**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_**

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| **Week 1:** | **States of Matter** |
| **Question:** | Explain, in terms of particles, what happens when a substance changes state |
| Key words: | solid, liquid, gas, randomly, forces, weak, strong, kinetic energy, compress, regular, roll, fixed, melting point, boiling point, temperature, melting, freezing, boiling, condensing, solid spheres, forces, size, thermal energy, absorb, release, bonds |
| First draft: | |
| The three states of matter are solids, liquids and gases.  The particles in a gas are arranged randomly, with weak forces between them. They are moving very fast with high kinetic energy and are spread far apart. This means you can compress a gas.  The particles in a liquid are touching, but are not arranged in a regular patter. They have stronger forces between them but can roll over each other. This means you cannot compress a liquid.  The particles in a solid are also touching but arranged in a regular way with the strongest forces between them. They vibrate but in a fixed position. This means you cannot compress a solid.  The melting point is the temperature at which melting and freezing take place, whereas the boiling point is the temperature at which boiling and condensation take place.  Melting is the change in state from a solid to a liquid when the temperature increases. During melting, particles gain more kinetic energy and the forces between them become weaker. The particles move further apart until they can roll over each other.  Boiling is the change in state from a liquid to a gas when the temperature increases. During evaporation (boiling), particles gain more kinetic energy and the forces between them become weaker. The particles move further apart until they can escape and become a gas.  Freezing is the change in state from liquid to a solid when the temperature decreases. During freezing, the particles lose kinetic energy and the forces between them become stronger. The particles move closer together and become fixed in a regular arrangement.  Condensing is the change in state from a gas to a liquid when the temperature decreases. During condensation the particles lose kinetic energy and the forces between them become stronger. The particles move closer together until they are touching and become a liquid. | |