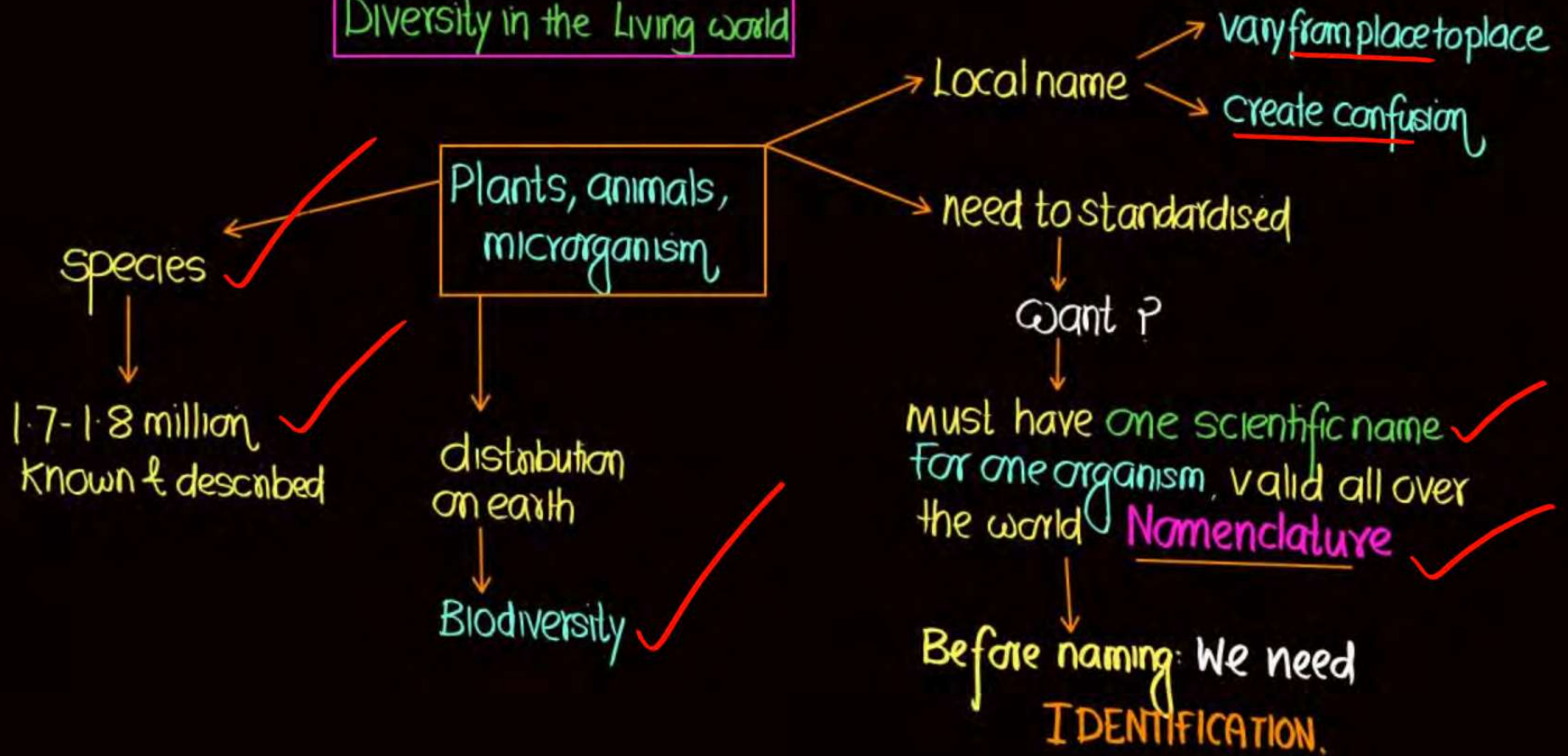


Diversity in the Living world



principles & procedure
(Rules)

Follow

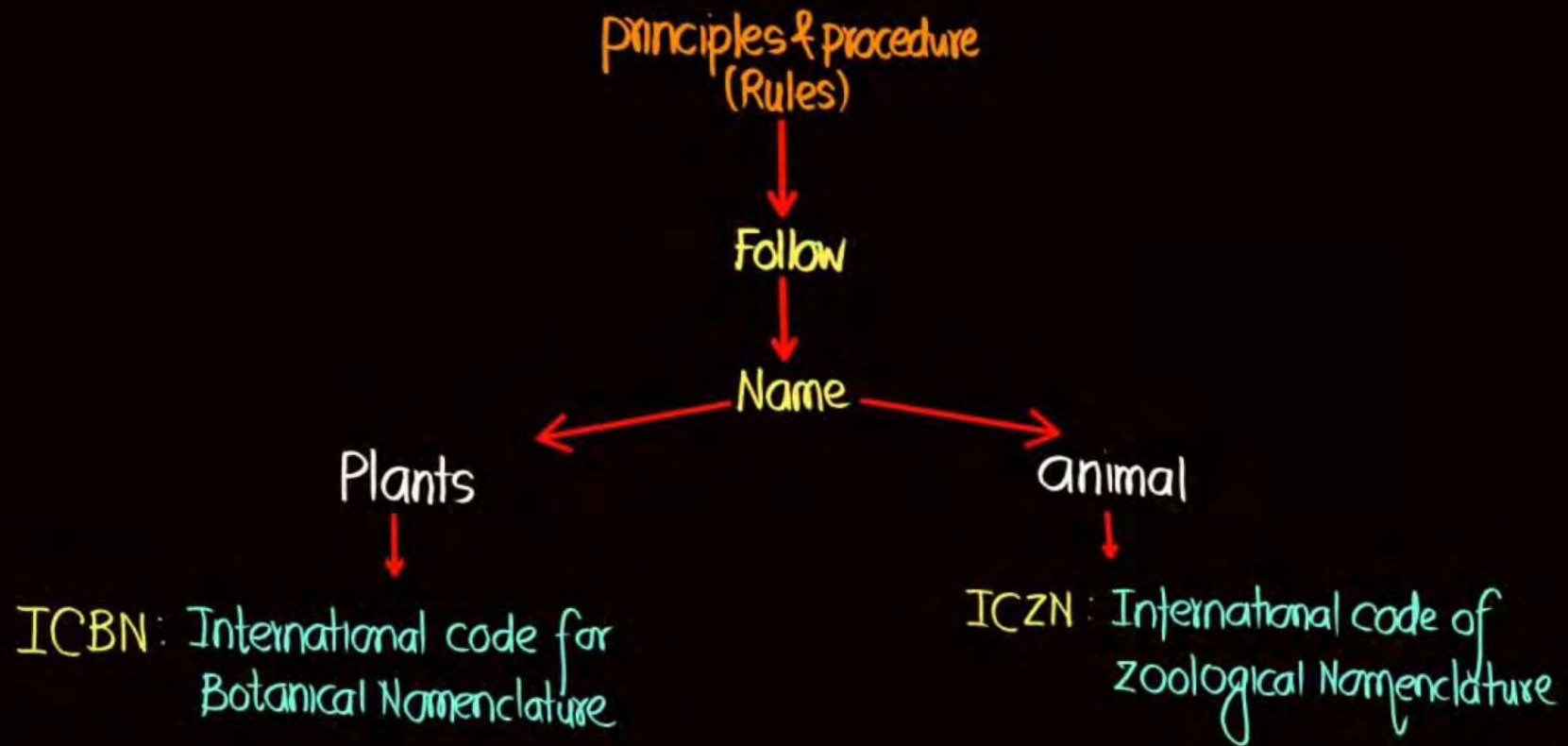
Name

Plants

animal

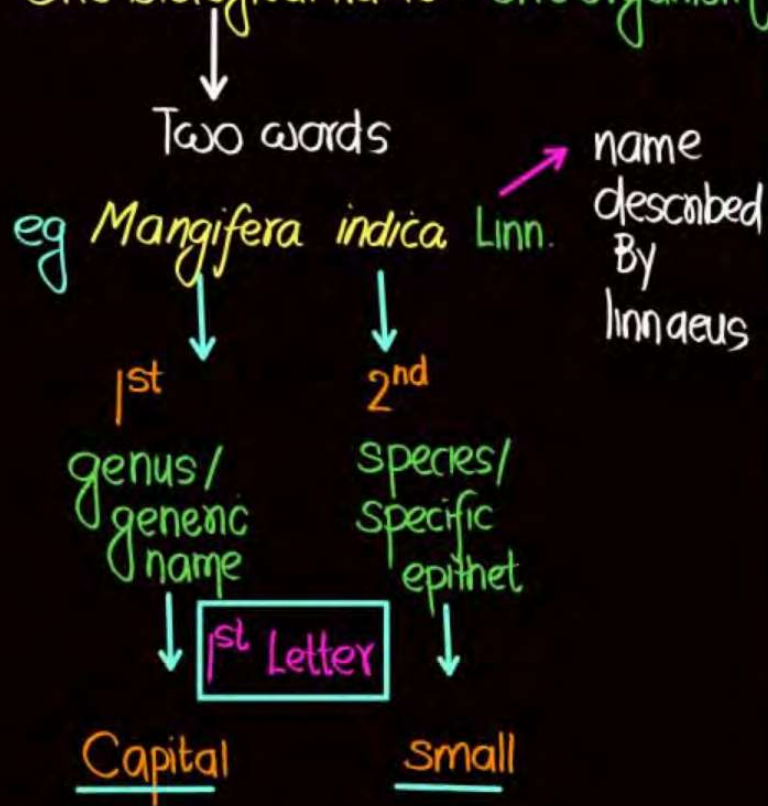
ICBN: International code for
Botanical Nomenclature

ICZN: International code of
zoological Nomenclature



Binomial Nomenclature : Carolus Linnaeus

★ One Biological Name : one organism



★ Biological Name are in Latin Language (dead) & printed in italics

★ If it is Handwritten Mangifera indica, then separately underlined

(Note) *Panthera leo* : Lion
Panthera tigris : tiger → Generic name can be same

(Note) *Ilex glabra*
Pinus glabra → specific epithet can also be same

(Note) : Name of author / scientist : Comes after specific epithet : Abbreviation

Suffix Use for category

Solanaceae
Poaceae
Liliaceae

→ Family.

Polymoniales
Poales
Sapindales

→ order

Dicotyledonae
Bryopsida
Chlorophyceae

→ Class

Chlorophyta → Division

Q. ^{sp.}Wheat, ^{sp.}Maize, ^{sp.}Rice

Different taxon at same level

Q. ^{sp.}Dog, ^{class}Bryopsida, ^{order}poales

Different taxon at different level.

Q. ^FSolanaceae, ^Fpoaceae, ^FLiliaceae

Different taxon at same level.

Q. Animal, mammals, dog
kingdom class species

Different taxon at different level.

Taxonomy (old)

★ all living organism can be categorised into different Taxa/category on Basis of character.

OR

★ Characterisation, Identification, Classification, Nomenclature of organism.

Types

Classical

Morphological/
External/
Vegetative
character

Modern

Morphological
(External) &
Internal character
(Cell structure,
Development process,
Ecological information)

Systematics

derive → Latin word → **systema** → Systematic arrangement of organism

⇒ **① + ② + ③ + ④** + evolutionary Relationship B/w organism

Taxonomy + Phylogeny → Systematics

⇒ Linnaeus: Book: Systema Naturae: Scientific name of animals

(Note): Earliest classification: Based:

Use of organisms

Food
Clothes
Shelter

Species

- ★ Smallest/Basic unit of Classification / Taxonomic category.
- ★ Term: John Ray. ✓
- ★ Biological concept of species (Mayr). ✓
↓
group of individuals which are interbreeding / Reproduction Together Consider as species.
(Reproductively isolated from other species)
- ★ Fundamental Similarities

Taxonomic categories

Solanum tuberosum : potato
Solanum melongena : Brinjal
Solanum nigrum : Makoi

Panthera leo : Lion
Panthera tigris : tiger
Panthera pardus : Leopard

Canis familiaris : Dog
Canis lupus : wolf
Canis aureus : Jackal.

Genus

- ★ group of Related species : show similarities.
- ★ species of one genus show more common character as compare to species of another genera (genus)

(Note) : *Felis catus* (Cat)

(Note) : polytypic genus : which have more than one species

Monotypic genus : one species
eg. *Homo sapiens*

Family

* group of Related genus

Solanum tuberosum → Solanaceae
Datura innoxia
Petunia inflata (On Basis of
 vegetative & Reproductive character)

* Felis catus → Felidae
Panthera leo

(Note): Canis (dog) → Canidae
Sweet potato → Convolvulaceae

less similarities
 or
 more differences

← City, city, city, city, city City, city, city, city, city → state → ④
 Village, village, village Village, village, village → city → ③
 घर, घर, घर, घर, घर, घर, घर → गाँव/village → ②
 घर (5 log) → ① more similar/
 common character
 लघु ज्यादा

(Note)

- Kingdom
- Phylum/Division
- CLASS
- ORDER
- Family
- Genus
- Species

Maximum complexity
Less similar / More
character differences.

species to kingdom

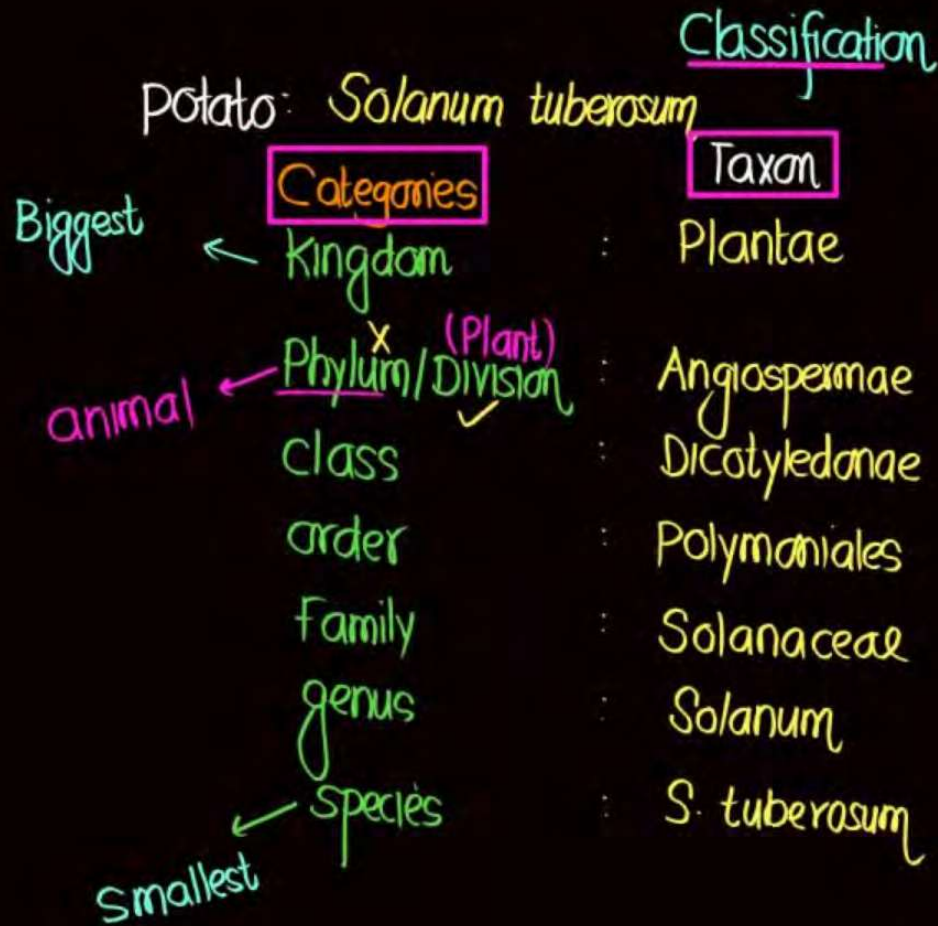
- ★ Similar/common character: decrease
- ★ dissimilar character: Increase
- ★ Complexity of classification: Increase

more similar / less
character differences
Minimum
Complexity

- Q. Maximum similarity at
- a) Solanaceae (Family)
 - b) Solanum (genus)
 - c) polytoniales (order)
 - ✓ d) dog. (species)

- Q. Minimum similarity at
- a) Cat (species)
 - b) Panthera (genus)
 - c) poales (order)
 - ✓ d) Dicotyledonae (class)

- Q. Complexity of classification complex
- ✓ a) Kingdom b) phylum c) class d) Family.



→ is not a single step process But Multisteps & each step Represent: Category (Real/obligate) 7

(Note) : subfamily / suborder / subclass: Intermediate Category

(Note) : Each category Represent one Taxon

(Note) : ascending order of Taxonomic category from species to kingdom called Taxonomic Hierarchy

ORDER	CLASS	Phylum/ Division	Kingdom 13:48
<p>* <u>group of Related family.</u></p>	<p>* <u>group of Related order.</u></p>	<p>Animal Plant</p>	<p>* Plantae</p>
<p>* Solanaceae & Convolvulaceae (Sweet potato)</p> <p>polymaniales (Floral character)</p>	<p>* Polymoniales Sapindales</p> <p>Dicotyledonae</p>	<p>* group of Related class.</p> <p>* <u>Dicotyledonae & Monocotyledonae</u></p>	<p>(cell wall ✓)</p> <p>* animalia (cell wall x)</p>
<p>* Felidae & Canidae</p> <p>Carnivora (Canine Teeth)</p>	<p>* <u>Carnivora</u> <u>Rodentia</u> (Rat) <u>primata</u> (Monkey, gorilla, Gibbon)</p> <p>Mammalia (Hair on skin, mammary gland)</p>	<p>Angiospermae (Division)</p> <p>* Fishes, amphibians, Reptiles, Birds, mammals</p>	
<p>(Note): Mango: <u>sapindales</u></p>		<p>Chordates (phylum) (Notochord, Dorsal Hollow Neural system)</p>	

TABLE 1.1 Organisms with their Taxonomic Categories

Common Name	Biological Name	Genus	Family	Order	Class	Phylum/ Division
Man	<i>Homo sapiens</i>	<i>Homo</i>	Hominidae	Primata	Mammalia	Chordata
Housefly	<i>Musca domestica</i>	<i>Musca</i>	Muscidae	Diptera	Insecta	Arthropoda
Mango	<i>Mangifera indica</i>	<i>Mangifera</i>	Anacardiaceae	Sapindales	Dicotyledonae	Angiospermae
Wheat	<i>Triticum aestivum</i>	<i>Triticum</i>	Poaceae	Poales	Monocotyledonae	Angiospermae

Friend

Dost

QUESTION

'X' and 'Y' are the components of Binomial nomenclature. This naming system was proposed by 'Z': (2023 Manipur)

- 1 X-Specific epithet, Y - Generic name, Z - Carolus Linnaeus
- 2 X - Generic name, Y - Specific epithet, Z - R.H. Whittaker
- 3 X - Generic name, Y - Specific epithet, Z - Carolus Linnaeus ✓
- 4 X-Specific epithet, Y - Generic name, Z - R.H. Whittaker

QUESTION



House fly belongs to family.

(2023 Manipur)

- 1 Calliphoridae
- 2 Muscidae ✓
- 3 Cyprinidae
- 4 Hominidae

QUESTION

In the taxonomic categories which hierarchical arrangement in ~~ascending~~ ^{descending} order is correct in case of animals? (2022)

- 1 Kingdom, Order, Phylum, Class, Family, Genus, Species
- ✓ 2 ✓ Kingdom, ✓ Phylum, ✓ Class, ✓ Order, ✓ Family, ✓ Genus, ✓ Species
- 3 Kingdom, Class, Phylum, Family, Order, Genus, Species
- 4 Kingdom, Order, Class, Phylum, Family, Genus, Species

QUESTION



Which one of the following belongs to the family Muscidae?

(2021)

- 1 Grasshopper
- 2 Cockroach
- 3 Housefly
- 4 Fire fly

QUESTION

Select the correctly written scientific name of Mango which was first described by Carolus Linnaeus. (2019)

- 1 *Mangifera indica* Car. Linn.
- 2 *Mangifera indica* Linn. ✓
- 3 *Mangifera indica*
- 4 *Mangifera Indica*

QUESTION

Match Column-I with Column-II for housefly classification and select the correct option using the codes given below. (2016-II)

- 1 A-(S); B-(R); C-(Q); D-(P)
- 2 A-(S); B-(Q); C-(P); D-(R)
- 3 A-(R); B-(P); C-(S); D-(Q)
- 4 A-(R); B-(Q); C-(S); D-(P)

	Column-I		Column-II
A.	Family	p.	Diptera
B.	Order	q.	Arthropoda
C.	Class	r.	Muscidae
D.	Phylum	s.	Insecta

All the Best

Thank you for
your Love,
Respect