

Name Key

Date: 12/ /18

Assessment Date: 12/ /18

Applied Study Guide: **Parent Signature Required at the End**

If questions or blanks appear on this document, you are expected to complete them

I. Vocabulary:

1. **State of Matter:** The physical form of a substance

2. **Solid:** The densest form of matter for any substance. Solids generally have a definite size and shape. The molecules that make up solids vibrate, but do not allow solids to change shape

Ice is the solid form of water. Give another example: wood, rocks, glass.

3. **Liquid:** A state of matter that tends to flow freely. Typically liquids are capable of taking on the shape of their container. Particles are in constant motion. Give an example:

water, milk, gasoline

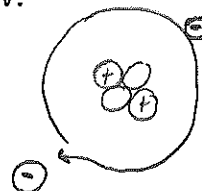
4. **Gas:** The least dense form of matter for a given substance. Particles in gas are moving around rapidly and tend to be quite far apart. A state of matter that does not have a definite shape or volume. Give an example: air, helium, natural gas, propane

5. **Plasma:** Matter that is heated to extreme temperatures where molecules come apart and produce light. Stars and fluorescent light bulbs are examples of plasma. Give another example:

aurora (Northern Lights), welding arcs, the tail of a comet, neon signs, solar wind ☺☺

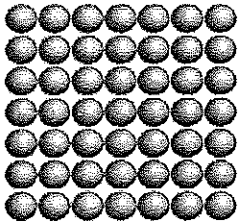
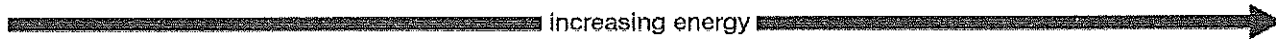
6. **Subatomic Particles:** are particle smaller than an atom; the protons, neutrons, and electrons.

7. **Ion:** an atom or molecule with an *electric charge* due to the loss (or gain) of one or more electrons. Try and draw an ion in the space below.



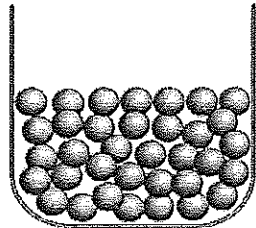
II. States of Matter:

Physical states



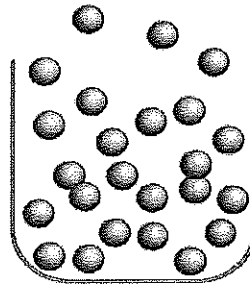
Solid

The molecules that make up a solid are arranged in regular, repeating patterns. They are held firmly in place but can vibrate within a limited area.



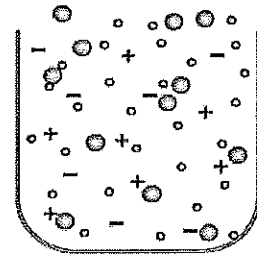
Liquid

The molecules that make up a liquid flow easily around one another. They are kept from flying apart by attractive forces between them. Liquids assume the shape of their containers.



Gas

The molecules that make up a gas fly in all directions at great speeds. They are so far apart that the attractive forces between them are insignificant.

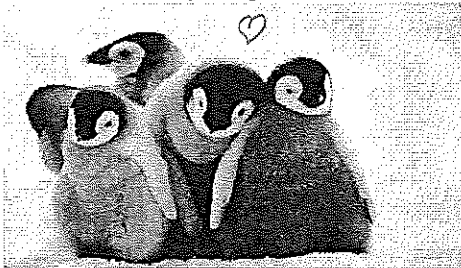


Plasma

At the very high temperatures of stars, atoms lose their electrons. The mixture of electrons and nuclei that results is the plasma state of matter.

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8. How are penguins like ice molecules? And Why? (Reread *Matter Changes*)



Ice molecules are packed together.
They hardly move. Ice maintains its shape
and occupies the same amount of space.

9. Also from *Matter Changes*, What does the broken toy car represent? Gas molecule being super heated.

Explain. When gas is heated a lot, the molecules move around so much they finally separate into tiny pieces. Plasma is formed when this way.

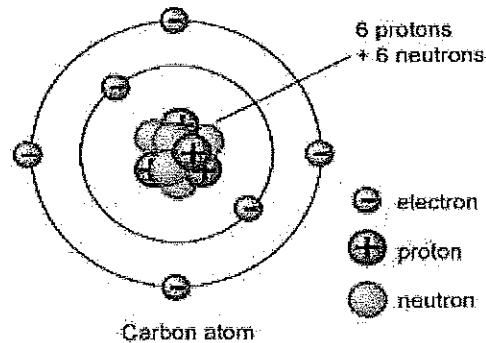
10. Sunlight is a source of 'light' and 'heat' energy

11. The increase and decrease of energy applied to a substance will *effect* the state of matter

What kind of relationship would this be? cause and effect.



III. ATOMS



12. Number the following particles in order from smallest to biggest; 1, 2, 3, 4, 5

Atoms, Electrons, Neutrons, Molecule, Nucleus

electrons

Neutrons

Nucleus

Atoms

molecule

1.

2.

3.

4.

5.

Smallest

Biggest

13. In an Atom, what are the **Subatomic** particles (hint: the little ones in the picture above)?

a. electron b. proton c. neutron

14. When substances receive extreme amounts of energy what happen to their electrons?

They break off from their atom.

15. You can make equations that show what happens to substances when energy is added or taken away.

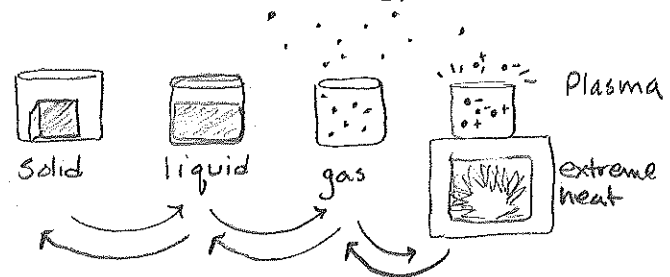
a. example: gas + energy = plasma

b. solid + energy = liquid

c. liquid + energy = gas

d. Liquid - energy = solid

e. Plasma - energy = gas



16. The molecular structure of liquid particles allow it to Flow freely

Because the water molecules can squish around and take the shape of their container

17. The molecular structure of gas particles allow it to Float away - float freely

Because they move fast and spread out

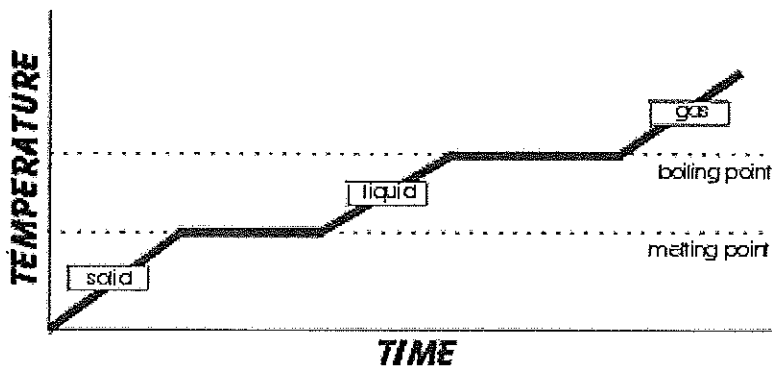
18. The molecular structure of a solid allows it to stay in one place - rigid

Because they are packed together

19. What super power does PLASMA have? (Think lights, stars, sun) glows - lights up

IV. Graph

i.e. Changing state of Matter



19. What type of graph is shown? line

20. What is the title of the horizontal axis? time

21. Look carefully at the graph as a whole and think of a title and write it on the line.

22. Does the graph tell us what substance is changing states? No. What type of substance could it be? water, juice,

To prepare for the quiz: 1. reread, 2. rewrite, 3. recreate illustrations, and 4. have an ongoing list of questions that you add to as they come up. Don't wait until the last minute to review the material.

Parent's Signature _____