

A vertical decorative bar on the left side of the slide, featuring a yellow background with four stylized sun motifs. The top and bottom motifs are yellow silhouettes, while the middle one is a metallic, reflective sun with a human-like face.

# Properties of Matter

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# Unit Components

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★ Physical Properties



★ Characteristic Properties



★ States of Matter

★ Mixtures and Solutions



*Matter:*

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*Anything that has **mass**  
and **takes up space***

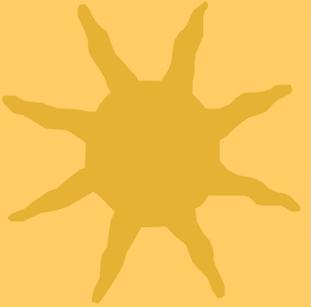




# Mass:

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- the **amount** of matter in an object
- measured with a balance





# Volume:

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- the amount of **space** an object takes up
- measured with a ruler or graduated cylinder





# Physical Properties

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- ★ Are characteristics or features that describe matter
- ★ Are true only for a certain amount of matter





## *Examples include*

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★ color

★ smell

★ size

★ temperature

★ shape

★ state

★ texture





# Characteristic Properties

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- ★ Are properties that do NOT change as mass, volume and/or shape change.
- ★ Are properties of a substance, not a specific object





## *Examples include*

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- ★ boiling point
- ★ melting point
- ★ solubility
- ★ conductivity
- ★ hardness
- ★ pH
- ★ flammability
- ★ density





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Because characteristic properties are usually not affected by physical changes, they can be used to identify matter



# States of Matter

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★ Solid



★ Liquid



★ Gas

★ Plasma





# The Molecule Chamber

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★ Demonstrates the movement of particles of matter in the various states in which it occurs.



★ Increased temperature increases particle movement and the space between them.



★ The particles of water behave differently because of the make up of the molecule



# Solids

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- Have definite shape and definite volume
- Particles are tightly packed



# Liquids

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- Do not have definite shape but do have definite volume
- Particles are loosely packed



# Gases

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- Do not have definite shape or definite volume
- Particles are very far apart





# Phase Changes of Water

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# *Properties of Matter include:*

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☼ How it **looks** (shiny, dull, colored)



☼ How it **feels** (hard, soft, rough, smooth)



☼ How it **smells** (sweet, salty, flowery)

☼ How it **sounds** (loud, soft, hollow)

☼ How it **tastes** (sweet salty, bitter, sour)

☼ What it **does** (bounce, bubble, tear)



## Examples of Physical Properties/Changes:

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Mass

Mixture



Volume

Solution



Shape

Odor



Texture

State



## Examples of Chemical Properties/Changes:

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Burning

Rusting



Cooking

Film Processing



(Any change that causes **NEW** matter to be formed)



# *Characteristic Properties are...*



properties that do not  
change with changes in  
mass or volume



examples include:

- density
- boiling point
- melting point
- freezing point





# Welcome to the Wonderful World of Science

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*...more exciting adventures will follow...*

**THANK YOU**

