PHYSICAL VS. CHEMICAL PROPERTIES

Name _____

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

©Instructional Fair, Inc.

PHYSICAL VS. CHEMICAL CHANGES

Name _____

In a physical change, the original substance still exists, it has only changed in form. In a chemical change, a new substance is produced. Energy changes always accompany chemical changes.

Classify the following as being a physical or chemical change.

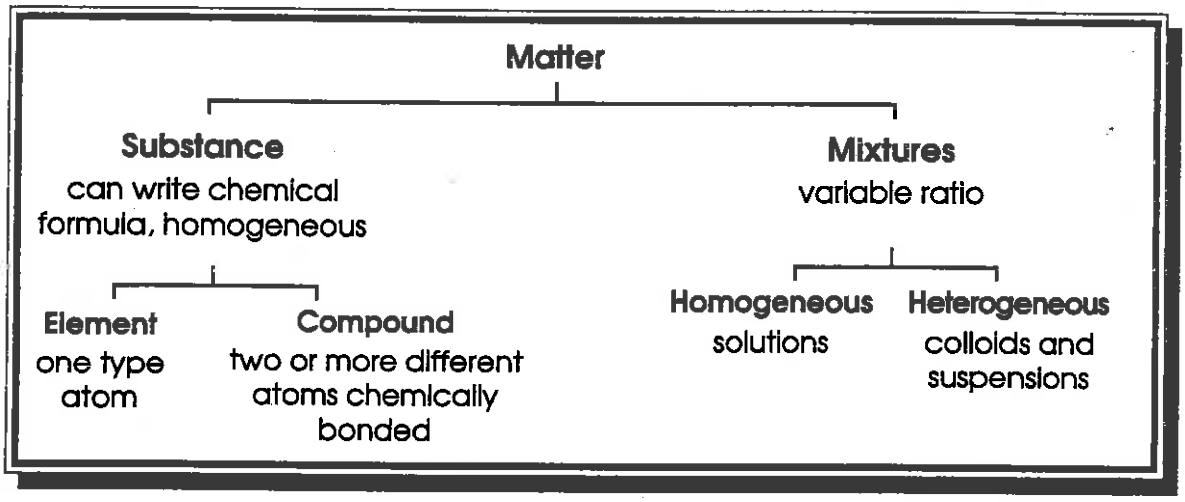
1. Sodium hydroxide dissolves in water. P
2. Hydrochloric acid reacts with potassium hydroxide to produce a salt, water and heat. C
3. A pellet of sodium is sliced in two. P
4. Water is heated and changed to steam. P
5. Potassium chlorate decomposes to potassium chloride and oxygen gas. C
6. Iron rusts. C
7. When placed in H_2O, a sodium pellet catches on fire as hydrogen gas is liberated and sodium hydroxide forms. C
8. Evaporation P
9. Ice melting P
10. Milk sours. C
11. Sugar dissolves in water. P
12. Wood rotting C
13. Pancakes cooking on a griddle C
14. Grass growing in a lawn C
15. A tire is inflated with air. P
16. Food is digested in the stomach. C
17. Water is absorbed by a paper towel. P

©Instructional Fair, Inc.

MATTER—SUBSTANCES VS. MIXTURES

Name _____

All matter can be classified as either a substance (element or compound) or a mixture (heterogeneous or homogeneous).



Classify each of the following as to whether it is a substance or a mixture. If it is a substance, write Element or Compound in the substance column. If it is a mixture, write Heterogeneous or Homogeneous in the mixture column.

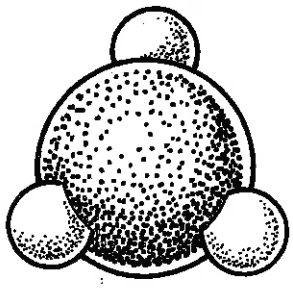
Type of Matter	Substance	Mixture
1. chlorine	element	
2. water	compound	
3. soil		hetero
4. sugar water		homo
5. oxygen	element	
6. carbon dioxide	compound	
7. rocky road ice cream		hetero
8. alcohol	compound	
9. pure air		homo
10. iron	element	

©Instructional Fair, Inc.

SUBSTANCES VS. MIXTURES

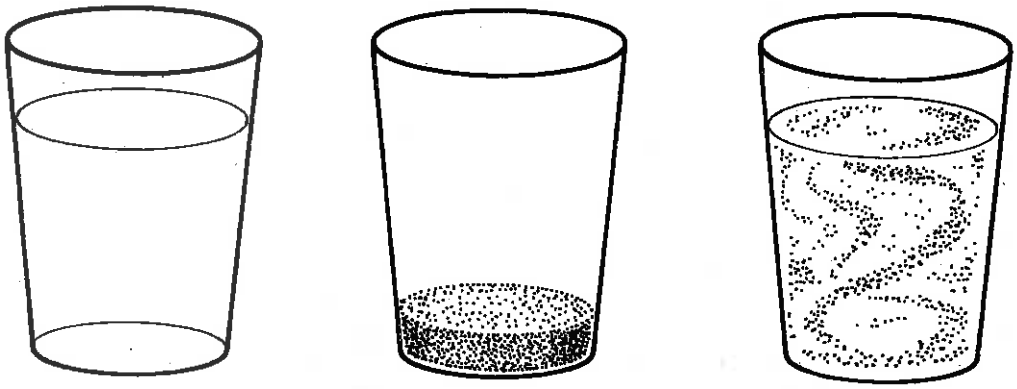
Name _____

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



©Instructional Fair, Inc.