

Define the following terms:

1. Physical change:

A change in the physical properties of a substance is called physical change. It is a temporary change.

For example melting of ice.

2. Chemical change:

A change in chemical properties of a substance is called chemical change. It is permanent change.

For example, rusting of iron.

3. Physical property:

The property which is associated with the physical state of matter is called physical property.

For example, colour, smell etc.

4. Chemical property:

The property which is associated with the chemical composition of matter.

For example, reactivity etc.

5. Melting point:

The temperature at which a solid starts melting and co-exist in dynamic equilibrium with liquid state is called melting point.

6. Freezing point:

The temperature at which a liquid starts freezing and co-exists in dynamic equilibrium with solid state is called freezing point.

7. Boiling point:

Boiling point is the specific temperature for a liquid at which, it begins to boil and converts from liquid state to gaseous state.

8. Solubility:

The number of grams of solute dissolved in 100 grams of solvent at a particular temperature is called solubility.

9. Rusting:

It is a chemical change in which oxygen in the moist air reacts with the iron to convert it into iron oxide (rust).

10. Tarnishing:

Tarnishing is a thin film of corrosion that forms on the surface of the objects made of silver, copper, brass, aluminium, magnesium etc.

Complete the following:

1. Hydrogen + Oxygen \longrightarrow Water
2. Carbon + Oxygen \longrightarrow Carbon dioxide + Heat
3. Methane + Oxygen \longrightarrow Carbon dioxide + Water + Heat
4. Nitrogen + Hydrogen \longrightarrow Ammonia
5. Iron + Sulphur \longrightarrow Iron sulphide

Answer the following questions:

1. What is the difference between Physical change and chemical change?

Physical change	Chemical change
1. It involves a change in the physical properties of a substance.	1. It involves a change in the chemical properties of a substance.
2. The chemical composition of the substance does not change.	2. The chemical composition of the substances change and new substances with different properties are formed.
3. It is easily reversible	3. It is not easily reversible

2. Describe the role of oxygen in various chemical reactions that occur naturally.

Oxygen plays an important role in various chemical reactions, especially those involved in combustion and respiration. Oxygen reacts in these reactions to release energy and support in life processes.

3. How can we prevent the objects made of iron from rusting?

It is a chemical change in which oxygen in the moist air reacts with the iron to convert it into iron oxide (rust).

To prevent rust:

Keep Dry: Keep metal objects dry.

Paint: Apply paint to protect metal from moisture.

Oil: Use oil or grease to create a barrier against water.

Galvanization: Coat metal with a layer of zinc to prevent rust.

Use Rust-resistant Materials: Choose materials that are less likely to rust, like stainless steel.

4. Evaluate impact of combustion reaction on environment.

Combustion includes burning of fossil fuels. The gaseous emission during burning of fossil fuels is the primary source of environmental pollution.

Combustion:

- Increases greenhouse effect which causes global warming.
- Incomplete combustion produces carbon monoxide gas which is poisonous.
- Combustion causes smog and acid rain.

Multiple choice questions:

1. Select the one that is different from the others.

- | | |
|---------------|-------------------------|
| a. Solubility | b. Conductance |
| c. Oxidation | d. Coiling of substance |

2. A physical change occurs when:

- | | |
|--------------------------|--------------------------------------|
| a. Iron rusts | b. Solution of common salt is heated |
| c. A piece of wood burns | d. Sugar is heated strongly |

3. A gas produced on heating solid potassium chlorate is:

- | | |
|-------------|-------------------|
| a. Hydrogen | b. Carbon dioxide |
| c. Methane | d. Oxygen |

4. Select all that happen during a chemical change:

- a. A temporary change occurs.
- b. Composition of the substance is changed.
- c. Properties of the substances are changed.
- d. New substances with different properties are formed.

5. Freezing of a liquid is a:

- | | |
|--------------------|----------------------|
| a. Chemical change | b. Chemical property |
| c. Physical change | d. None of the above |

6. What are the products when electric current is passed through water?

- | | |
|------------------------|-----------------------|
| a. Only steam | b. Hydrogen and steam |
| c. Hydrogen and oxygen | d. Oxygen and steam |

7. A piece of iron is kept in open air for 5 days. A film of corrosion is formed over it is.

- | | | | |
|---------------|------------------|------------------|-----------------|
| a. Iron oxide | b. Iron sulphide | c. Iron chloride | d. Iron hydride |
|---------------|------------------|------------------|-----------------|

8. During combustion, a substance reacts with:

- | | | | |
|-------------|----------|-------------------|-----------|
| a. Hydrogen | b. Water | c. Carbon dioxide | d. Oxygen |
|-------------|----------|-------------------|-----------|

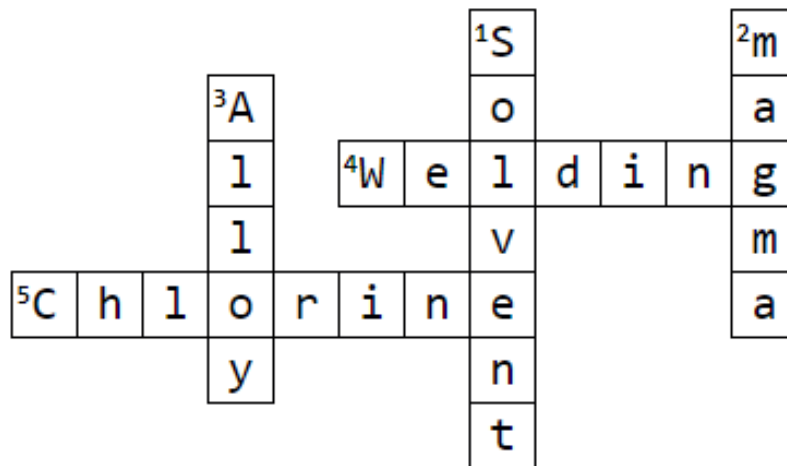
9. The temperature at which a liquid's vapor pressure is equal to the external pressure surrounding the liquid is:

- | | |
|-------------------|------------------------|
| a. Melting point | b. Boiling point |
| c. Freezing point | d. Highest temperature |

10. Silver + Hydrogen Sulphide + Oxygen → Silver Sulphide + Water. The above reaction is known as:

- | | | | |
|---------------|------------|---------------|----------------|
| a. Combustion | b. Rusting | c. Tarnishing | d. Dehydration |
|---------------|------------|---------------|----------------|

2. Crosswords



Across

- 4. Acetylene is used for.
- 5. It is used in detergents.

Down

- 1. Substances in which solute dissolve.
- 2. Molten rocks.
- 3. Mixture of metals.

3. Words Search

Potassium	Property	Chlorine	Carcinogen	Zinc
-----------	----------	----------	------------	------

P	O	T	A	S	S	I	U	M	C
Y	W	H	N	R	S	U	B	C	A
C	B	B	O	K	L	M	T	W	R
H	U	R	Z	I	N	C	B	V	C
L	F	X	G	J	H	L	N	W	I
O	K	K	R	W	Y	I	O	P	N
R	L	B	Z	W	U	T	C	Q	O
I	P	S	A	Y	E	W	R	Z	G
N	W	D	F	H	K	V	X	J	E
E	P	R	O	P	E	R	T	Y	N

4. Jumbled Words

- | | | | | |
|---------------|------------|--|--------------|----------|
| i. Revsil | Silver | | i. Sseouga | Gaseous |
| ii. Liteolva | Volatile | | ii. Ionmisse | Emission |
| iii. Goms | Smog | | iii. Rightb | Bright |
| iv. Sitnedy | Density | | iv. Lobsmys | Symbols |
| v. satcityile | Elasticity | | v. quaetion | Equation |

5. Columns

Match the column A with column B.

Column A

Column B

- | | | |
|--------------|---|---|
| Reactivity | | Substance that is being dissolved |
| Conductivity | ● | Ability to conduct electricity |
| Solute | ● | Tendency to undergo a chemical reaction |
| Flammability | ● | Ability of a substance to be dissolved |
| Solubility | ● | Ability of a substance to burn. |

6. Fill in the blanks using the given words.

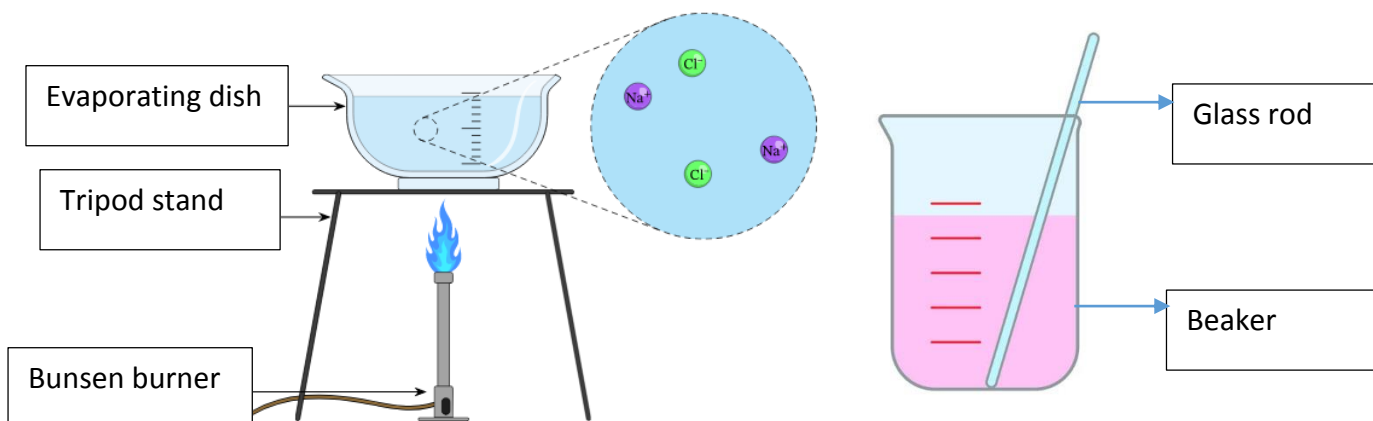
Oxidation	tarnish	Products	Chemical	Burns
-----------	---------	----------	----------	-------

1. Flammability refers to how easily a substance burns.
2. Reactivity with acids is an example of a chemical property.
3. The ability to tarnish is a chemical property.
4. Chemical reaction of oxygen with other substances is oxidation.
5. The new substances which are produced during a chemical reaction are called products.

7. Write “T” for the true and “F” for the false statement.

- | | |
|---|---|
| i. Zinc oxide changes its colour from red to blue on heating | F |
| ii. The things that take part in a chemical reaction are called reactants. | T |
| iii. Acidity in stomach is due to sulphuric acid. | F |
| iv. When sugar is heated, it is changed into a black mass carbon and water. | T |
| v. Hardness is the ability of a material to with stand scratches and wear. | T |

8. Label the diagram.



9. Drag and Drop

Look at the pictures and write their names in the relevant column.

Melting of ice	Dissolving sugar	Baking a cake	Rusting of iron	Tearing a paper

Changes	Physical/ Chemical
Melting of ice	Physical
Dissolving sugar	Physical
Baking a cake	Chemical
Rusting of iron	Chemical
Tearing a paper	Physical

10. Comprehension

Answer the following questions after reading the paragraph.

Physical changes and chemical changes are two fundamental types of changes that matter can undergo. A physical change affects one or more physical properties of a substance without altering its chemical composition. For example, melting ice into water is a physical change because the substance remains H_2O , just in a different state. Other examples include breaking a glass or dissolving sugar in water. Physical changes are usually reversible.

On the other hand, a chemical change results in the formation of one or more new substances with different properties. This occurs when chemical bonds between atoms are broken and new ones are formed. For example, burning wood is a chemical change because it transforms the wood into ash, carbon dioxide, and water vapor, which are entirely different substances. Chemical changes are often irreversible, such as when an egg cooks or rusting of iron.

1. What is a physical change?

A physical change affects one or more physical properties of a substance without altering its chemical composition.

2. Give two examples of chemical changes.

Examples include burning wood and cooking an egg.

3. Can physical changes be reversed?

Yes, Physical changes are usually reversible.