*Biology Annual Plan 2019-20*

**Month-June**

Cell- Fundamental units of life.

Students should know the following as learning objectives

Students will be able to

* Know that a cell is a basic unit of life.
* Understand the difference between unicellular and multicellular organisms.
* Explain the structure and function of different parts of a plant cell and an animal cell.
* Understand the difference between plant cell and animal cell.
* Understand the structure and function of tissue.
* Understand how an organism is formed from a basic unit of life- cell.
* Observe a transverse section of a stem under a microscope.

**Tissues**

- types and function

Plant and animal tissues

Students should know the following as learning objectives

Students will be able to

* Know the meaning of tissue.
* Understand the four major types of animal tissues.
* Understand the structure and function of different types of tissues. (Animal and Plant tissues).
* Know the importance of tissues.

**Month- July**

Animal tissues (continued…)

* Understand the structure and function of animal tissues.
* To know the importance of plant and animal tissues.

**Microorganisms- Friends and foe**

Students should know the following as learning objectives

Students will be able to

* Understand about the structure of bacteria, unicellular algae, fungi, protozoa and virus.
* Learn about the useful and harmful microorganisms.
* Learn about the diseases caused by microorganisms.
* Understand about preservation of food by various methods.
* Appreciate the impact of microorganisms in our lives

**Month:August**

**Transportation in Plants and animals**

Students should know the following as learning objectives

Students will be able to

* Learn about the functions in unicellular organisms like amoeba and paramecium.
* Understand about the transport of useful material and waste products in higher animals.

Students should know the following as learning objectives

Students will be able to

* Understand about the circulatory system in humans.
* Understand about the lymphatic system in humans.

**Month- September**

**Transport system in Plants and Animals** (continued….)

* Understand about the excretory system in humans.
* Revision and Exam

**Month- October**

**Transport system in Plants**

* Understand transport of substances in plants.

**Month: November and December**

**Respiratory System**

**Lungs and respiratory system, breathing and respiratory problems(colds, pneumonia, asthma and lung cancer)**

Students should know the following as learning objectives

Students will be able to

* Identify different parts of the respiratory system.
* Describe the function of the organs associated with the system(lungs, diaphragm, trachea, alveoli)
* Describe the process of respiration.
* Explain the stages of the breathing process and what occurs in each stage.
* Explain the connection of the respiratory system to the four other body systems.
* Explain the major risk factors of the respiratory problems
* Explain the ways to protect themselves against respiratory problems.

**Genetics**

Introduction to genetics, Basic terms-Genotype, phenotype, alleles, dominant, recessive, homozygous and heterozygous structure of DNA)

Month- January

**Reproduction in plants**

Students should know the following as learning objectives

Students will be able to

* Know about asexual reproduction or vegetative propagation.
* Understand about fragmentation, budding, spore formation.
* Understand about the artificial methods of vegetative propagation.
* Understand about sexual reproduction in plants- structure of a typical flower, pollination, fertilization, seed, fruit, seed formation.
* Understand about the different methods of seed dispersal.

**Reproduction in Animals**

Students should know the following as learning objectives

Students will be able to

* Understand the process of fertilisation
* Understand the two modes by which living things reproduce.
* Understand asexual reproduction in bacteria and amoeba by binary mission.
* Understand asexual reproduction in hydra by budding and Planaria by fragmentation.

**Month-February**

Reproduction in animals (Continued)

Students should know the following as learning objectives

Students will be able to

* Understand the process of fertilisation in sexual reproduction.
* Understand the process of external and internal fertilisation.
* Understand the life cycle of a frog, life cycle of a butterfly.
* Know the parts of the male and female reproductive system.
* Understand the process of fertilisation in humans and the development of embryo.

**Reaching the age of adolescence**

Students should know the following as learning objectives

Students will be able to

* Learn about puberty
* Understand the changes that happen during puberty.
* Understand about the two types of glands.
* Know the different endocrine glands.
* Understand the process of puberty in boys and girls.
* Know about the health care during adolescence.
* Understand how the gender of a child is determined.

**Month- March**

Project presentation by the group on **“Conservation of plants and animals”**

Students should know the following as learning objectives

Students will be able to

* Understand biodiversity
* Know that a forest is a storehouse of biodiversity.
* Reason out why forests are natural resources.
* Understand the causes of deforestation.
* Understand the effect of deforestation on biodiversity, climate, water and soil.
* Realise the reasons for threatened animals.
* Understand the cause and effect of extinction of animals.
* Understand about endemic plants and animals.
* Know the different conservation programmes.

Revision and exams

Month- August

(Continuation of crop production and management)

* Understand the basic practices in crop production
* Understand about the food obtained from animals.

**Control and co ordination**

(Neuron, nervous system, CNS, PNS, white matter, grey matter, endocrine glands, sympathetic, parasympathetic)

Students should know the following as learning objectives

Students will be able to