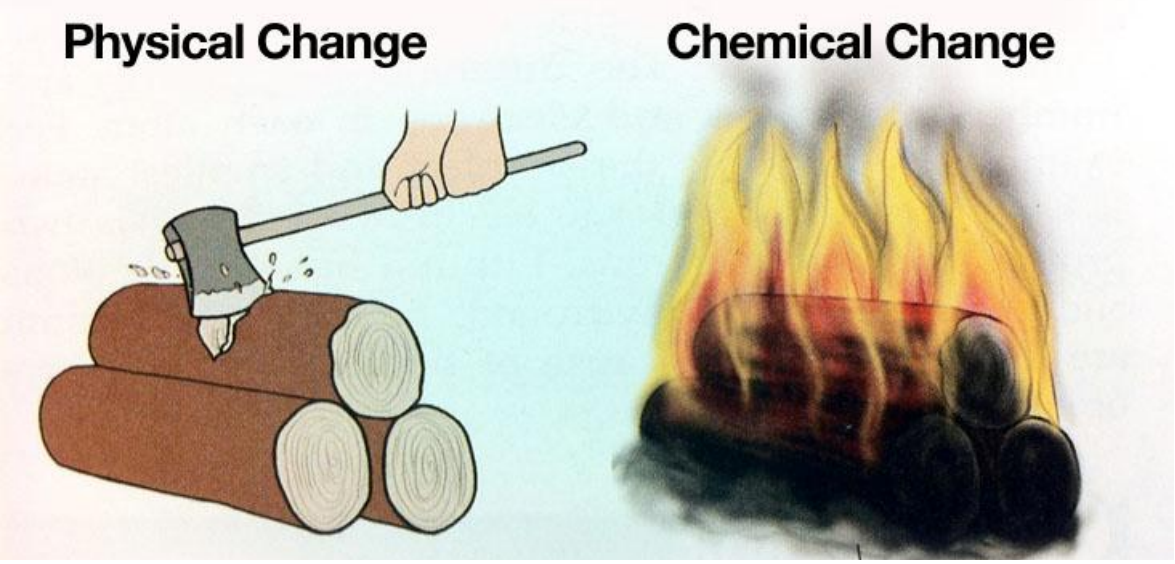
8th Grade
Science Packet
Week 3



DIRECTIONS: Please read the notes and answer the questions. If you need extra help or information, visit Google Classroom to access more resources and contact your teacher.

NOTES *(Notas)*

DIRECTIONS: Please use the notes below to answer the questions.

Matter is anything that has mass and takes up space. The amount of matter in an object is its **mass**.

Matter has 2 types of **properties**, or characteristics. There are physical properties and chemical properties. **Physical properties** are characteristics that describe the objects themselves, without changing into other substances. An example of a physical property is color.

Chemical properties are characteristics that describe an object's ability to change into a different substance. An example of a chemical property is paper's flammability (its ability to catch on fire).

Matter can change into 2 ways: chemical changes or physical changes. Every chemical or physical change in matter includes a change in energy. **A chemical change** produces new substances with properties that differ from the original substances. An example of a chemical change is burning wood. In **a physical change**, matter does NOT change into a new kind of matter. An example of a physical change is a change of state, like melting ice from solid to liquid.

If you boil water on the stove, that is a physical change. **Boiling water** is a change of state from liquid to gas. However, boiling requires heat from the stove. That requires the chemical change of **combustion**, which means burning something. The process includes chemical and thermal forms of energy.

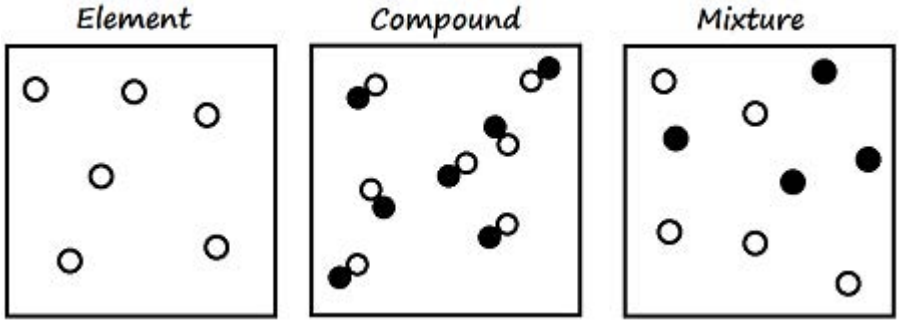
... but what exactly is energy? The ability to do work is called **energy**. There are different types of energy:
Thermal energy is basically like heat. Thermal energy flows from warmer objects to cooler objects.
Chemical energy is the energy stored in the chemical bonds between atoms.
Electrical energy is the energy of moving charged particles.
Electromagnetic energy is a form of energy that travels through space as waves. Light is an example of electromagnetic energy.

All matter is made of small particles called **atoms**. For example, you take up space so you are matter so you are made of atoms. **An atom** is a particle of an element. **An element** is something made from only one type of atom. For example, Oxygen is an element. Elements are the simplest substances.

When you have groups of atoms held together by chemical bonds, that is called **a molecule**. **A chemical bond** is the force that holds atoms together.

Two or more elements can join together to make **a compound**. However, a compound has **different properties** from the elements it is made of. For example, the elements Hydrogen and Oxygen join together to form H2O. H2O is another name for water! Water has very different properties than Oxygen.

Materials made of 2 or more substances (elements, compounds, or both) are called **mixtures**. The parts of a mixture are easily separated. A mixture in which the separate parts of the mixture are very evenly mixed together is called **a solution**. For example, if you mixed sugar into a bowl of water, that would be a solution.



Week 3 Packet: "Review of Matter"

Name: _____ Period: ___

<u>DIRECTIONS:</u> Please use the notes on the previous page in order to answer the questions. If you need extra help or information, visit Google Classroom to access more resources and contact your teacher.

Multiple Choice

Write the letter of the correct answer on the line at the left.

___ 1. Which is a physical property?
- a. color
- b. ability to burn
- c. ability to rust

___ 2. An atom
- a. is the largest piece of matter.
- b. is made up of compounds.
- c. is a particle of an element.

___ 3. A chemical bond is
- a. a physical property.
- b. the smallest piece of matter.
- c. the force that holds atoms together.

___ 4. A compound
- a. is the same as a mixture.
- b. has the same properties as the elements it is made of.
- c. has different properties from the elements it is made of.

___ 5. The parts of a mixture
- a. cannot be separated.
- b. are easily separated.
- c. have new properties after they are mixed.

___ 6. The amount of matter in an object is its
- a. mass.
- b. weight.
- c. volume.

___ 7. Groups of atoms held together by chemical bonds form
- a. mixtures.
- b. molecules.
- c. solutions.
- d. energy.

____ 8. Which is an example of a chemical change?
- a. burning wood
- b. freezing water
- c. bending a paper clip

____ 9. Every chemical or physical change in matter includes a change in
- a. weight.
- b. mass.
- c. energy.

____ 10. Which of the following is an example of a change of state?
- a. pouring chocolate syrup over ice cream
- b. melting ice in a glass of lemonade
- c. stretching copper into a wire

Completion

Read each word in the box. In each sentence below, fill in one of the words. Not all of the words will be used.

chemical	solution	energy	physical
matter	electromagnetic		

11. Anything that has mass and takes up space is called _____.

12. A(An) _____ change produces new substances with properties that differ from the original substances.

13. The ability to do work is called _____.

14. A mixture in which the separate parts of the mixture are very evenly mixed together is called a(an) _____.

15. Light is an example of _____ energy.

True or False

If a statement is true, write true. *If it is false, write* false.

_____ 16. Elements are the simplest substances.

_____ 17. Electrical energy is stored in the bonds that hold atoms together.

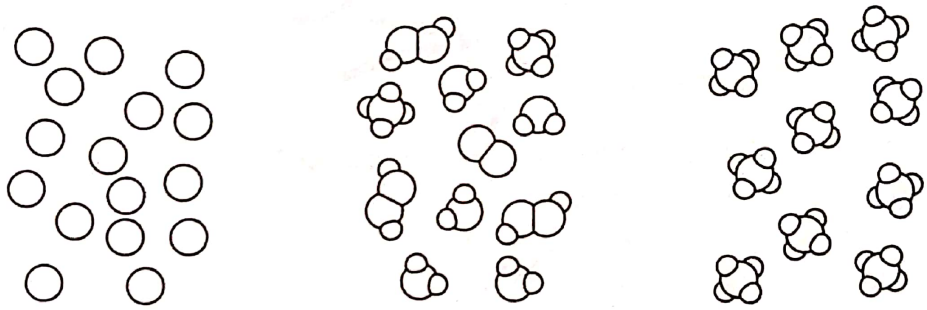
_____ 18. In a physical change, matter changes into a new kind of matter.

_____ 19. Thermal energy flows from warmer objects to cooler objects.

_____ 20. Electrical energy is the energy of moving charged particles.

Using Science Skills

Use the diagram below to answer questions 21 and 22.



____ 21. **Interpreting Diagrams** Look at each diagram. Which diagram is a compound?

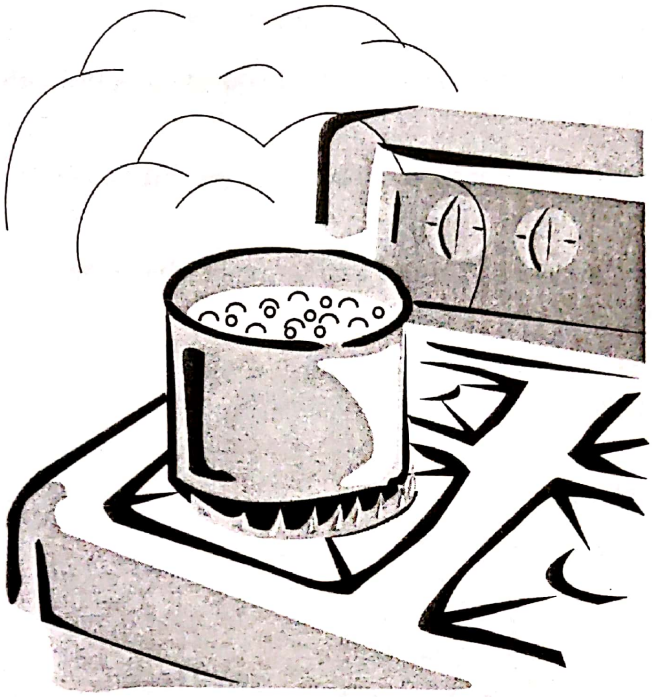
a. diagram A
b. diagram B
c. diagram C

____ 22. **Interpreting Diagrams** Which diagram is a mixture?

a. diagram A
b. diagram B
c. diagram C

Using Science Skills

Use the figure below to answer questions 23, 24, and 25.



____ **23. Inferring** What change of state is taking place?

a. liquid to gas

b. gas to liquid

c. solid to liquid

____ **24. Inferring** What forms of energy are shown?

a. electrical and thermal

b. electromagnetic and thermal

c. chemical and thermal

____ **25. Applying Concepts** What kind of chemical change is shown?

a. tarnishing

b. oxidation

c. combustion