Introducing Biology

- **Science** is an organised body of knowledge, supported by observation and experimentation, derived from the study of natural phenomena of the entire material universe.
- The science that deals with Earth and other planets, stars and their dynamic motion, our galaxy, light, sound and other related sources of science is called **Physics**.
- The science that deals with metals, non-metals, melting substances, odour and taste of substances that are used in our daily life is called **Chemistry**.
- The study of living things, namely plants, animals and human beings, is called **Biology**.
- **Botany:** The study of plants.
- **Zoology:** The study of animals.
- **Human Biology:** The study of man as a living organism and the relationship of man with other living organisms.
- **Bacteriology:** The study of bacteria.
- **Virology:** The study of viruses.
- **Mycology:** The study of fungi.
- **Entomology:** The study of insects.
- **Ichthyology:** The study of fishes.
- **Herpetology:** The study of reptiles.
- **Ornithology:** The study of birds.
- **Anatomy:** The study of the gross structure of an organism as seen in the dissection.
- **Morphology:** The study, understanding and interpretation of form and structure of plants and animals.
- **Histology:** The study of minute structures of the body as is seen with the help of a compound microscope.
- **Cytology:** The study of structure and function of plant and animal cells.
- **Physiology:** The study of functions and activities of organisms and their parts.
- **Embryology:** The study of formation and development of the embryo of plants and animals.
- **Taxonomy (or Systematics):** The science of naming, grouping and classifying plants and animals.
- **Ecology:** The study of relationships that exist between an organism and its living and non-living environment.

- **Biogeography:** The study of the geographical distribution of plants and animals on the Earth.
- **Palaeontology:** The study of origin and descent of organisms.
- **Evolution:** The study of prehistoric forms of life by using fossils of plants and animals.
- **Genetics:** The science that explains the transmission of body characteristics, both similarities and differences, from parents to offspring.
- **Parasitology:** The study of organisms, called parasites that live on or inside the body of other organisms and draw nourishment from the host.
- **Pathology:** The study of various diseases in plants and animals.
- **Immunology:** The science that explains the phenomena and causes of immunity.
- **Eugenics:** The science that seeks to improve the human race through controlled heredity.
- **Biochemistry:** The study of different chemicals and various reactions that take place within the living organisms.
- **Agriculture:** The raising of crops and livestock such as cows, buffaloes etc.
- **Veterinary Science:** The treatment and surgery of animals.
- **Marine Biology:** The study of life in the sea.
- **Household Biology:** The study of household animals, insects etc. and how to prevent them from damaging our body and belongings.
- **Horticulture:** The science and art of growing fruits, vegetables, flowers and ornamental plants.
- **Sericulture:** The technique of producing silk by raising silkworms.
- **Pisciculture:** The technique of growing fish.
- **Molecular Biology:** The science of interpreting biological events in terms of molecules in the cell.
- **Biotechnology:** The application of biological processes in technology. It includes areas such as genetic engineering, tissue culture, antibiotic production, antibody production, biogas production, food processing and extraction of extracellular enzymes that can be used as biodetergents in laundry, washing powders etc.
- **Cloning:** The technique in which a cell from the body is used to clone animals without the involvement of the male sperm.
- **Bioengineering:** It includes techniques such as making of artificial limbs, joints and other parts of the body by using materials such as metals, plastic etc. It also includes modifying crops and making them easier to grow as well as improving the food quality.
- **Nuclear Biology:** The study of effects of radioactivity on living organisms.

- **Space Biology:** It deals with the survival problems of living things in outer space.
- **Exobiology:** The study of life elsewhere in the universe.
- **Genomics:** The study of the entire DNA sequence of an organism. It deals with the study of the entire genome and not with individual genes.
- **Bioinformatics:** It deals with the management and analysis of biological information stored in databases.
- **Biometrics:** It involves the verification of a person by certain body features. These include the pattern of iris in the eye and other behavioural characteristics.
- **Applications of biology:**
    - Appreciation of nature
    - Maintaining health
    - Conservation of natural resources
    - Production of more food
    - Creating conscious citizens
    - Development of careers