Name _____

CHAPTER 15.2 REVIEW

SCIENCE 9 FILMSTRIP STUDY GUIDE: PHYSICAL AND CHEMICAL CHANGES: WHAT KIND OF CHANGE?

TRUE AND FALSE: CORRECT THE FALSE STATEMENTS.

1..... A change in phase or state indicates that a chemical change has occurred.

2..... A change in composition indicates that a chemical change has occurred.

3..... A change in shape indicates that a physical change has occurred.

4..... Both physical and chemical changes involve energy changes.

5..... The burning of a piece of wood is a physical change.

6..... When ice melts, a chemical change takes place.

7..... When mercuric oxide breaks down into the elements, mercury and oxygen, it has undergone a physical change.

8..... The separation of a mixture into its parts is a physical change.

9..... The melting of iron is a chemical change.

10..... A glowing candle is an example of a physical change.

PHYSICAL OR CHEMICAL: For each of the following, state whether a physical or chemical change occurs.

1.....	mowing the lawn	6.....	cutting paper
2.....	digestion of food	7.....	burning paper
3.....	lighting a match	8.....	formation of water from its elements
4.....	stretching a rubber band	9.....	dissolving sugar in water
5.....	baking a cake	10.....	melting glass

THOUGHT QUESTIONS:

1. How could you decide whether the dissolving of sugar in water is a physical or chemical change?

2. How do a physical and a chemical change differ from each other?

SCIENCE 9
PHYSICAL AND CHEMICAL PROPERTIES

This is a drill on recognition of physical and chemical properties of matter. If you recognize a property as being a physical property, place a "P" in the blank. If you recognize the property as being chemical, place a "C" in the blank.

1..... burns easily

2..... is a yellow powder

3..... burns with a green flame

4..... has a metallic luster

5..... combines with oxygen

6..... dissolves in water

7..... has a mass of 4 grams per cubic centimeter

8..... melts at 200 ° C

9..... is a gas at room temperature

10..... ignites when exposed to air

11..... is inert or doesn't react with other elements

12..... is a blue colored liquid

13..... has a ring when struck

14..... does not burn

15..... combines with sulfur to form a gas

16..... has an appearance similar to black chalk

17..... is a solid at 0° C

18..... is a poison to the human body

19..... has a purple flame when ignited

20..... is a conductor of electricity

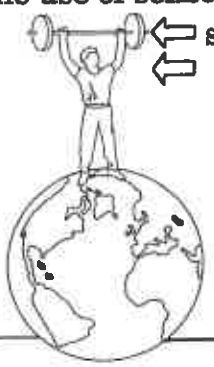
21..... will turn into a liquid at 100° C

22..... will float when placed into a container of oil

Physical Properties of Matter

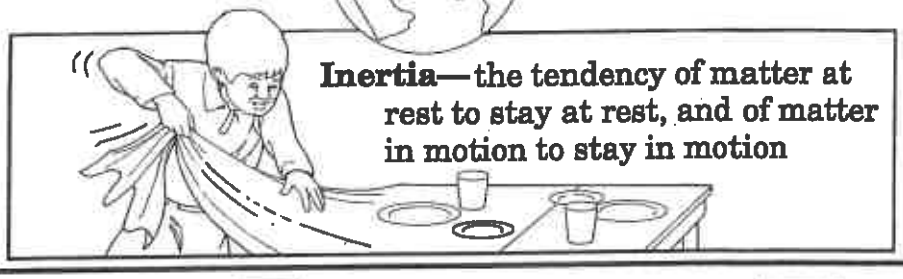
Physical properties are determined by the use of senses.

Standard Mass
Metric System

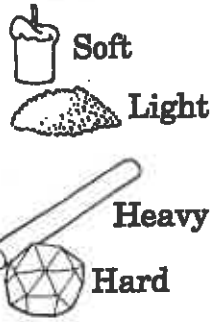


60 lbs. weight on earth

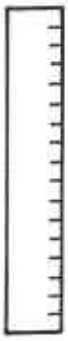
10 lbs. weight on moon



Inertia—the tendency of matter at rest to stay at rest, and of matter in motion to stay in motion



Hardness



0.00009 g/cc (hydrogen)
1.0 g/cc (water)
2.7 g/cc (aluminum)
4.8 g/cc (carbon)
11.4 g/cc (lead)
13.6 g/cc (mercury)

Mass Density

1535.0°C (iron)
1063.0°C (gold)
327.5°C (lead)
112.8°C (sulfur)
0.0°C (ice)
–38.8°C (mercury)

Melting Point

1. Write a P next to the properties of matter that are physical.

   a. color _____ c. burning _____ e. weight _____

   b. hardness _____ d. reaction with acid ____ f. boiling point _____

2. List the following examples of matter in increasing order of hardness: apple, candle, diamond, iron, jello, wood.

   _____

   (softest) ..... (hardest)

3. What will happen if a substance with a mass density greater than water is placed into a container of water? _____

4. Read the list of melting points shown above. Which substances are liquid at room temperature (25° C—77° F)? _____

5. What is the difference between mass and weight? _____

   _____

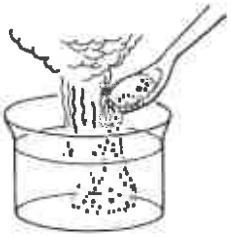
6. What makes it difficult to start rolling a large boulder? _____

Chemical Properties of Matter

A. _____

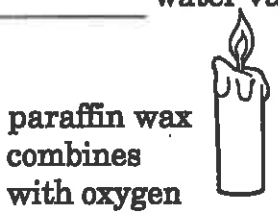
zinc in hydrochloric acid

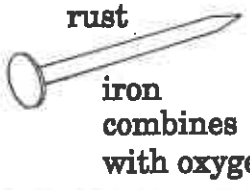
acid on limestone

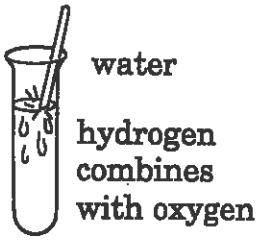


vinegar and baking soda

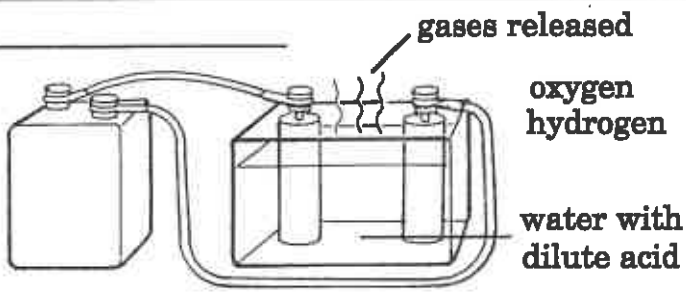
B. _____

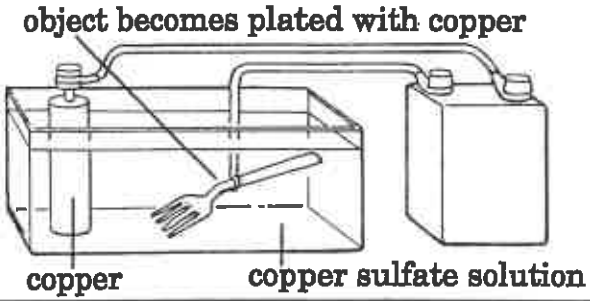




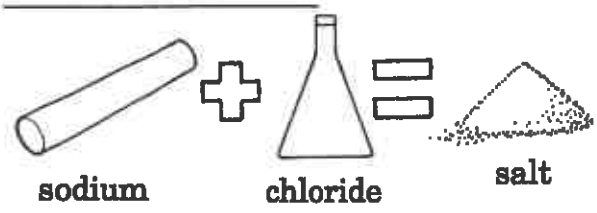


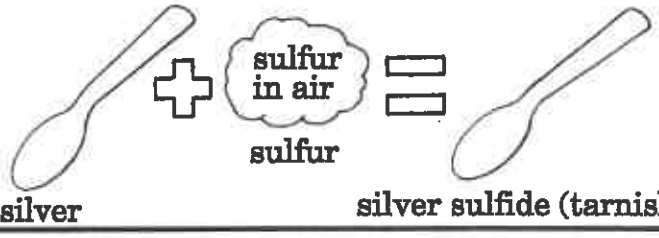
C. _____





D. _____





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1. How are chemical properties and physical properties of matter different? _____

_____

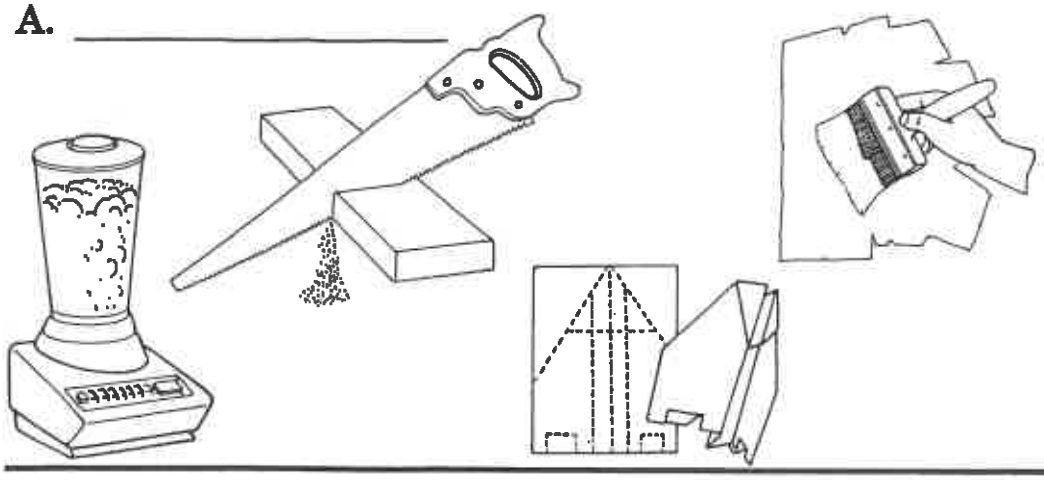
2. In blanks A – D above, list the kinds of chemical reactions that are shown in the pictures.
3. What is produced when vinegar and baking soda are mixed together? _____
4. What are the products when wax burns? _____
5. How can water be decomposed into its elements, hydrogen and oxygen? _____
6. How can silver be prevented from tarnishing? _____
7. Identify these properties of matter as chemical (C) or physical (P).

a. magnetic _____ c. shape _____ e. density _____

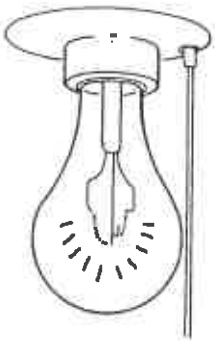
b. rusting _____ d. oxidizing _____ f. electroplating _____

Physical Changes

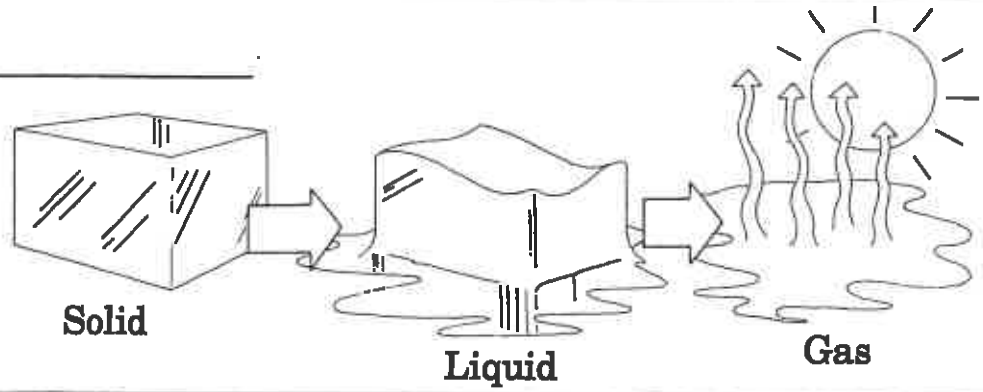
A. _____



B. _____



C. _____



1. Define physical change. _____

_____

2. Identify and label the types of physical changes shown on lines A, B, and C above.
3. Indicate by writing a Y for *yes* or an N for *no* whether the following are physical changes.

a. sharpening a pencil _____
b. evaporating water _____
c. burning a pencil _____
d. mixing sand and water _____
e. freezing water _____
f. spray painting a car _____
g. melting ice cream _____
h. rusting steel wool _____

4. Why are changes in phase physical changes? _____

_____

5. Why is rust forming on a nail not a physical change? _____

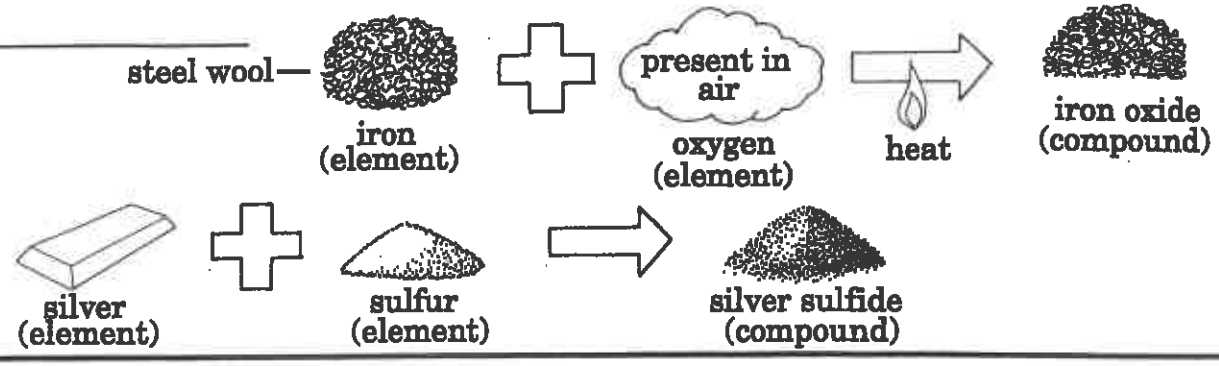
_____

6. Why are most physical changes easy to recognize? _____

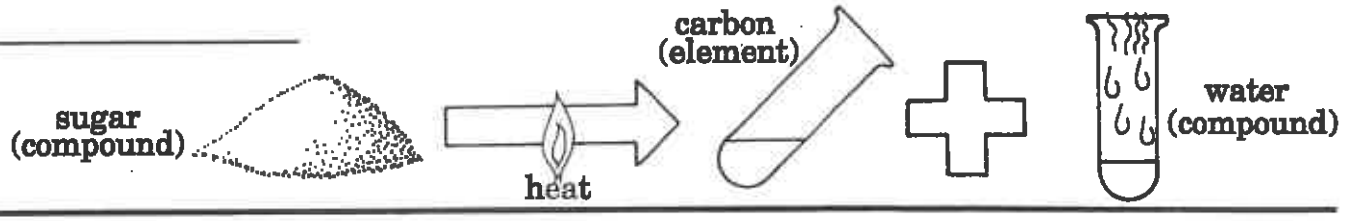
_____

Chemical Changes

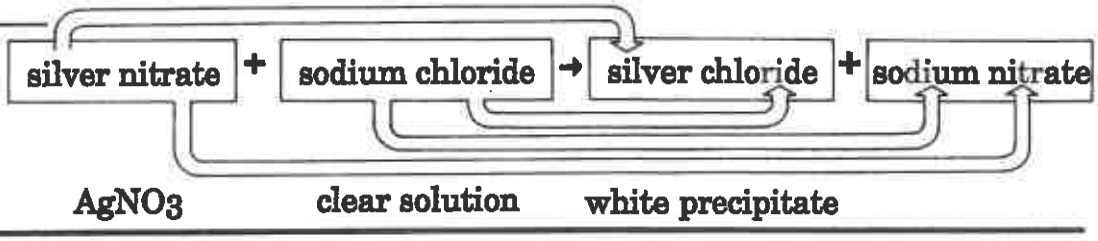
A. _____



B. _____



C. _____



1. How is a chemical change different from a physical change? _____

_____

2. On lines A, B, and C above, write the type of chemical reaction.
3. Write the word or phrase from Column B in the space before its description in Column A.

	Column A	Column B
_____	a. two elements from a compound	physical change
_____	b. compound breaks down into elements	decomposition reaction
_____	c. changing of partners process	displacement reaction
_____	d. rusting metal	composition reaction
_____	e. making a milkshake	chemical change

4. Write the correct type of chemical reaction next to each example given below:
   a. sulfuric acid + zinc = hydrogen + zinc sulfate _____
   b. starches in food + saliva in mouth = simple sugars _____
   c. sodium + chlorine = sodium chloride _____
   d. mercuric oxide + heat = mercury + oxygen _____