PHYSICAL AND CHEMICAL PROPERTIES AND CHANGES

# PHYSICAL PROPERTY CHEMICAL PROPERTY

1. observed with senses 1. indicates how a substance

2. determined without destroying matter reacts with something else

2. 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 CHEMICAL CHANGE

1. a change in size, shape, or state 1. a change in the physical and

2. no new substance is formed chemical properties

2. 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 H2O to steam. \_\_\_\_\_\_12. Pancakes cook.

\_\_\_\_\_5. Baking soda reacts to vinger. \_\_\_\_\_\_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 changes into another substance, a **chemical change** (C) has occurred.

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| 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. |
| 5. |  | Two substances are mixed and light is produced. |
| 6. |  | A piece of ice melts and reacts with sodium. |
| 7. |  | Mixing salt and pepper. |
| 8. |  | Chocolate syrup is dissolved in milk. |
| 9. |  | A marshmallow is toasted over a campfire. |
| 10. |  | A marshmallow is cut in half. |

**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.

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|  | **Scenario** | **Physical or Chemical Change?** | **Evidence…** |
| 1. | Mmm! 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)**

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| 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. |
| 5. |  | Burning wood is a physical change. |
| 6. |  | Combining hydrogen and oxygen to make water is a physical change. |
| 7. |  | Breaking up concrete is a physical change. |
| 8. |  | Sand being washed out to sea from the beach is a chemical change. |
| 9. |  | When ice cream melts, a chemical change occurs. |
| 10. |  | Acid rain damaging a marble statue is a physical change. |