Science 8

Atomic Theory 1

Name:
Date:
Block:

1. **Matter**
2. **Solids, Liquids and Gases**
3. **Kinetic Molecular Theory**

What is <u>matter</u>?

- _____ is anything that has _____ and takes up _____ (volume)
- _____ is the amount of space taken up by an object
  - Volume is measured in _____ or _____
- _____ is the amount of matter in an object
  - The more matter in an object, the more mass it has!
  - Mass is measured in _____ or _____

What are the <u>3 states of matter</u>?

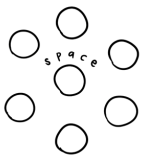
1. Solid (for example: _____)
2. Liquid (for example: _____)
3. Gas (for example: _____)

Note: can also be called _____ of matter

What is the <u>Kinetic Molecular Theory</u> (KMT)?

The Kinetic Molecular Theory (_____) tells us that:

1. All matter is made up of _____ that are too small to see
2. There is _____ between the particles
3. Particles are always _____
4. _____ makes particles move



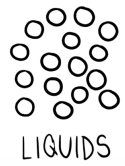
What does KMT tell us about the phases of matter?

Solids:

- Particles are _____ _____
- Particles _____ in place
- Cannot be compressed
- Have a _____ shape

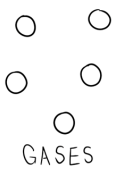
Liquids:

- Particles have _____ _____ between them than in solids
- Particles move by _____ past each other
- Cannot be compressed
- _____ shape according to the container



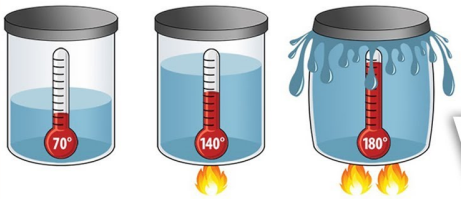
Gases:

- Particles have _____ _____ between them
- Particles can _____ around freely
- Can be compressed and can expand to _____ their container

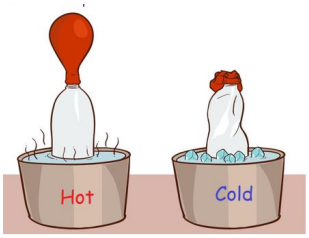


How does energy affect matter?

- KMT explains that when _____ energy (the energy of _____) increases or decreases, matter can change state as the space between particles gets larger or smaller
- When energy is _____...
  - Particles move _____.
  - The spaces between particles get _____.
  - The material _____ in volume and takes up more space.
  - This is called _____.



- When energy is _____...
  - Particles move more _____
  - The spaces between particles get _____.
  - The material contracts in volume and takes up less space.
  - This is _____.



Let's check your understanding! Circle TRUE or FALSE for the following statements:

TRUE or FALSE 1. The particles in solids are free to move in all directions.

TRUE or FALSE 2. Volume is measured in mL or L.

TRUE or FALSE 3. Air is a type of liquid.

TRUE or FALSE 4. All matter is made up of particles that are too small to see.

TRUE or FALSE 5. When energy is added to a material, the particles move slower.

TRUE or FALSE 6. Gases can be compressed.

TRUE or FALSE 7. There is space between particles in all states of matter.

TRUE or FALSE 8. Particles move closer together when thermal expansion occurs.

TRUE or FALSE 9. Mass is the amount of volume an object has.

TRUE or FALSE 10. Anything that has a mass or volume is called matter.

Determine whether the following statements describe a solid, liquid and/or gas. More than one state of matter can be chosen!

Statement	State of Matter
1. Fixed shape	Solid Liquid Gas
2. Fixed mass	Solid Liquid Gas
3. Fixed volume	Solid Liquid Gas
4. Takes the shape of its container	Solid Liquid Gas
5. Particles are packed rightly	Solid Liquid Gas
6. Particles slide past each other	Solid Liquid Gas
7. Particles have large spaces between them	Solid Liquid Gas
8. Particles cannot be compressed	Solid Liquid Gas
9. Particles vibrate in place	Solid Liquid Gas
10. Particles can expand to fill their container	Solid Liquid Gas
11. Steam	Solid Liquid Gas
12. Ice	Solid Liquid Gas
13. Carbon dioxide	Solid Liquid Gas
14. Milk	Solid Liquid Gas
15. Rock	Solid Liquid Gas

In each of the jars below, draw the particles in a gas, a liquid, and a solid. Make sure to indicate whether the particles are moving or vibrating in your diagrams.

solid liquid gas

STATES OF MATTER

WHAT IS MATTER?

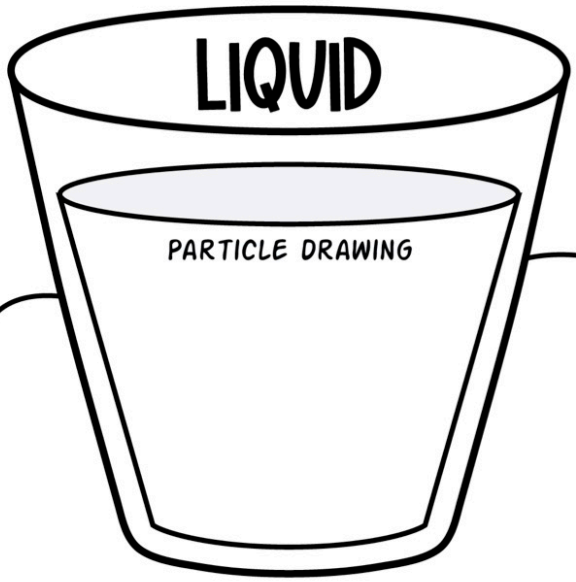
Matter is anything that has _____ and takes up _____ by having volume. Everything in the _____ is made of matter. Matter is made up of tiny _____ which can be atoms, molecules, or electrically charged particles called _____ . There are four main states of matter: solids, liquids, gases, and plasma.

SOLID

Solids have a _____ shape and a _____ volume. The particles are packed _____ together. Although the particles are locked into place, they _____ back and forth.

PARTICLE DRAWING

LIQUID



PARTICLE DRAWING

Liquids have an _____ shape and a _____ volume. A liquid will take the shape of its _____. The particles are still packed _____ together but are far enough apart to _____ over one another.

GAS

Gases have an _____ shape and an _____ volume. A gas will _____ to fill its container. The particles move _____ and are very _____ apart.

PARTICLE DRAWING

PLASMA

PARTICLE DRAWING

_____ percent of matter in the universe is made of plasma! Like a gas, plasma has an _____ shape and an indefinite volume. Unlike a gas, plasma has an electrical _____. Most of the plasma in the universe is found within _____.