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CLASS NOTES

CLASS: XI BIOLOGY
TOPIC: Living World

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Biological nomenclature- It is the universally accepted principles to provide scientific name to known organisms. Each name has two components- generic name (genus) and specific epithet (species). This system of nomenclature was provided by Carolus Linnaeus.

Mango- *Mangifera indica*.

Human beings- *Homo*

sapiens.

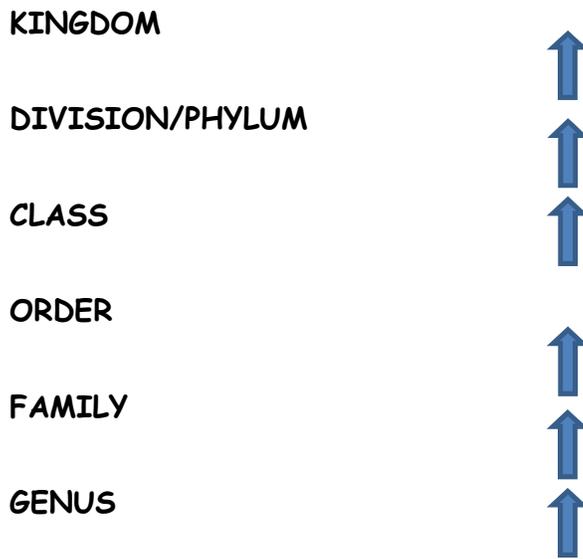
Universal rules of nomenclature:-

- (a) Biological names are generally in Latin and written in italics.
 - (b) The first word in a biological name represents the genus while the second component denotes the specific epithet.
 - (c) Both the words in biological name, when handwritten, are separately underlined, or printed in italics.
 - (d) The first word denoting the genus starts with a capital letter while the specific epithet starts with small letter.
- **Classification**- It is the process by which anything is grouped into convenient categories based on some easily observable characteristics. Classification makes the study of organisms convenient.
- **Taxonomy**- The process of classification on the basis of external and internal structure along with internal structure of cell, development process and ecological information is known as taxonomy.

Taxonomic categories

A taxonomic category is a rank or level in the hierarchical classification of organism. There are seven obligate categories and some intermediate categories. Since the category is a part of overall taxonomic arrangement, it is called taxonomic category and all categories together constitute the taxonomic hierarchy.

Taxonomic hierarchy is shown below:-



- **Species-** Species are the natural population of individuals or a group of population which resemble one another in all essential morphological and reproductive characters so that they are able to interbreed freely and produce fertile offspring. Mango is a species *indica* of genus *Mangifera* (*Mangifera indica*).
- **Genus-** it is a group of related species which resemble one another in certain correlated characters. All species of genus presumed to have evolved from a common ancestor. Lion, Tiger, Leopard are closely related species and placed in same genus *Panther*.
- **Family-** It is a taxonomic category which contains one or more related genera. All genera of a family have some common features or correlated characters. Family Solanaceae contains a number of genera like *Solanum*, *Withania*, *Datura* etc.
- **Order-** This category includes one or more related families. Families felidae and canidae are included in same order carnivore.
- **Class-** A class is made of one or more related orders. The class dicotyledoneae of flowering plants contains all dicots which are grouped into several orders like roales, polemoniales, renales etc.

- **Division/Phylum-** The term phylum is used for animals while division is used for plants. They are formed of one or more class. The phylum chordate of animals contains not only the mammals but also aves, reptiles amphibians etc.
- **Division-** It is the highest taxonomic category. All plants are included in the kingdom Plantae while all animals belong to kingdom Animalia.

Taxonomic Aids:- Techniques, procedures and stored information that are useful in identification and classification of organisms are called taxonomic aids.

- ❖ **Herbarium-** Herbarium is a place where dried and pressed plants specimens, mounted on sheets are kept systematically according to a widely accepted system of classification. The herbarium sheets also carry a label providing information about date and place of collection, English, local and botanical names, family, collector's name etc.
- ❖ **Botanical garden-** They are specialized gardens having collection of living plants for reference. Plants in these gardens are grown for identification purpose and each plant is labelled indicating its scientific name and family. The famous botanical garden includes Royal botanical garden, Kew (London), Indian botanical garden, Kolkata and National botanical garden, Lucknow.
- ❖ **Museums-** Biological museum is set up in educational institution like colleges and school for reference purposes. Specimens are preserved in the containers or jars in preservative solutions or as dry specimens. Insects are preserved in insect boxes after collecting, killing and pinning.
- ❖ **Zoological parks-** These are the places where wild animals are kept in protected environments under human care and which enable us to learn about their food habits and behavior. Natural habitats are provided as far as possible.
- ❖ **Key-** Taxonomic key is an artificial analytic device having a list of statements with dichotomic table of alternate characteristics which is used for identifying organisms. Usually two contrasting characters are used. The one present in the organism is chosen while other is rejected. Each statement of a key is called lead. Separate taxonomic keys are used for each taxonomic category like species, genus, family etc. Keys are generally analytical in nature.

- This class notes is prepared from home.