Graphing

1. Go to your H: drive and make a Chemistry folder.
2. Open Excel. Type in your data from Part III. Excel uses Column A as the x axis data.
3. Highlight data you would like to plot.
4. Go to Insert, Scatter, with Straight lines and Markers.
5. Go to Layout, Chart title (choose either Centered or Above), then type in the title of the graph. **Add both your partners and your name to the title!!!**
6. Go to Axis title. Choose Horizontal, then add in label and units.
7. Go to Axis title. Choose Vertical, then Vertical Rotated, then add in label and units. Right click in the title or axis labels to change font size.
8. Save your graph in the Chemistry folder you created at the very beginning. Give your file a descriptive name, ie. Melting (or Boiling) Point of the First 20 Elements.
9. To Print: Highlight the graph by clicking on it. Go to File, Print. Click on the Print to print out graph. Make sure to print two copies!!!