Sci 8 **States of Matter** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_

 Block: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is Kinetic Energy?

Energy of Motion

1. What are the three main points of the Kinetic Molecular Theory?
2. All matter is made up of particles
3. There is space between the particles
4. The particles are in constant motion (interacting with each other)
5. Complete the chart below describing states of matter:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Solid | Liquid | Gas |
| Shape  | Fixed, does not change | Not fixed, Takes shape of container, dependent on gravity | Not fixedTakes the shape of the container, not gravity dependent |
| Volume | fixed | Fixed volume | Not fixed, will expand to fit the container |
| Space between particles | Tightly packed | More space | Lots of space |
| Attractive forces between particles | strong | moderate | weak |
| Arrangement of particles | Tightly packed | Randomly arrangedParticles are touching, but able to move past one another |  |
| Movement of particles | Can only vibrate | Can slide past each other. | Can move freely and quickly in all directions in the container |
| Example | Rock | Milk | Helium gas from a balloon |
| Draw a picture of the particles |  |  |  |

**Changes of State**

1. Label the diagram below using the following terms: condensation, deposition, vaporization, melting , freezing, and sublimation.
2. Complete the following table by indicating the initial and final states of matter and whether kinetic energy is added or removed. Give an example of each of the changes of state.

|  |  |  |  |
| --- | --- | --- | --- |
| State Change | State of Matter | Kinetic Energy Added or Removed | Example |
|  | Initial State | Final State |  |  |
| Melting | Solid | Liquid | Added |  |
| Freezing | Liquid | Solid | Removed | Candle wax drips hardening |
| Deposition | Gas | Solid | Removed | Frost forming on car windshield |
| Sublimation | Solid | Gas | Added | Dry ice  |
| Vaporization | Liquid | Gas | Added | steam |
| Condensation | Gas | Liquid | Removed  | Water droplets form on a bathroom mirror after a hot shower |