

**LIVING WORLD- IN A NUTSHELL**  
**MISSION MBBS | NEET 2024**



# **LIVING WORLD - KEY TAKE AWAY**

**ZOOLOGY | CLASS 11**



**PUSHPENDU SIR**



**MONDAY TO FRIDAY**  
**4 PM - 8 PM**



**PUSHPENDU SIR**  
**ZOOLOGY**



**SACHIN SIR**  
**ZOOLOGY**



**VIVEK SIR**  
**CHEMISTRY**



**PANKHURI MA'AM**  
**BOTANY**



**ANUSHRI MA'AM**  
**PHYSICS**

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Registration Date

**8<sup>th</sup> June**  
Onwards

Exam Dates and Time

**3<sup>rd</sup> & 10<sup>th</sup> July**

2:00 to 5:20 PM

**FREE FOR 14 DAYS!**









# Life

**Unique, complex organisation of molecules** that expresses itself through chemical reactions which lead to:

**Growth**

**Development**

**Responsiveness**

**Adaptation**

**Reproduction**



# Characteristics of Living Beings

**Growth**

**Reproduction**

**Metabolism**

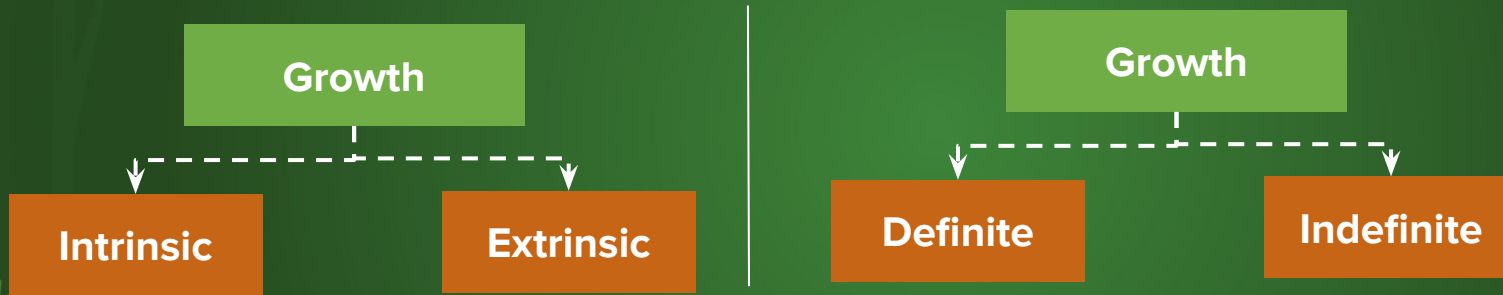
**Cellular organisation**

**Consciousness**

# Growth



Growth is the **increase in size, mass or height** of an individual



Growth is a characteristic but **NOT** a defining property of living beings



# Reproduction



- Formation of new individuals of similar kind
- **Not essential** for survival of individuals
- Distinguishes living from non living



**Not a defining feature** of life

# Reproduction



## Reproduction

### Sexual

- Fusion of gametes
- Offspring varies genetically from parents

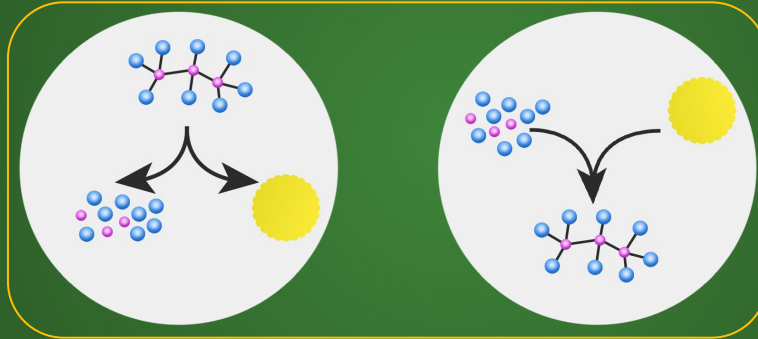
### Asexual

- Does not involve fusion of gametes
- Offspring is genetically identical to parents



# Metabolism

- Metabolism is the **sum total of all the biochemical reactions** occurring in our body.



Catabolism

Anabolism

Metabolism is a **defining property**  
of living beings



# Cellular Organisation

- Differentiation of a body into **smaller units and subunits** arranged in an **orderly manner**
- Organelles interact with each other for the proper functioning of the cell.
- Due to presence of organisation, a living being is called **organism**.





# Consciousness

- Awareness of the surroundings and the ability to respond to external stimuli



**Consciousness** is a **defining** property of living beings.

# Defining properties of living organisms



- |   |                       |  |
|---|-----------------------|--|
| ① | Growth                |  |
| ② | Reproduction          |  |
| ③ | Metabolism            |  |
| ④ | Cellular Organisation |  |
| ⑤ | Consciousness         |  |



# Nomenclature



## Nomenclature

Process of **standardising the naming** of living organisms such that a particular organism is known by the same name all over the world



# Nomenclature

## Monomial nomenclature

Name has **only one word**

## Binomial nomenclature

Name has **two words**

## Trinomial nomenclature

Name has **three words** for:

- Genus
- Species
- subspecies

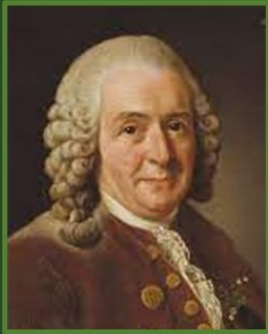
## Polynomial nomenclature

Name has **more than three words**

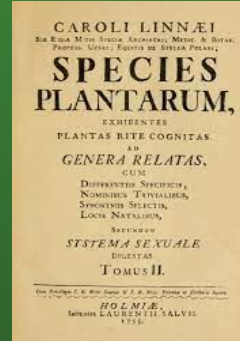
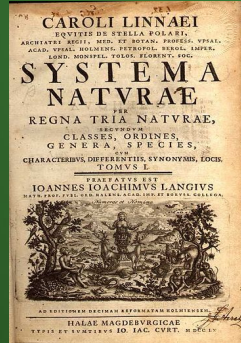


# Binomial Nomenclature

- Proposed by **Carolus Linnaeus** in his book ***Systema Naturae*** and ***Species Plantarum***
- Two terms are used to name a living organism
  - Generic name
  - Specific epithet



Carolus Linnaeus





## Rules of Nomenclature

- Generally in **Latin**
- **First word**: Represents the genus
  - Starts with a **capital letter**
- **Second component**: Specific epithet
  - Starts with a **small letter**
- When handwritten: **Separately underlined**
- When printed: In **italics**



## Rules of Nomenclature

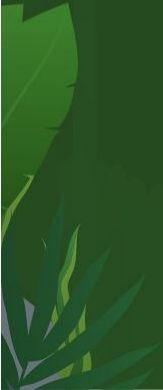
- **Name of the author** appears after the specific epithet, i.e., and is written in an abbreviated form
- E.g., ***Mangifera indica* Linn.** It indicates that this species was first described by Linnaeus.



## Various Rulebooks for Different Organisms



- ☐ International Code for Botanical Nomenclature (ICBN)
- ☐ International Code of Zoological Nomenclature (ICZN)
- ☐ International Code of Viral Nomenclature (ICVN)
- ☐ International Code of Bacteriological Nomenclature (IC Bac N)
- ☐ International Code of Nomenclature for Cultivated Plants (ICNCP)





# Classification



Process by which anything is  
**grouped into convenient  
categories** based on some easily  
observable characters

The scientific term for these  
categories is **taxa**.

# Taxonomy



The branch of study that deals with principles and procedures of **identification, classification and nomenclature of organisms**

# Steps of Modern Taxonomy



**Characterisation**



**Identification**



**Classification**



**Nomenclature**



# Systematics

- Branch of science dedicated to **identify, describe and explain** biological diversity in terms of evolutionary relationships among organisms.

Taxonomy, systematics, classification are often used synonymously but technically they are **not the same**.



# Taxonomic Categories



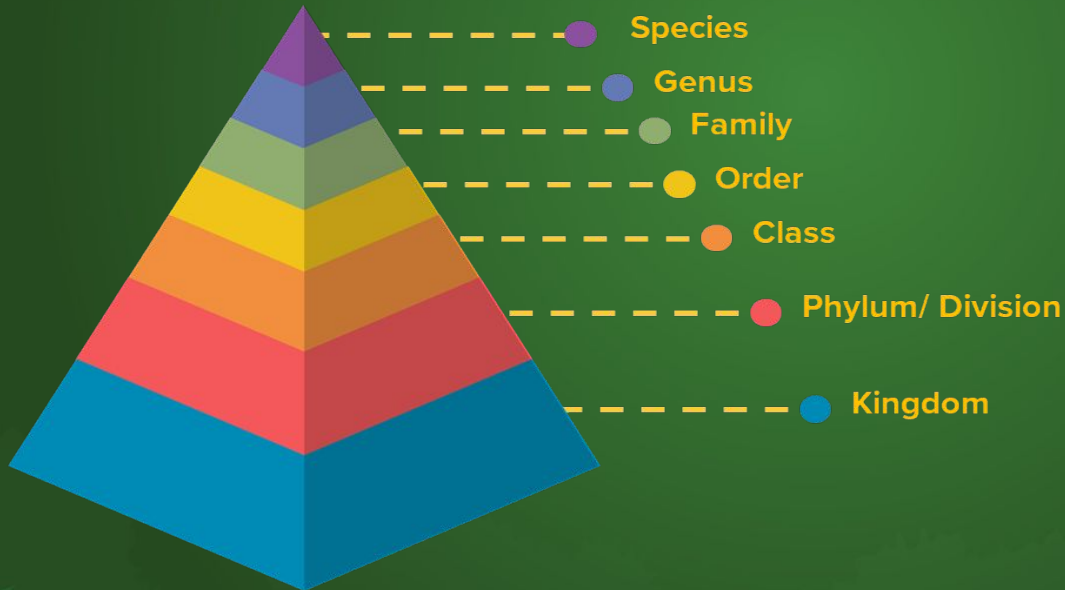
Taxon



Taxonomical  
category



Taxonomical  
Hierarchy





# Taxonomic Categories



Taxonomic hierarchy with the categories



# Taxonomic Categories



## Species

- Group of individual organisms with fundamental similarities
- **Lowest** taxonomic category

## Genus

- Group of **related species** having more common characters in comparison to the species of other genera
- Several related genera make up a family

# Taxonomic Categories



## Family

- Group of **related genera**; more similar to each other than the genera of other families
- Several related families make up an order

## Order

- Assemblage of families resembling one another in **few characteristic features**
- Several orders make up a class

# Taxonomic Categories



## Class

- Taxonomic category of related orders
- Several classes together make up a phylum

## Phylum/Division

- Several phyla/divisions make up a kingdom
- Similarity between members of a phylum is **more than** members of different kingdoms

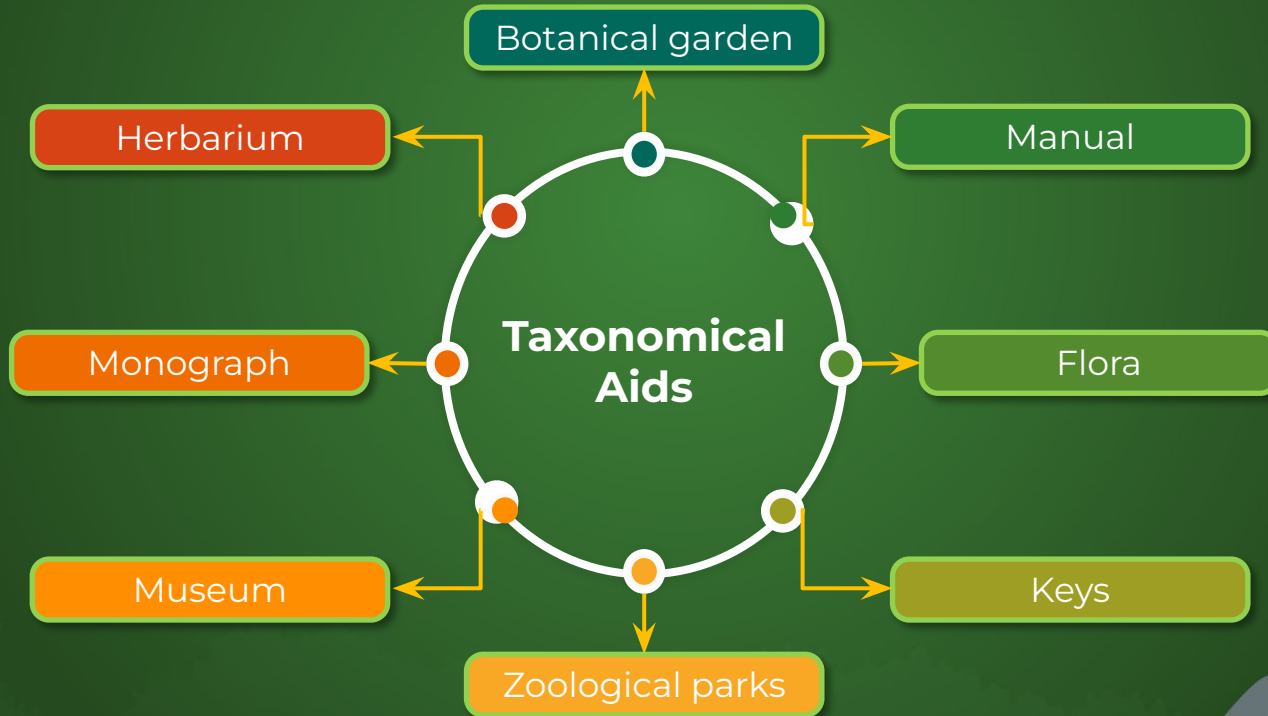
## Kingdom

- **Highest category** of biological classification
- 5 kingdoms – Animalia, Plantae, Fungi, Protista, Monera



# Taxonomical Aids

Biologists have established certain procedures and techniques to **store and preserve the information as well as the specimens** in the form of taxonomical aids.





# Taxonomical Aids

## Herbarium



- A place **where dried, pressed and preserved plant specimens** mounted on sheets are kept.

# Taxonomical Aids



## Botanical gardens



- Specialised gardens with **collection of living plants**
- Plant species are grown for identification purposes



# Taxonomical Aids



## Zoological parks



- Wild animals are kept in **protected environments** under human care
- **Food habits and behaviours** of the animals are studied

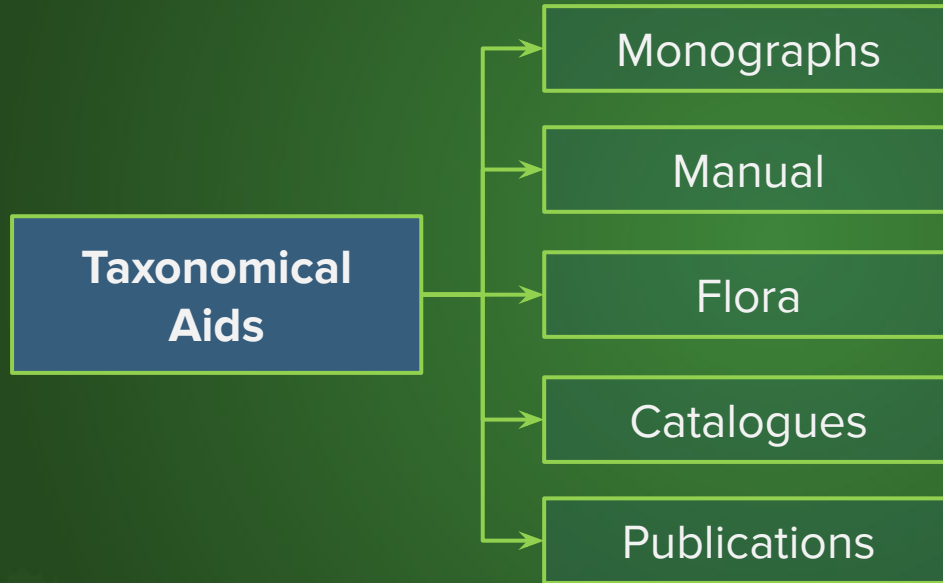
# Taxonomical Aids

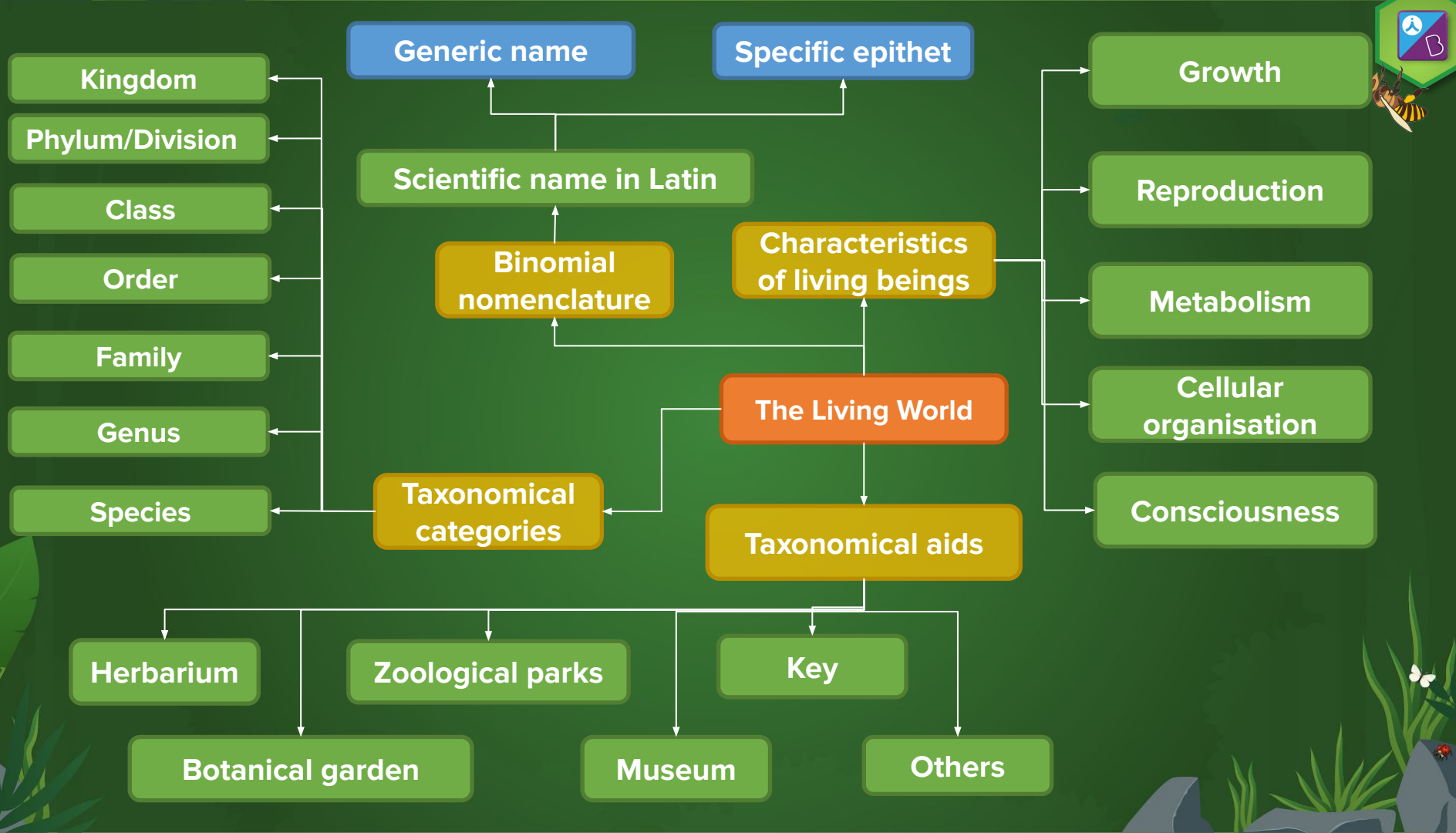


## Key

- A tool that helps to identify an unknown organism
- Keys provide two contrasting characteristics which are called **couplets**
- Each statement in the key is called a **lead**

## Other Taxonomical Aids







**Keep Learning!**