



PHYSICAL AND CHEMICAL CHANGE

BASIC SCIENCE

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Physical and Chemical Changes



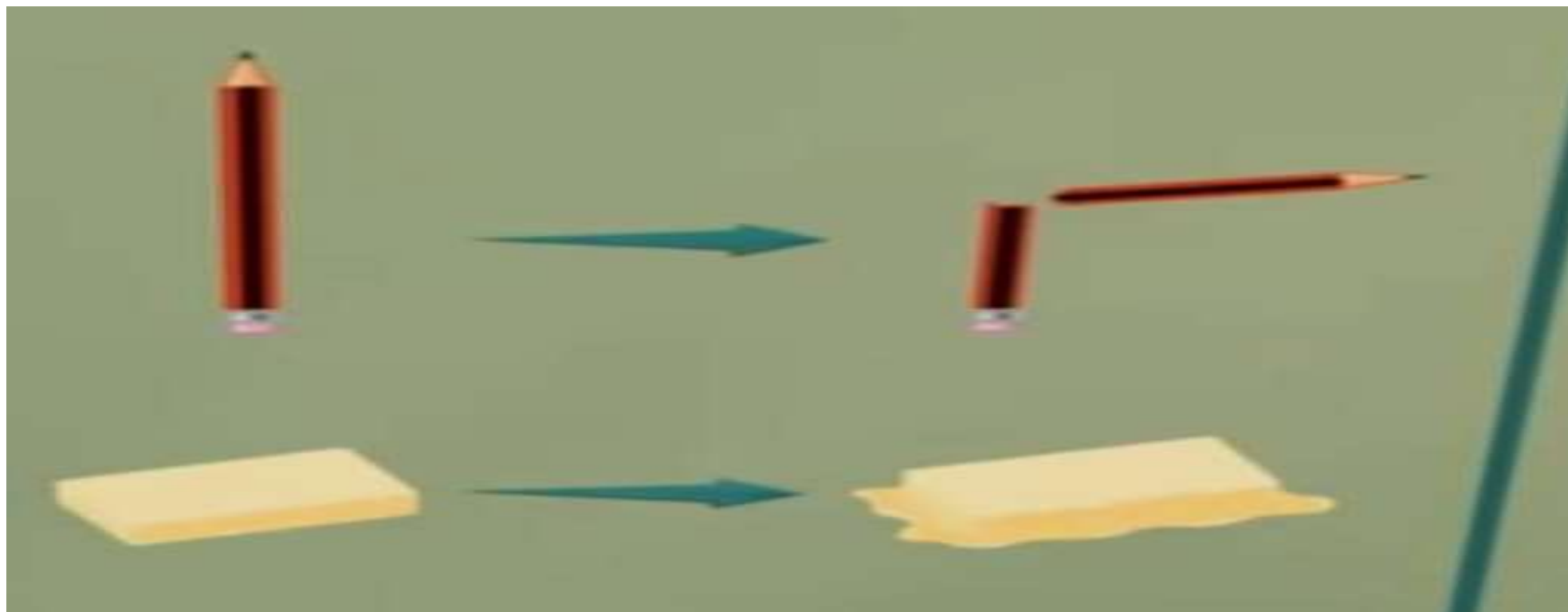
Fresh and green



Dry and brown

Can the dry leaf be made fresh again?

What you can see here?



What is Physical change?

- ▶ **Physical change is a change in which no new substance is formed.** All state changes are physical changes. Physical changes are temporary and generally reversible. During a physical change, only the physical properties of the substances are changed. The chemical composition is not affected by physical changes.



Physical changes example -

- ▶ Physical changes include transitions from one state to another, such as from solid to liquid or liquid to gas. **Cutting, bending, dissolving, freezing, boiling, and melting** are some of the processes that create physical changes.

Physical Change



Melting ice



Boiling water



Breaking glass



Chopping wood



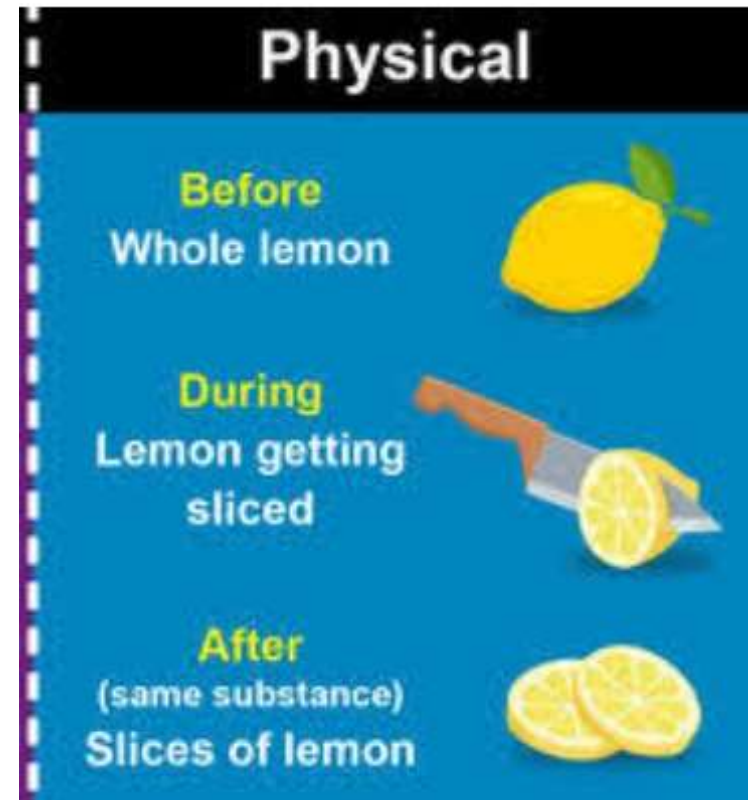
Folding paper



Breaking egg

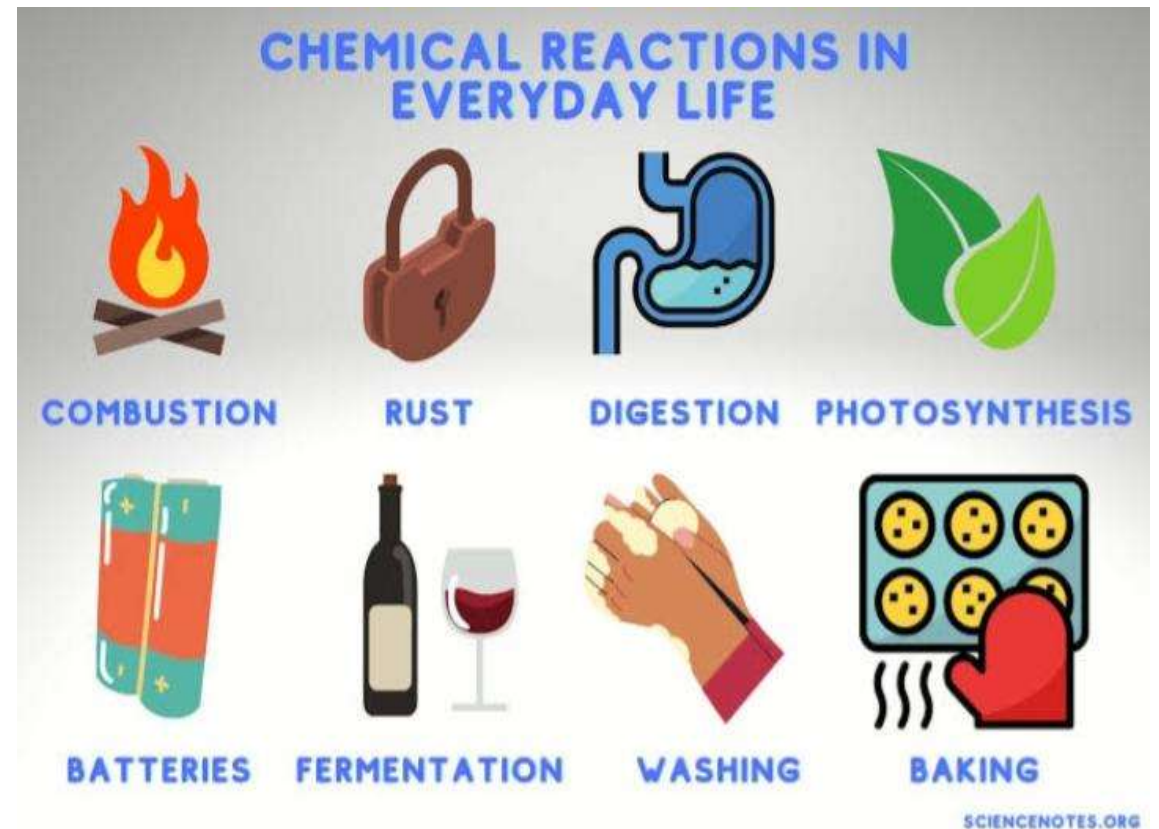
EXPERIMENT

Fruit cutting is a physical change because no new substance is formed when the fruit is cut.



Chemical Change

Chemical change is a change of materials into another, new materials with different properties and one or more than one new substances are formed. It results when a substance combines with another to form a new substance (synthesis or either decomposes to form more substances).



Chemical Change example

- ▶ Burning of paper and log of wood.
- ▶ Digestion of food.
- ▶ Boiling an egg.
- ▶ Chemical battery usage.
- ▶ Electroplating a metal.
- ▶ Baking a cake.
- ▶ Milk going sour.
- ▶ Various metabolic reactions that take place in the cells.



EXPERIMENT

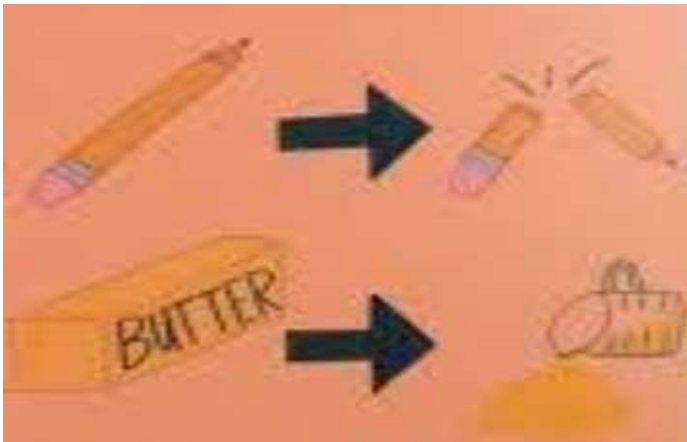
- ▶ Take a small piece of magnesium ribbon. (b)
- ▶ Clean its tip with sandpaper.
- ▶ © Hold it with a pair of tongs and bring it near the flame.
- ▶ It burns with a dazzling flame and forms a powdery ash (magnesium oxide).
- ▶ $2\text{Mg (s)} + \text{O}_2 \text{ (g)} \rightarrow 2\text{MgO (g)}$ Q.



DIFFERENCE

PHYSICAL CHANGE

- ▶ Chemical change results from a chemical reaction, while a physical change is when matter changes forms but not chemical identity.



CHEMICAL CHANGE

- ▶ Examples of chemical changes are burning, cooking, rusting, and rotting. Examples of physical changes are boiling, melting, freezing, and shredding.



Let's Revise

THERE ARE TWO TYPES OF CHANGES ;

PHYSICAL CHANGE -
a type of change where the physical properties of matter change.

EXAMPLE –melting of wax,
cutting of fruit

CHEMICAL CHANGE -
a change of materials into another, new materials with different properties and one or more than one new substances are formed.

EXAMPLE –digestion of food,milk
to curd

Q1 Which of the following is a physical change?

- ▶ A]. Rusting of iron
- [B]. Combustion of magnesium ribbon
- [C]. Burning of candle
- [D]. Melting of wax



(D) Melting of wax



Q-2: Which of the following are stainless steel constituents?

- a) Iron, Carbon, Nickel, Chromium
- b) Iron, Nickel, Manganese
- c) Iron, Nickel, Carbon, Manganese, Chromium
- d) Carbon, Iron, Nickel



Iron, Nickel, Carbon, Manganese,
Chromium






Q3. Which of the following is not a chemical change characteristic?

- a) Change in colour
- b) Change in state
- c) Production of sound
- d) Change in smell

Answer :b) Change in state






Q-4: What kind of change occurs when the tip of the blade is placed on a gas stove?

- a) Chemical change
- b) Physical change
- c) No change
- d) Irreversible change

Answer: b) Physical change





Q-5: When magnesium is burned in the air, it produces powdery ash that, when dissolved in water, yields an aqueous solution. How will you categorise the aqueous solution?

- a) Acidic
- b) Neutral
- c) Basic
- d) Can't be predicted

Answer: c) Basic





Thank You