

Class 11th | Biology



The Living World

Lecture - 1

TOPICS TO BE COVERED

1. What is living ✓
2. Binomial Nomenclature ✓
3. Taxonomy ✓
4. Systematics ✓







- The ecological conflict and cooperation among members of a population and among populations of a community or even the molecular traffic inside a cell make us deeply reflect on - what indeed is life?

Technical one



① Living and non-living

Philosophical



What's purpose of life

✓ Characteristic feature is- living organism ✓

② Defining feature is- 100% living organism

WHAT LIVING IS?

- When we try to define 'living', we conventionally look for distinctive characteristics exhibited by living organisms. Growth, reproduction, ability to sense environment and mount a suitable response come to our mind immediately as unique features of living organisms. One can add a few more features like metabolism, ability to self-replicate, self-organise, interact and emergence to this list.

- If you look around you will see a large variety of living organisms, be it potted plants, insects, birds, your pets or other animals and plants. There are also several organisms that you cannot see with your naked eye but they are all around you (i.e. naturally growing microorganisms).

explain



BIODIVERSITY

- Occurrence of the number and types of organisms present on earth, is called biodiversity.

BIO DIVERSITY
Living Different.

- The number of species that are known and described range between 1.7-1.8 million.
- Each different kind of plant, animal or organism that you see, represents a species

LOCAL NAMES AND SCIENTIFIC NAME

- ① shubhi ✓
- ② Vishu ✓
- ③ Appu ✓
- ④ Appie fizz ✓

vary

APEKSHA
SINGH



① ICBN :- International code for
Botanical Nomenclature
└──→ Plants

✓
② ICZN :- International code for zoological
Nomenclature.

BINOMIAL NOMENCLATURE



- Each name has two components - the Generic name and the specific epithet.
- This system of providing a name with two components is called Binomial nomenclature.
- This naming system given by Carolus Linnaeus is being practised by biologists all over the world.

EXAMPLE:

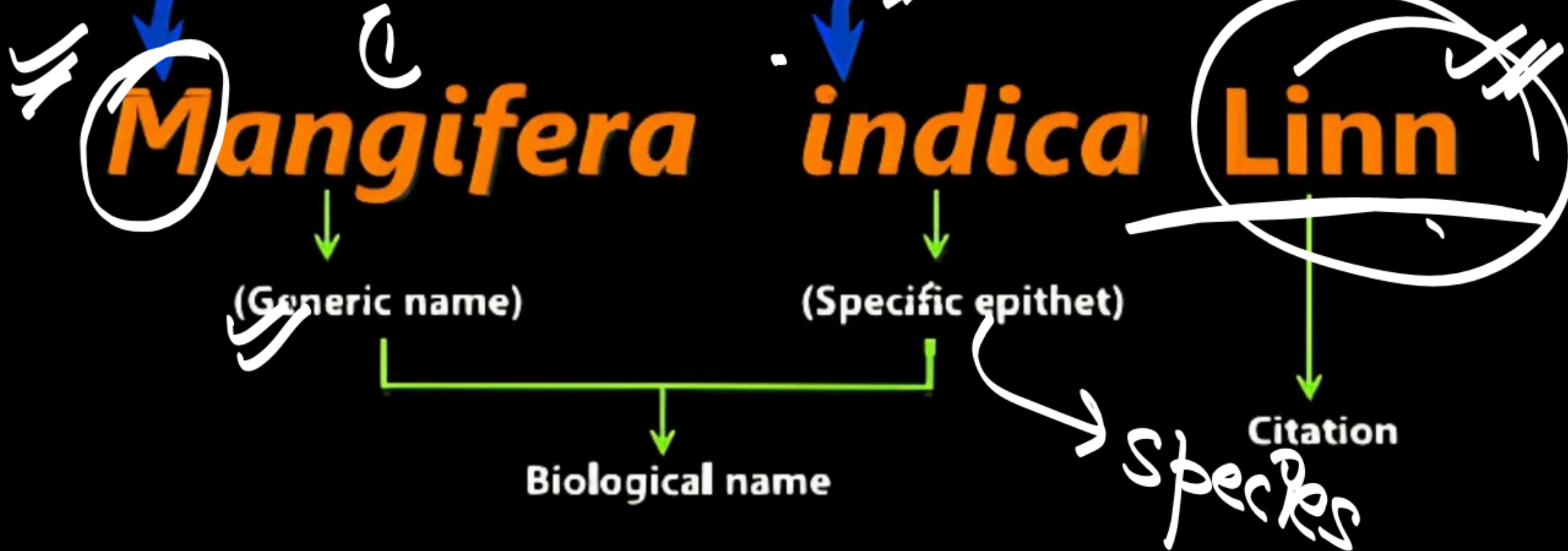
③

Mangifera indica

Latin origin

First letter of genus
in capital letter

First letter of species
in small letter



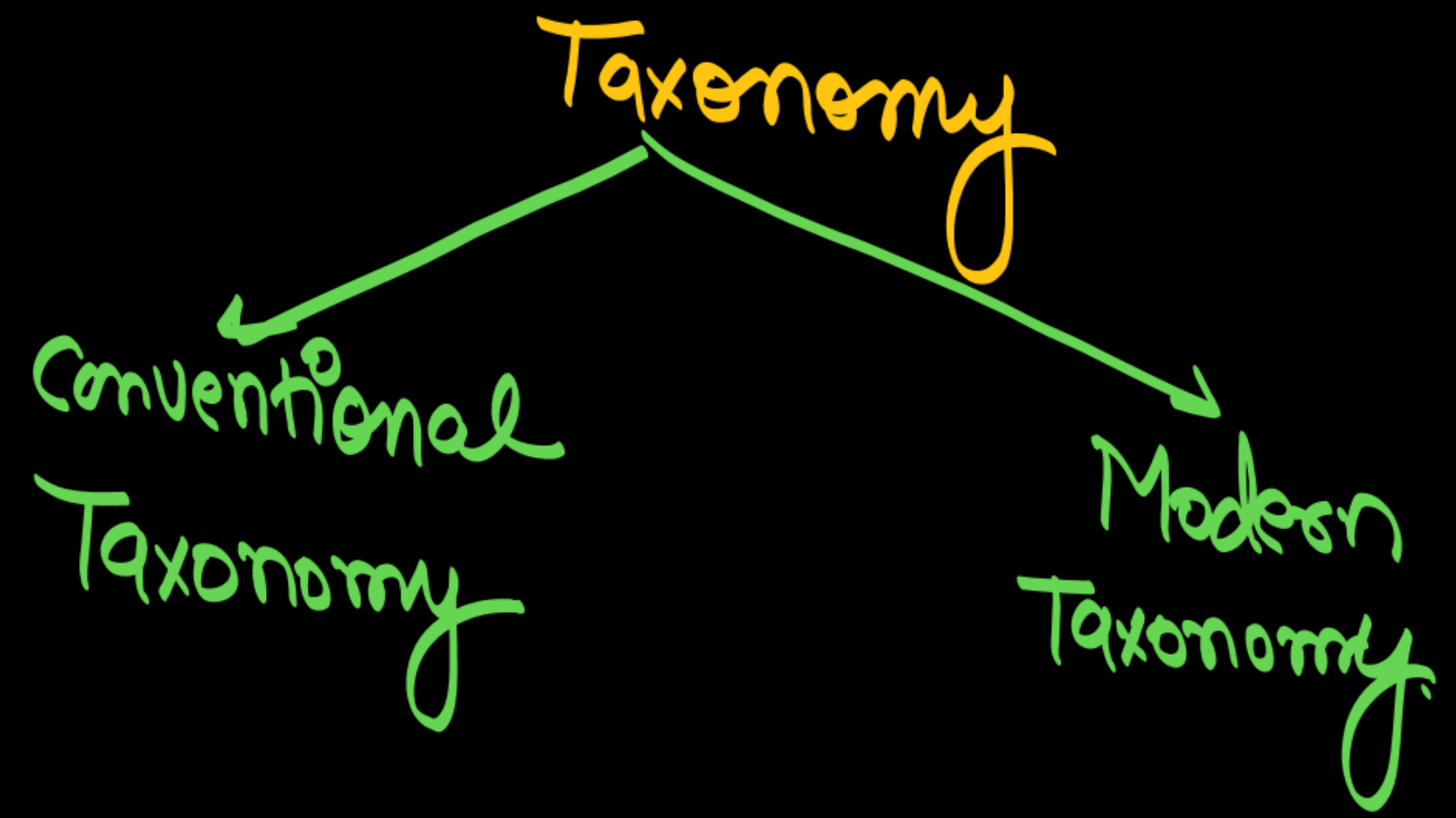
Other universal rules of nomenclature are as follows:

1. Biological names are generally in Latin and written in italics. They are Latinised or derived from Latin irrespective of their origin.
2. The first word in a biological name represents the genus while the second component denotes the specific epithet.
3. Both the words in a biological name, when handwritten, are separately underlined or printed in italics to indicate their Latin origin.
4. The first word denoting the genus starts with a capital letter while the specific epithet starts with a small letter. It can be illustrated with the e.g. of *Mangifera indica*.

TAXONOMY → classification of organism in different groups

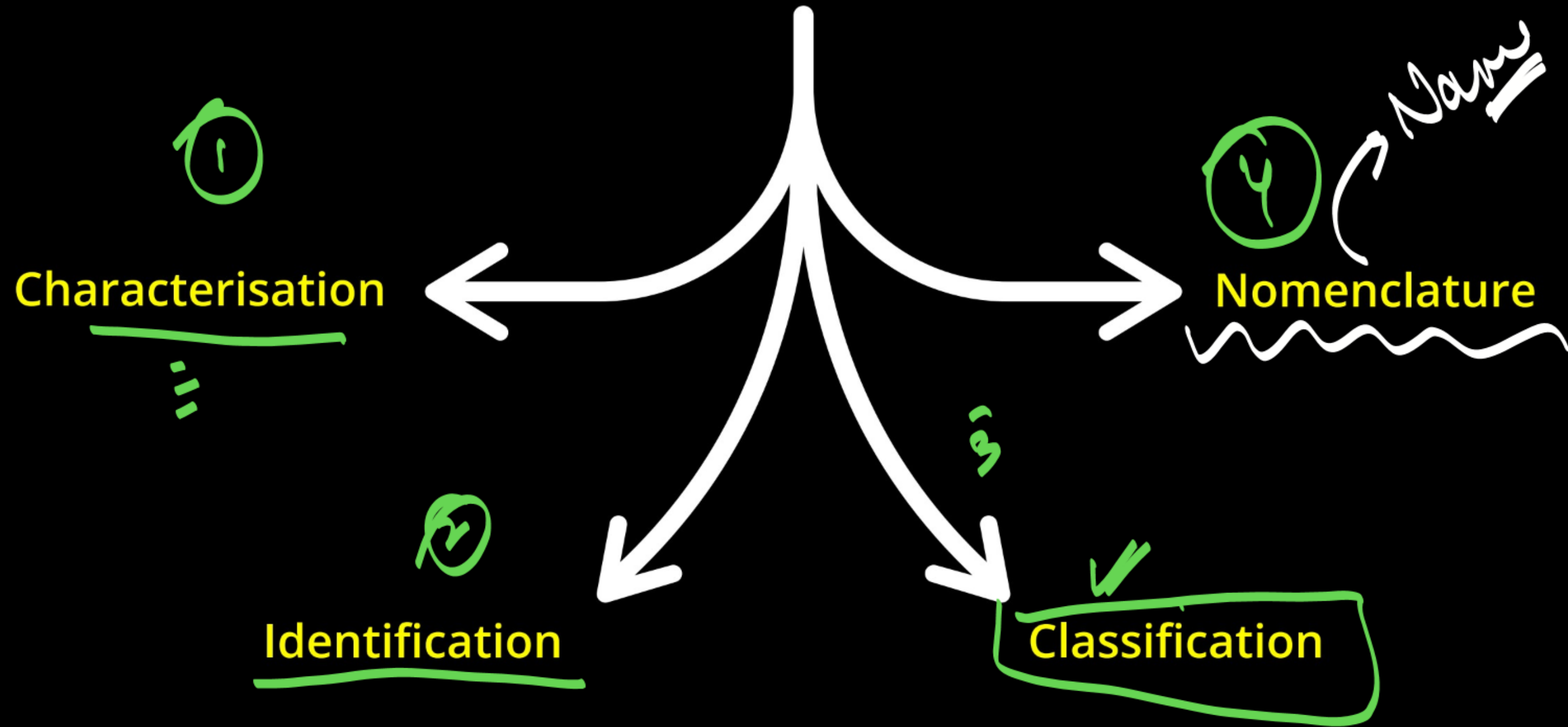
(Taxis = arrangement, nomos = law) This word was proposed by A.P. de Candolle in his book "Theories elementaire de la botanique" (Theory of elementary botany). Branch of biology dealing with identification, nomenclature and classification of organisms is called taxonomy.

Taxa (category)
Unit



A. P. de candolle

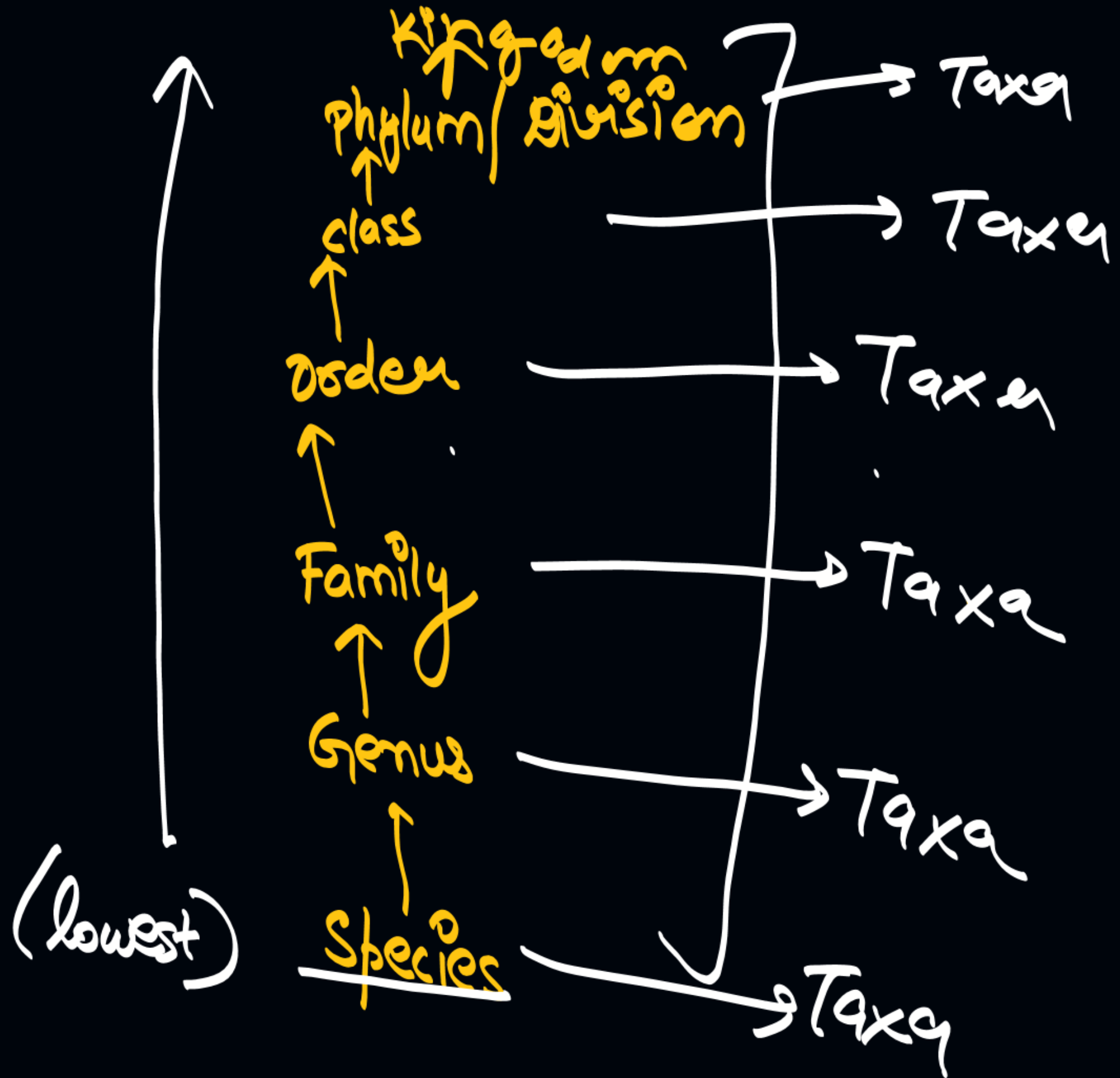
CONVENTIONAL TAXONOMY



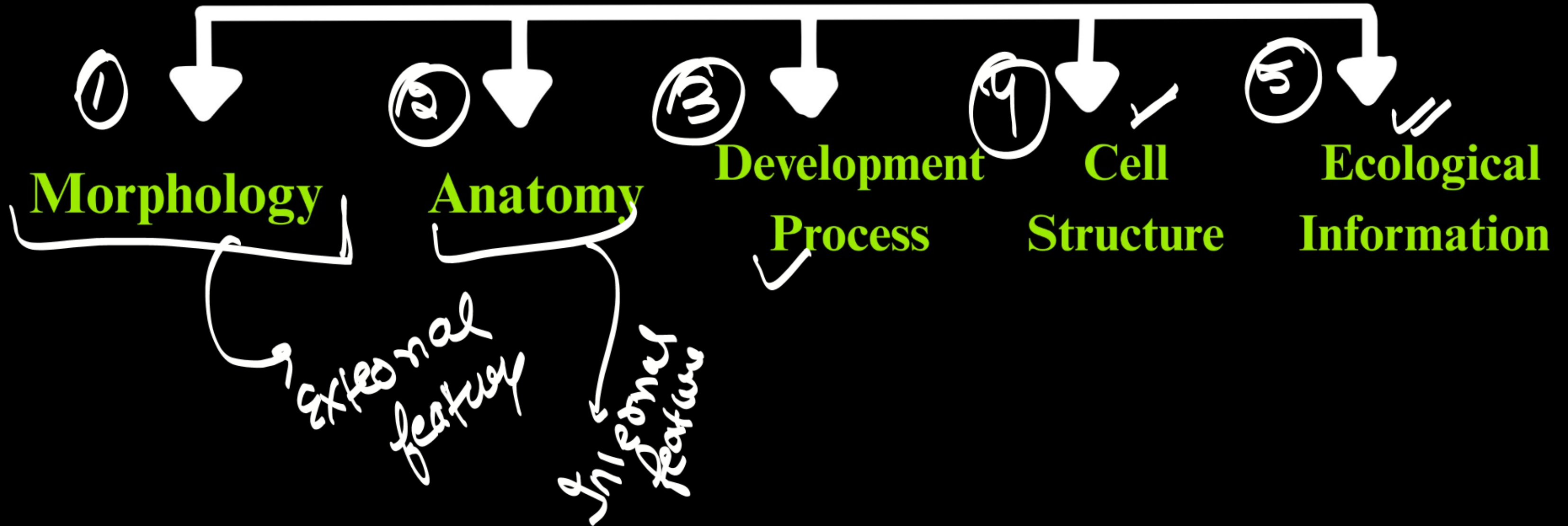
King
Philip

Came
over
for
Good
Soup

(lowest)

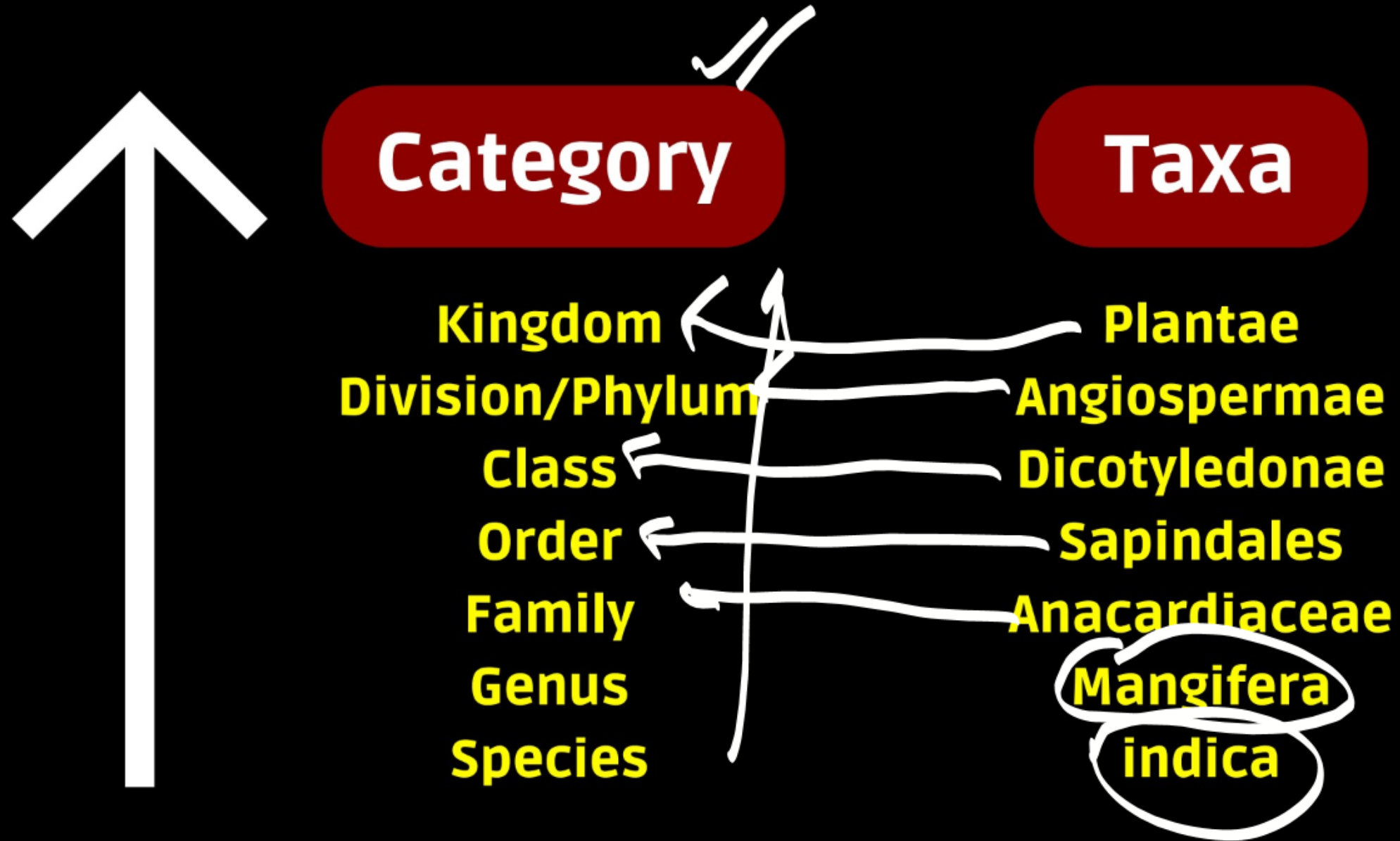


MODERN TAXONOMY



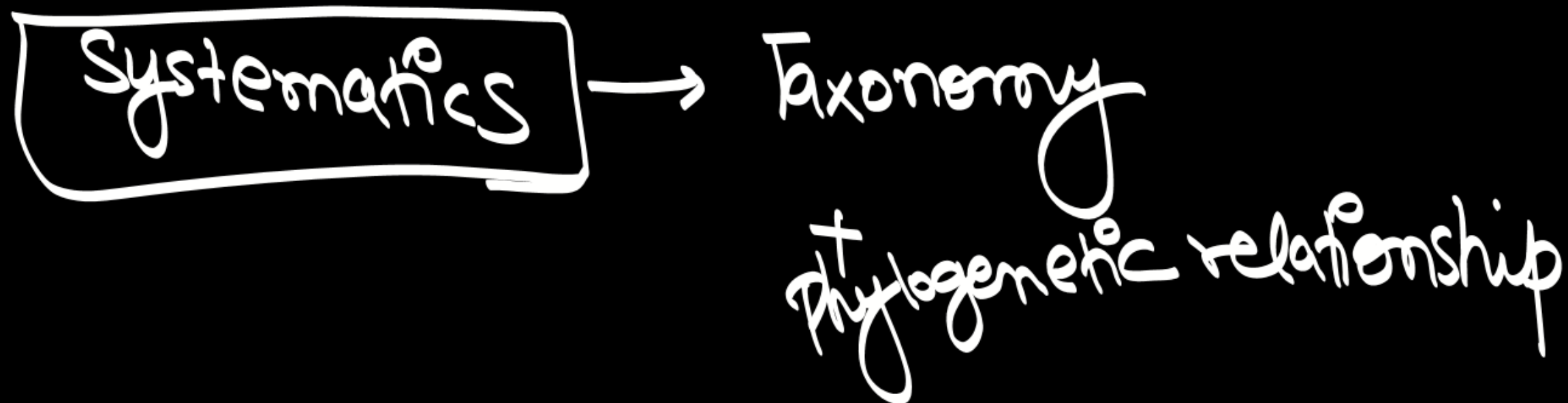
TAXON (PLURA L= TAXA)

1. Taxon represents the rank of each category and referred to as a unit of classification.
2. Taxon refers to a group of similar, genetically related individuals having certain characters distinct from those of other groupss.



SYSTEMATICS

1. The term systematics was given by Linnaeus. The word systematics is derived from Latin word "Systema" which means "systematic arrangement of organisms". Linnaeus used "Systema Naturae" as a title of his publication.
2. The term systematics was referred to study of diversity of organisms and their evolutionary relations.



QUESTIONS

1 The term taxonomy was given by :-

a. Carolus Linnaeus

b. Hutchinson

☒ c. A.P. De Candolle

d. Bentham & Hooker

QUESTIONS

2. Which of the following term is used to refer the number of varieties of plants and animals on earth?

- a. Taxonomy ✓
- b. Identification ✓
- ✓ c. Biodiversity ✓
- d. Classification ✓

QUESTIONS

3. Systematics refers to the: -

- a. Identification and classification of plants and animals only.
- b. Nomenclature and identification of plants and animals only.
- ✓ c. Diversity of kinds of organisms and their relationship.
- d. Different kinds of organisms and their nomenclature only.

→ evolutionary

Mangifera indica

Generic name Specific epithet.

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Thank You



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