

## Lesson 22-Physical Changes and Properties

### KEY TERMS

*matter*  
*physical change*  
*physical property*  
*property*

### OBJECTIVES

- Define matter
- Identify examples of physical changes

**Matter** is anything that takes up space and has mass. There are **three (3)** states of matter. They are ***solid***, ***liquid*** and ***gas***. All substances have certain characteristics called properties. Properties can be physical or chemical. A **physical property** is a feature that can be observed or measured without changing the substance or any of the materials it is made up of. Physical properties that can be observed are ***color***, ***shape***, ***size***, ***luster*** and ***texture***. Physical properties that can be measured are ***density***, ***heat***, ***length***, ***width*** and ***thickness***. Some physical properties such as melting point, boiling point and color do not change. When we change the physical properties of a substance, this is called a **physical change**.

Examples of physical changes include ***sharpening a pencil***, ***grating coconut***, ***cutting paper*** and ***melting wax***.

Although change took place, the properties of each substance remained the same.

**Here are some examples of physical changes:**



*Tearing paper*



*Chopping Wood*



*Cutting a Celot*



*Breaking glass*



*Popping a Balloon*



*Mixing Candy*



*Sharpening a Pencil*

If you **tear**, **chop**, **cut**, **break**, **pop**, **mix** or **sharpen** in the examples above, it is a physical change. These changes will not result in a new substance.

## Lesson 23-Chemical Changes and Properties

### KEY TERMS

*antioxidants*  
*chemical change*  
*combustion*  
*corrosion*  
*decomposition*

### OBJECTIVE

→ Tell the difference between physical and chemical changes

*Chemical properties* describe how particles are rearranged when one substance reacts with another substance. When two substances react and a new substance is produced, which is unlike either of the original substances used, a **chemical change** has taken place. A new substance is formed during chemical change. Some substances react quickly while others react slowly.

**Combustion** or burning and **decomposition** or rotting are types of chemical changes. Some chemical changes give off energy; E.g. burning coal releases heat and light energy. Some changes require the addition of heat energy. Examples of these are the chemical changes that cause food to spoil or iron to rust. Naturally occurring chemical changes can be harmful. To avoid the effects of naturally occurring chemical changes, we can resort to freezing or drying to preserve food. Tools can be kept well oiled to prevent rusting. Rusting takes place when chemicals react with oxygen. Substances that prevent **corrosion** or rusting are called **antioxidants**.

Here are some examples of chemical changes:



Iron Rusting



Burning Wood



Metabolism



Cooking an Egg



Baking a Cake



Electroplating



Rotting Banana



Vinegar and Baking Soda Mixture



Fireworks



Chemical Battery

## Physical & Chemical Changes and Properties-Assessment 1

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Read and answer the following questions correctly.

1. What is matter?

[1]

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2. Look at each picture below. Say whether each picture is showing a **physical** or **chemical** change. Write your answer on the lines provided.

[3]

a. broken mug



b. wood burning



c. rotting apple



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3(a) Max shredded a document. What type of change is this?

[1]

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3(b) What is another example of the type of change mentioned in 3(a)?

[1]

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4. Which one of the following is NOT a physical property that can be measured? Shade in the LETTER next to the correct answer. [1]



5(a) Sara threw a stack of papers into a fire. What new form of matter is produced after the paper is burned? [1]

5(b) Is the answer mentioned in 5(a) the result of a physical change or chemical change? Circle the correct answer.

6. Which one of the following substances prevents **corrosion**? Shade in the LETTER next to the correct answer. [1]

- (A) antibiotics      (B) antidote      (C) antioxidants      (D) antiseptic

7. On the way to school Peter saw a decaying banana. Give ONE way in which the banana has changed physically and one way it has changed chemically. [2]

PHYSICALLY	CHEMICALLY

**TOTAL MARKS-12**

## Physical & Chemical Changes and Properties-Assessment 2

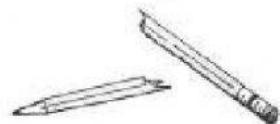
Name: \_\_\_\_\_ Date: \_\_\_\_\_

The pictures below show physical and chemical changes in matter. Use the pictures to answer the following questions correctly.

fried egg



broken pencil



1. Write the description of the picture that represents an example of the following.

a. a physical change in matter \_\_\_\_\_ [1]

b. a chemical change in matter \_\_\_\_\_ [1]

2(a) Look at the picture below. Explain what is happening in the picture. [1]

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2(b) What type of change is happening in this picture above? [1]

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3. Write the word from the box that is a synonym for the following words. [3]

burning	rotting	rusting
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a. combustion- \_\_\_\_\_

b. corrosion- \_\_\_\_\_

c. decomposition- \_\_\_\_\_

4. Read the following examples of changes and write **Physical Change or Chemical**

**Change** to correctly describe each one. [4]

a. fireworks- \_\_\_\_\_

b. sharpening a pencil- \_\_\_\_\_

c. wetting a shirt- \_\_\_\_\_

d. baking a cake- \_\_\_\_\_

5. Complete the statement below to show cause and effect. [1]

When chemicals react with oxygen it causes \_\_\_\_\_.

**TOTAL MARKS-12**