

Physical and Chemical Change Guided Notes – SE

Many changes occur in our surroundings in matter. We can broadly classify them into two types of changes, _____ change and _____ change.

Chemical Change

Chemical changes are the changes that cause _____ to break in a substance. In simple words, chemical changes are also called _____.

Chemical changes occur when two different substances react with each other to form a _____. The ingredients of a reaction are called _____ and the new substances are called _____.

Examples of Chemical Changes:

1. **Cooking food:** When food is cooked many _____ are broken. For example, when cooking an egg, the properties of egg change and the translucent egg white becomes _____.



Opaque Egg white After Frying

2. **Rotting of a substance:** When fruit, bread or cooked food becomes rotten, various chemical bonds are broken that lead to the _____ of that substance.
3. **Rusting of iron:** When an iron nail is exposed to _____, it is oxidized and changes its color to reddish orange, known as rust. Rusting of iron is a chemical change.



Rusting of Iron

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4. **Burning a candle:** When a candle burns, _____ and _____ are released.



Burning of a Candle

5. **Change in the color of a substance:** When two transparent liquids are mixed and a colored product is formed, it is considered a _____ because a new substance is formed by the reaction between two substances.
6. **Combustion:** Burning of gases, fuels, wood and charcoal are example of the combustion process where _____, _____ and _____ are released.



Burning of gases

Properties of Chemical Changes

1. Chemical changes are _____.
2. Chemical changes lead to changes in _____, _____ and _____ of the substance.
3. _____ are formed during a chemical change.
4. Chemical changes may lead to light and sound production, release of gases and heat.

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Physical Change

Physical changes are those changes where a _____ is not broken. In other words, during a physical change, the appearance of a substance changes and not the _____. Thus, the _____ remains the same but the appearance changes.

Physical changes occur when

1. changes in the state (phase) of a substance takes place such as boiling, melting, freezing, condensing, deposition and sublimation. It is also explained as changes in the _____ such as solid changing to liquid state and liquid changing to gaseous state.
2. cutting, grinding, mixing, blending and tearing occurs.
3. separating ingredients from a mixture. This is seen during distillation, crystallization and filtration. Two or more mixtures can be _____ from each other without changing the _____ of each substance.

Examples of Physical Changes:

1. **Preparation of a smoothie or a shake:** When a smoothie or a shake is prepared in a blender, the chemical properties of fruits and milk remains _____.
2. **Cutting of wood or chopping fruits and vegetables:** In these processed the _____ of the fruits and vegetables remain the same.



Cutting Wood

3. **Boiling of water:** When water boils, no _____ are broken, thus it is a physical change. Only the state of the water is changed from liquid state to _____ (gas) state. This is a _____, as condensation of water vapor can lead to the formation of water.

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Boiling of Water



Melting of Ice

4. **Melting of ice:** The solid form of water (ice) can be converted into _____ without changing the chemical composition of ice. It is a _____ and is reversible.

Properties of Physical Change:

1. No _____ are broken in a physical change.
2. No _____ are formed in a physical change.
3. The original properties of the _____ remain _____.
4. The chemical composition of substance is not changed.
5. Only the state and properties of a substance is _____ in a physical change.
6. Physical change can be _____.

Practice Problems:

Label the following as Physical change or Chemical change:

1. Boiling of egg: _____
2. Melting of Copper: _____
3. Breaking of mirror: _____