

First and Last Name: _____

Date: _____

Science **8** Block ____

CHEMISTRY UNIT – *Reviewing important terms*

The Kinetic Molecular Theory explains

Matter is

Mass is

Usually measured in:

Volume is

Usually measured in:

Shape is

Flow is

| STATE | EXAMPLE | PROPERTIES |
|--------------|----------------|-------------------|
| SOLID | | Volume |
| | | Shape |
| | | Flow |
| LIQUID | | Volume |
| | | Shape |
| | | Flow |
| GAS | | Volume |
| | | Shape |
| | | Flow |

What is the fourth state of matter? _____

Describe some of its characteristics:



THE CHANGING STATES OF MATTER

Name: _____
Date: _____ Section: _____

Can you identify which change of state is occurring in each of the following? 📏

_____ - changing from a solid to a liquid

_____ - changing from a liquid to a gas

Slow vapourization is called _____

Fast vapourization is called _____

_____ - changing from a gas to a liquid

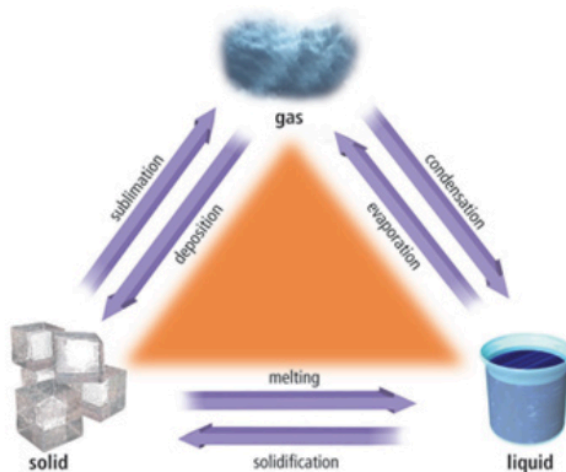
_____ - changing from a liquid to a solid

-also called _____

_____ - changing from a solid to a gas

OR from a gas to a solid

Label the six arrows on the diagram below, showing all of the changes of states 📏



Colour the arrow Blue if the change of state occurs as a result of losing heat
Colour the arrow Red if the change of state is caused by Heat Increase

THE PARTICLE MODEL OF MATTER

A model is used in Science to explain things that can not be seen.

1. All matter is made up of very small microscopic particles.
That is,
Solids, Liquids, and Gases all consist of very tiny particles that you can not see with the naked eye.
2. In solids, the gaps between particles are small,
and the particles remained tightly clumped together.
3. In liquids, the gaps between particles are large,
and the liquid particles can slide past each other.
4. In gases, the gaps between particles are much larger,
there is more empty space between gas particles.
Gas particles have much more room to move around.

THE KINETIC MOLECULAR THEORY

_____ means moving.

_____ are particles of matter.

_____ is used to explain observations.

The Kinetic Molecular Theory explains our observations of moving particles of matter.

There are eight statements in the **Kinetic Molecular Theory**:

1. All _____ (solid, liquid and gas) is made up of tiny particles.
2. These particles are in constant _____.
This means they have kinetic energy ("_____ " energy).
3. There are _____ between the particles of matter.
4. The particles and spaces are so _____ that they can not be seen.
5. In a _____, the particles are very close together, and the spaces between the particles are small. Particles of a solid can not move very fast, but can only vibrate.
6. In a _____, the particles are slightly farther apart, because the spaces between the particles are larger. Liquid particles move slightly _____ than solid particles.
7. In a _____, the particles are very far apart. The spaces between the gas particles are very large. Gas particles can move very _____.
8. If _____ is added to matter, the particles gain kinetic energy, and so they can move faster.

Temperature, Thermal Energy and Heat

Thermal Energy is_____

Heat and Temperature are **NOT**_____

Heat or Thermal Energy is

-Heat depends on the size of the object.

Temperature is

-Temperature does **NOT** depend on the size of the object.

Low temperature:_____

High temperature:_____

Thermometers measure temperature.

Fahrenheit scale:

Celsius scale:

Heat Transfer

Heat transfer involves the movement of heat from a hot object to a cold one.

MEASURING TEMPERATURE:

-What did Anders Celsius do that makes his name famous?

He developed the _____

He did this by putting a tube full of _____ into a flask containing ice. The mercury "shrank" inside the tube, (the level of mercury moved downwards). He marked off the spot where the mercury moved to, and labeled it _____.

Then he put the tube of mercury into boiling water and watched the mercury level rise in the tube. He marked off the spot where the mercury rose to, and labeled it _____.

Basically, a thermometer is a scale of 0 to 100 on how much mercury _____ in a given width of tube!

Connection to the KMT:

-speed of molecules as heat energy is being _____ to them -eg. hot water molecules transfer their heat energy through the glass onto the mercury molecules, and then they start to speed up.

- _____ of molecules as they heat up - eg. mercury that is not moving faster wants to spread out, so when they are inside this tube, in order to expand, they have to move upwards.

ROOM TEMPERATURE: _____

BODY TEMPERATURE: _____

LOWEST POSSIBLE TEMPERATURE:

The lowest possible temperature is called _____.

It is _____.

It is the _____ Kinetic Energy that molecules can have (note molecules always have to have a little bit of Kinetic energy - because all molecules are in constant motion).

So, absolute zero is the _____ that molecules can move.

Sometime scientists find negative temperatures awkward. So they use the _____ for temperature.

The Kelvin scale was developed by British Scientist and engineer Lord Kelvin.

0 K = _____

273 K = _____

373 K = _____

HIGHEST POSSIBLE TEMPERATURE: _____