

Unit (1)

Lesson (1)

Light

Light :- It is a form of energy that causes vision.

Visible Spectrum :- It is the part of light that can be seen.

☉ Write the scientific term:-

- 1- It is a form of energy that causes vision.
- 2- It is the part of light that can be seen.

(.....)
(.....)

☉ Give reason:-

it is very difficult to see in the dark.

Because in the dark there is no light.

Sources of light

Natural

- 1- Sun.
- 2- Stars.

Artificial

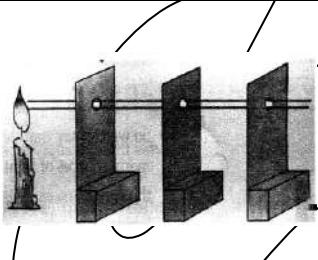
- 1- Electric lamps.
- 2- Candles.
- 3- Kerosene lamps.

- The moon is a dark object but it reflects sun light .
- Sun is the main source of light on Earth .

Properties of light :-

- 1- Light travels in a straight lines .
- 2- Light transmits (pass) through different materials .
- 3- Light reflection .
- 4- Light refraction .
- 5- Light separation (Splitting) .

1-Light travels in a straight line

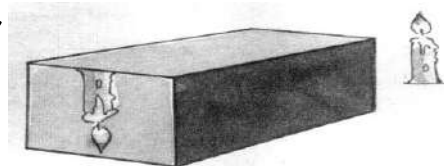
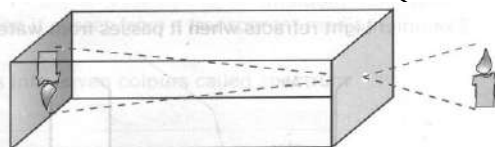
Experiment	Observation	Conclusion
1- Put three pieces of cardboard each one contains a hole in its center , 2- Put the cardboards and the flam of the candle on one direction		Light travels in a straight line.
Look at the flame through the last cardboard	I can see the flame of the candle.	
Move any of the pieces of the cardboard right or left, and try to look again.	I cannot see the flame of the candle.	

- There are two phenomenon that happen due to light travel in a straight line :-

- 1- Formation of an image through narrow holes.
- 2- Formation of shadow .

A-Formation of image in a dark room through narrow holes:

(The idea of making the camera)



- The image formed In the pin hole camera is
- 1- **minimized**.
- 2- **Inverted**.

☺ Give reason:-

- 1- **The image formed in the pin-hole camera is inverted.**
- 2- **The Formation of images through narrow holes.**

Because light travels in straight lines.

B-Formation of shadow:

Shadow: It is a darkened area that formed when the light falls on an opaque object.

☺ Complete:-

The nearer object to the light source has the shadow .

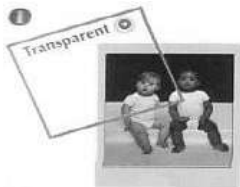
☺ Give reason:-

1-The Formation of shadow.

Because light travels in straight lines.

2-Light transmits(pass)through different materials.

Materials

	Transparent materials	Semi-transparent materials	Opaque materials
1-Shape.			
2-Definition.	The material which allows most of light to pass through it, and objects can be seen clearly .	The material which allows some of light to pass through it, and objects can be seen less clearly .	The material that doesn't allow light to pass through it, and objects can't be seen .
3-Seeing image behind it.	Clearly.	Less clearly.	Can't be seen.
4-Examples.	- Air. - Clear glass. - Clear water.	- Frosted bulbs. - Tissue paper.	- Carton. - Rocks. - Wood.

☺ Give reason:-

1- Air is a transparent material.

.....

2- Tissue paper is a semi-transparent material.

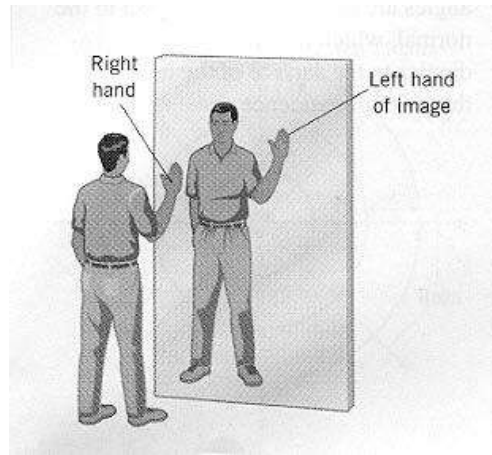
.....

3- Carton is an opaque material.

.....

3- Light Reflection

Light reflection: It is the bouncing (returning back) of light rays when falls on a surface or a mirror.



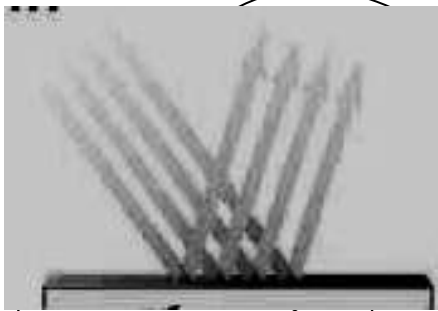
- The factors necessary for light reflection are :-

- 1- A light source .
- 2- A reflecting surface .

Types of reflection

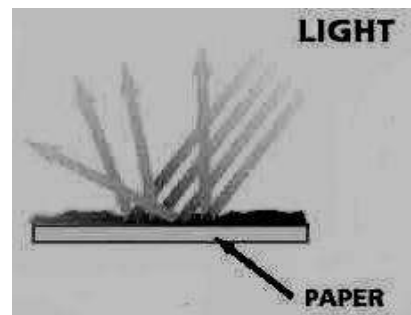
Regular reflection

It's the reflection of light on **a smooth** surface and light rays reflected in **one direction**



Irregular reflection

It's the reflection of light on **a rough** surface and light rays reflected in **different direction**



☉ **Give reason:-**

Seeing your image in the mirror.

Because the mirror reflects the light rays falling on it .

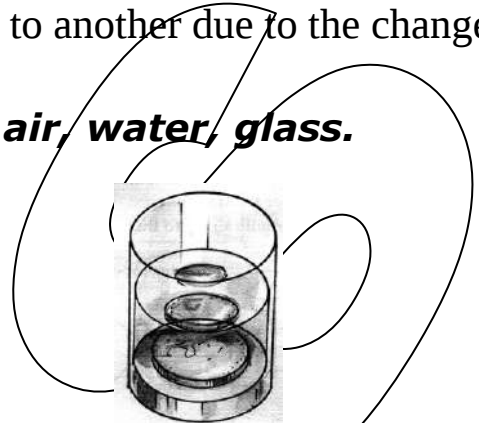
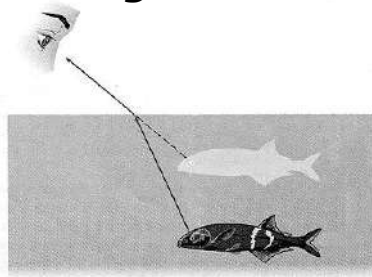
N.B

- The distance between the body and the mirror **equal** the distance between the image and the mirror .

4- Light Refraction

Light refraction: It is the change in the direction of light rays when travels from transparent medium to another due to the change in the light speed.

Light travels through clear media like air, water, glass.



☉ **Give reason:-**

1- When put a spoon in a cup of water, it appears broken.

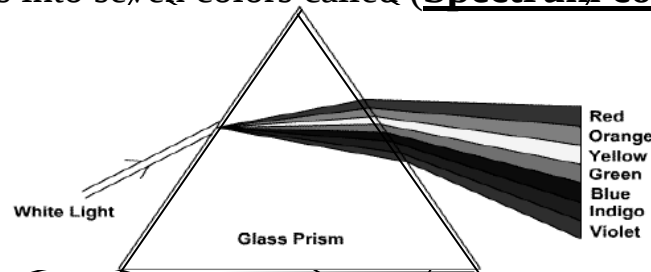
Due to refraction of light.

2- Light refracts when travels from water to air.

Due to the change in the light speed.

5- Light separation (Splitting).

White light separates into seven colors called (**Spectrum colour**) by **glass prism**.



Light separation: It is the separation of white light into seven colours .

Spectrum colors: Seven colors produced as a result of separation of white light.

Rainbow: A beautiful phenomena occurs in the sky after raining.

The seven spectrum colours :

(Red - Orange - Yellow - Green - Blue - Indigo - Violet).

☉ **Give reason:-**

1- Rainbow is seen after raining.

Because the drops of water separate the sunlight into 7 Spectrum colour.

2- The formation of spectrum colours.

Due to separation of white light into seven spectrum colours.



Lesson (2)

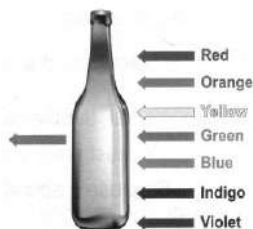
Seeing Coloured Objects

- The white light can separate into 7 spectrum colour.
- When the 7 spectrum colours are mixed together, the white light is produced .

Seeing colored objects

coloured transparent
and
semi-transparent objects.

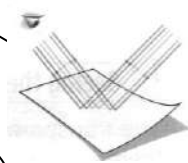
It absorbs all light colours
and allows its own colour
only to pass through it.



Coloured opaque objects.

White
opaque
objects

It reflects
all light
Colours



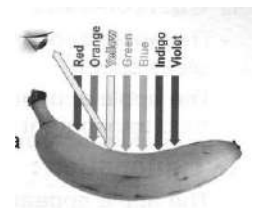
Black
opaque
objects

It absorbs
all light
Colours



Coloured
opaque
objects

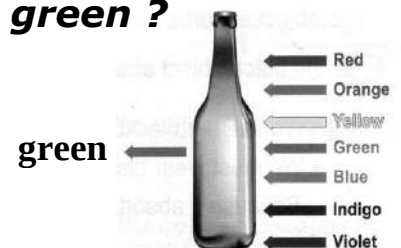
It absorbs all
light colours
and reflects
its own colour



☺ Give reason:-

1- When you look at the green bottle its seems green ?

Because the bottle absorbs all the light colours
and allows the **green** light only to pass through it.



2-We see the blackboard as it is .

3-We must wear black (dark) clothes in winter .

Because it absorbs all the light colours.

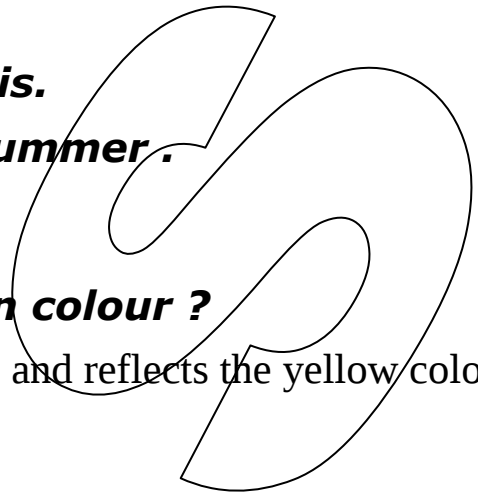
4-We can see the white paper as it is.

5-We must wear White clothes in summer .

Because it reflects all the light colours.

6-The banana fruits seems yellow in colour ?

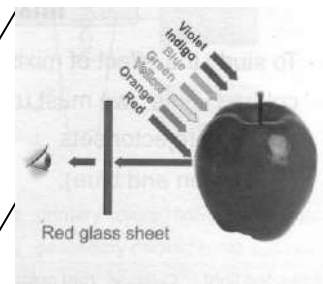
Because the banana absorbs all light colours and reflects the yellow colour only.



☉ What happens :-

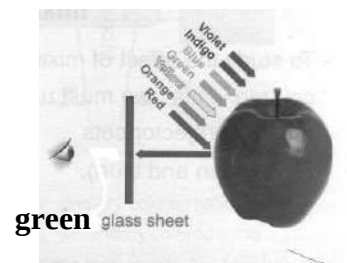
1-When you Look at a red apple Through a red transparent Glass.

It appears red.



2-When you Look at a red apple Through a green transparent Glass.

It appears black.



Mixing the coloured lights

types of colours

Primary coloured lights

They are coloured lights that impossible to be produced by mixing two of the other coloured lights.

(Red – Blue – Green)

- The Mixing of the three Primary colour form a white light .

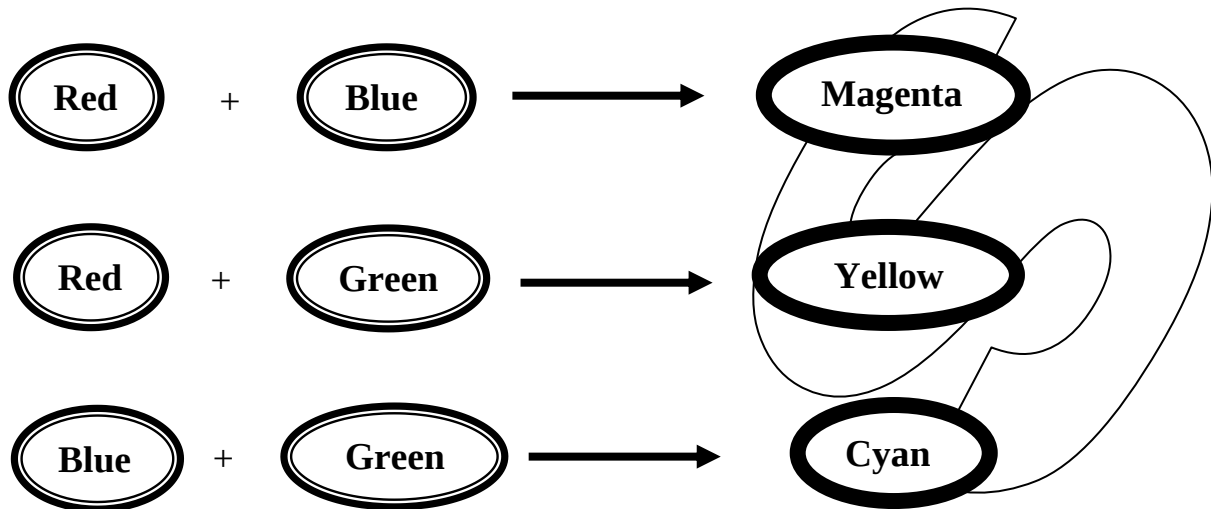
Secondary coloured lights

They are coloured lights that are produced by mixing two primary coloured lights.

(Magenta – Cyan – Yellow)

Red + Green + Blue $\longrightarrow$ White light.

Mixing two of the primary coloured lights



☺ Give reason:-

1-Red light is a primary coloured light.

Because it can't be produced by mixing any of the other coloured lights.

2-Magenta light is a secondary coloured light.

Because it is produced by mixing two of the primary coloured lights which are red and blue.

Lesson (3) Magnetism

- ☺ 2000 years ago, the ancient Greeks found a type of black rocks located in area named **magnesia**
 - ☺ This type of black rocks called (**Natural magnet**).
- The attractive force called (**magnetism**).

Types of magnet

Natural magnet.

- It is a black rock.
- It is one of the iron ores known as **Magnetite.**

Artificial magnet.

It has different shapes and sizes.

- 1- Bar magnet.
- 2- Rectangular magnet.
- 3- Ring magnet.
- 4- Horse-shoe magnet.
- 5- Magnetic needle.



The materials

Magnetic material.

- They are the materials that are attracted to the magnet.

Examples:-

Iron – nickel – steel and cobalt.

Non- magnetic material.

- They are the materials that are not attracted to the magnet .

Examples:-

Glass – paper – aluminum – copper and wood.

☺ Give reason :-

- **The magnet attracts iron but doesn't attract wood.**

Because iron is a magnetic materials but cooper is a non- magnetic materials .

The properties of the magnet:-

- 1- The magnet has **two** poles.
- 2- The freely suspended magnet always takes **a fixed** direction which is **North-South**.
- 3- The similar (like) magnetic poles **repel** each other but the unlike magnetic poles **attract** each other.
- 4- The magnet is surrounded by an area called "**magnetic field**"

Two poles:-

- The regions(areas)of magnet at which most of magnetic materials are attract.
- The regions of magnet at which most of the attraction force (magnetism) is concentrated.

Magnetic field:

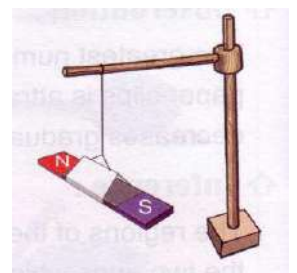
- It is the space around the magnet in which the effect of magnetic force appears.

Magnetic force:

- It's the ability of the magnet to attract the magnetic materials.

☺ Complete:-

- Magnetic force of the magnet is concentrated at and disappears in the
- The north pole has the colour but the south pole has colour.
- The freely suspended magnet always takes direction which is direction.
- The similar magnetic poles each other.
- The different magnetic poles each other .



☺ What happens when:

- 1- You approach a magnet to some paper clips.
 - **The clips are attracted to the two poles of the magnet .**
- 2- You approach a north pole of one magnet to a south pole of another magnet .
 - **They will attract each other.**
- 3- You approach north pole of one magnet to north pole of another magnet .
 - **They will repel each other.**

☺ Write the scientific term:

- The pole of magnet which points to the north direction.

()

- The pole of magnet which points to the south direction.

()

☺ Give reason :-

1- When you put (near) a magnet to some paper clips, the clips are attracted to the two poles of the magnet.

Because the attraction force of the magnet is concentrated at the two poles of magnet.

2- The north pole of a magnet attracts to the south pole of another magnet.

Because the different magnetic poles attract each other.

3- The north pole of a magnet repels to the north pole of another magnet.

Because the like magnetic poles repel each other.

- What happens if :-

1- Put a magnet below a glass plate and scatter some iron fillings over it and knocked gently on the glass.

The iron fillings are arranged around the magnet in a regularly way and most of them concentrated at the two poles.

The uses of magnet

- The magnet is used in making the magnetic compass.

- The Chinese were the first people to use the magnet rock to know the directions.

- The English scientist "William Gilbert" took the idea of magnet rock and made of magnetized needle that spin freely.

- This magnetic needle was the basic idea in making the compass.

The Compass

- The structure:-

- A small and light magnet that can move (spin) freely.

- The importance:

- It is used to identify (know) the main four direction.

☺ Give reason :-

1- The compass is used to know the main four directions.

Because north and south pole of magnet point to north and south directions of Earth.



Lesson (4)

Magnetism and electricity

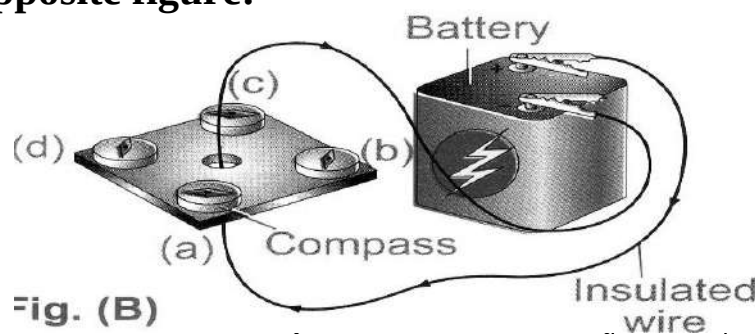
There is a relation between magnetism and electricity where there is:-

- ☉ A magnetic effect of the electric current.
- ☉ An electric effect of the magnet.

The magnetic effect of the electric current

The electric current can generate a magnetic field.

Look at the opposite figure:-



☉ Observation:-

The compass needle deflects after the flowing of electric current through the wire.

☉ Conclusion:-

The electric current has a magnetic effect, where it generates the magnetic field.

So

Generating the **magnetic field** by using the **electric current** is the idea of making the **electromagnet**.

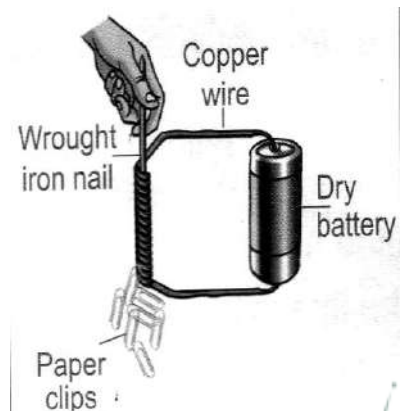
The electromagnet

It is a magnet which is made by **electricity**.

☉ Its structure:-

Look at the figure:-

- 1- Copper wire twisted around wrought (soft) iron.
- 2- Dry cell (Battery).
- 3- Wrought (soft) iron.



☉ The idea of working:-

When the electric current passes through a **coil winding** around a **wrought (soft) iron** bar, the bar becomes a " **temporary magnet** " that is called **the electromagnet**.

The magnetic force of the electromagnet increases by:-

- A- Increasing the number of coil turns.
- B- Increasing the number of batteries.

Uses of electromagnet:-

- ☉ Is used in **factories** to move (lift) the heavy **iron blocks** as used to make cranes.
- ☉ In making many appliances (devices) as:-
 - a- Electric bell.
 - b- The electric mixer.
 - c- The disc drive.
 - d- The television.

Give reason:-

1- A wrought iron nail is used for making the electromagnet.

Because the wrought iron nail gains and lose magnetism easily.

2- The magnetic force of the electromagnet increases by increasing the number of batteries.

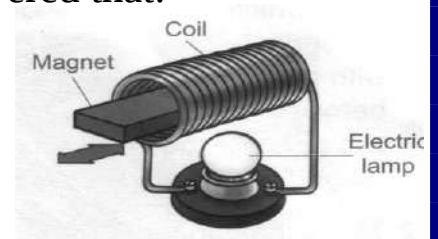
Because the intensity of the electric current will increase.

The electric effect of the magnet

- ☉ In 19th century, the English scientist (**Faraday**) discovered that:-

When a magnet is moved inside a coil of wire, it produces an electric current through the coil, so the lamp lights.

- ☉ This means that the **electric energy** can be generated by **a magnetic energy** this idea used to make the **dynamo**.



The electric generator (Dynamo)

☉ The structure of the dynamo:-

1- A copper coil.

2- A magnet.

☉ The idea of operation:-

- It converts the kinetic (mechanical) energy into electric energy.
- An electric current can be generated by moving the wire between the poles of a magnet or moving the coil in the magnetic field.

☉ There are many examples of dynamo as:

A- small dynamo in the bicycle:

It consists of:

- A small cylinder that touches the bicycle wheel tires
- Connected with a horse shoe magnet that is surrounded by a coil.



N.B:

To increase the electric current produced by dynamo, we should increase the movement of the coil between the two poles of the magnet.

B- Huge dynamo (electric generator)

It consists of:

- many great coils that turn between the two poles of the huge magnet.

Uses of Dynamo:-

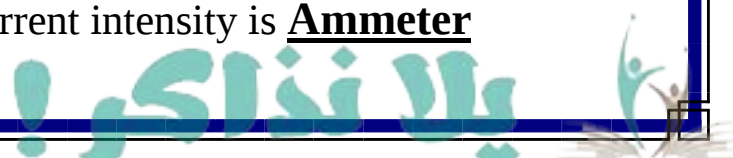
- It is used in electric power stations to generate large amount of electricity which are used in lightning cities and operating factories.

There are two ways to increase the amount of the electricity produced by dynamo:-

- By using a strong magnet.
- Increasing the number of turns in the moving coils.

N.B:

A device used to measure the electric current intensity is Ammeter



Unit (2)

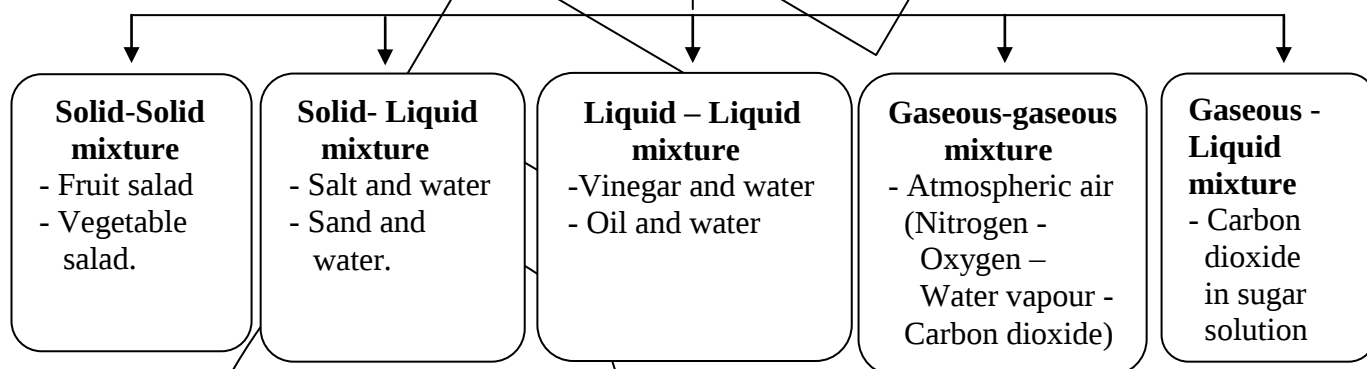
Lesson (1)

Mixture

All matter Can be classified into:

Pure substances	Mixture
☉ It's the substance that is made of one type of identical (same) particles. ☉ <u>Examples:-</u> 1- Sugar. 2- Distilled water. 3- Baking soda.	☉ It's the substance that consists of more than one type of particles. ☉ <u>Examples:-</u> 1- Milk. 2- Concrete. 3- Tomato sauce. 4- Mineral water.

Types of mixture:-



☉ Each type of these mixture are classified into:

Homogenous mixture	Heterogonous mixture
☉ It's the type of mixtures that we cannot distinguish between its components. ☉ <u>Examples:-</u> - Milk. - Mixture of salt (sugar) and water.	☉ It's the type of mixtures that we can distinguish between its components. ☉ <u>Examples:-</u> - Mixture of sand and iron filling. - Vegetable salad and fruit salad.

☉ Give reason:

1- Sugar is a pure substance.

Because sugar consists of one type of identical particles.

2- Milk is a mixture.

Because milk consists of more than one type of particles.

☉ Properties of mixture:

- 1-** The components of a mixture **don't react** with each other and so, we can separate them easily by simple physical methods.
- 2-** Each component of the mixture **keeps its own properties.**
- 3-** The properties of mixture are the **same properties** of its components.
- 4-** The components of the mixture can be mixed at any ratio.

☉ Give reasons:

1- A mixture of sand and iron filings can be separated easily.

Because the components of the mixture do not react together.

Formation of mixture

Mixture can be formed by different methods such as:-

1- Shaking

2- Stirring

3- Grinding

Liquid - liquid materials	Solid - liquid materials	Solid - solid Materials
☉ Can be mixed by shaking or stirring. ☉ <u>Examples:</u> Strawberry juice and banana juice	☉ Can be mixed by shaking or stirring. ☉ <u>Examples:</u> salty solution and sugary solution	☉ Can be mixed by shaking or grinding. ☉ <u>Example:</u> Grinding of salt and pepper.



Separation of mixture

- ☉ We can separate the component of the mixture by simple **physical methods** such as:

1- Magnetic attraction:

- It is used to separate the solid mixture that contains a magnetic substance such as a mixture of iron fillings and sand.

2- Filtration process:

- It is used to separate the solid materials that are insoluble in water.
Such as a mixture of sand and water by using filter paper.

3- Evaporation process:

- It is used to separate the solid materials that are soluble in water.
Such as a mixture of salt and water (salty solution) or sugar and water (sugary solution).

4- Using a separating funnel:

- Its used to separate heterogeneous liquid mixture.
Such as a mixture of oil and water.



N.B:

- ☉ The table salt is collected by **evaporation process** of sea water in special places called **salt pans**.
- ☉ The mineral water is a mixture of water and salt like, calcium and magnesium.

Lesson (2)

Solution

☉ There are two types of mixture:

Homogenous mixture	Heterogonous mixture
☉ It's a type of mixtures that we cannot distinguish between its components. ☉ <u>Examples:</u> Apple juice, tea, sugary solution and salty solution.	☉ It's the type of mixtures that we can distinguish between its components. ☉ <u>Examples:</u> Natural orange juice and mud in water

☉ Give reasons:

1- Salty solution is a homogeneous mixture.

Because its components can not be distinguished.

2- Apple juice is a solution.

Because it is a homogeneous liquid mixture, where its components can not be distinguished.

N.B:

- ☉ The **solution** is a **homogeneous** liquid mixture that is made by the combination of two or more different substances.
- ☉ Most mixtures that are formed by dissolving in liquids are homogeneous mixture.

Solution

How is the solution formed?

- To form a solution, you must have a **solvent** which is **liquid** such as water, alcohol and benzene.
- And the **solute** such as salt and sugar.
- The **solvent** and the **solute** are the components of the **solution**.

Solute	solvent
☉ It is the substance which dissolves in a solvent. ☉ salt and sugar.	☉ It is the liquid in which solute dissolves. ☉ Water, alcohol and benzene.

♣ The **solubility** (dissolving) of the **solute** in the **solvent** produces the **solution**.

Solution:

It is a **homogeneous mixture** in which the solute breaks down into its most basic particles that spread throughout the solvent.

Solubility process:

It is the process by which a solute dissolves in a solvent leading to the disappearance of the solute.

☉ **Substances are classified according to the solubility into:**

Soluble substances	Insoluble substances
Substances that dissolve in solvent.	Substances don't dissolve in solvent.

N.B:

On adding an **insoluble** substance to a certain **solvent**, a **suspension** is formed.

Suspension:

It is a **heterogeneous** mixture in which the particles of the **solute** are **suspended** throughout the **solvent**.

Examples:

1- Mud in water and natural orange juice

And they can be separated by **filtration process**.

The water is called a common (general) solvent.

Solution	Suspension
♣ A homogeneous liquid mixture that is made by the combination of two or more different substances. ♣ It is a homogeneous mixture in which the solute breaks down into its most basic particles that spread throughout the solvent. ♣ Apple juice, tea, liquid soap, sugary solution and salty solution.	♣ It is a heterogeneous mixture in which the particles of the solute are suspended throughout the solvent. ♣ Natural orange juice and mud in water.

☉ Factors affecting the solubility of the components of the solution:

- 1- Quantity of solvent and solute.
- 2- Temperature.
- 3- Stirring.
- 4- Kind of the solute.

1- Quantity of solvent and solute

- ☉ By **increasing** the quantity of **solvent**, the **solubility increases** and vice versa.
- ☉ By **decreasing** the quantity of **solute**, the **solubility increases** and vice versa.

N.B:

- ☉ Dissolving sugar in **300 ml.** water takes a **short time** than that is needed to dissolve the same quantity in **50 ml. water.**

Temperature

- ☉ On using the same amount of **solvent** and **solute**, but increasing the **temperature**, the dissolving time **decrease**.

☉ Give reasons:

1- Dissolving sugar in heated water is faster than in cold water.

Because increasing the temperature increases the solubility process.

Stirring

- ☉ Stirring increases the speed of the solubility process.
- ☉ Shaking has the same effect of stirring process.

Kind of the solute

Steps	Observation
☉ Put an amount of sodium chloride in beaker containing water. ☉ Put the same amount of sodium carbonate and water in another beaker.	☉ The time needed to dissolve sodium chloride differs from that needed to dissolve sodium carbonate.

Conclusion:

- The solubility process depends on the kind of the solute.

N.B:

- **The necessary factors to decrease the solubility time are:**

- 1- Heating.
- 2- Stirring.
- 3- Increasing the amount of solvent.
- 4- Decreasing the amount of the solute.

- **The solubility speed of solid materials increases by grinding.**

Unit (3)

Lesson (1) Food relationships among living organisms

Task (1) Read page (72) then extract:

Date:

☉ There are many types of food relationships between living organisms like:

1-

2-

3-

Task (2) Read page (73) first paragraph then extract: Date:

1-Predation

- It is a temporary food relationship among living organisms in which one living organism devours another one.

Predation in animal include

.....	
• The animal which eats (devours) the other animal.	• The animal which is eaten by other animal.

❖ **Examples:**

- **A wolf preys a rabbit:** Wolf is called **predator** and rabbit is called **prey**.
- **A lion feeds on a deer:** Lion is called **predator** and deer is called **prey**.

Give reason:

- 1- The relation between cat and rat is called predation.
-

Task (3) Read page (73) last paragraph then extract: Date:

Predation in plant world

- Some plants can not absorb some compounds from the soil to make their protein.
- Therefore, they have to prey some insects for making protein.
- These plants are know as **insect eaters plants** (.....).
- Such as: 1- 2-

❖ **Give reason:**

- 1- Some plants eat insects or called insectivorous plants.
-

Ways of self defense

Camouflage

- A phenomenon in which the living organisms change their colours to simulate the colours of the environment where it lives.

Examples:

- 1-A butterfly.
- 2-Frog.
- 3-Chameleon.
- 4-Cuttlefish ejects a black coloured fluid.

Mimicry

- A phenomenon in which the harmless living organisms imitate other harmful or poisonous living organisms to scare their enemies.

Examples:

- 1- Some bees which look like wasps in forming lines on their bodies.

● Give reasons:

- 1- The chameleon can change its colour.

- 2- Some bees look like wasps in forming stripes on their bodies.

2-Symbiosis

A common relationship between 2 different types of living organisms. One benefits from the other and doesn't harm it (commensalism) while the other may benefit (mutualism) or is harmed (parasitism).

Mutualism (Benefit exchange)

- It's a relationship between two living organisms and both get benefits.

Ex: Nodular bacteria and leguminous plant (like beans)

Commensalism

- A relation between two living organisms in which one of them benefits from the relation and doesn't harm the other.

Ex: 1- Birds and crocodiles.

- 2- Sponge and tiny aquatic organisms.
- 3- A bee and flowers.
- 4- Hippopotamus and some birds.

Parasitism

- A relationship between two different kinds of living organisms, one benefit from the other (parasite) and the other one is harmed (host).

External parasite

- Ex: 1-
- 2-
 - 3-
 - 4-

Internal parasite

- Ex: 1-
- 2-
 - 3-
 - 4-

What happens if.....?

1- The host dies. →

Task (3) Read page (78) first paragraph then extract: Date:

Harms of parasitism:

The parasite	Harms
Flaria worm	Causes..... disease.
Mosquitoes	Causes disease.
Fleas	
Bilharzia worms	Cause disease
Ascaris worms	Cause anemia.

3- Saprophytism.

Task (4) Read page (78) first paragraph then extract: Date:

- It is a food relationship in which **saprophytes (decomposers)** get their food by decomposing food remains or dead bodies.

❖ Examples of saprophytes (decomposers):

- 1-
- 2-
- 3-

☉ Give reasons:

1- **Bread mold fungus is a saprophytic organism.**

Because it gets its food by decomposing food remains.

Lesson (2)

Environmental Balance

❖ The opposite figure represents a **natural area** that contains:

- Some living organisms such as giraffe, deer, people, and plants.
- Some non-living things such as air, soiletc.
- The natural area is called" **Ecosystem**".



☒ **Ecosystem:**

- It is any natural area including **living organisms** and **non-living organisms**.

☒ **Ecosystem may be**

- **Small** as an area of land or a water pond.
- **Large** as a forest or a desert.

- **There are many relationships between the components of the ecosystem:**

A)The relationships between the plant and the soil:

The plant depends on the soil to absorb water that is necessary to make its own food.

B)The relationship between plants and animals:

Animals feed on other animals to get food and energy.

C)The relation between different animals.

Some animals feed on other animals to get food and energy.

☒ **Environmental balance:**

It is the balance among the components of the ecosystem.

☒ Factors harm (disturb) the environmental balance:

Natural changes	Man interference
• The changing in the natural conditions leads to : ▪ Disappearance of some organisms. ▪ Appearance of other organisms. ▪ Environmental imbalance that may take a short or a long period of time. ▪ Example: • The change in the natural conditions of the environment leads to the disappearance of dinosaurs causing their extinction.	• Some human activities such as: ▪ Cutting down trees. ▪ Burning forests. ▪ Polluting environment. ▪ Eroding the soil leads to disturbance of the environmental balance.

Factors keep the environmental balance:

1- The effect of predation on the environmental balance:

- The predators help preys get rid of weak or sick members and let the strong ones reproduce adding strong members to the population.
- If there were no **predators** in the ecosystem, the environmental balance will be disturbed as:
 - a- **Increase the number of preys**, so the food resources become not enough for preys.
 - b- **Preys will die** because they haven't shelter and become weak.

Give reasons:

- ☒ **Predation relationship plays an important role in keeping the balance of the ecosystem.**

Because predation organizes the numbers of preys populations.

2- The effect of saprophytism on the environmental balance:

❖ The saprophytic organisms (decomposers) help the environment in:

- Getting rid of dead bodies.
- Recycling the chemical elements found in the bodies of dead organisms (as carbon, nitrogen and phosphorus) to the environment

○ The man can benefit from saprophytic organisms in many industries such as:

A- Food industry such as cheese, bread, yoghurt and alcohol.

B- Used in manufacturing of some drugs such as antibiotics.

C- Leather tanning industry.