

PHYSICAL AND CHEMICAL PROPERTIES AND CHANGES

Name _____

PHYSICAL PROPERTY

- observed with senses
- determined without destroying matter

CHEMICAL PROPERTY

- indicates how a substance reacts with something else
- matter will be changed into a new substance after the reaction

Identify the following as a chemical (C) or physical property (P):

- | | |
|---------------------------|----------------------|
| 1. blue color | 8. melting point |
| 2. density | 9. reacts with water |
| 3. flammability (burns) | 10. hardness |
| 4. solubility (dissolves) | 11. boiling point |
| 5. reacts with acid | 12. luster |
| 6. supports combustion | 13. odor |
| 7. sour taste | 14. reacts with air |

PHYSICAL CHANGE

- a change in size, shape, or state
- no new substance is formed

CHEMICAL CHANGE

- a change in the physical and chemical properties
- a new substance is formed

Identify the following as physical (P) or chemical (C) changes.

- | | |
|--------------------------------------------|--------------------------------|
| 1. NaCl (Table Salt) dissolves in water. | 9. Milk sours. |
| 2. Ag (Silver) tarnishes. | 10. Sugar dissolves in water. |
| 3. An apple is cut. | 11. Wood rots. |
| 4. Heat changes H ₂ O to steam. | 12. Pancakes cook. |
| 5. Baking soda reacts to vinegar. | 13. Grass grows. |
| 6. Fe (Iron) rusts. | 14. A tire is inflated. |
| 7. Alcohol evaporates. | 15. Food is digested. |
| 8. Ice melts. | 16. Paper towel absorbs water. |

Physical and Chemical Changes

Part A
Can you recognize the chemical and physical changes that happen all around us? If you change the way something looks, but haven't made a new substance, a **physical change (P)** has occurred. If the substance has been changed into another substance, a **chemical change (C)** has occurred.

1.	An ice cube is placed in the sun. Later there is a puddle of water. Later still the puddle is gone.
2.	Two chemical are mixed together and a gas is produce.
3.	A bicycle changes color as it rusts.
4.	A solid is crushed to a powder.

Part B.

Read each scenario. Decide whether a physical or chemical change has occurred and give evidence for your decision. The first one has been done for you to use as an example.

Scenario	Physical or Chemical Change?	Evidence...
1. Umm! A student removes a loaf of bread hot from the oven. The student cuts a slice off the loaf and spreads butter on it.	Physical	No change in substances. No unexpected color change, temperature change or gas given off.
2. Your friend decides to toast a piece of bread, but leaves it in the toaster too long. The bread is black and the kitchen if full of smoke.		
3. You forgot to dry the bread knife when you washed it and reddish brown spots appeared on it.		
4. You blow dry your wet hair.		
5. In baking biscuits and other quick breads, the baking powder reacts to release carbon dioxide bubbles. The carbon dioxide bubbles cause the dough to rise.		
6. You take out your best silver spoons and notice that they are very dull and have some black spots.		
7. A straight piece of wire is coiled to form a spring.		
8. Food color is dropped into water to give it color.		
9. Chewing food to break it down into smaller particles represents a _____ change, but the changing of starch into sugars by enzymes in the digestive system represents a _____ change.		
10. In a fireworks show, the fireworks explode giving off heat and light.		

Part C: True (T) or False (F)

1.	Changing the size and shapes of pieces of wood would be a chemical change.
2.	In a physical change, the makeup of matter is changed.
3.	Evaporation occurs when liquid water changes into a gas.
4.	Evaporation is a physical change.