

Physical And Chemical Change Worksheet Answer Key PDF

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Part 1: Building a Foundation

Which of the following is an example of a physical change?

undefined. A) Burning wood

undefined. C) Melting ice ✓

undefined. D) Baking a cake

undefined. C) Rustin iron

Melting ice is a physical change because it changes state without altering its chemical structure.

Select all the indicators of a chemical change:

undefined. A) Change in state

undefined. C) Formation of a precipitate ✓

undefined. D) Change in shape

undefined. C) Production of gas ✓

Indicators of a chemical change include the production of gas and the formation of a precipitate.

Define a chemical change and provide two examples.

A chemical change involves the transformation of substances into new products. Examples include rust formation and combustion.

List two physical properties and two chemical properties of matter.

1. Physical Property 1

Color

2. Physical Property 2

Melting Point

3. Chemical Property 1

Reactivity

4. Chemical Property 2

Flammability

Physical properties include color and melting point, while chemical properties include reactivity and flammability.

Which property is observed without changing the substance's identity?

undefined. A) Chemical property

undefined. C) Reactivity

undefined. D) Flammability

undefined. C) Physical property ✓

A physical property is observed without changing the substance's identity.

Part 2: Comprehension and Application

What happens to the molecules of a substance during a physical change?

undefined. A) They form new substances.

undefined. C) They remain the same but rearrange. ✓

undefined. D) They disappear.

undefined. C) They change their chemical structure.

During a physical change, the molecules remain the same but rearrange.

Which of the following are examples of chemical changes?

undefined. A) Digest food ✓

undefined. C) Lighting a match ✓

undefined. D) Dissolving sugar in water

undefined. C) Freezing water

Examples of chemical changes include digest food and lighting a match.

Explain why melting is considered a physical change and not a chemical change.

Melting is a physical change because it only alters the state of the substance without changing its chemical composition.

Describe two scenarios where a color change indicates a chemical change.

1. Scenario 1

Iron rusts and turns reddish-brown.

2. Scenario 2

Leaves change color in the fall.

A color change can indicate a chemical change, such as when iron rusts or when leaves change color in the fall.

If you observe bubbles forming when two liquids are mixed, what type of change is likely occurring?

undefined. A) Physical change

undefined. C) No change

undefined. D) Phase change

undefined. C) Chemical change ✓

The formation of bubbles when two liquids are mixed typically indicates a chemical change.

In which scenarios would you expect a chemical change to occur?

undefined. A) Mixing vinegar and baking soda ✓

undefined. C) Baking bread ✓

undefined. D) Cutting paper

undefined. C) Melting butter

Chemical changes can occur when mixing vinegar and baking soda, or when baking bread.

Describe a real-world example where both physical and chemical changes occur simultaneously.

Cooking an egg is a real-world example where both physical changes (the change in state) and chemical changes (the denaturation of proteins) occur.

Part 3: Analysis, Evaluation, and Creation

Which of the following best explains why rust forms on iron?

undefined. A) Physical abrasion

undefined. C) Exposure to sunlight

undefined. D) Change in temperature

undefined. C) Chemical reaction with oxygen ✓

Rust forms on iron due to a chemical reaction with oxygen in the presence of moisture.

Analyze the following scenarios and identify which involve a chemical change:

undefined. A) A candle burning ✓

undefined. C) A nail rustling ✓

undefined. D) Water boiling

undefined. C) Ice melting

A candle burning and a nail rustling are examples of chemical changes.

Analyze the process of digestion and explain why it is considered a chemical change.

Digestion is a chemical change because it involves breaking down food into simpler substances through chemical reactions.

Break down the process of photosynthesis and identify the chemical changes involved.

1. Reactant 1

Carbon dioxide

2. Reactant 2

Water

3. Product 1

Glucose

4. Product 2

Oxygen

Photosynthesis involves the conversion of carbon dioxide and water into glucose and oxygen, which are chemical changes.

Which process would you evaluate as having the most significant environmental impact due to chemical changes?

undefined. A) Combustions of fossil fuels ✓

undefined. C) Evaporation of water

undefined. D) Dissolution of salt in water

undefined. C) Melting of ice caps

The combustion of fossil fuels has a significant environmental impact due to the release of greenhouse gases.

Evaluate the following statements and select those that accurately describe the impact of chemical changes:

undefined. A) They can release harmful gases. ✓

undefined. C) They can produce energy. ✓

undefined. D) They never affect the environment.

undefined. C) They are always reversible.

Chemical changes can release harmful gases and produce energy, but they are not always reversible.

Create a hypothetical experiment to demonstrate a chemical change, including the materials and procedure.

A simple experiment could involve mixing vinegar and baking soda to produce carbon dioxide gas.

Propose two methods to prevent rust and explain the chemical principles behind them.

1. Method 1

Applying a protective coating.

2. Method 2

Using rust-resistant alloys.

Methods to prevent rust include applying a protective coating and using rust-resistant alloys, which inhibit oxidation.