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

**States of Matter Guided Notes**

**Solids** – have a definite \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Regardless of where you move a solid object it will keep its size and shape, unless the particles gain enough energy to melt and shift positions.

Particles in a solid are packed tightly together and are in a fixed position. They \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in place similar to a person running in place.

Sketch an example of a solid:

Two types of solids: Crystalline and Amorphous.

Crystalline solids – solids made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Salt, sugar, snow, minerals, and many elements are examples. They \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at specific temperatures. Useful when trying to identify the substance.

Amorphous solids – Particles are jumbled together or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a particular way. Plastic, rubber, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and butter are examples. These do not melt at a specific temperature; instead part of the substance can melt when another part is still solid or they can become softer and change into a new substance.

**Liquids** – have a definite volume but \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shape. The particles can flow from place to place so liquids are also known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. These particles have more energy than solids and can slide past each other as a result. They do not have enough energy to break away from each other and act like a gas.

Two properties of liquids: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Sketch liquid particles in a container:

Surface tension – the inward pull among molecules of a liquid that brings the molecules closer together at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The liquid acts like it has a skin or sorts, allowing certain materials or organisms to walk on water (sewing needles, leafs, water insects). Water beads up and attracts to other water particles which causes the surface tension.

Viscosity – a liquid’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to flowing. This depends upon the size and \_\_\_\_\_\_\_\_\_\_\_\_ of the liquid particles. High viscosity = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ flowing. Ex: honey, molasses, some oils. Low viscosity = fast flowing. Ex: water, vinegar, pop.

**Gases** – no definite shape or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Because these particles can also flow they are considered fluids. Gas particles have enough energy that they can break away from each other. They can be compressed which causes a greater pressure or allowed to spread out which decreases gas pressure. Gases are in continuous \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ so they can bump into each other and have numerous collisions.

Draw gas particles below: