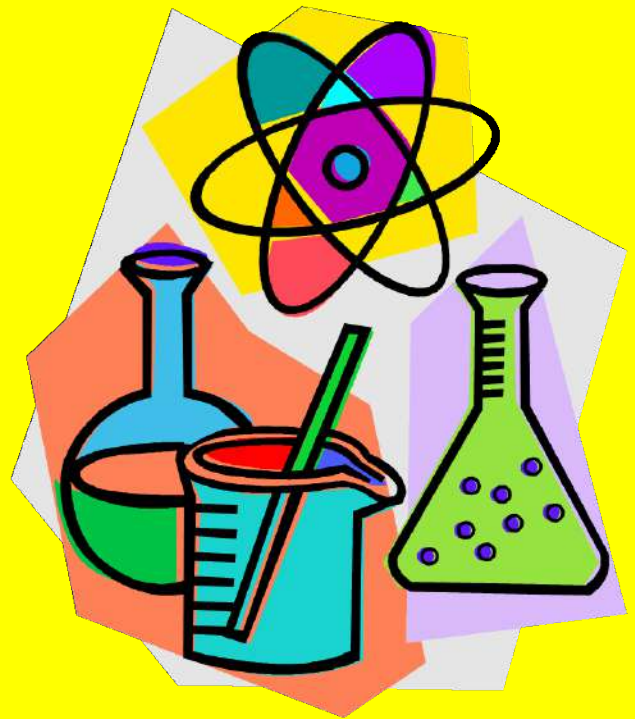


Name _____ Date _____

Physical and Chemical Changes



Physical Changes

Physical Change: A change in which no new substances form

- Do not change the **type of matter** an object is made of
- You change the **shape, size or more physical properties**.
- Many changes can be easily **reversed**.

Physical Changes	
cutting	tearing
Breaking	Crushing
bending	folding
Warming	cooling
melting	freezing
Evaporating	condensing
mixing	separating
boiling	Dissolving

Changes in State

Matter changes state if you **raise or lower** the temperature.

- **Temperature:** a measure of how warm something is.
- As temperature **INCREASES**, matter has more energy and particles move quickly.

<u>Name</u>	<u>Change in State</u>	<u>Example</u>
Melting (0°C)	Solid to a liquid	When heated, ice changes to water. (ice melts at 0°C)
Freezing (0°C)	Liquid to a solid	Water gets cold, it changes to ice. (water freezes at 0°C)
Evaporation	Liquid to a gas	Water boils, it changes to a gas. (water boils at 100°C)
Condensation	Gas to a liquid	When water vapor cools, it changes to liquid water.

Making and Separating Mixtures

Mixture: a combination of two or more substances.

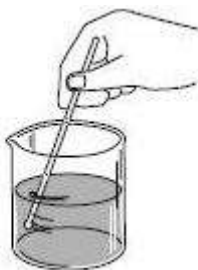


- Each substance keeps its own properties.
- You can separate mixtures.
- Examples: a fruit salad, cereal with milk

Ways to separate mixtures:

- Separate by color and shape
- Floating (salt and pepper)
- Filters and strains (pebbles)

Solution: a mixture in which one substance dissolves into another.



- When a substance dissolves, it mixes evenly into another substance and seems to disappear.
- Example: stirring sugar into water
- Ways to separate solutions: Boiling (sugar and water)

Chemical Changes

Chemical Change: a change in which one or more new types of matter form.

- Substances react to each other; they combine in new ways to form other substances.
- The old matter is not lost, just changes to a different kind of matter.

Chemical Property: is the ability of a substance to react with other substances in a certain way.

- Burning
- Rusting
- Reacting to acid

Signs of Chemical Changes

<u>Clue</u>	<u>Examples</u>
Changes color	Green tomato turns red, cake gets brown in the oven, egg frying
Different odor	Burning wood, spoiled food
Changes temperature without being heated/cooled	Rotting leaves in a compost pile become warm.
Bubbles form	Bubbles form when vinegar is mixed with baking soda.
Gives off gas or gases	Burning wood gives off carbon dioxide and water vapor.
New solids form	Rust is created.

One way to tell whether a change is physical or chemical is to ask whether the change can be easily reversed. Most Chemical changes are much harder to reverse than physical changes.

Which are Chemical Changes and which ones are Physical Changes?

Physical Changes

- Cracking an egg
- Slicing bread
- Boiling water
- Fresh lemonade
- Mowing the lawn

Chemical Changes

- Frying an egg
- Toast
- Lighting a match
- Baking a cake
- Fireworks
- Digesting food
- Roasting a marshmallow

Vocabulary – Words to Know

1. Physical change- a change in which no new substances form.
2. Temperature- a measure of how warm something is.
3. Melting- the change from a solid to a liquid.
4. Evaporation- the change from a liquid to a gas at the surface of the liquid.
5. Condensation- the change from a gas to a liquid.
6. Freezing- the change from a liquid to a solid.
7. Mixture- a combination of two or more substances in which each substance keeps its own properties.
8. Solution- a mixture in which one substance dissolves in another.
9. Dissolve- to mix evenly into another substance. When a substance dissolves, it breaks into tiny pieces that seem to disappear.
10. Chemical change- a change in which one or more new types of matter form.
11. Chemical property- the ability of a substance to react with other substances in a certain way, such as by burning or rusting.

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