Gas and atoms essay

Page 1 : E: CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage1. cml 1. List three more everyday examples of phase change. -snow melting and freezing into ice -fuel being changed into gas for cars -ponds freezing over to have a layer of ice Page 2 : E: CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage2. cml 1. Describe the motion of atoms and molecules in a gas. the atoms and molecules bounce off one another each time they come in contact with eachother. they never bond, but reflect off of eachother and spread around. 2.

How are the behavior and arrangements of gas molecules similar to and different from soccer players running in the field? the molecules are similar to soccer players running on a field when they continually move and dont stop. players in soccer never stop moving during the game, and the gas molecules dont stop moving and keep bouncing off one another. Page 3 : E: CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage3. cml 1. Record the average number of dashed lines there are per atom of each liquid. the average number of dashed lines are 3-4 per atom 2.

Describe the motion of atoms and molecules in a liquid. the atoms are tight and compact, they bounce off of each other. they generally dont leave a certain section of the liquid, and stay in the same area. 3. How far do the atoms in a liquid appear to travel? Press the “ Randomly pick an atom and show its trajectory” button, take a snapshot and place a snapshot image that you think best answers this question in the box below. 4. How does the motion of folks at a festival resemble a liquid? all the folks move their arms and themselves in a very concentrated manner and stay generally in the same spot. hey bounce up and down, just like how the aroms and molecules

move up and down. Page 4 : E: CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage4. cml 1. Stop the model and estimate how many dashed lines there are for atoms inside the solid. Write down the number for each model below. there appears to be approximately 20-25 dashed lines inbetween the atoms. 2. Estimate how many dashed lines there are for atoms at the edges. Compare the numbers with those in the previous question, and write down what you think. here appears to be approximately 7 dashed lines on the edge of the atoms. the dashed lines are different because there are a different number of atoms inside the edges with dashed lines than the outside where there are a lower amount of atoms. 3. How would you describe the movement and arrangement of atoms and molecules in a solid? very compact and still. there is not very much movement, because the atoms are very compact and dont have much room to move. 4. How does the motion of atoms and molecules in a solid resemble people in a movie theater? eople in the movie theater and the atoms/molecules are similar because there isnt much movement. the people in the movie are intent on watching the movie so there isnt much movement, just like the atoms in the example. Page 5 : E: CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage5. cml 1. Based on what you observed in the model, choose the items in the list below that you think have weak forces between atoms. Assume all these items are at 300K. (a) Water (b) Wood (c) Iron (d) Air (e) Gold (f) Mercury (g) Carbon dioxide (h) Oxygen (i) Gasoline (j) Lead My answer is (d) (g) (h) 2.

Based on what you observed in the model above, choose the items in the list below that you think have strong forces between atoms. Assume all these

items are at 300K. (a) Water (b) Wood (c) Iron (d) Air (e) Gold (f) Mercury (g) Carbon dioxide (h) Oxygen (i) Gasoline (j) Lead My answer is (b) (c) (e) (f) (j) Page 6 : E: CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage6. cml 1. How many hammer blows were needed to turn the solid into a liquid? 6 2. After how many blows was some of the solid in gas phase? 2 3. How many blows were needed to turn all the solid into a gas? 10-11 4.

Place here a snapshot of a molten state from the hammering experiment. 5. Place here a snapshot of a boiling state from the shooting experiment. 6. What do you think caused the temperature of the larger atoms that are originally in the right part of the model to rise? there are more atoms that started off hot compared to the number of cold, so the hot atoms overtook the cold larger atoms very quickly. 7. Place here a snapshot of model after the wall has been withdrawn that shows the larger atoms are in liquid state. Page 7 : E: CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage7. ml 1. Please fill in the snapshot of the line graph you have taken after the simulation stops: 2. Describe what was happening in the model when the temperature stopped rising (in the middle of the simulation). Describe the state of the molecules throughout this time . the molecules started to seperate more often and became seperate once the temperature stopped rising. Page 8 : E: CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage8. cml 1. What do you think caused the system to cool down when evaporation happens in the second model, based on the reasoning from the first model? he cover was taken off of the container, which allows the hot molecules to escape the container (since heat rises) and cools off since the hot molecules evaporate Page 9 : E:

CC_SoftwareWorkbenchCC-MW-CDpart2phasechangepage9. cml 1. A and B are two pure materials at the same temperature. A is a gas and B is a solid. What must be true about these substances: (a) The molecules of A have less mass than the molecules of B. (b) The molecules in A are moving faster than the molecules of B. (c) The attractions between A molecules are less than he attractions between B molecules. (d) A and B only. (e) A, B, and C. My answer is (b) 2. Suppose you are small enough to sit on a molecule. Describe what you see if you were sitting on a molecule in a gas, and that gas turned into a liquid. the atoms in the gas would be moving rapidly, and the liquid atoms would be more spread out 3. On a microscopic scale atoms look to be just about as crowded in a liquid as in a solid. What are some ways you can think of to decide whether a substance is a solid or a liquid. if thee liquid forms to a container whens it is put in -if the solid doesn’t fit into a container 4. When you get out of the water after swimming, you often feel cold as water evaporates off of your skin. That means you must be losing heat energy. As the water evaporates, it is changing from a liquid to a gas. Explain why the process of evaporation should use up heat from your skin. because the molecules of water are cold, and your skin is trying to keep warm, so the skin is heating the water and causes the water to evaporate.