

Subject:
BST(Basic Science)

Topic:
LIVING AND NON LIVING THINGS

Class:
JS 1

OBJECTIVES

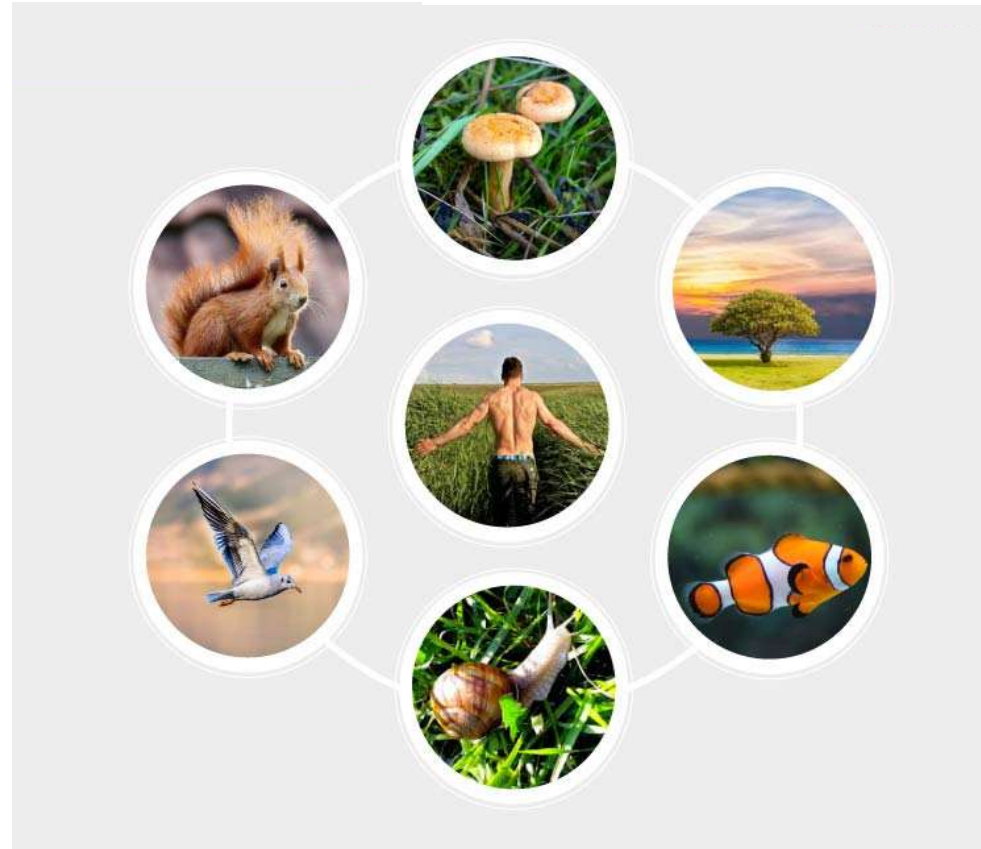
At the end of the lesson students should be able to:

1. Recognize that all living and non-living things are made up of matter.
2. List the three states of matter.
3. Collect and identify samples of living and non-living things in their environment.
4. List the distinguishing characteristics of living and non-living things.
5. State the importance of plants and animals to human beings.

Definition of Living Thing

Living things are those things that can carry out the activities of life. These activities distinguish living thing like man from non-living things like stone.

These activities they carry out are known as their qualities or characteristics and they are,

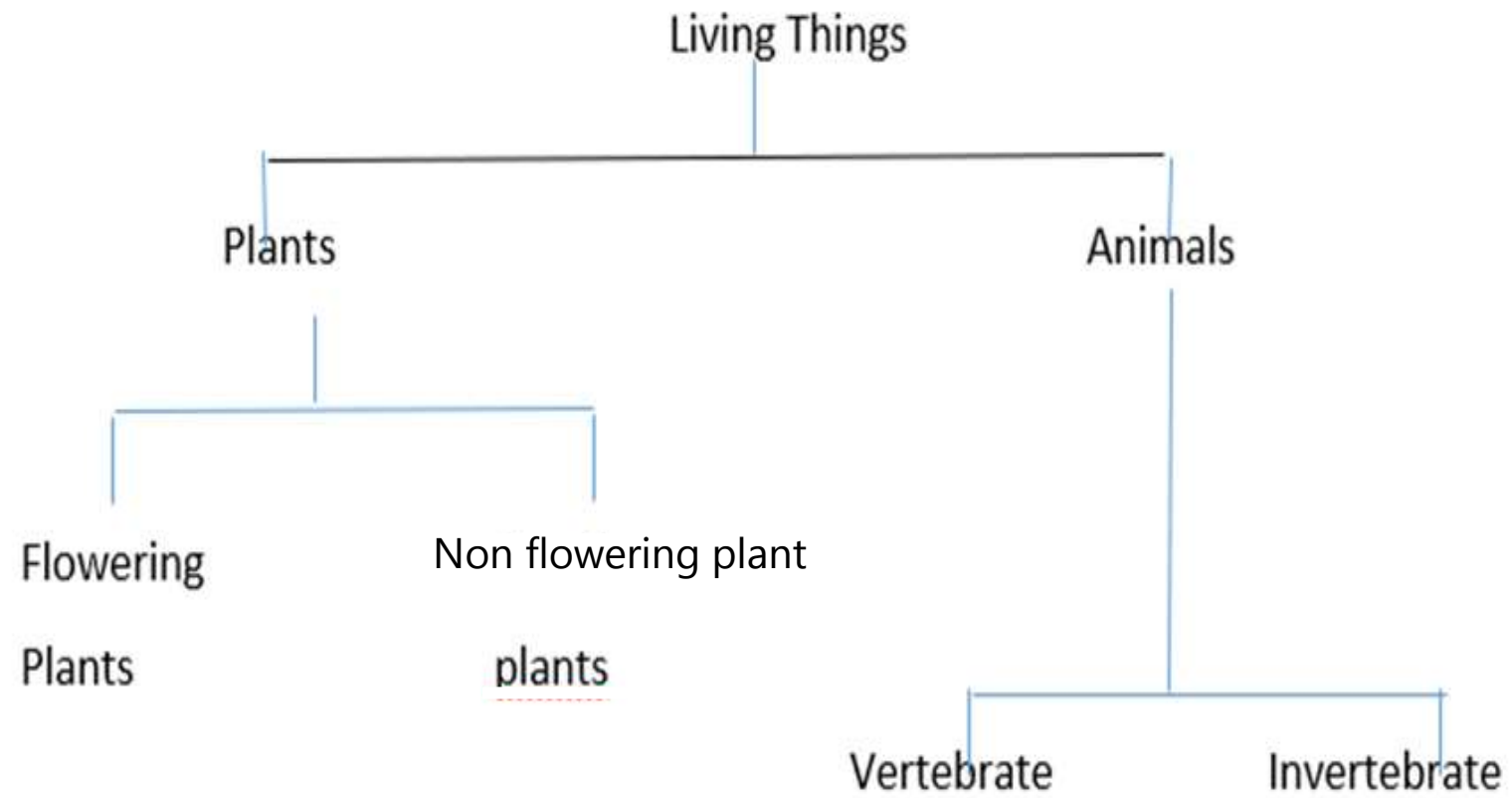


1.	Movement	-	M	
2.	Respiration	-	R	
3.	Nutrition	-	N	
4.	Irritability	-	I	
5.	Growth	-	G	
6.	Excretion	-	E	
7.	Reproduction	-	R	
8.	Death	-	D	MR NIGER D

- I. Living things can be categorized into two namely Plants and animals and these can further be divided into group as shown on the table below

PLANTS

ANIMAL



ii. Non –Flowering Plants also known as Gymnosperm: These are plants that

- Do not form flower
- They are mostly trees and woods
- Their seeds are produced in cons.





Classification of Animal.

Animals are broadly classified into Vertebrates and Invertebrates.

1. **Vertebrates:** These are animal with backbones. It can be subdivided into five or more groups namely

Examples of animals with backbone are: Goat, Cat, man, fish

Animals with backbones can be divided into five groups namely:

1. Pisces e.g. (Fishes)
2. Amphibians e.g. (Frog)
3. Reptiles e.g. (Lizards)
4. Aves (Birds)
5. Mammals e.g. (Man, Dog, Goat) etc.

HUMAN BEINGS AS HIGHER ANIMALS

Animals can be divided into two main group namely:

Animals without backbone called **Invertebrate** and animals with backbone called **Vertebrate**.

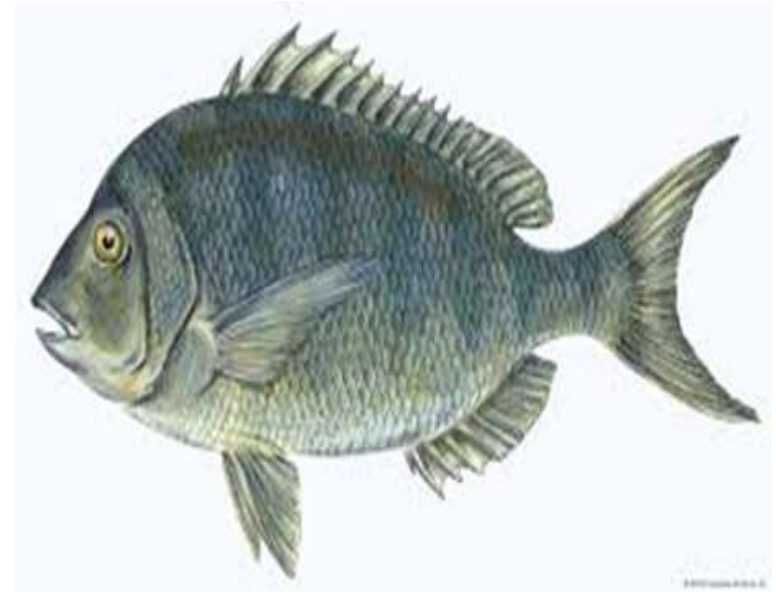
Examples of animals without backbones are: Snail, earthworm, insects such as cockroach, millipedes, centipedes, etc.



CHARACTERISTICS OF ANIMALS WITH BACK BONES

Pisces (fishes)

1. They all live in water
2. They have fins
3. They breathe by means of gills
4. They possess scales e.g. all fishes



2. **Amphibians e.g. (Frog)**

They live both on land and in water

They have soft and moist skin through which they can breathe.

3. They spend the first part of their life in water during which they breathe by means of gills.

4. The adult breathe by means of lungs on land e.g. Toad, frogs.



3. Reptiles e.g. (Lizards)

1. These have dry skin covered with scales
2. they live on land and breathe by means of lungs
3. Some of these are water reptiles but returned to land to lay their eggs e.g. lizards, snakes, turtles.



4. **Aves (Birds)**

1. They have feathers which cover their body
2. They have wings
3. They have beaks
4. They lay hard shelled eggs. E.g. pigeon, ostrich.



5. Mammals

1. They have hairs or fur at least on a part of their body.
2. They do not lay eggs but give birth to their young ones alive
3. The mother feeds its young with milk from mammary glands or breast e.g. man, monkey, horse, rat
4. Mammals can be subdivided into many groups. One of these group is **Primates**.



1. They all have nails on their hands and feet and not claws.
2. They can all grasp things with their hands.
3. They all have eyes in front of their heads and not sides.
4. They can all stand upright.

How is Man different from other primates

Man is a primate but is different from other primates because of the followings

- Man is the only animal that normally move about standing upright due to the S-shape of our backbone.
- Man has the largest skull which contains the largest brains.

3. Man's brain is more highly developed in certain areas than that of other primates that is in the area that concerns thinking and speech.

The human brain and the human body both make man a special primate.

HOW THE BRAIN AND THE BODY OF MAN WORK TOGETHER

The brain enables us **to think, plan and solve problems** better than other animals.

Man has always had the problem of obtaining food. Hunting, fishing, farming etc



Invertebrates: These are animals without backbones. It can be subdivided into the following groups namely:

Protozoa e.g. Amoeba, Paramecium, plasmodium and trypanosome.

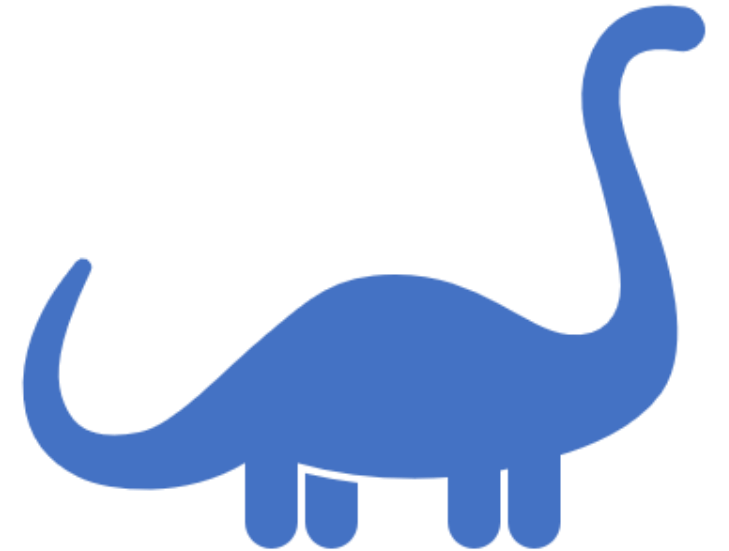
Coelenterates e.g. hydra, Jelly fish sea anemones etc.

Annelids e.g. Earthworms, Leech

Mollusca e.g. Snails, Octopuses, Penwind


Nematode e.g. Roundworms, Ascaris, filarial worms, hookworm

Arthropods: e.g. mosquito, crayfish, millipede etc.



DIFFERENCES BETWEEN ANIMALS AND PLANTS

Plants	Animals
Does not move from one place to another i.e. movement is stationary	Move from one place to another on their own.
Make their own food (Autotrophic)	Feeds on plants or other animals i.e. cannot move their own food



Growth occurs at the tips of roots and stems i.e. Apical growth


Growth occurs in parts of the body i.e. intercalary growth

Respond to stimuli slowly

Rapid response to stimuli

Have no specialized or complex organs for excretion and respiration

Have specialized organs for e.g. kidney & lung and for respiration



No courtship in reproduction	There is courtship
Have branching body	Have a compact bodies

ORGANIZATION OF LIFE

All living organisms are highly arranged or organized in levels or steps called **Level of Organization.**

This ranges from

cell → Tissues → Organs System → → Organisms.

CELLS

A cell is the basic structural and functional unit of life. Or it can also be defined as the unit of protoplasm bound by a cell membrane in which all the functions of life are carried out.

OR

A cell is the smallest of life. It is the building of plants and animals.

Examples of cells in living or non-living includes sperm, ovum or egg, blood cell, while blood cell in animal and phloem cells xylem cells in plants.

Some small organisms made of one cell (single cell they are called UNICELL organisms others are made with many cells and are said MULTI-CELLULAR ORGANISM.

Spirogyra, rat, man, mango e.g. of unicellular organism amoeba, plasmodium, paramecium

STRUCTURE OF A PLANT CELL AND ANIMALS CELL

Differences between plant and animals cells

	Plants Cell	Animals Cell
1.	Has cell wall	Has no cell wall
2.	Has definite shape	Has no definite shape its flexible
3.	Chloroplasts are presence	Chloroplasts are absent
4.	Presence of large central vacuole	If vacuoles are present, they are small and no cell sap
5.	Presence of chloroplast	Absence of chloroplast

USES / IMPORTANCE OF PLANTS AND ANIMALS TO MAN

Plants and animals provide us the following:

- Plants and animals provide us with food.
- They also provide medicine; the root of plants, barks, stem and leaves are used as herbs and some are refined as synthetic drugs.

Plants provide shelter – trees used as timber in roofing houses; tree branches provide shade to both animals.

For economic importance:

Plants and Animals serve as a source of income and revenue e.g.

flowers of plants are used to beautify our environment.

- Animals like Donkeys and camels, are used as 3 means of transportation
- Used for security e.g. Dog
- As Pets e.g. Cats, Birds

ACTIVITIES OF LIVING THINGS

Living things engage in various activities different parts of their bodies to enable them survive in their environments. These are:

1. **Movement:** Different organisms/animals use different parts to move.

- Birds – Wings for flying
- Man – Legs feet for walking

2. Respiration:

It means exchange of gases to liberate energy.

The organs used differ from one animal or another such as fish – Gills for breathing.

3. Nutrition: (Feeding) living things feed in order to obtain energy and grow. They are 3 modes of feeding according to the namely

- a. Carnivorous Animals – They feed only flesh e.g Dogs, Lions, Cheetah, Tiger etc.
- b. Herbivorous Animals – They feed on plant only e.g. Cow, Sheep, Goat, Rabbit etc.
- c. Omnivorous Animals – Animals that feeds on both plants and animals e.g. are man, Pig, Monkey, Chicken etc.

4. **Irritability:** This is the ability of plants and animals that respond to stimulus plant respond slowly to stimulus while animals respond quickly to stimulus.
5. **Growth:** This is increase in size, length and mass.
6. **Excretion:** The purpose of excretion is to rid of harmful waste substances in the body. The various organism of excretion and the excretion products are

	Excretory Organs	Excretory Products
1.	Lungs	Carbon (IV) oxide (Gas)
2.	Skin	Sweat (Liquid)
3.	Kidney	Urine (Liquid)

7. Reproduction

This is to ensure continuity of life. The organs for reproduction includes – Penis, Spermatozoa, Scrotum, Sperm duct for males and for female. They are: Vagina, Ovaries, Ovum (Egg), Uters (or womb), fallopian tube, oviduct. The organs or reproduction for plant are the flowers.

EVALUATION

- 1.DEFINE LIVING AND NON LIVING THINGS
- 2.WHAT IS MATTER.
- 3.STATE THREE STATES OF MATTER
- 4.DIFFERENCIATE BETWEEN PLANT AND ANIMAL CELL

THANK YOU FOR WATCHING