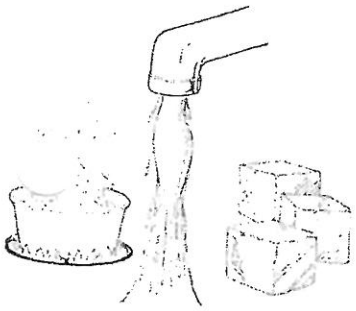
PHYSICAL VS. CHEMICAL CHANGE

#1



In a physical change, the original substance still exists, it has only changed in form. Energy changes usually do not accompany physical changes, except in phase changes and when substances dissolve

In a chemical change, a new substance is produced. Energy changes always accompany chemical changes. Chemical changes are always accompanied by physical changes.

Classify the following as examples of a physical change, a chemical change or both kinds of change.

1. Sodium hydroxide dissolves in water. _____
2. Hydrochloric acid reacts with sodium hydroxide to produce a salt, water and heat. _____
3. A pellet of sodium is sliced in two. _____
4. Water is heated and changed to steam. _____
5. Potassium chlorate decomposes to potassium chloride and oxygen gas. _____
6. Iron rusts. _____
7. Ice melts. _____
8. Acid on limestone produces carbon dioxide gas. _____
9. Milk sours. _____
10. Wood rots. _____

PHYSICAL VS. CHEMICAL PROPERTIES

#2

A physical property is observed with the senses and can be determined without destroying the object. For example, color, shape, mass, length, density, specific heat and odor are all examples of physical properties.

A chemical property indicates how a substance reacts with something else. When a chemical property is observed, the original substance is changed into a different substance. For example, the ability of iron to rust is a chemical property. The iron has reacted with oxygen and the original iron metal is gone. It is now iron oxide, a new substance. All chemical changes include physical changes.

Classify the following properties as either chemical or physical by putting a check in the appropriate column.

	Physical Property	Chemical Property
1. red color		
2. density		
3. flammability		
4. solubility		
5. reacts with acid to form hydrogen		
6. supports combustion		
7. bitter taste		
8. melting point		
9. reacts with water to form a gas		
10. reacts with a base to form water		
11. hardness		
12. boiling point		
13. can neutralize a base		
14. luster		
15. odor		

#3

Name:

Classify the following substances and mixtures as either homogeneous or heterogeneous. Place a √ in the correct column.

	HOMOGENEOUS	HETEROGENEOUS
1. flat soda pop		
2. cherry vanilla ice cream		
3. salad dressing		
4. sugar		
5. soil		
6. aluminum foil		
7. black coffee		
8. sugar water		
9. city air		
10. paint		
11. alcohol		
12. iron		
13. beach sand		
14. pure air		
15. Spaghetti sauce		

#4

SUBSTANCES VS. MIXTURES

A substance is matter for which a chemical formula can be written. Elements and compounds are substances. Mixtures can be in any proportion, and the parts are not chemically bonded.

Classify the following as to whether it is a substance or a mixture by writing S or M in the space provided.

1. sodium _____
2. water _____
3. salt _____
4. coffee _____
5. oxygen _____
6. alcohol _____
7. carbon dioxide _____
8. cake batter _____
9. air _____
10. soup _____
11. iron _____
12. salt water _____
13. ice cream _____
14. nitrogen _____
15. eggs _____
16. blood _____
17. table salt _____
18. nail polish _____
19. milk _____
20. cola _____