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Warm-Up | Changes in Matter

Lesson Objectives

By the end of this lesson, you should be able to:

- Differentiate between physical properties and chemical properties of [ ].
- Differentiate between extensive and intensive properties of matter, and give examples of each.
- Differentiate between physical changes and [ ] changes of matter.

Science Practice: Identify substances based on their chemical and physical properties.

Words to Know

Fill in this table as you work through the lesson. You may also use the glossary to help you.

chemical change	a change in the identity and properties of matter
chemical property	a characteristic of a substance that is observable only when the substance [ ] with another substance
conductivity	the ability to transfer heat or electric [ ]
extensive property	a property dependent on the amount of sample present
flammability	the tendency to ignite or [ ] in air
intensive property	a property dependent only on a substance's identity and not on the [ ] of sample present

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W2K

Words to Know

malleability	the ability to be reshaped by the application of physical force
matter	a thing or substance that has mass and occupies [ ]
physical change	a change in one or more physical properties of a substance but not in the [ ] of the substance
physical property	a characteristic of a [ ] that can be observed without changing the identity of the substance
reactivity	the tendency of a substance to interact with other substances to form [ ] substances
transparency	the degree to which [ ] can pass through a substance

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Lesson Question

Slide 2

Matter

Matter is anything that has _____ and takes up space.

- Examples of matter in a kitchen
  - Chef
  - Ingredients
  - Cooking utensils
  - Air
- Matter can be a solid, liquid, or _____.

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Describing Matter

Flour, eggs, sugar, and butter are all _____, whereas _____ would be the milk and the oil.

Properties of Matter: Physical Properties

A **physical property** is a characteristic of a _____ that can be observed without changing the _____ of the substance.

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Properties of Matter: Physical Properties

Other physical properties of matter include:

- Color, odor, and texture
- Melting point and boiling point
- State of matter
- Mass, weight, and density

More physical properties include:

- [ ] – Degree to which light can pass through a substance
- Malleability – Ability to be reshaped by the application of physical force
- Magnetism
- [ ] – Ability to transmit heat or electricity

Properties of Matter: Chemical Properties

A **chemical property** is a characteristic of a substance that is observable only when the substance interacts with another substance.

Examples include:

- [ ]
  - ability to burn in air
- [ ]
  - ability to interact with other substances to produce new substances

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Chemical and Physical Properties

Must multiple substances be present?

- Yes: Chemical property
- [ ]: Physical property

Does a new substance form?

- Yes: [ ] property
- No: Physical property

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Intensive Properties

An **intensive property** is a physical property that depends only on a substance's [ ] and not on the [ ] of sample present.

Examples include:

- Melting, boiling point
- Density
- Conductivity
- Magnetism

Extensive Properties

An **extensive property** is a physical property that depends on the amount of sample present.

Examples include:

- Mass
- Volume
- [ ]

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Characteristic Properties

Characteristic properties of a substance can be used for identification.

- Color: yellowish
- State at room [ ]: solid
- Melting point: 1,064.43°C
- Boiling point: 3,080°C
- Density at room temperature: 19.32 g/cm^3
- [ ]: metallic
- Malleability/ductility: high

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Physical Changes

A **physical change** results in a change in some of the physical properties of [ ] but not its identity.

Examples include:

- [ ]
- Boiling
- Cutting
- Bending

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Chemical Changes

A **chemical change** results in a change in the [ ] and properties of matter.

Examples include:

- Burning
- [ ]
- Reacting with water
- Reacting with air

Indicators of Chemical Change

Possible indicators of chemical change include:

- [ ] change
- Solid disappearance
- [ ] formation

Possible indicators of chemical change include:

- Precipitate formation
  - [ ] that forms from a liquid during a change process
- Light and [ ] production

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Chemical and Physical Changes

Do any new substances form?

- [ ]: Chemical change
- No: Physical change

Do chemical properties change?

- Yes: Chemical change
- No: [ ] change

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Summary | Changes in Matter

Lesson Question

How do scientists describe matter and its changes?

Answer

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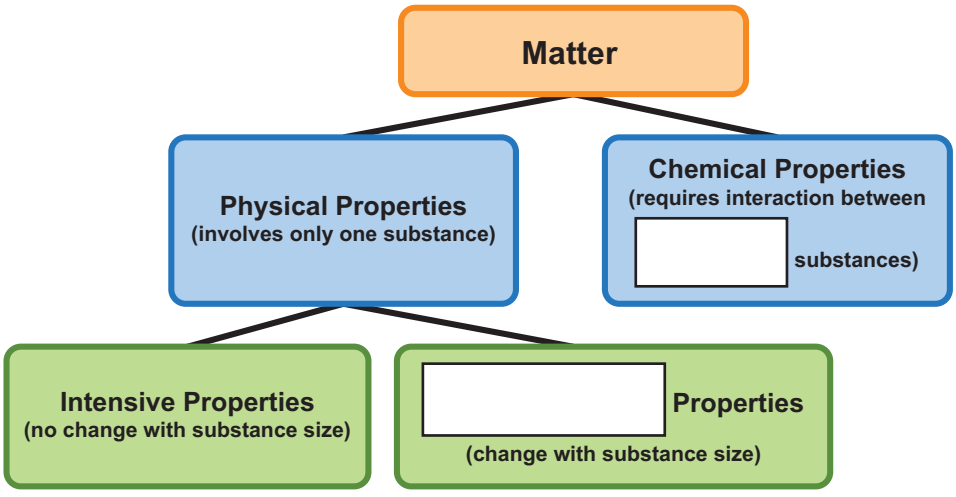
Classifying the Properties of Matter



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Summary | Changes in Matter

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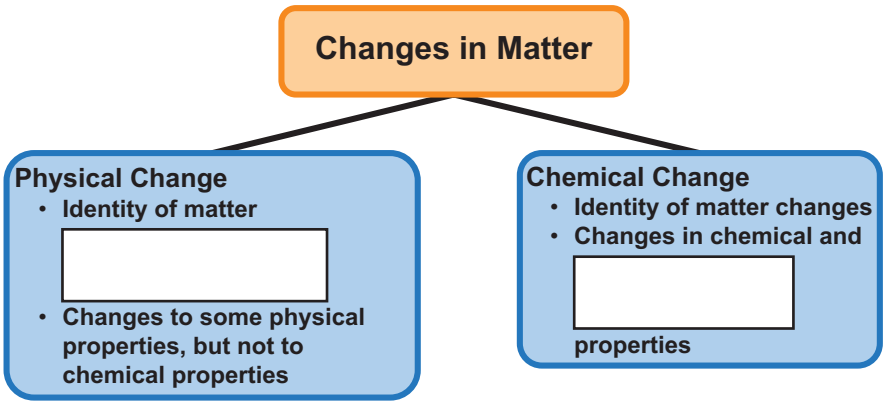
Classifying Changes in Matter



Use this space to write any questions or thoughts about this lesson.

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