

Lesson 3 : Physical and Chemical changes

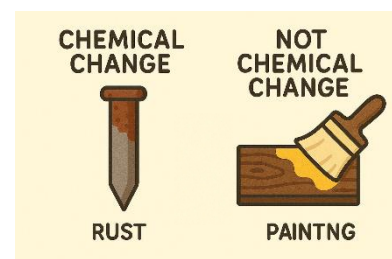
- **Matter** can change in two main ways:
 1. **Physical Change:** Matter changes its shape or state but remains the same substance.
 2. **Chemical Change:** A new substance is formed with properties different from the original matter.

Example	Physical Change	Chemical Change
Frying an egg		✓
Tearing paper	✓	
Burning wood		✓
Rusting nail		✓
Grilling a hamburger		✓
Dissolving salt in water	✓	
Exploding fireworks		✓
Melting butter	✓	
Baking a cake		✓
Rotting banana		✓
Mixing baking soda and vinegar		✓
Evaporating water	✓	
Lighting a match		✓
Crushing a sugar cube	✓	
Milk going sour		✓

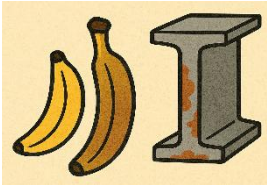
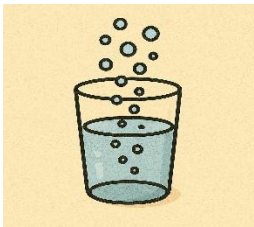
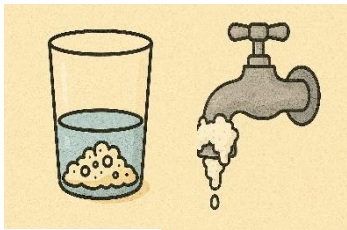
Thinking and Analysis

Why is rusting a chemical change but painting wood is not?

- Rust forms a new substance; paint does not change the wood chemically.



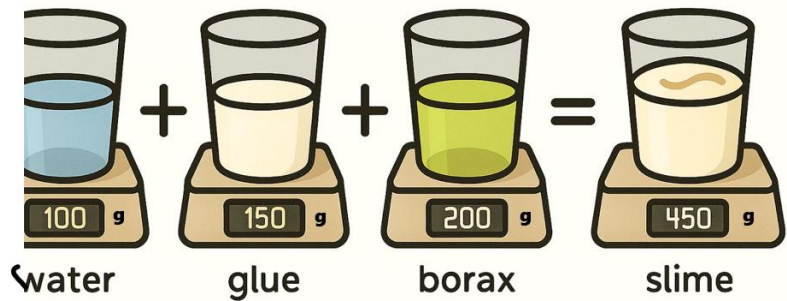
Signs of Chemical Change

Signs of Chemical Change	Examples	Picture
Color Change	rust on iron, banana turning brown.	
Change in Odor	marshmallow toasting on a fire	
Temperature Change or Light Emission	burning wood.	
Gas Formation	bubbles from baking soda reacting with vinegar.	
Formation of a Solid	soap scum forming in hard water.	

- **Law of Conservation of Mass:** Matter is neither created nor destroyed during any change, whether physical or chemical.

Conservation of Mass Experiment

- Mix water, glue, and borax to form a new substance.
- Measure mass before and after the reaction.
- Observation: total mass stays the same.
- Conclusion: mass is conserved, demonstrating the **law of conservation of mass**.



- Use a bar graph to show mass before and after the reaction.

