Ch-1

The living world

⇒ Ernst Mayr :-

Darwin of 20th century
Given Biological concept of Spieces
Holds 'Triple Crown of Biology".

Triple Crown means they win Nobel prize for Biology three times...

⇒ Biodiversity

1.7 - 1.8 million
↑ with ↑ area & new species can be found in new or older area as we considered the concept.

⇒ Binomial Nomenclature :-

Mangifera indica linn

Generally in latin, written italics, represents genus & species respectively.

What is living?

To be considered "living" organisms usually show these characteristics. Defining and non

∴ and non defining.

• Factors :- Growth, Reproduction / Metabolism, Cellular, consciousness

∴

⇒ Growth :- Increase in mass number. Non defining (mountains "grow" via accumulation).

⇒ Reproduction :- Non defining (mules, Sterile worker bees, and infertile couples don't reproduce).

⇒ Metabolism :- Sum of all chemical reactions Defining feature. (self cons).

⇒ Cellular Organization :- Defining feature

⇒ Consciousness :- (Ability to sense environment) Defining feature (self consciousness only in humans)

⇒ Diversity in the living world

Nomenclature :- Standardizing names

ICBN :- International Code for Botanical Nomenclature (~~Algae~~) (Plants)

ICZN :- International Code for Zoological Nomenclature (Animals)

Binomial Nomenclature (Linnaeus)

Two Parts :-

generic name + Specific epithet

→ Latin Origin, Written in italics

Example!- Mangifera indica linn (linn indicates the author who first describes it)

→ Taxonomic Categories (Hierarchy)

Remembers the mnemonic keep pots clean otherwise family got Sick

1. Kingdom - keep
2. Phylum - Pot
3. Class - Clean
4 Order - Otherwise
5. Family - Family
6. Genus - Got
7. Species - Sick

Note!- As we go from species to Kingdom the number of common characteristics decreases.

→ Taxonomical Aids

Tools used to identify and classify organisms!-

- Herbarium!- Store house of dried, pressed and preserved plant specimens on Sheets.

- Botanical Gardens :- Collection of living plants (e.g. Botanical garden, Kew, England, Indian Botanical garden, Howrah).

- Museums :- Preserved plant, Animal Specimens (often in jars with formalin or as skeletons)

→ Zoologicals Parks (Zoo)

Wild animals is Protected environments

Key :- A tool used for identification based on similarities, dissimilarities. Usually based on pair of contrasting characters called couplet. Each statement is a key is called a lead.

Important :- Binomial Nomenclature : proposed by Carolus Linnaeus

Common Name	Biological	Genus	Family	Order
Man	Homo Sapiens	Homo	Hominidae	Primate
Housefly	Musca domestica	Musca	Muscidae	Diptera
Mango	Mangifera indica linn	Mangifera	Anacardiaceae	Sapindales
Wheat	Triticum aestivum	Triticum	Poaceae	Poales

Need for classification

With millions of species discovered, classification is not just a convenience, it is necessary from the following reasons:-

→ Identification
→ Organization
→ Predictive value
→ Evolutionary relationships
→ Global communication

→ Taxonomy Vs Systematics

Taxonomy :- The study of the principles and procedure of classification. It involves

→ Characterization, Identification, Classification, Nomenclature.

→ Systematics :- Derived from latin word Systema meaning systematic arrangement

→ It is a border field that includes Taxonomy + Evolutionary relationships (phylogeny)

→ Linnaeus used the title 'Systema Naturae' for his famous publication.

Potato :- Solanum tuberosum
Lion :- Panthera leo
Leopard :- Panthera pardus
Tiger :- Panthera tigris