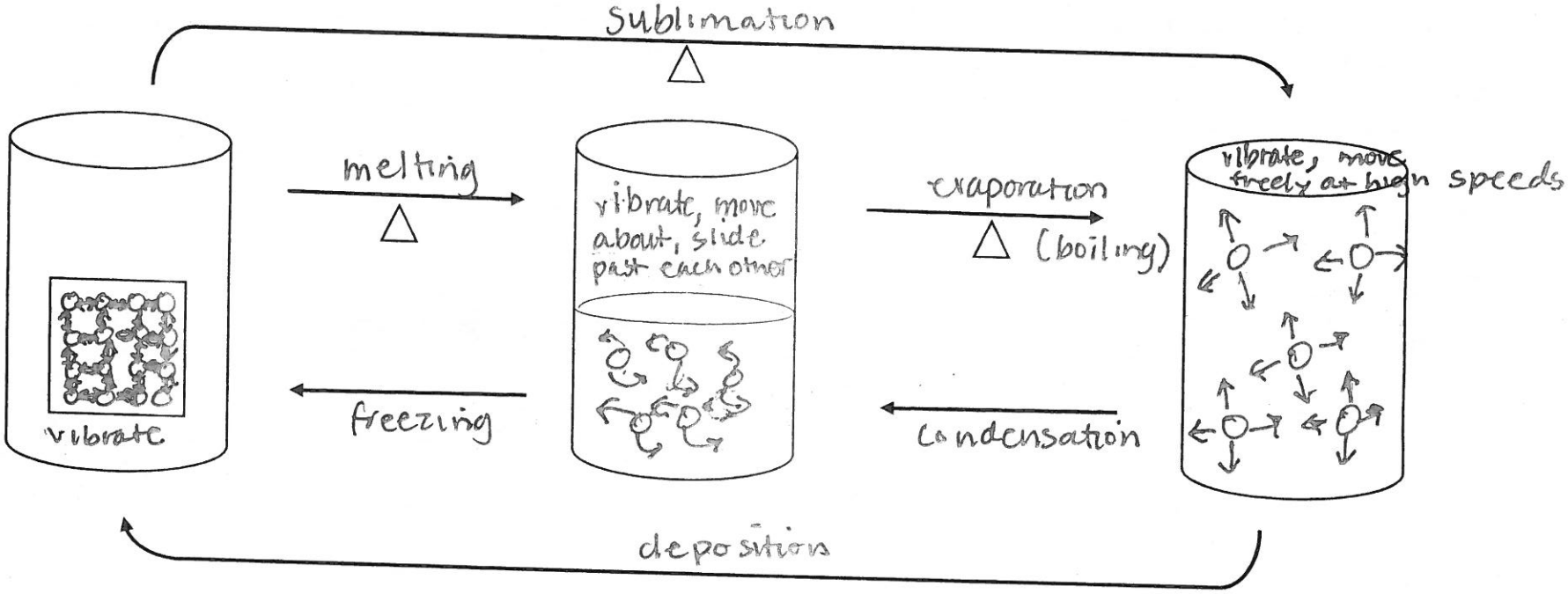
Name: Mrs. Renn

Changes of State – Notes

Date: 12/12/19 Period: _____

LT: I can use scientific language to describe the changes of state that occur in matter.



SOLID

	Y	N
Set Shape	☑	☐
Set Volume	☑	☐

LIQUID

	Y	N
Set Shape	☐	☑
Set Volume	☑	☐

GAS

	Y	N
Set Shape	☐	☑
Set Volume	☐	☑

H_2O (s) - solid
(l) liquid
(g) - gas

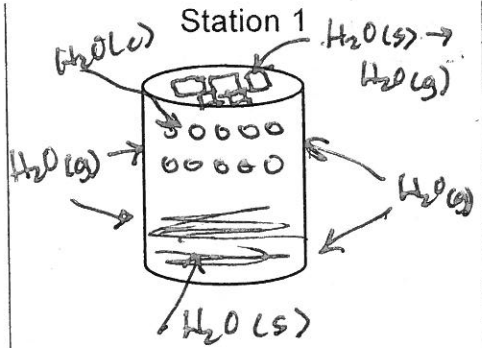
Key: s – solid l – liquid g – gas △ – heat

Connections to States of Matter Lab

The air that we breathe is made up of several different gases. About 78% of the air is nitrogen gas (N_2), 21% is oxygen (O_2), and the remaining 1% is water vapor and other trace gases.

The boiling point of nitrogen, or the temperature at which it becomes a gas is -195.8°C. This means that under normal conditions, we will not see nitrogen in any other state other than as a gas. The same is true of oxygen which has a boiling point of -183°C. Remember that water has a boiling point of 100°C and melting point of 0°C, this means that we often see all three phases of water, depending on the temperature.

Station 1



Change(s) of state that occur:

in car: $H_2O(s) \rightarrow H_2O(l)$ melting

outside car: $H_2O(g) \rightarrow H_2O(l)$ condensation

$H_2O(l) \rightarrow H_2O(s)$ freezing

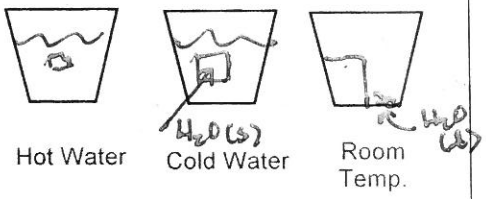
$H_2O(g) \rightarrow H_2O(s)$ deposition

Other interesting notes:

$H_2O(g)$ comes from water vapor in the air

Four changes of state going on.

Station 2



Change(s) of state that occur:

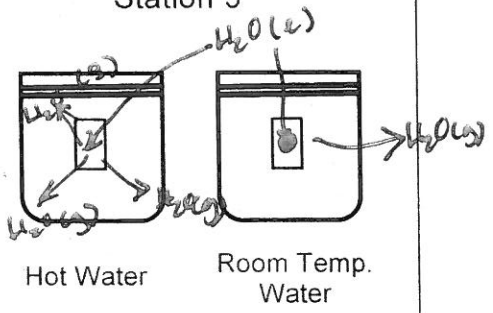
$H_2O(s) \xrightarrow{\Delta} H_2O(l)$

melting

Other interesting notes:

The ice in water melts faster than in air because the molecules are more closely packed in a liquid than in air and this leads to greater heat transfer

Station 3



Change(s) of state that occur:

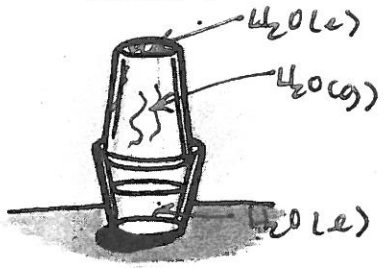
$H_2O(l) \xrightarrow{\Delta} H_2O(g)$

evaporation

Other interesting notes:

Heat transfer depends on the amount of contact there is.

Station 4



Change(s) of state that occur:

$H_2O(l) \xrightarrow{\Delta} H_2O(g)$ evaporation

$H_2O(g) \rightarrow H_2O(l)$ condensation

Other interesting notes:

This is similar to what happens when hot steam hits a mirror.