

Assignment

- Reading Check pg. 21, #1, 4,6, & 7
 - Short answers (not full sentences is fine)

Reading Check Answers, p. 21

1. A liquid takes on the shape of the container it is in but holds its own volume. A solid holds its own shape and volume.
2. A liquid takes on the shape of the container it is in but holds its own volume. A gas takes on the shape but expands to fill the container.
3. Solids have very little space between the particles, while gas particles have very large spaces between them.
4. (a) Adding energy increases the space between particles.
(b) Losing energy decreases space between particles.

Reading Check Answers. p. 21

5. (a) Adding energy causes particles to vibrate more vigorously.
(b) Losing energy causes particles to vibrate less vigorously.
6. In condensation, a gas turns into a liquid.
7. Sublimation and deposition are opposite processes in the conversion of gases and solids. A gas changing state to a solid is deposition; a solid changing state to a gas is sublimation.

1.2 Investigating Matter

P16-27

What is MATTER?

Anything that has mass (g) and volume (L)

- **Mass** is the amount of matter in a substance or object.
- **Volume** is the amount of space a substance or an object occupies.

Matter can undergo 2 types of changes:

- 1. Physical Changes**
- 2. Chemical Changes**

Physical Change – may change in appearance but **no new substance** is formed.

What are the three states of matter?

solid



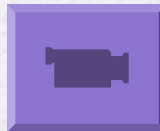
liqui



gas



States of Matter



www.youtube.com/watch?v=s-KvoVzukHo

What is a **chemical change**?

- a change in matter that occurs when substances combine to **form new substances**.
- Example: Fireworks

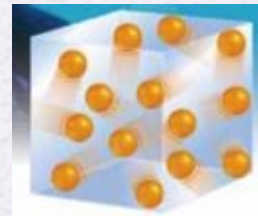
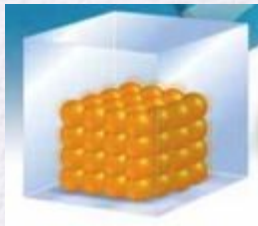
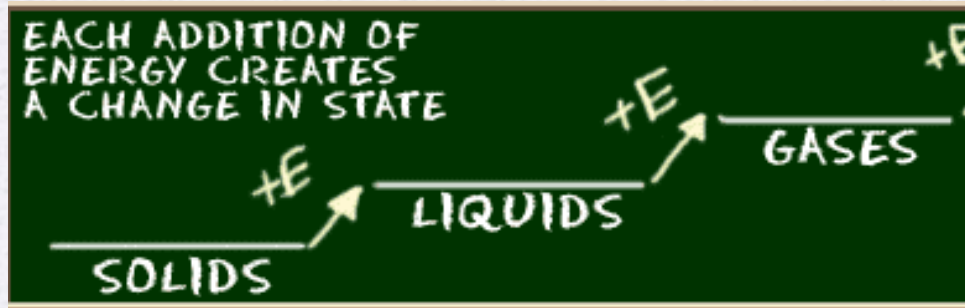
Hint: production of a gas (bubbles) is a sign that a chemical change has occurred

Bag of Change Lab

- Text p. 17 – Read Safety, Materials and What to do **before** we begin.
- Record all observations on your lab data sheet provided
- Be sure to **clean up** your entire lab area.

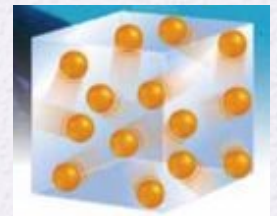
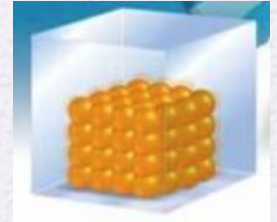
What is the Kinetic Molecular Model?

Describes what happens to matter when the **kinetic energy** of particles changes.

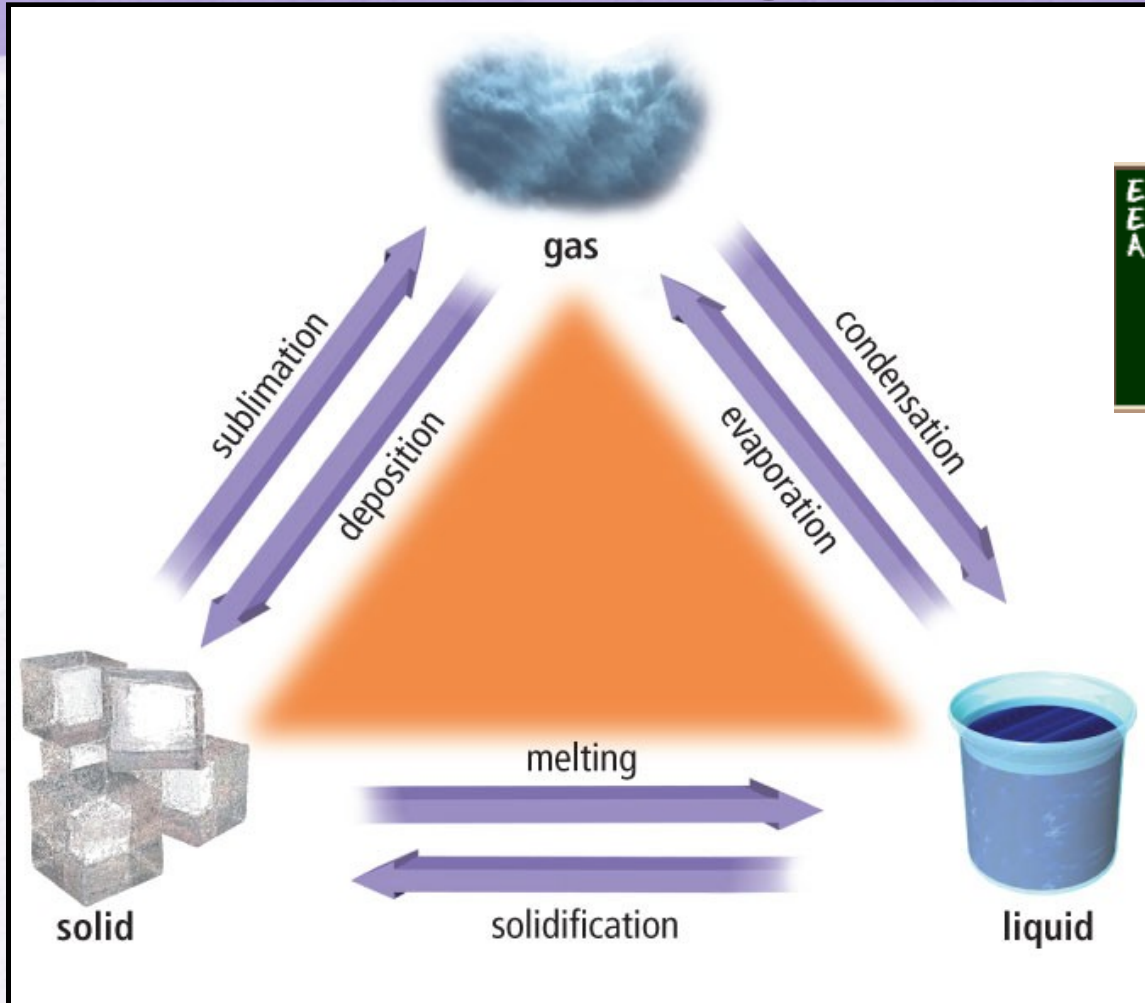


The main points in the theory are:

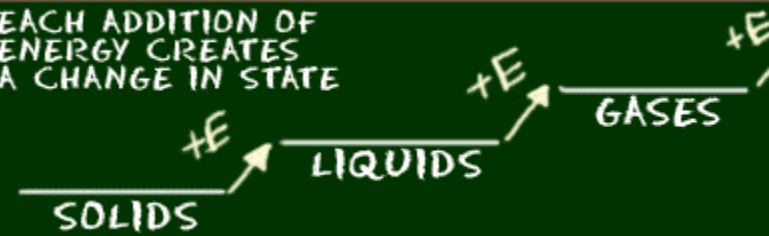
1. Matter is made of **small particles**
2. There is **empty space** between particles
3. Particles are **constantly moving**
 - Solid particles are packed together and cannot move freely. They can only vibrate
 - Liquid particles are farther apart and can slide past each other
 - Gas particles are far apart and move around quickly
4. Energy makes particles move



Changes of State



EACH ADDITION OF ENERGY CREATES A CHANGE IN STATE



The KMT & Changes of State



Solid

Particles are close together, fixed in position and vibrating



Melting

As temperature increases, particles' kinetic energy increases



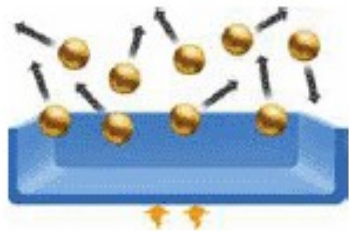
Liquid

Particles are still close, but slide past one another.



Boiling

As temperature increases, particles' kinetic energy continues to increase, creating more space.



Gas

Particles are highly energetic and moving freely.

Describing Matter

Page 22

Physical Properties
characteristics that can
be observed or measured

Qualitative Properties

Can be described,
not measured

- State
- Color
- Malleability

Quantitative Properties

Can be measured using
numbers

- Density
- Conductivity
- Melting point

Pure Substances

- **Element** - a pure substance that cannot be broken down or separated into simpler substances (e.g., gold)
- **Compound** - a pure substance composed of at least two elements (e.g., water)