

BIOLOGY

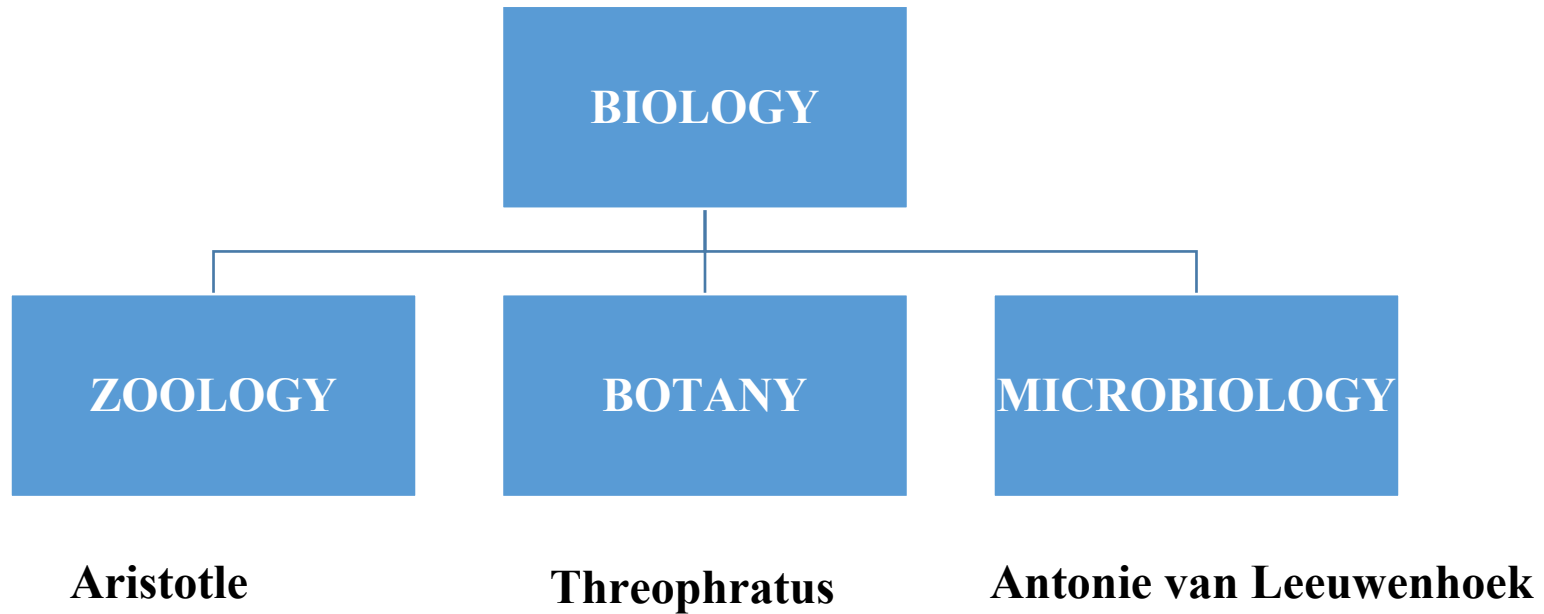
DR. (Mrs) Chandana Mohanty

The Cellular Organization of a Living Organism

- What is Biology
- Biodiversity of living world
- Microorganisms

What is Biology

Greek Word: **Bios** means life and **logos** means study

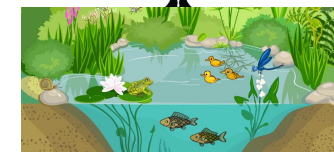
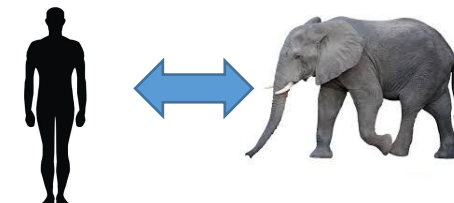
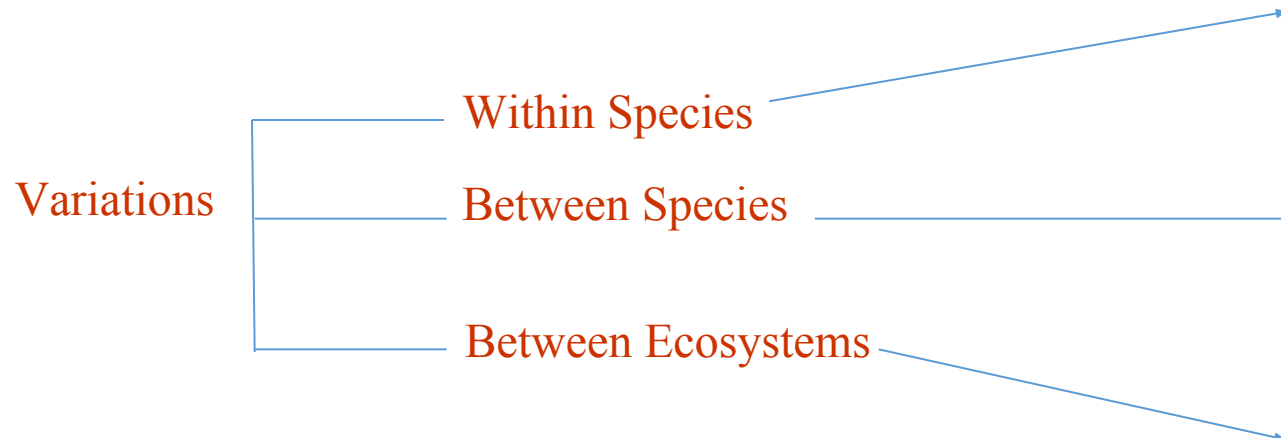




Biodiversity of living world

- There are different forms of life that exists on the earth
- Life: Growth
 Metabolism
 Response to stimuli
 Reproduction

Biodiversity is the variety and variability of life on Earth. Biodiversity is typically a measure of variation at the genetic, species, and ecosystem level.



Levels of Diversity

1. Genetic Level

2. Species Level

3. Ecosystem Level

Types of Diversity

Genetic
Diversity

Diversity of genes
within a species



Species
Diversity

Diversity among
species in an
ecosystem



Ecosystem
Diversity

Diversity of a habitat in a
given unit area



Importance of Diversity

1. Food



2. Shelter and warmth



3. Medicine



Threats to Diversity

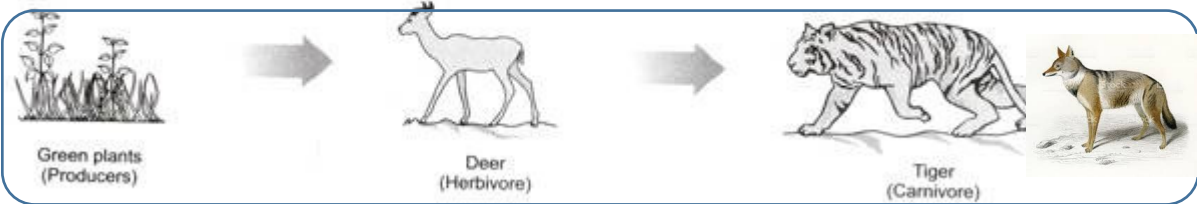
1. Habitat loss and destruction



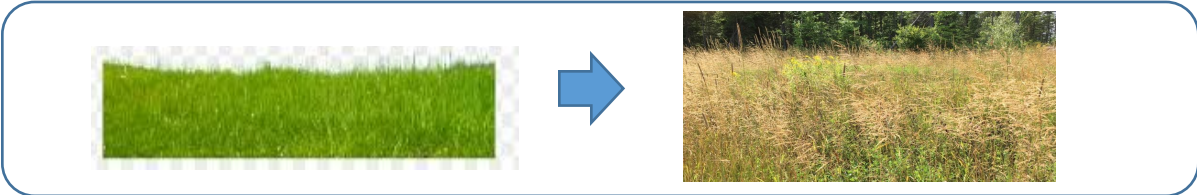
Deforestation

**Loss of habitat
and destruction
of wild life**

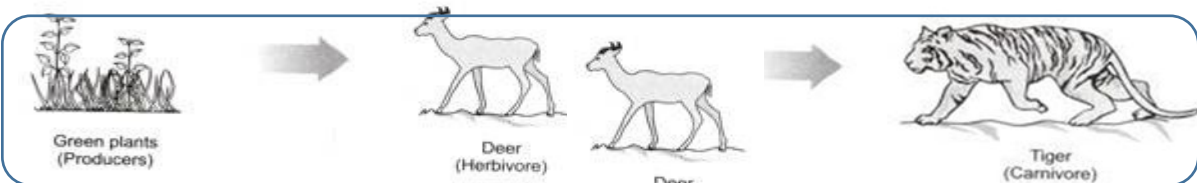
2. Alteration in ecosystem composition



3. Introduction to exotic species



4. Overexploitation of species



5. Pollution



6. Global climate change



Biodiversity of living world

- What is Biodiversity
- Levels of Biodiversity
- Importance of Biodiversity
- Threats of Biodiversity

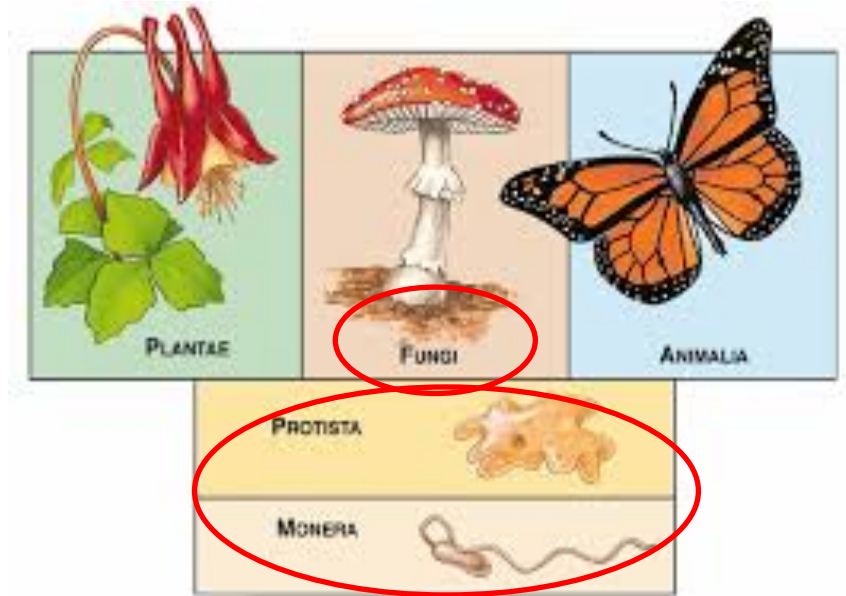
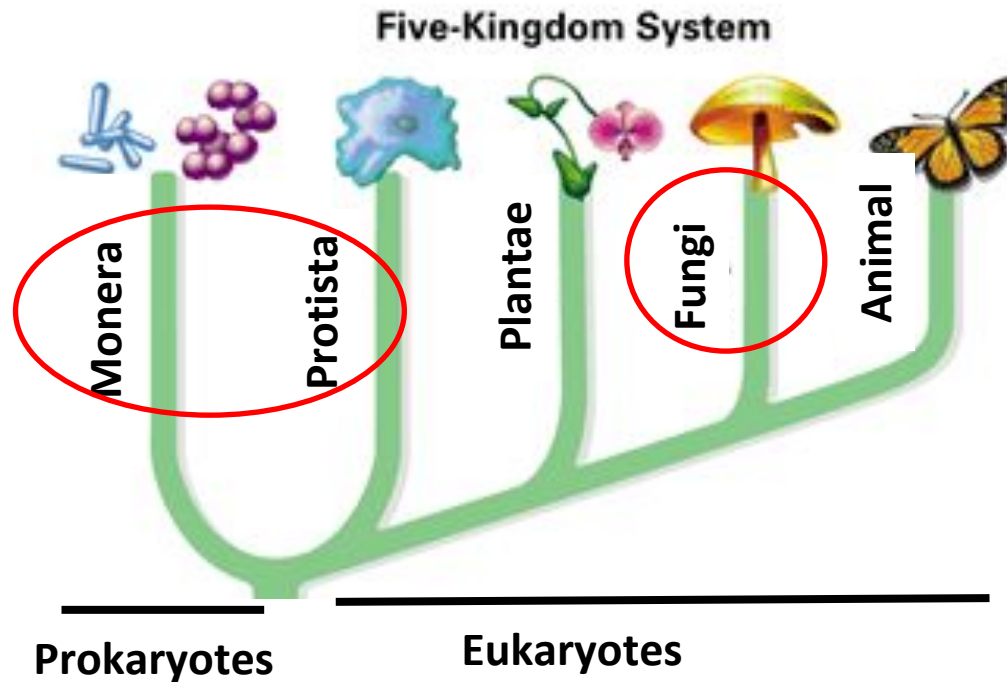
MICROORGANISM

MICROORGANISM

- A microorganism is a microscopic organism, which may exist in its single-celled form or in a colony of cells.
- Microorganisms include all unicellular organisms and so are extremely diverse.
- They live in almost every habitat from the poles to the equator, deserts, geysers, rocks and the deep sea. Some are adapted to extremes such as very hot or very cold conditions, others to high pressure and a few such to high radiation environments

PLACE OF MICROORGANISM IN LIVING WORLD

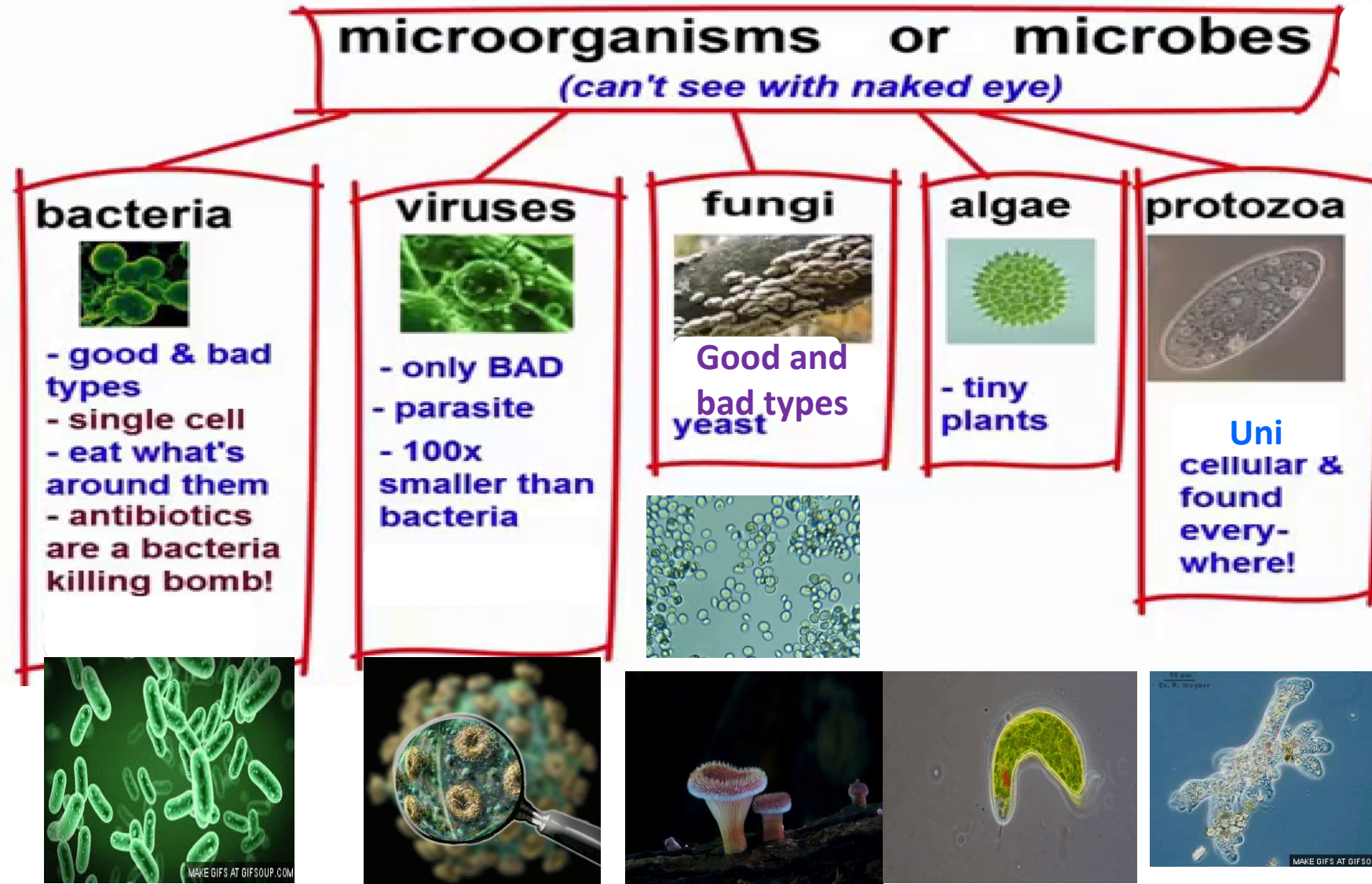
Micro-organism



- 1967, Robert Whittaker introduced the five-kingdom classification system.



Group of microorganism



Significance of microorganism

GROUPS	PRACTICAL SIGNIFICANCE
BACTERIA Ex: <i>E. coli</i> , <i>Vibrio cholera</i> , <i>helicobactria pylori</i>	PRODUCE ANTIBIOTICS, INSULIN, FOOD SUPPLEMENTS, PRODUCE CHEESE AND YOGHURT, CLEAN UP OF OIL SPILLS, SOME PATHOGENIC BACTERIAS CAUSE DISEASES EX TUBERCULASIS
VIRUSES Ex: human papillomavirus, HIV, <u>hepatitis B virus</u>	CAUSES DISEASE IN HUMANS AND PLANTS
FUNGI Ex: Saccharomyces cerevisiae, candida albicana	MAKE CHEESE, BREAD AND ALCOHOLIC BEVERAGE, PRODUCE ANTIBIOTICS LIKE PENICILLIN, SOME PATHOGENIC FUNGI CAUSE DISEASES LIKE CANDIDIASIS
PROTOZOA Ex: Amoeba Paramecium, Euglena	FOOD FOR AQUATIC ANIMALS, EAT HARMFUL BACTERIA, SOME PATHOGENIC PROTOZOA CAUSE DISEASES LIKE E HISTOLITICA (DIARRHEA)
ALGAE Ex: Chlamydomonas , Spirogyr a	USED AS FOOD SUPPLEMENT, PRODUCTION OF FOOD IN AQUATIC ENVIRONMENTS, CLEANING OF AQUATIC ENVIRONMENT, SOME PATHOGENIC PRODUCE TOXIN(Green algae) THAT NOT ALLOW OTHER AQUATIC ORGANISM TO GROW ON POND.

Summary

- **Microorganism**
- **Place of microorganism in living world**
- **Group of microorganism**
- **Significance of microorganism**

QUESTIONS

- 1.Explain the term biodiversity and its importance?
- 2.What are the 3 levels of diversity?
- 3.What are the threats to diversity?
- 4.Define microorganisms. What are the different groups of microorganisms giving examples in each group?
- 5.Explain 5 kingdom classification? Where are the microorganisms placed in this system?
- 6.Explain the significance of microorganism?