Unit 1 Worksheets- Physical Science 1- Mrs. Larson

Do not write on these worksheets. Use your own paper!! You will return these after the unit is over.

SECTION 16.1 WORKSHEET

You must answer every question using full sentences. Otherwise, it will not be graded. Make sure you read questions carefully.

1. What are the three basic assumptions of the kinetic theory?
2. Describe the **movement** of the particles in solids, liquids, and gases.
3. How does the movement of particles change at the melting point of a substance?
4. How does the movement of particles change at the boiling point of a substance?
5. Would the boiling point of water be higher or lower than normal on top of a mountain peak? Why? (hint: think about the pressure from the atmosphere)
6. Why would the lid to a food container put on when the food is warm become tight as the food cools?
7. What is occurring at the two temperatures on the heating curve from your notes where the graph is a flat line? Explain what is happening at the particle level in these locations.
8. Why does a hot air balloon rise? (you need more detail than "because hot air rises")
9. How is plasma different from gas?
10. Which should expand more when heated: liquid, solid, or gas? (think about particle attractions to answer this)
11. Provide an example of diffusion (we are talking about diffusion of gases, not liquids). Explain what is happening.

SECTION 16.2: WORKSHEET

You must show ALL work, include correct units, and enclose your answers in a box for questions 1-5. You must answer in full sentences for questions 6-10. Use this equation: $F_1/ A_1 = F_2/ A_2$

1. A hydraulic lift is used to lift a heavy machine that is pushing down on a 3.0 m^2 piston (A_1) with a force (F_1) of 4,000 N. What force (F_2) needs to be exerted on a 0.050 m^2 piston (A_2) to lift the machine?
2. A hydraulic lift is used to lift a heavy machine that is pushing down on a 5.0 m^2 piston with a force of 1,000 N. What force needs to be exerted on a 1.0 m^2 piston to lift the machine?
3. You can exert 50 N of force on a piston with an area of 1.0 m^2. If you are trying to lift a machine that weighs 500N, what must be the area of the piston on which the machine rests?
4. You decide to drive your vehicle, which has a weight of 100 N onto a piston that is 5.0 m^2, what weight machine can you lift if the piston on which it rests is 20 m^2?
5. You can exert 50 N of force. You want to lift a machine that weighs 4000 N and is on a piston with an area of 10 m^2. What size piston must you press down upon to lift the machine?
6. What 2 forces act on any object floating in water?
7. Use Archimedes' principle to help you explain how heavy ships float.
8. Use Pascal's principle to explain how a tube of toothpaste works.
9. Use Bernoulli's principle to explain why roofs are sometimes lifted off buildings in tornados.
10. Why does a balloon filled with air fall to the floor when released while a balloon filled with helium floats?