STATES OF MATTER COMPUTER LAB

NAME_____

PART 1 CLICK HERE ⇨ http://www.chem4kids.com/index.html

1. Click on **MATTER.**

2. Paraphrase or rewrite in your own words the first 4 paragraphs. Be sure to use the words **Matter**, **Mass**, **Weight** and **States of Matter**. Be sure to fill every line below.

_____
_____
_____
_____
_____
_____
_____.

3. Draw the 5 states of matter in the table below:

BE CONDENSATES	SOLIDS	LIQUIDS	GASES	PLASMA

4. Use the 4th paragraph to fill in this chart:

CHARACTERISTICS OF PARTICLES

	SOLID	LIQUID	GAS
PHYSICAL STATE ⇨			
CHARACTERISTICS OF PARTICLES ⇨			

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PART 2 CLICK HERE

http://www.chem4kids.com/index.html

1. Click on **MATTER** and then **STATES** on the top right.

2. Read the 6 paragraphs on the website and then fill in the blanks below using this word bank. ***(HINT: Words in the word bank are only used once)***

WORD BANK

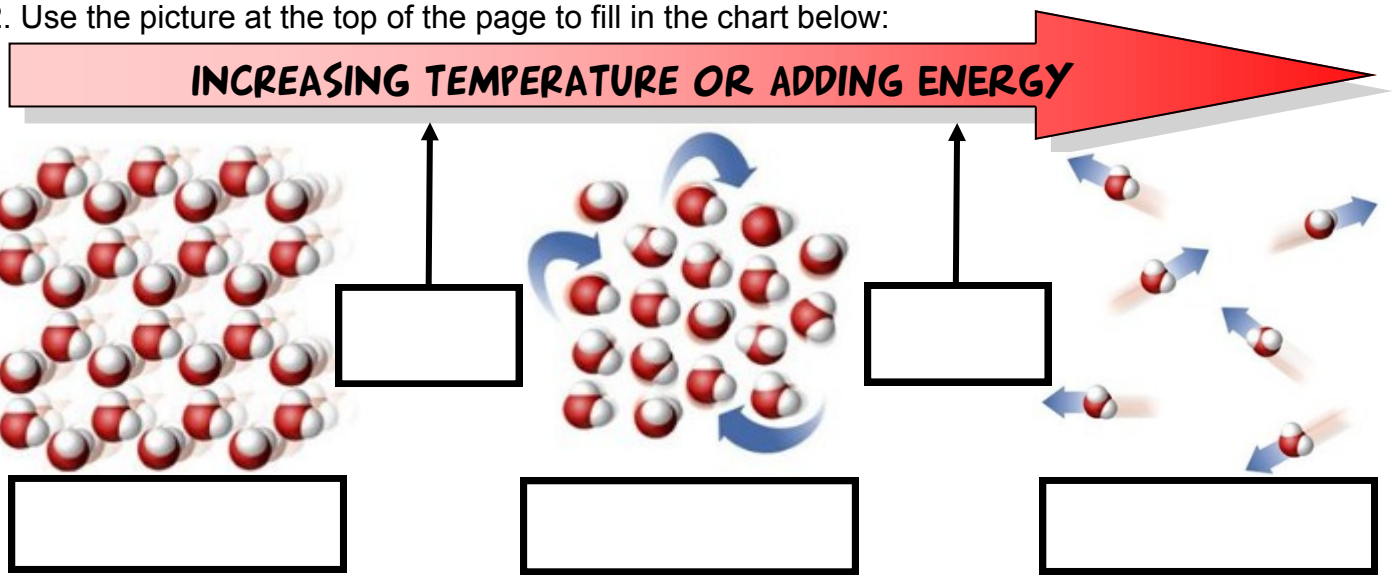
Liquid
Properties
Temperature
Chemical
Physical
Phase
Gas
Molecules

When substances like water change from a solid to a liquid and then to a gas, it's called a _____change. The change from one phase to another due to energy being added or taken away is caused by a change in_____. For example, when energy is added to ice, the molecules get more excited and move faster until the solid ice melts into the _____ phase. If enough energy is added, the liquid water will change into the next phase called _____or steam or vapor. These changes are known as _____ changes because they are still the same substance. In other words, ice, liquid water and steam are all water because when _____move from one phase to another they are still the same substance. However a _____ change is when the molecules break apart to make a new chemical. For example if you added a carbon atom to a water molecule (H_2O) it would no longer be called water, it would be known as formaldehyde (H_2CO), a whole new chemical with new chemical _____.

PART 3

1. Click on **PHASE CHANGES 1** on the top right.

2. Use the picture at the top of the page to fill in the chart below:



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PART 3 CONTINUED ⇨ http://www.chem4kids.com/index.html

1. Click on **MATTER** and then **PHASE CHANGES 1** on the top right.

2. Read all the paragraphs on this page and click on "More on Phase Changes in Part II... at the bottom of the page and continue to read. Then fill in the blanks below using this word bank: ***(HINT: Words in the word bank are only used once)***

WORD BANK

Molecules
Gas
Energy
Boiling Point
Points
Liquid
Freezes
Melting

Substances have what are called chemical properties, meaning they have properties specific to that chemical. For instance, water _____ at 0° Celsius and boils at 100° Celsius. The specific temperatures at which water boils and freezes are called _____ of Change. When energy is added to ice, the _____ gets more excited and move faster until the solid ice turns into a _____, this is the _____ point. But if enough _____ is taken away, the liquid water will change back into a solid, this is called the Freezing Point. Have you ever noticed how sometimes everything outside is wet in the morning and then by the afternoon most things are dry? That's because the sun added enough energy to all the wet stuff and allowed the water molecules to move fast enough to break apart to become a _____, this is because it reached its _____.

Use this chart to fill in the chart below

CHEMISTRY TERM	PHASE CHANGE
Fusion/Melting	Solid to Liquid
Freezing	Liquid to Solid
Vaporization/Boiling	Liquid to Gas
Condensation	Gas to Liquid
Sublimation	Solid to Gas
Deposition	Gas to Solid

	PHASE CHANGE	CHEMISTRY TERM	CHANGE IN ENERGY
Heat up butter	Solid to liquid		
Putting water in freezer			Decreasing
Clouds turn to rain	Gas to liquid		
Snow turns into water			Increasing
Water changes to gas		Vaporization	

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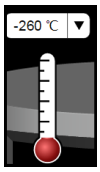
PART 4 CLICK HERE ⇨ http://www.chem.purdue.edu/gchelp/liquids/character.html

1. On this page read everything above the chart. Look at the particles and how they moves in the 3 different phases (solid, liquid, gas). Then fill in the information that's in the red font in the table below just like it is on the chart on this web page.

GAS	LIQUID	SOLID
Takes shape and volume of container	**Takes shape of the container but volume doesn't change**	**Volume and shape doesn't change**
Compressible	**Not easily compressible**	**Not easily compressible**
Flows easily	**Flows easily**	**Does not flow easily**

PART 5 CLICK HERE ⇨ https://phet.colorado.edu/sims/html/states-of-matter-basics/latest/states-of-matter-basics_en.html

1. Click on **STATES**.
2. Then click on this drop down arrow and change the temperature setting from Kelvin (°K) to Celsius (°C).



3. Now it should say the temperature for the gas Neon (Ne) as a solid is –260°C. Write this in the data table below.
4. Now click on the "**LIQUID**" button on the right and write down the temperature for Neon (Ne) as a liquid and then as a solid.
5. Now click on the refresh button  and repeat steps 1-4 for Argon (Ar), Oxygen (O) and Water (H_2O).

Element	Solid Temp. °C	Liquid Temp. °C	Gas Temp. °C
Neon (Ne)			
Argon (Ar)			
Oxygen (O)			
Water (H2O)			

QUESTION: Why are these different chemicals solids, liquids and gases at different temperatures?

_____.