Chemistry Blizzard Bag #1

Mrs. Snyder

Please follow the directions on the following worksheets and complete them. If you need help, please look in your book, online, or email me. (Barbara.snyder@omeresa.net)

These are due 10 schools days after the snow day.

Set A: Terms and Definitions

Define or describe each of the following terms.

1. Heat

2. Joules

3. Specific heat capacity

4. Heat of fusion

5. Heat of vaporization

6. Calorimeter

Set B: Direction of Heat Flow

For each question below, draw an arrow (—heat ------ >) or (< ------heat----) between the two objects to show the direction of heat will flow between them.

7. 67°C 74°C

8. -50°C -65°C

9. -14°C 250 K

10. 390 K 125°C

Set C. Heat Calculations

For each question below: *Write down the heat equation to use, show your numerical setup, and solve the problem. Show all work in the space below each question.*

11. How much heat is absorbed when a 10-g sample of water changes its temperature from 23°C to 32°C?

12. How much heat is released by a 15 gram sample of water to cool from 50°C to 46°C?

Set C continues

13. How much heat is released by a 38-gram sample of water to freeze at it freezing point?	14. Calculate the number of joules of heat needed to change a 25 g sample of water to steam at its boiling point.
15. How much heat is absorbed by a 170-gram sample of ice to melt at 0°C?	16. The specific heat capacity of a substance is 15 J/g•°C. How much heat would be released by a 25 g sample of this substance to cool from 100°C to 90°C?
17. Substance Y has a heat of fusion of 3.5 kJ/g. How much heat is needed to melt a 30.-gram sample of substance Y at its melting point?	18. The heat of vaporization of propane is 356 Joules per gram. How much heat is needed to completely evaporate a 40.0-gram sample of propane at its boiling temperature of 230.K?
19. If 5000 Joules of energy is required to evaporate 36 grams of an unknown liquid at its boiling point, what is the heat of vaporization of the liquid?	20. A student determines that a sample of water absorbed 2200 joules of heat to change from 47°C to 59°C. What is the mass of the water sample?
21. A 5.7-g sample of copper absorbs 1023 Joules of heat to melt at its melting point. What is the heat of fusion of copper?	22. What is the specific heat capacity of an unknown substance if 550 Joules of heat is required to change the temperature of a 10-gram sample of the substance from 26°C to 33°C?

Set A: Kinetic Molecular Theory

The Kinetic Molecular Theory of Gases

Fill in the blanks to complete each statement.

1. Behavior of gases is influenced by these three factors: _____, _____ and _____
2. The kinetic molecular theory of an ideal gas is used to explain _____ of gases.
3. A gas is composed of _____ particles.
4. Distances between gas particles are _____ . _____.
5. Gas particles are in _____, _____, _____ line motion
6. When two particles of a gas collide, energy is _____ from one particle to another.
7. Particles of gases have no _____ to each other.
8. The volume of individual gas particles is _____.

Deviation from the Ideal Gas Model.

Answer the following questions

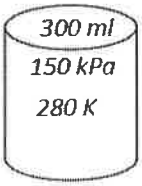
9. Name four real gases that you know.
   Oxygen, hydrogen, helium, neon, carbon dioxide. etc..(answers may vary)
10. Give two reasons why real gases do not behave exactly like an ideal gas.
11. Under what two conditions do real gases behave most like an ideal gas?
12. Under what two conditions do real gases behave least like an ideal gas?
13. Which two real gases behave most like (deviate least from) an ideal gas?

Set B: Avogadro's Law

14. According to the Avogadro's Law, under the same conditions of temperature and pressure;
    Equal volume of gases contains _____ _____ _____ _____.

15. Gas A in the container below has the following properties:

volume 300 ml
pressure 150 kPa
temperature 280 K



Gas A

Circle all gases from the list below that contain the same number of molecules as Gas A in the container.

	volume	pressure	temperature
Gas B :	300 ml	280 kPa	150 K
Gas C :	300 ml	150 kPa	280 K
Gas D :	600 ml	300 kPa	560 K