**PHYSICAL AND CHEMICAL PROPERTIES AND CHANGES**

Name ____________________________

### PHYSICAL PROPERTY
1. observed with senses
2. determined without destroying matter

### CHEMICAL PROPERTY
1. indicates how a substance 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**
- **2. density**
- **3. flammability (burns)**
- **4. solubility (dissolves)**
- **5. reacts with acid**
- **6. supports combustion**
- **7. sour taste**
- **8. melting point**
- **9. reacts with water**
- **10. hardness**
- **11. boiling point**
- **12. luster**
- **13. odor**
- **14. reacts with air**

### PHYSICAL CHANGE
1. a change in size, shape, or state
2. no new substance is formed

### CHEMICAL CHANGE
1. a change in the physical and 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.**
- **2. Ag (Silver) tarnishes.**
- **3. An apple is cut.**
- **4. Heat changes H₂O to steam.**
- **5. Baking soda reacts to vinger.**
- **6. Fe (Iron) rusts.**
- **7. Alcohol evaporates .**
- **8. Ice melts.**
- **9. Milk sours.**
- **10. Sugar dissolves in water.**
- **11. Wood rots.**
- **12. Pancakes cook.**
- **13. Grass grows.**
- **14. A tire is inflated.**
- **15. Food is digested.**
- **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.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>An ice cube is placed in the sun. Later there is a puddle of water. Later still the puddle is gone.</td>
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<tr>
<td>2.</td>
<td>Two chemical are mixed together and a gas is produce.</td>
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<tr>
<td>3.</td>
<td>A bicycle changes color as it rusts.</td>
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<tr>
<td>4.</td>
<td>A solid is crushed to a powder.</td>
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<tr>
<td>5.</td>
<td>Two substances are mixed and light is produced.</td>
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<tr>
<td>6.</td>
<td>A piece of ice melts and reacts with sodium.</td>
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<td>7.</td>
<td>Mixing salt and pepper.</td>
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<td>8.</td>
<td>Chocolate syrup is dissolved in milk.</td>
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<tr>
<td>9.</td>
<td>A marshmallow is toasted over a campfire.</td>
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<tr>
<td>10.</td>
<td>A marshmallow is cut in half.</td>
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</tbody>
</table>
**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.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Physical or Chemical Change?</th>
<th>Evidence…</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>Physical</td>
<td>No change in substances. No unexpected color change, temperature change or gas given off.</td>
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<tr>
<td>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 is full of smoke.</td>
<td>Physical</td>
<td></td>
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<td>3. You forgot to dry the bread knife when you washed it and reddish brown spots appeared on it.</td>
<td>Physical</td>
<td></td>
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<tr>
<td>4. You blow dry your wet hair.</td>
<td>Physical</td>
<td></td>
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<tr>
<td>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.</td>
<td>Physical</td>
<td></td>
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<tr>
<td>6. You take out your best silver spoons and notice that they are very dull and have some black spots.</td>
<td>Physical</td>
<td></td>
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<tr>
<td>7. A straight piece of wire is coiled to form a spring.</td>
<td>Physical</td>
<td></td>
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<tr>
<td>8. Food color is dropped into water to give it color.</td>
<td>Physical</td>
<td></td>
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<tr>
<td>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.</td>
<td>Physical</td>
<td></td>
</tr>
<tr>
<td>10. In a fireworks show, the fireworks explode giving off heat and light.</td>
<td>Physical</td>
<td></td>
</tr>
</tbody>
</table>

**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.  
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.