

**NORTH-EX PUBLIC SCHOOL (Session 2020-21)**

**Class – XI**

**Subject – biology**

**Unit/Chapter – 02**

**Topic – biological classification**

**Worksheet No – 03**

**\*Note-** Before attempting the question and answers you must check the links given below which will help you understand the chapter thoroughly.

You can download the worksheets or if you do not have facility to get printout then you can ask your ward to copy the worksheet in a simple notebook and must do question answers in the notebook.

[https://www.youtube.com/playlist?list=PLCzaIJYXP5YdT7\\_ftZH0KsPn9ZDm2WuE5](https://www.youtube.com/playlist?list=PLCzaIJYXP5YdT7_ftZH0KsPn9ZDm2WuE5)

**NOTES**

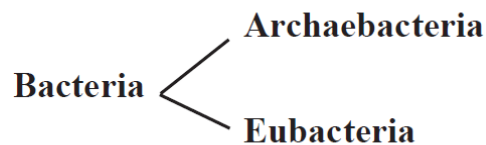
**Biological classification**

**Systems of Classification :**

- Earliest classification was given by Aristotle. Divided plants into herbs, shrubs and trees.  
Animals into those with red blood and those who do not have it.
- **Two kingdom classification** : Given by Carolus Linnaeus–Kingdom–plantae and kingdom–Animalia.
- **Five kingdom classification** : By R.H. Whittaker, Monera, Protista, Fungi, Plantae and Animalia are the five kingdoms.
- The main criteria for classification of organisms into five kingdoms include cell structure, thallus organisation, mode of nutrition, reproduction and phylogenetic relationships.

## Kingdom Monera :

- Has bacteria as sole members.
- Cell wall made up of peptidoglycan.
- Bacteria can have shapes like : Coccus (spherical), Bacillus (rod-shaped), Vibrium (comma shaped) and spirillum (spiral shaped).
- Bacteria found almost everywhere and can be Photosynthetic autotrophs, Chemosynthetic autotrophs or Heterotrophs.



- Halophiles (salt-loving)
  - Thermoacidophiles (in hot springs)
  - Methanogens (in marsh and in gut of ruminant animals. Produce methane gas.)
  - Photosynthetic autotrophs like Cyanobacteria (Blue-green algae BGA). Some like *Anabaena* and *Nostoc* have specialized cells called heterocysts for nitrogen fixation.
  - *Algae bloom* is rich growth of blue green algae over the surface of polluted water bodies.
  - Algae bloom releases neurotoxins, deplete oxygen and makes water unfit for use.
  - **Chemosynthetic autotrophs** : Oxidise various inorganic substances like nitrates/nitrites, ammonia and use released energy for their ATP production. They help in nutrients recycling of N, P, Fe and S.
  - **Heterotrophic bacteria** : Decomposers help in making curd, production of antibiotic, N<sub>2</sub> fixation, cause diseases like cholera, typhoid, tetanus and citrus canker.
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**Mycoplasmas :** Completely lack cell wall. Smallest living cells. Can survive without oxygen. Pathogenic in animals and plants.

**1. Artificial System of Classification**

1. It utilise one or two morphological trail
2. Homology is never standard
3. The system does not employ chracter from anatomy cytology, biochemistry, genetics etc. for grouping of organisms.

**2. Natural System of Classification**

1. The system employs several morphological chracter for grouping of orgaism
2. It studies homology in all chracters including morphology, anatomy etc.
3. This system gives information about both Natural relationship and phylogeny.

**3. Phylogenetic System of Classification**

It was proposed by Engler and Prantl. They arranged flowering plants according to increasing complexity of their floral morphology.

It was based on possible evolution of different traits.

**4. Objections to two kingdom system**

1. Lichen with dual mode.
2. Fungi remain fixed but nutrition saprophytic.
3. No distribution of unicellular and multicellular organism.
4. No distribution of prokaryotic and eukaryotic organisation.

**Worksheet**

1. Nostoc and anabaena have specialized cells have specialized cells called heterocysts. what is the function of these cells?
2. What is the principle underlying the use of cyanobacteria in agriculture?

3. How are bacteria classified on the basis of their shapes?
4. Who gave five kingdom of classification? What was the criteria used for such classification?
5. Who gave two kingdom classification? Write its draw backs?