Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Homeroom: \_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_ **3.1**

**Phases of Matter (SPI.9.6)**

|  |  |
| --- | --- |
| ***Key Point*** | ***Notes*** |
| **Matter** | All matter is:   * Made of \_\_\_\_\_\_\_\_\_\_\_ * Has mass * Has \_\_\_\_\_\_\_\_\_\_\_ (takes up space) * In four \_\_\_\_\_\_\_\_\_ (phases)   The **states** of matter are four distinct \_\_\_\_\_\_ that matter can take. They consist of:   * Solid * Liquid * Gas * Plasma |
| **Solids** | The properties of **solids** are:   * fixed shape that is rigid * fixed volume * Do not take the shape of their container * very dense * particles vibrate in place   *Examples:* Wood, Plastic, Metal |
| **Liquids** | The properties of **liquids** are:   * No fixed (\_\_\_\_\_\_\_\_\_) shape   + 1. This allows them to take the shape of their container * Definite/fixed volume * Particles \_\_\_\_\_\_. They can move around but are still close together.   *Examples*: Water, juice, milk |
| **Gases** | The properties of **gases** are:   * NO fixed \_\_\_\_\_\_\_\_; this allows them to take shape of container * NO fixed volume; this allows them to take volume of container * \_\_\_\_\_ dense * Particles are very \_\_\_\_\_ apart   *Examples*: Air, Oxygen, Carbon Dioxide |
| **Plasmas** | The properties of **plasmas** are:   * \_\_\_\_\_\_\_\_\_\_ particle motion (particles are electrically charged) * Particles collide with enough energy to break into \_\_\_\_\_\_\_ particles (+/-) * \_\_\_\_\_-like, indefinite shape & volume   *Examples*: stars, fluorescent light bulbs, TV tubes |
| **Phase Changes** | A **phase change** occurs when a substance \_\_\_\_\_\_\_\_\_\_ from one state of matter to another  Melting: solid to \_\_\_\_\_\_\_\_\_  Freezing: liquid to solid  Condensation: gas to liquid  Evaporation: \_\_\_\_\_\_\_\_\_ to gas  Sublimation: solid to gas  Deposition: gas to solid |
| **Adding and Removing Heat** |  |
| **Heating Curves** |  |
| **So What?!** |  |

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

1. How do liquid water, ice, and water vapor differ from each other?
   1. They are different phases of matter.
   2. They are different compounds.
   3. They are made of different kinds of molecules.
   4. They are made of different kinds of atoms.
2. A solid is a state of matter that has a(n)
   1. indefinite volume and an indefinite shape.
   2. definite volume and a definite shape.
   3. definite volume and an indefinite shape.
   4. indefinite volume and a definite shape.

Using the diagram to the left, label the phase changes that are occurring for each letter:

**T:**

**U:**

**W:**

**X:**

**Y:**

**Z:**

