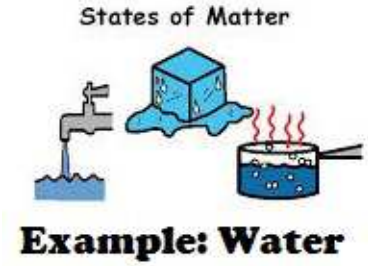
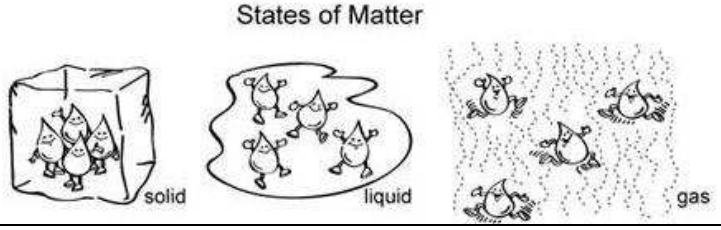
Week 5 – SCIENCE NOTE PAGE
States of Matter

What is Matter?

- **Matter** makes up US and all the _____ around us.
- All matter is made up of _____, tiny particles; the building blocks of matter.

The States of Matter

- There are three common **states of matter**: ***solid, liquid, and gas***

		Solid	Liquid	Gas
Definition		Have _____ volume and shape	Have fixed _____ but takes the shape of the container it is in	Have _____ fixed volume or shape
 **Example: Water**		**Ice** – maintains shape of the ice cube and volume (amount of water that is frozen)	**Water** – if poured from a tall glass into a shorter glass the amount of water is the same, but it takes the shape of the shorter glass	**Water Vapor** – expands to fill the container it is in; when you heat water the gas goes out into the room it doesn't stay over the pan
		Solid	**Liquid**	**Gas**
Atom Motion (atoms are always in _____)	*Type of Atom Motion*	▪ Speed is **fast**, but only "in-place" ▪ **vibrating** in place, like people riding in a bus on a bumpy road ▪ Explains why solids keep their shape – they can't move apart	▪ Speed is **faster** than in solids ▪ constantly changing positions, **sliding** past one another, like a can of live worms ▪ Explains why liquids "flow" and take the shape of their container yet cannot expand	▪ Speed is **fastest** in gases ▪ **constant**, frantic, motion, **bouncing off** walls and each other, like popcorn popping. ▪ Explains why gas will expand to fill its container
	Distance between Atoms	_____ tightly together	very _____ to each other	Very _____ apart from each other
	What the Motion "looks like"			

Changes in Motion = Changes in State

- When a substance undergoes a change in state (like changing from solid to liquid), the _____ **of the atoms changes** due to an increase or decrease in energy/heat; the atoms themselves do NOT change!
  - _____ of the molecules changes (increases or decreases)
  - _____ between molecules changes (increases or decreases)
- **Changes of state** are **physical** changes
  - **Example**: water molecules look the same, whether they are ice, liquid water, or water vapor