Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Homeroom:\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_ **3.2**

**Particle Arrangement and Particle Motion (SPI.9.6)**

|  |  |
| --- | --- |
| ***Key Point*** | ***Notes*** |
| **Particle Arrangement** | **Solid Liquid Gas**  In a **solid**, the attraction between particles is strong so the matter holds its \_\_\_\_\_\_\_\_\_\_\_\_\_. The particles are still moving, but they are not able to slide past each other. They just \_\_\_\_\_\_\_\_\_.  In a **gas**, the attraction between particles is so weak that they *fly in every direction* \_\_\_\_\_\_\_\_\_\_\_ the container that they are held.  In a **liquid,** the attractive forces are not as strong. The particles are able to move past each other and slide around. The forces are strong enough to keep the particles from flying away.  In a liquid the attractive forces are not as strong. The particles are able to move past each other and slide around. The forces are strong enough to keep the particles from flying away. |
| **Particle Motion and Speed** | **Solids:**  **Liquids:**  **Gases:**  Ranking of the speed of particles from fastest to slowest:   * \_\_\_\_\_\_\_\_\_\_\_ particles move even faster than gas particles   **Kinetic Molecular Theory**   * Kinetic energy is the energy of \_\_\_\_\_\_\_\_ * The kinetic energy (motion) of these particles increases as \_\_\_\_\_\_\_\_\_\_ increases. * We see phase changes happen when we add temperature |
| **So What?!** |  |

**“We Own This” (Guided Practice):**

*Log onto Mr. J’s Edline account. Click on the Unit 3 folder and then classwork assignments. On the states of matter interactive link that comes up, click run. Use this interactive to answer the following questions:*

1. Is neon (Ne) an element or compound?
2. What about its atoms informs you that you correctly described it in #1?
3. Describe the motion of its atoms in its solid form.
4. If you add heat, what happens to the distance between the particles?
5. What *phase change* is occurring as you add heat?
6. What happens to the speed of the particles as you *add heat.*

*Change the molecules to water on the right hand side of the screen.*

1. Draw one molecule of water.
2. Draw the particle arrangement for water in its solid state.
3. Change the state of water to a gas. How has the motion of the particles changed?
4. What *phase change* occurred as you went direction from a solid to a gas?
5. What happens to the distance between the particles if you remove heat (energy)?

*Change the molecules to oxygen (O2) on the right hand side of the screen.*

1. Do you think these molecules could be representative of the oxygen molecules in our atmosphere? Why or why not?
2. Describe the key differences between the particles (speed and motion) in the liquid phase and in the solid phase.

**“I Own This” (Independent Practice):**

1. In the boxes below, illustrate the arrangement of what the particles in a solid, liquid and gas would look like. Then, describe the movement of the particles in each phase below them.

Solid Liquid Gas