

NEWTON

series



FOURTH PRIMARY

Revision on unit One

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Matter	It's anything that has <u>mass</u> and <u>volume</u> Everything that has <u>mass</u> and <u>volume</u>
Mass	It is the <u>amount</u> of the matter
Volume	It is the <u>space</u> that is <u>occupied</u> by the object.
Measuring ruler : Used to measure small length Graduated tape : used to measure large length Centimeter : Used to measure small length Meter : Used to measure Large length	
Common balance (twopan balance) Used to measure Large Mass as tomato and cheese. Sensitive balance : used to measure small mass as gold and jewelers Gram (g) : Used to measure small masses as jewelers Kilogram : Used to measure Large masses such fruits and veg Ton : Used to measure very Large masses (cars)	
Volume of regular solid body = Length × Width × Hight Volume of irregular solid body = $V_2 - V_1$	
Equal volume of different substances have different masses	
State of matter	Solid state 2- Liquid state 3- Gaseous state
Solid matter (state)	It has a definite shape and volume Ice , sugar , iron and wood
Give reason	Gold and copper are solids ? Because they have definite shapes and volumes
Liquid matter (state)	It has a indefinite shape and definite volume Milk and water
Give reason	Milk is a liquid ? Because it has a definite volume and indefinite shape.

Gaseous matter (state)	It has a indefinite shape and volume air nitrogen and water vapour
Give reason	Air is a gaseous matter ? Because it has indefinite shape and volume
Note	Matter exists in only one state at the ordinary temperature
Note	Matter can be changed from one state to another by heating or cooling
Melting:	its change of matter from the solid state into the liquid state by heating
Evaporation	Its change of matter from the liquid state to the gaseous state by heating
Condensation	It is the change of matter from the gaseous state to the liquid state by cooling
Freezing	It is the change of matter from the liquid state to the solid state by cooling
Element	It's the simplest form of matter that can't be analyzed into two substance
Metals	Are classified into Solids: iron – copper – Aluminum – Gold and silver – lead Liquids: Mercury All metals <u>solids</u> except <u>mercury</u> Liquid
Non metals	Are classified into : Solids : such as sculpture – carbon – phosphorus Liquids : such as Bromine Gasses : such as Oxygen – Nitrogen Liquid <u>non metal</u> bromine
Properties of metals and non-metals	
Metals	Non metals
Shiny (metallic luster)	Not Shiny (metallic luster)
Good conductor of electricity and heat	Good conductor of electricity and heat
High melting and boiling point	Low melting and boiling point
Malleable (can be bent)	Not Malleable (can be bent)
Iron	Making bridges car frames doors and street
Aluminum	Manufactures of cooking pans , foil paper
Gold and silver	In making jewelers
Copper	In making electric wires

Carbon (graphite)	In making of dry batteries (cells) Positive electrons
Wood an plastic	In making handle of cooking pans
Physical change	It's the change in the shape of the matter
Give reason	Freezing of water is a physical change ? Because it is change in the shape of water
Chemical change	It's the change in the structure of the matter to produce new substance
Give reason	Burning of wood is a chemical change ? Because burning of wood it's change in the shape and structure
Physical	Melting – Evaporation – water
Chemical	Burning – Rusting – Fermentation
Note	Melting of a candle is a physical change , while burning of a candle is a chemical change

Occupied	Volume
Amount	Mass
Mass and volume	Matter
One metre	Equal 100 centimetre
One kilogram	Equal 1000 gram
Common balance	Used to measure Large mass
Sensitive balance	Used to measure small mass
Ruler	Used to measure small length
Ruler	Used to measure volume of regular solid body
Measuring tape	Used to measure large length
Graduated cylinder	Used to measure irregular solid body
Units measure volume of solid body	Cm ³ - M ³
Units measure volume of Liquids	Litre or millitre
Gram	Used to measure small mass
Kilogram	Used to measure large mass
Ton	Used to measure very large mass

Centimetre	Used to measure small lengths
Metre	Used to measure large lengths
Kilometre	Used to measure very large lengths
Volume of regular solid body	Volume = Length × Width × height ×
Volume of the body = volume of spilled water	
Volume of irregular solid body	Volume = V ₂ – V ₁
G . R	You cannot use water to measure the volume of sugar Because sugar is soluble in water
<p>Very important</p> <p>Equal volumes of different substances have different masses</p>	
Definite shape and volume	Solid
Indefinite shape and volume	Gas
Definite volume and indefinite shape	Liquid
From solid to liquid by heating	Melting
From liquid to gas by heating	Evaporation
From gas to liquid by cooling	Condensation
From liquid to solid by cooling	Freezing
<p>Matter exist at room temperature in one state</p> <p>Matter change from one state to another by heating or cooling</p> <p>Matter exist in three states</p> <p>State of matter solid , liquid and gas</p>	
Solid state of water	Ice
G . R	Formation of water droplets on the outer surface of a bottle? Due to condensation of water vapour in the air
Take the shape of container	Liquid
Take the shape and volume	Gas
Simplest form	Element
Liquid metal	Mercury
Liquid non metal	Bromine
<p>All metals solids except mercury liquid</p> <p>Metals exist in solid and liquid</p>	
Non metal exist in solid , liquid and gas	

Elements are classified into		Metals and non – metals	
Shiny or luster		Metals	
No shiny or not luster		Non metals	
Non metal good conductor of electricity		Carbon	
Iron	Used in making bridges , car frames and doors		
Aluminum	Used in Cooking pots – foil paper		
Copper	Used in Electric wires - Satus - Metallic coins		
Gold and silver	Used in jewellery		
Carbon (graphite)	Used in positive pole and dry cells		
Change in shape(appearance) Change in shape without change in structure		Physical change	
Change in shape and structure		Chemical change	
Melting – Grinding – water – Dissolving – cutting		Physical change	
Burning – Fermentation – Rusting – Rotten – Production of yoghurt from milk – Digestion		Chemical change	
Copper is a metal while carbon is a non- metal good conductor of electricity Copper is a metal Carbon is a non metal			



Important Give Reasons

1- Air is a matter?

Because it has mass and volume

2- Air is a gaseous matter?

Because it's indefinite shape and volume

3- Science book is a matter?

Because it has mass and volume

4- Wood is a solid matter?

Because it's definite shape and volume

5- Milk is a liquid?

Because it's indefinite shape and definite volume

6- Handles of cooking pots are made of wood or plastic?

Because they are bad conductor of heat

7- Aluminum is used in making cooking pots?

Because aluminum good conductor of heat

8- Copper is used in making electric wires?

Because copper good conductor of electricity

9- Ice is a solid matter

Because it's definite shape and volume

10- Car is a matter

Water is a matter

Because it has mass and volume

11- The poles of the dry cell are made of graphite?

Because it's a non-metal good conductor of electricity

12- Melting of ice is a physical change ?

Because it's change in the shape only

13- Fermentation of milk is a chemical change ?

Because it's change in the shape and structure

14- Batteries made of carbon ?

Because it's a non-metal good conductor of electricity

15- On making tea, water drops are formed on the cover of the teapot from inside?

Due to condensation of water vapour found in the air in the outer surface of the cup

16- Gold and copper are solids?

Because it's definite shape and volume

17- Rusting of iron is considered a chemical change?

Because it's change in the shape and structure



What happens for each of the following?

- 1- You leave a glass filled with ice in air for few minutes?
It changes from solid to liquid – it will melt
- 2- Putting a bottle of water in the freezer?
It changes from Liquid to Solid – it freezes
- 3- Rising temperature a piece of ice?
It changes from solid to liquid – it melt
- 4- A nail left in humid air?
It will Rust
- 5- You connect some sulphur crystals with an electric circuit?
Electric circuit can't connect electricity
- 6- Heating a cube of sugar strongly?
It change shape and structure – Chemical change
- 7- Adding yeast to doughs , then baking?
It fermentation – chemical change
- 8- A bottle full of water is put in the freezer for one day?
It changes from Liquid to Solid – it freezes
- 9- Boiling of water and exposing the product to a cold surface?
It evaporate then condenses – change from gas to liquid
- 10- You leave a glass filled with ice in air for few minutes?
It changes from solid to liquid – it will melt
- 11- Grinding of sugar?
It change in shape only – physical change
- 12- Rising temperature a piece of ice?
It changes from solid to liquid – it will melt
- 13- Putting a piece of wet iron in a jar filled with dry oxygen?
It will Rusting - Chemical change

What's meant by ?

- 1- A physical change
Change in the shape of matter only
- 2- A chemical change
Change in the shape and structure of matter
- 3- Melting process
Change of matter from solid to liquid by heating
- 4- Freezing
Change of matter from liquid to solid by cooling
- 5- Mass
Amount of matter in an object



6- Element

Simplest pure form of matter that can't analyzed into two substance

7- Matter

Anything that has mass and volume

8- Volume

Space that occupied by object

9- Solid matter

It has definite shape and volume

10-Chemical change

Change in shape and structure of matter

11-Liquid matter

It has definite volume and indefinite shape

12-Gaseous matter

Indefinite shape and volume

13-Evaporation

Change of matter from liquid to gas by heating

14-Carbon

Non –metal good conductor of electricity - used in making dry cells and batteries

15-Condensation

Change of matter from gas to liquid by cooling

QZ (6) Give example for ?

1- Physical change?

Melting of candles – Evaporation of water – Grinding of sugar

2- Chemical change?

Burning of candles – Rusting of iron

3- Liquid metal

Mercury

4- Liquid non metal

Bromine

5- Metal

Iron - Copper - Mercury - Aluminum

6- Non metal

Carbon – Wood - Plastic - Bromine

7- Evaporation

Change of water into vapour

8- Condensation

Change of water vapour to liquid



9- Melting

Change of ice to liquid

10-Freezing

Change of water to solid

11-Solid matter

Plastic - wood - Iron

12-Liquid matter

Water - Bromine - mercury

13-Gaseous matter

Oxygen - Air

Important comparison

Points of comparison	Mh etals	Non – metals
Heat conduction	Good	Bad
Melting point	High	Low
Examples	Copper – Iron	Wood – plastic

Physical change	Chemical change
Change in the shape of matter only Melting of wax – grinding of sugar	Change in the shape of matter and structure Rusting of iron – Fermentation of bread

	Mass	Length	Volume
Definition	Amount of matter in object		Space occupied by object
Tools	Common balance Sensitive balance	Graduated tape Ruler	Graduated cylinder Ruler
Units	Kilogram – Gram – ton	CM or M	Litre or milliliter CM3 or M3

	Solid	Liquid	Gas
Definition	It's definite shape and volume	It's indefinite shape and definite volume	It's indefinite shape and volume
Examples	Copper – Ice – Wood	Water – Milk	Air - Oxygen

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