It’s hard to keep the charts from Chapter 11 straight! Use these notes to know what each chart does.

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| http://2.bp.blogspot.com/-u1qClBomQ_0/UN8Br3zkuyI/AAAAAAAAAgE/WJxFZXozfrk/s1600/GraphCooling.png | vapPress_CHCl3-B.PNG |
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| uranus166.jpg | uranus166.jpg |
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Name\_\_\_\_\_\_\_\_\_ Chemistry Practice with Phase Change

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| **H2O Phase Diagram** (not to scale)  **B**  **C**  **D**  **F**  **G**  **E**  **H**  **A** | **CO2 Phase Diagram** (not to scale)  **72.8 atm**  **31.0°C**  **temperature**  **-56.6°C**  **D**  **A**  **B**  **G**  **C**  **E**  **H**  **F** |

Use the two phase diagrams to answer the following questions.

1. Point E on the phase diagrams represents a point where all three phases are in equilibrium.

What is this point called?

2. At what point or region do solid and liquid phases exist in equilibrium? (Use the letter labels from the diagram.)

3. At what point or region would a boiling liquid be found? (Use the letter labels from the diagram.)

4. At what point or region would sublimation occur?

5. What is the name of the highest temperature at which it is possible to liquefy a gas with any amount of pressure?

6. What is the critical pressure for water?

7. What is the critical temperature for carbon dioxide?

8. Does the solid-liquid equilibrium line on the water diagram have a positive or negative slope?

9. What does this slope tell you about the density of each of the two phases?

10. What change is observed as one approaches point D from the left at constant pressure and increasing temperature?

11. Using the water phase diagram, what changes in pressure and temperature would be necessary to go from point C to point B?

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| 1. Find the melting and boiling point of **Bromine** in the CRC Book in class or on Wikipedia at home.   Write those two numbers in appropriate places on the Y-Axis.   1. In each line below, mark a letter to describe what phase is present.   \_\_\_\_\_\_ pure liquid \_\_\_\_\_\_ mix of gas and liquid  \_\_\_\_\_\_ pure solid \_\_\_\_\_\_ mix of liquid and solid  \_\_\_\_\_\_ pure gas |  |  |

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|  |  | 1. Find the melting and boiling point of **Aluminum** in Table S and label the Y-axis of the graph at right with those two numbers.   In each line below,circle the correct choice to describe how the motion of the atoms is changing.   1. {atoms moving faster / atom position becomes farther apart} 2. {atoms moving faster / atom position becomes farther apart} 3. {atoms moving faster / atom position becomes farther apart} 4. {atoms moving faster / atom position becomes farther apart} 5. {atoms moving faster / atom position becomes farther apart} |

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| 1. The normal pressure in our classroom is 101.3 kiloPascals. Draw a horizontal line on this graph to show what the pressure in our room would be if the air pressure in here doubled. 2. If the pressure in this room increased the vapor pressure of ethanol would ( stay the same / decrease / increase ) 3. On the chart, mark an "A" to show what the vapor pressure of propanone would be if the room pressure were 50 kiloPascals. 4. The technical definition of ***boiling point*** is the temperature at which the air pressure of the room equals the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. If we reduce the room pressure to 20 kPa at what temperature will water boil? 6. Mark a "B" on the chart to indicate the single point that is STP |  |