THE LIVING WORLD

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- The number of species that are known and described ranges between **1.7-1.8 million (1.25 Million animals and 0.5 million plants)**.
- This refers to **biodiversity or the number and types of organisms present on earth.**
- **Taxonomy :** Taxis = arrangement, nomos = law
- This word was proposed by A.P. de. Candolle in his book "Theories elementaire de Ia botanique" (Theory of elementary botany)

TAXONOMY INCLUDES STUDY OF FOLLOWING POINTS

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(1) **Identification:** A process by which an organism is recognised from the other already known organisms and is assigned to a particular taxonomic group is called identification.

(2) **Nomenclature:** Naming of organisms according to international scientific rules is called nomenclature.

(3) **Classification:** A process by which any organism is grouped into convenient categories on the basis of some easily observable characters.

SYSTEMATICS:

- The term **systematics** coined by **Carolus Linnaeus**. The latter is known as **'Father of Taxonomy'**.
- **The word systematics is derived from the Latin word 'systema' which means systematic arrangement of organisms. Linnaeus used Systema Naturae as the title of his publication.**
- It is the study of diversity and differentiation of organisms based on their phenotypic, genetic and phylogenetic relationships.
- **Systematic includes identification, nomenclature, classification and evolutionary relationships between organisms.**

	Difference between Classical Taxonomy and Modern Taxonomy	
	Classical Taxonomy	**Modern Taxonomy/ biosytematics**
1.	It deals with morphospecies (typological concept.)	It deals with biological species concept.
2.	Called **α–taxonomy** by Turril.	Called **ω–taxonomy** by Turril.
3.	Species is considred to be static.	Species is considered to be dynamic.
4.	Evolutionary relationship are not considered.	Based on evolutionary relationships (Cladistic).
5.	Supported by Aristotle, Theophrastus and Linnaeus.	Supported by Lamark, Huxley and other modern scientist.

TYPES OF TAXONOMY

1. **Cytotaxonomy :** The use of cytological characters of plants in classification or in solving taxonomic, problems is called cytotaxonomy. Cytotaxonomy is based on cytological information like chromosome number, structure and behavior etc.
2. **Chemotaxonomy :** It is based on the chemical constituents of plants.

The basic chemical compounds used in chemotaxonomy are alkaloids, carotenoids, tannins, polysaccharide, nucleic acids, fatty acids, amino acids, aromatic compounds etc.

SOME INFORMATIONS :

- Practical significance of taxonomy is Identification of unknown organism.
- Maximum diversity is found in tropical rain forests.
- Second maximum diversity is found in coral reefs
- The number of species that are known and described range between 1.7 - 1.8 million. This refers to biodiversity or the number and types of organism present on earth.