

BAL BHARATI PUBLIC SCHOOL PITAMPURA
CLASS XI (SESSION 2020-21)
BIOLOGY
CH- THE LIVING WORLD (PART1)

INSTRUCTIONS-

STEP 1- READ THE CHAPTER- **THE LIVING WORLD**
UNDERLINE THE DIFFICULT TERMS

LEARNING OBJECTIVES:

- 1) To introduce 'living' - the meaning and its salient features and diversity
- 2) To understand the systematic in the study of living world.

STEP 2- READ THE NOTES CAREFULLY.

TOPICS COVERED :
What is "Living"?
Diversity in the living world

STEP 3: Visit the YOUTUBE LINK

<https://www.youtube.com/watch?v=FKZysxJawT4>

TERMS

1. **Diversity** : Large variety of anything.
2. **Biodiversity** : Large variety of organisms.
3. **Nomenclature**: Scientific naming of organisms.
4. **Identification** : Correct description of organism prior to nomenclature.
5. **Classification** : Grouping of organisms in to categories on the basis of similarities & differences.
6. **Taxon** : Concrete biological object or category of classification.
1. **Taxonomy** : Process of classification of organisms.
2. **Systematics** : branch of biology dealing with taxonomy along with evolutionary relationship between organisms.
3. **Species** : Group of Individual organisms with fundamental similarities (with capacity if sexually reproducing).

What is Living?

-Objects having characteristics of cellular organisation, growth, reproduction, ability to sense environment & give response, metabolism etc.

All organisms grow:

- Increase in mass or number of cells characterise growth.
- plants grow throughout life.
- Animals grow to certain age .
- Non living objects also grow externally by accumulation of material on surface.
- Living objects grow from inside.
- Growth cannot be considered as defining property of living beings.
- the pattern of growth is predetermined and regular in plants and animals can be seen in the forms of adults. In some organisms, however, notably the slime molds, no regular pattern of growth occurs, and a formless cytoplasmic mass is the result.

NB : There are certain examples in which mass is decreased during growth eg. Germinating potato tuber.

Reproduction:

- Characteristics of living beings to produce progenies possessing features of their own type.
- Reproduction is of sexual& asexual type.
- Fungi produce spores for asexual reproduction.
- Organism viz. Planaria reproduce by regeneration in which a fragment of body forms whole organism.
- Fungi, filamentous algae, protonema of moss reproduce by fragmentation also.
- In unicellular organisms growth & reproduction are synonymous.
- 1. Certain organisms do not reproduce viz. mule ,worker bees, infertile human couple.
- Hence reproduction **cannot be considered as defining property** of living beings.

Metabolism:

- Several chemical reactions occur in living organisms.-Some of these reactions are anabolic others are catabolic.
- All the reactions together are called metabolic reactions & process is called metabolism.
- It has no exception.

-It is defining property of living beings.

Cellular organisation:

-living organisms consist of cells & their products.

-It is defining property of living beings.

Consciousness: Ability to sense environment & respond to environmental factors

-Living beings sense& respond to environmental factors viz. Light,water,temperature,ot her organisms, pollutants etc.

-It is defining property of organisms.

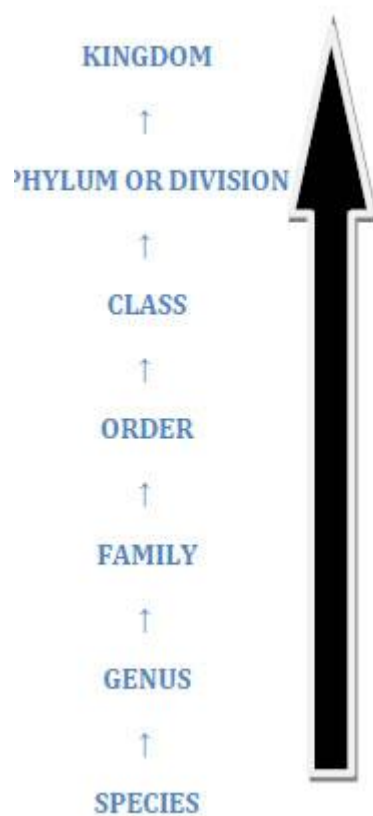
Living organisms can be considered as self replicating, evolving & self-regulating interactive systems capable of responding to external stimuli.

Diversity in the living world:

- Described number of species range 1.7-1.8 million.
- Local names of organisms may not be applied at global level.
- Scientific names are given to organisms after identification, acceptable at global level.
- Nomenclature is done as per criteria given in ICBN (International code for botanical nomenclature)& ICZN (International code for zoological nomenclature)
- Binomial nomenclature was given by CAROLUS LINNAEUS.
- 1.First word is Generic name & second word is Specific epithet in scientific name of organism.
- Names are in Latin or Latinised word.
- Names, if hand written are separately underlined & if printed, are italicised.
- First word starts with capital letter & second word with small letter. Example: *Mangifera indica* (Mango)
- Name of author in last as abbreviation.
- For ease of study organisms are classified into groups or categories known as taxa.
- 1.eg. Taxon may be Dogs, Mammals, wheat, Rice etc.
- Process of classification into different taxa is called taxonomy.
- Identification, classification, nomenclature are basic to taxonomy.
- Systematics studies evolutionary relationship between organisms.

Taxonomic categories :

- Each rank or category of classification is termed as taxonomic category.
- Arrangement of categories in sequence is termed as Taxonomic Hierarchy.



Taxonomical Hierarchy

Species: Group of organisms with fundamental similarities. eg. **Mangifera indica**

In this species is **indica**.

Genus: Group of related species with common characters.

eg. Panthera is a genus which includes lion (Panthera leo), leopard (Panthera pardus) & Tiger (Panthera tigris).

Family: Group of related genera .

eg. Genus Solanum, Petunia & Datura belong to one family Solanaceae.

Order : Group of related families.

eg. Families Convolvulaceae, Solanaceae belong to one order- Polymoniales.

Class : Group of related orders.

eg. Order Primata & Carnivora belong to one class Mammalia.

Phylum: Group of related classes.

eg. Class Mammalia, Pisces, Amphibia, Reptilia belong to one phylum - Chordata.

Kingdom: Group of all related Phyla.

eg. Kingdom Animalia - includes all animals.

ASSIGNMENT

- Q.1. Name three botanists who contributed to the field of plant taxonomy.
- Q.2. Expand ICZN?
- Q.3. Define metabolism.
- Q.4. The mitotic cell division in amoeba represents growth or reproduction?
- Q.5. If a habitat contains 20 animal species and 20 plant species, is it "diversity" or "biodiversity"?
- Q.6 Match the correct pairs.

Column I	Column II
Family	Tuberosum
Kingdom	Polymoniales
Order	Solanum
Species	Plantae
Genus	Solanaceae

- Q.7. What is the lowest category of classification?