Biology/ Binomial Nomenclature

The word **Biology** is derived from the **Greek words** /**bios**/ meaning /**life**/ and /**logos**/ meaning /**study**/.

Biology is a branch of science that deals with living organism and their vital processes, such as **humans**, **animals**, and **microorganisms (Bacteria, Fungi, viruses, and parasites)**.

Characteristics of life:

1. **Reproduction**
2. **Heredity Cellular Organization**
3. **Growth and Development**
4. **Adaptation Through Evolution**
5. **Response to Stimuli**
6. **Homeostasis**
7. **Metabolism**

What is Scientific Nomenclature?

- In the 1750s, **Carl Linnaeus** a Swedish Botanist gave the **Binomial Nomenclature** system to name plants and animals.

- **Binomial Nomenclature:** is a Latin word meaning two naming systems. Binomial nomenclature is required in biology to unify the naming system throughout life sciences.

- Species names consist of two parts: the first part is the generic name (**genus name)**, while the second is the specific epithet **(species name)**.

- Certain rules must be followed while writing the scientific name, which are mentioned below:

I. While writing a scientific name, the **genus** of the organism comes first followed by the **species**.

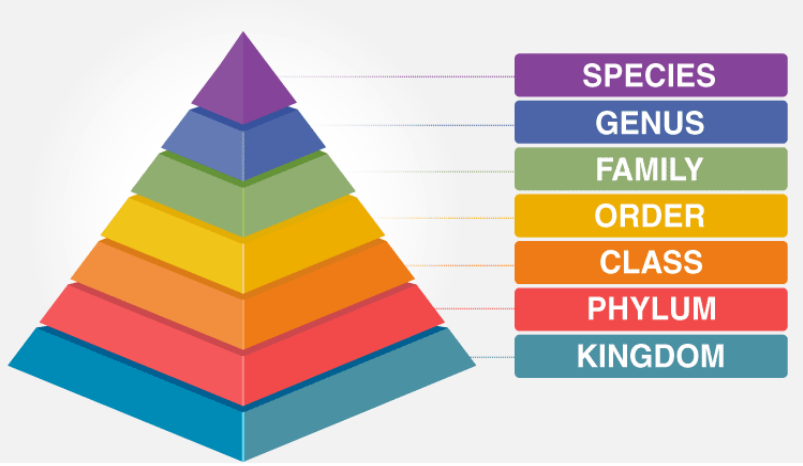
For example - **Genus** - **Homo**

Species - **sapiens**

II. While typing a scientific name, it is always typed in **Italics** (***Homo sapiens***) and if it is handwritten, it is always **underlined** (Homo sapiens).

III. The genus name is **capitalized** followed by the species name which is in **lower case**.

In biology **classification** is the process of arranging organisms, into groups based on similar characteristics. The science of naming and classifying organisms is called **taxonomy**. The term is derived from the Greek ***taxis*** ("**arrangement**") and ***nomos*** ("**law**").



Characteristics of the Five Kingdoms

1. **Monera**
2. **Protista**
3. **Fungi**
4. **Plantae**
5. **Animalia**

1. **Kingdom Monera** belongs to the prokaryote family. The organisms belonging to this kingdom do not contain a **true nucleus**. These are the oldest known microorganisms on earth. Their **DNA** is not enclosed within the nucleus.

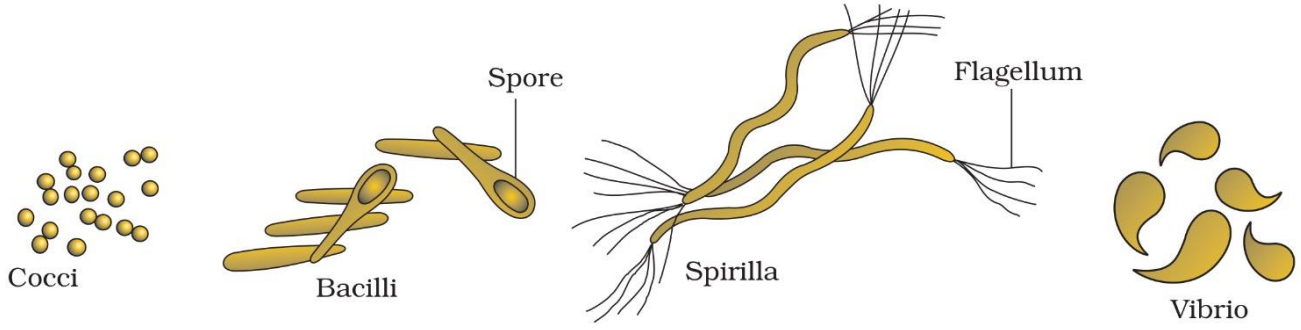
The **kingdom Monera** is classified into primitive **Archaebacteria** and modern **Eubacteria**. However, there is a third group called **Cyanobacteria** (commonly called **blue-green algae**).

Bacteria

- The term "**eubacteria**" now refers to modern **bacteria**.
- They have a cell wall that is mainly made of **peptidoglycan** layers.
- Found in normal conditions all over the surrounding environment.
- They can be both **aerobic** and **anaerobic** conditions.
- They are categorized as either **gram-positive bacteria** or **gram-negative bacteria**.
- Some of the examples are; ***Klebsiella***, ***Pseudomonas***, etc.

♦ **Bacteria are divided based on their shapes:**

- **Spheres (coccus)**
- **Rods (bacillus)**
- **Comma-shaped (vibrio)**
- **Spirals (spirochetes)**



Bacteria of different shapes