**Matter Test II Study Guide Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Vocabulary** | **Check, I Understand this term!** | **Evidence of Understanding: Definition + Picture** |
| Phase/State |  | **Stage or condition of matter** |
| Change in State |  | **Change in the condition of matter due to added or subtracted heat (energy)** |
| Heat |  | **A form of energy produced by the movement of molecules** |
| Expand |  | **Increase in size, volume or quantity** |
| Contract |  | **Decrease in size, volume or quantity usually due to subtraction of heat** |
| Thermal Expansion |  | **Increase in size, volume or quantity due to heating** |
| Condense |  | **Water vapor changing to a liquid due to a loss of heat** |
| Evaporate |  | **Liquid changing to water vapor due to boiling or addition of heat** |
| Boil |  | **To change from a liquid to a gaseous state by heating or being heated to the boiling point.** |
| Freeze |  | **To change from a liquid to a solid state by cooling or being cooled to the freezing point** |
| Sublimation |  | **State of matter where a solid goes directly to a gas skipping the liquid state** |
| Absolute Zero |  | **the lowest possible temperature of matter at which all molecules stop moving** |
| Density |  | **the amount of matter in a given space- how tightly packed the molecules are in matter** |
| Boiling Point |  | **The temperature at which a liquid changes to a gas or water vapor** |
| Mass |  | **The amount of matter in something** |
| Matter |  | **Anything that has mass or takes up space** |
| Melting Point |  | **The temperature at which a solid changes to a liquid** |
| Physical Change |  | **A change in the property of matter but not the link up of the molecules** |
| Chemical Change |  | **A change in the link up of the molecules of matter resulting in a new substance** |
| Pure Substance |  | **A substance made of the same atoms that cannot be broken down** |
| Solubility |  | **How easily a substance can dissolve into a solvent** |
| Volume |  | **The amount of space an object takes up** |
| Solute |  | **The substance that is dissolved** |
| Suspension |  | **a mixture in which small particles of a substance are hanging throughout a gas or liquid** |
| Solvent |  | **the substance doing the dissolving** |
| Dilute |  | **to make a substance less concentrated by adding liquid such as water** |
| Solution |  | **a homogeneous mixture in which particles of one or more substances are dissolved and spread evenly throughout.** |
| Concentrated |  | **A mixture with much more solute than solvent- very strong** |
| Gravity |  | **The attraction objects have for each other because they have mass and occupy space** |
| Weight |  | **Measure of the amount of gravity on an object’s mass** |
| Colloid |  | **a homogeneous mixture in which very small particles are distributed evenly but not dissolved** |
| Homogenous |  | **A mixture in which the particles are the same throughout** |
| Heterogeneous |  | **A mixture in which the particles are not spread evenly so it appears different throughout** |
| Granulated |  | **Made into tiny grains** |
| Buoyancy |  | **The upward force that a liquid puts on an object that is less dense than itself- how easily something will float.** |

1. **When you add heat to ice you can change the phase of matter. Explain why this occurs.**

*Please include the three states of matter involved.*

*When heat is added to matter the phase changes because as heat is added the molecules move faster and expand and move further apart. As the molecules expand, the ice melts thus changing to a liquid. As more heat is added, the energy increases again causing the molecules to spread even further apart and the liquid becomes a gas. With an increase in heat, there is an increase in energy causing thermal expansion and phase changes.*

1. **Why won’t water go above 100⁰ Celsius even when you place it on a burner that is 500⁰ Celsius? Did we change the boiling point, why or why not?**

We did not change the boiling point. Boiling point does not change because it is an independent physical property of matter and does not change. Water won’t go above 100 degrees celsius even when placed on a burner that is 500 degrees Celsius because once the water reaches 100 degrees Celsius it has reached its boiling point and begins to boil. Therefore, it’s no longer a liquid or water, it is a gas or water vapor.

1. **John had a block of gold that weighs 40 pounds. He cuts it in half. How did this affect the weight, mass, and density of the block of gold he started with?**

The weight of John’s block of gold is also cut in half and is 20 pounds. The mass is also cut in half. These are dependent physical properties of matter and will change depending on how much matter is present. The density of each block of gold will remain the same. Density is an independent physical property of matter and will not change no matter how much matter is present.

1. **Benny cannot open his favorite jar of pickles. His mom told him to run hot water over the lid. Explain why Benny was able to open the jar a few minutes later.**

Benny was able to open the jar of pickles after running hot water over the lid because of thermal expansion. As heat was added to the lid, the molecules expanded creating more space between the lid and the jar allowing Benny to open it easily.

1. **What is the relationship between temperature and molecule movement in matter?**

The relationship between temperature and molecule movement in matter is the higher the temperature, the more movement of the molecules. As heat is added and temperature is increased, there is an increase in the energy and therefore more movement and expansion of the molecules of matter.