Unit 2
Class Work

NAME
10/10/13

2.2 States of Matter and Phase Changes

SPARK

1. What are the three states of matter?
2. How are the three states of matter different from each other?

Agenda:

SPARK

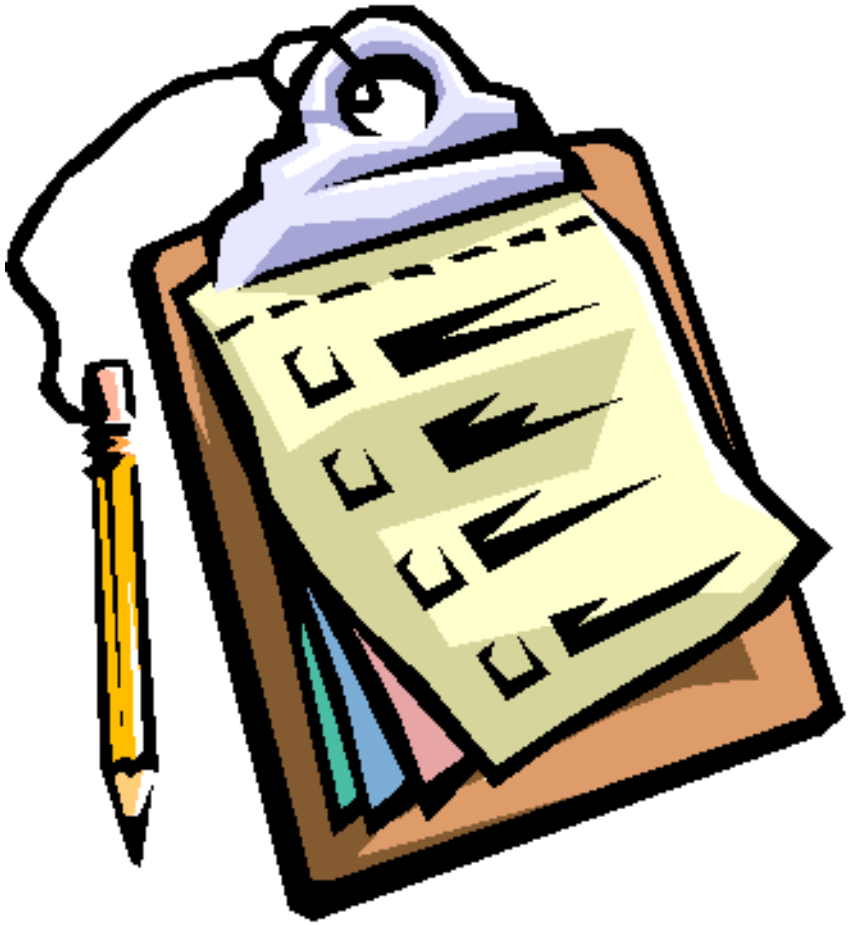
Objective

Brainpop

States of Matter

Phase Changes

Homework



Objective

- SWBAT identify the phase change when given the initial or final states and determine whether a substance is a solid, liquid, or gas when given its current temperature and phase change temperature.

States of Matter

Most matter exists in one of three phases:

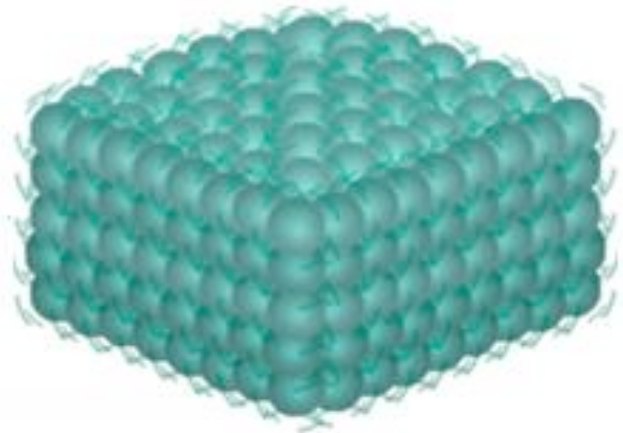
solid, *liquid,* *or gas*

For each substance below, answer the following:

- Does the substance conform to the shape of the container?
- Does the substance have a definite shape?

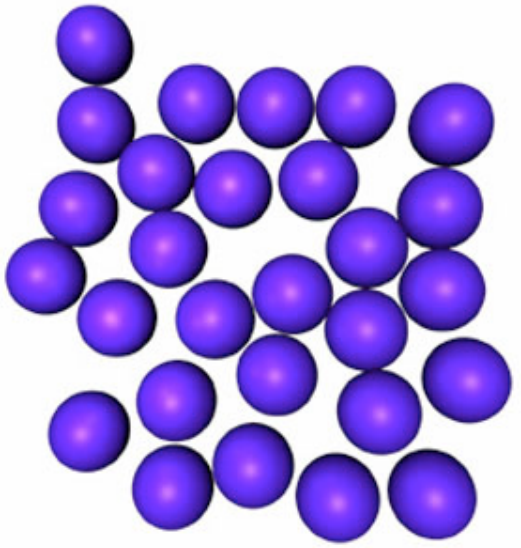
Solids

- Compressibility: Not compressible
- Structure: Particles are packed together in fixed position (rigid structure)
- Shape: Definite shape
- Volume: Definite volume



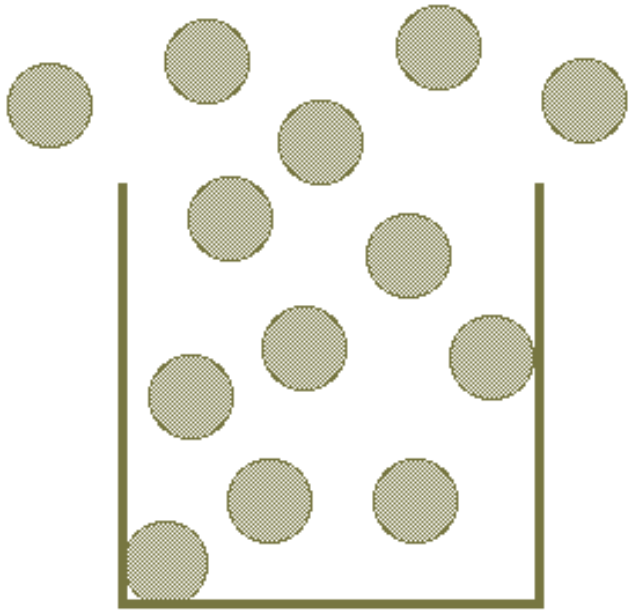
Liquids

- Compressibility: more compressible than a solid, but barely compressible
- Structure: Individual molecules do not stick together (but packed more closely than gas)
- Shape: Indefinite Shape (takes the shape of its container)
- Volume: Definite Volume



Gases

- Compressibility: Highly compressible
- Structure: Gas particles are spread apart
- Shape: Indefinite Shape (takes the shape of its container)
- Volume: Indefinite Volume; gases expand to fill whatever volume is available



Phase Changes

Phase Changes

- Sublimation -
- Deposition -
- Melting (fusion) -
- Freezing (solidification) -
- Condensation -
- Evaporation (boiling) -

Practice on WS

- What is the phase change of the following:

1. Solid to gas?
2. Liquid to gas?
3. Gas to liquid?
4. Liquid to solid?
5. Solid to liquid?

Phase Change Temperatures

- Melting point**: the temperature at which a solid becomes a liquid

Phase Change Temperatures

- Boiling point**: the temperature at which a liquid becomes gas

Where can we find information on melting and boiling points??

- Pause… on the reference table, we are given melting and boiling points in K?
- WHAT IS the unit K?
- K = Celsius + 273. That's it! Don't worry about it!

Where can we find information on melting and boiling points??

- Use the reference table to determine what state of matter bromine will be at 300K
  - What is bromine's melting point?
  - What is bromine's boiling point?

You try!

- What state of matter will mercury be at 298K (room temperature)?
- When you finish, think about a rule we can come up with to figure out the state of matter given a temperature.

What's the Rule?

1. Find the elements boiling point and melting point.
2. Figure out the state of matter!

A. If the T is less than the melting point, it's a GAS!

B. If the T is greater than the melting point, but less than the boiling point, it's a LIQUID

C. If the T is greater than the boiling point, it's a SOLID!

Try again…

- What state of matter will gold be at 298K (room temperature)?

HOMEWORK

Complete 2.2 WS

Update glossary:

- Matter
- Physical Property
- Malleable
- Chemical Property
- Extensive Property
- Intensive Property
- Physical Change
- Chemical Change
- Melting Point
- Freezing Point
- Boiling
- Vaporization
- Evaporation
- Freezing
- Condensation
- Melting
- Fusion
- Sublimation
- Deposition