

# MONTH WISE SYLLABUS DISTRIBUTION OF SUBJECT –BIOLOGY

## CLASS 11 SESSION- (2023-2024)

### TERM 1

#### APRIL

CH 8- Cell : The unit of life

CH 1- The living world

#### MAY

### UNIT I-DIVERSITY IN THE LIVING WORLD

CH 2-Biological classification

CH 3-Plant kingdom

#### JULY

CH 4-Animal kingdom

### UNIT II-Structural organization in plants and animals

CH 5-Morphology of flowering plants

Ch 6-Structural organisation in plants.

#### AUGUST

CH 7-Structural organization in animals

### UNIT IV- PLANT PHYSIOLOGY

CH 13-Photosynthesis in higher plant

CH 14 –Respiration in plants

#### SEPTEMBER

Revision+exams

#### OCTOBER-First term exams

### TERM II

CH 9 –Biomolecules

#### NOVEMBER

CH 10- Cell cycle and cell division

Ch-15 Growth and movements in plants.

### UNIT V – HUMAN PHYSIOLOGY

CH 17-Breathing and exchange of gases

CH 18- Body fluid and circulation

DECEMBER

CH -19 Excretory products and their elimination

CH -20 Locomotion and movement

JANUARY

CH -21 Neural control and coordination

CH -22 Chemical coordination and integration

REVISION

**LESSON PLANS CLASS - 11**

**SUBJECT-BIOLOGY**

Unit 1-DIVERSITY IN LIVING ORGANISMS (MONTH-APRIL)

**Chapter- The Living World.**

No of periods-04

**LEARNING OBJECTIVES : -**

- (i) To know the characteristics of living beings.
- (ii) To understand various taxonomic categories

**P.K. Testing -:**

- (i) Which things you see around you?
- (ii) What are the differences between living and non- living?
- (iii) What do you mean by biodiversity ?

**VOCABULARY / IMPORTANT SPELLINGS-:**

Metabolism, binomial nomenclature, taxonomy hierarchy, systematics etc.

**TEACHING AIDS INNOVATIVE METHODS USED** – ,white board,smart board,  
you tube

**Procedure** -: The living world will be introduced by asking some questions related to living beings. Characteristics, diversity in living beings, taxonomic categories and

taxonomic aids will be explained by screen sharing the chapter. Deductive approach will be used to explain various topics.

### **STUDENTS PARTICIPATION-:**

- (i) Students will prepare questions related to the content.
- (ii) Students will see the content on you tube also

**RECAPITULATION -:** Students will do assignment question questions.

**Expected learning Outcomes-:** The students will be able to

- recall characteristics of Livings.
- define taxonomic categories.. Resources - NCERT text Book

<https://www.youtube.com/watch?v=FKZysxJaw>

-A text Book of Biology, By Pradeep Publications.

**Co-Scholastic activities :-** Care for plants & animals.

**INCLUSIVE PRACTICES:-**worksheets for above average,average and below average students will be used. visual pic related to content will be used

Assessment -: Oral quiz ,written test

**REMEDIAL MEASURES:-**tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

**CLASS 11 BIOLOGY  
BIOLOGIC CLASSIFICATION**

**No. of Periods -04  
(MONTH-april)**

**LEARNING OBJECTIVES -:** To recognize the sharing of similarities and differences among living organisms by classifying them.

**PREVIOUS KNOWLEDGE TESTING :-** Student will be asked few Oral question.

(i) what is

Whittaker classification ?

(ii) What do you mean by Saprophytes ?

(iii) What is Symbiotic association ?

(iv) What is COVID 19?

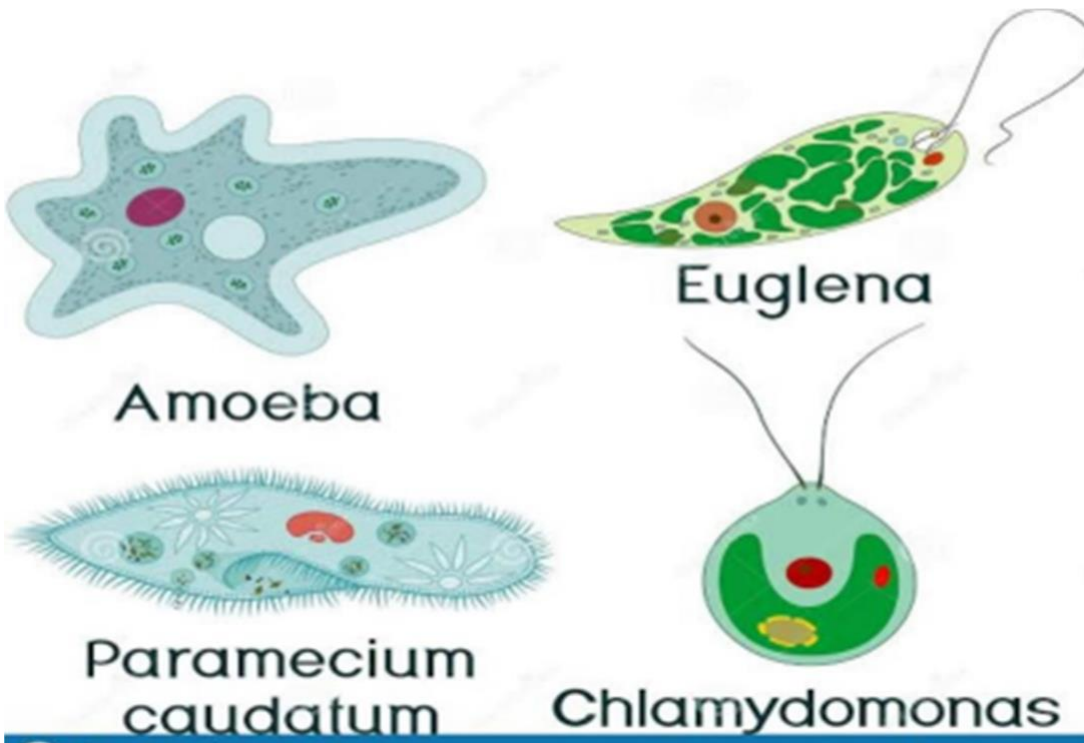
(v) What precautions should we take to protect ourselves from this virus?

**TEACHING AIDS/ INNOVATIVE PEDAGOGIC METHOD USED** - smart board,videos,visual cards,slides

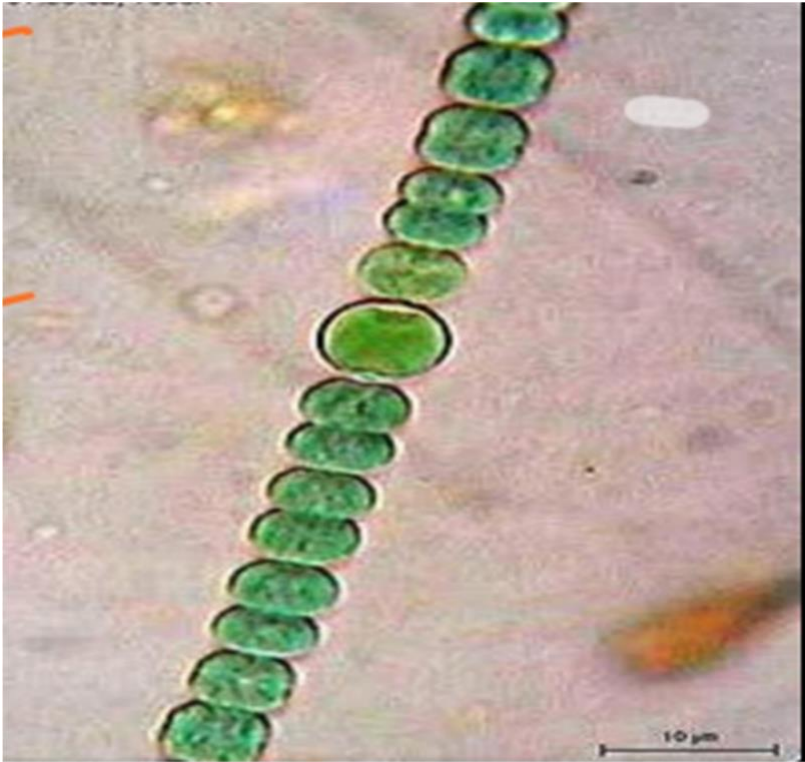
**VOCABOLARY AND IMPORTANT SPELLINGS -:**

Chlamydomonas, chlorella, archaebacteria eubacteria, Chrysophytes, dinoflagelletes, euglenoids, dikaryon, phycomycetes, ascomycetes, basidiomycetes, deutromycetes etc.

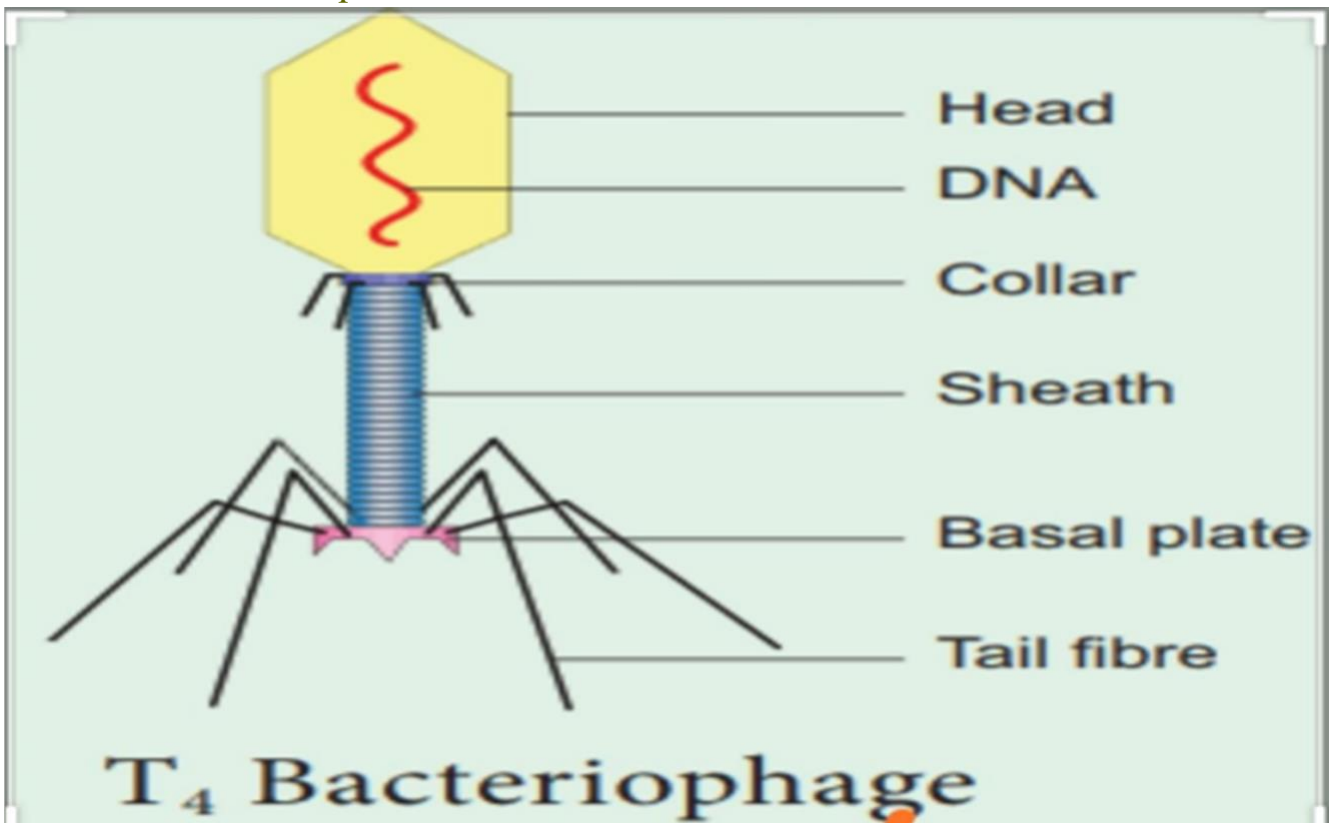
**Procedure** - :Various systems of Biological classification will be introduced to the students. Five kingdom classification will be explained by using smart board .Kingdom names will be learnt by the students by using drill method, kingdom Monera, Protista, fungi, Plantae and animalia characteristics & examples will be explained .Related diagrams will be drawn on white board.



**Students Participation** :- Students will draw diagrams and make flow chart of classification .They will observe slides of different specimens



Students will frame questions related to the content.



**Recapitulation** - Written questionnaire, Think pair Share

Characters	Five Kingdoms				
	Monera	Protista	Fungi	Plantae	Animalia
Cell type	Prokaryotic	Eukaryotic	Eukaryotic	Eukaryotic	Eukaryotic
Cell wall	Noncellulosic (Polysaccharide + amino acid)	Present in some	Present with chitin	Present (cellulose)	Absent
Nuclear membrane	Absent	Present	Present	Present	Present
Body organisation	Cellular	Cellular	Multicellular/ loose tissue	Tissue/ organ	Tissue/organ/ organ system
Mode of nutrition	Autotrophic (chemosynthetic and photosynthetic) and Heterotrophic (saprophytic/parasitic)	Autotrophic (Photosynthetic) and Heterotrophic	Heterotrophic (Saprophytic/ Parasitic)	Autotrophic (Photosynthetic)	Heterotrophic (Holozoic/ Saprophytic etc.)

### Art Integration with other domain : -

Students will draw coloured diagrams and colourful flow chart of different shapes of bacteria, nostoc, euglena, paramecium, Bacteriophage etc.

### Expected Learning outcomes:

- Students will be able to know the Characteristics & examples of different types of Kingdom monera, protista & fungi.
- will be able to identify different specimens and relate the features with its taxonomic group.
- Students will be able to further classify kingdom monera, Protista and fungi alongwith their economic importance
- They will also understand the features of viruses, viroids & lichens.

**Assignment**:-Do the following questions

1. Name two features of prokaryotes, one of which should be about genetic material.
2. What are the three criteria for the five kingdom classification of organisms?
3. How are archaebacteria able to live in extreme environmental conditions? Mention two such conditions in which they live.
4. Why are archaebacteria commonly referred to as living fossils?
5. Differentiate between photoautotrophic and chemoautotrophic bacteria.
6. How bacteria are useful in industry. Write any two uses?
7. What are the suitable examples of the following: (a) Rod-shaped bacteria. (b) Pigments of cyanobacteria (c) Nitrogen fixing mesozoa.
8. How do thermoacidophiles live under both aerobic and anaerobic conditions?
9. Mention any four useful aspects of bacteria.
10. Why are mycoplasma described as pleomorphic? Mention two places where they occur.
11. What do you understand by the term heterocyst?
12. What are the major mechanisms of locomotion found in protists?
13. Write a note on sexual reproduction in protists.
14. What is the nature of cell in diatoms?
15. Mention the economic importance of slime moulds.
16. Mention four distinguishing features of phylum protozoa.
17. Enlist the criteria considered to classify fungi?
18. How are the delicate and soft fungal hyphae able to penetrate the hard timbers?
19. What is conidium? In which group/groups is/are it found?
20. Differentiate between zoospores and zygospores of fungi.
21. Which class of fungi is referred as the conjugation fungi and why?
22. What is yeast? What do you mean by facultative aerobes?
23. Mention four economic importance of yeasts?
24. Name two classes of fungi for each, that have the following features. (i) Aseptate mycelium (ii) Septate mycelium
25. In which group are the following found? Conidia, zygospore, ascospore.
26. Mention the two important diseases of plants caused by basidiomycetous fungi.
27. What are the characteristic features of Deuteromycetes?
28. Name two members of Deuteromycetes and mention the disease they cause in plants.
29. What are the physiological relationships between the algal and fungal components of lichens?
30. What is mycorrhizae? How it benefits the plant?
31. Why are viruses called obligate intracellular parasites?
32. Name any four diseases caused by viruses in human beings.

**Resources** -: NCERT text Book.

<https://www.slideshare.net/Samarji/biological-classification-22734394>

**Co-scholastic activities** :- Students will develop skill of handling and observing different specimens.

- value the features and beauty of different specimen. .

**Assessment** - MCQ. Assignment

**INCLUSIVE PRACTICES**:-worksheets for above average,average and below average students will be used. visual pic related to content will be used

**REMEDIAL MEASURES**:-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

## CHAPTER -PLANT KINGDOM

No of Period -05

(MONTH-MAY)

**Learning objectives :-** i )-To know the habitat, characteristics and examples of divisions of Kingdom Plantae

ii)- To understand gametophyte and sporophyte stages of plants

iii)-To understand Plant life cycles and alternation of generations.

**P.K. Testing** -: some oral questions will be asked -

: (i) What are the basis of classification in kingdom Plantae ?

(ii) Name the conducting tissues in Plants

(iii) Which are the various modes of asexual reproduction ?

**Vocabulary / Important Spellings:** - haplontic, diplontic , strobili, microsporophyll, megasporophylls, prothallus, protonema antherozoids, isogamous, anisogamous etc.

**TEACHING AIDS /INNOVATIVE PEDAGOGIC METHODS-** :smart board. ,slides

Pics of Specimens of Marchantia, Funaria, Pinus cones, fern etc.

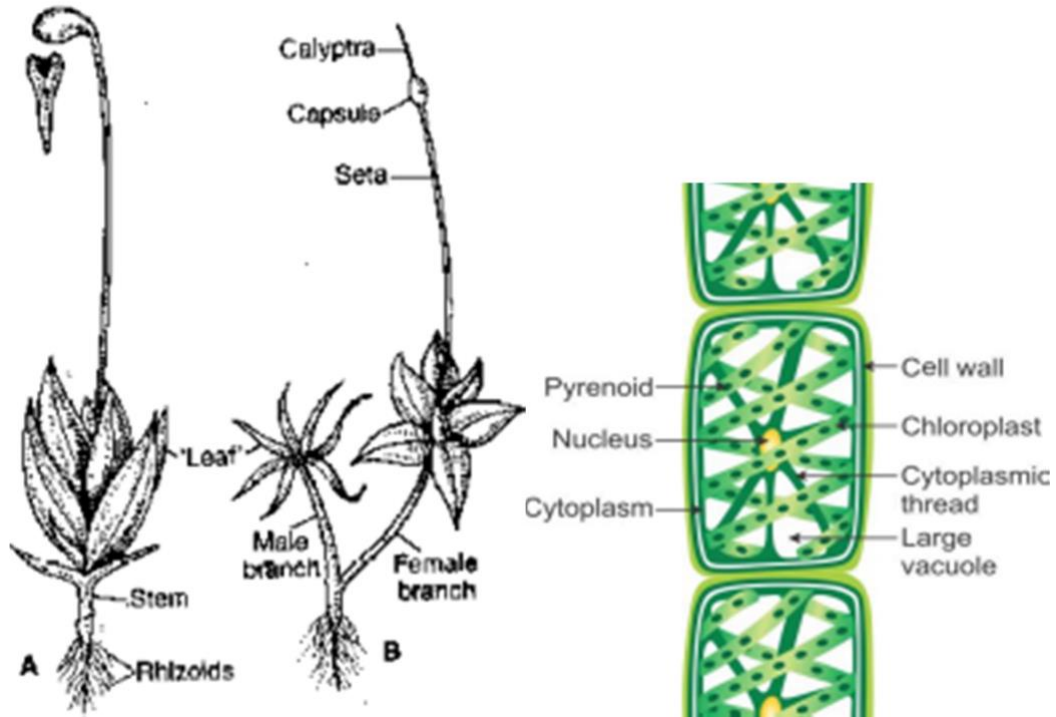
**Procedure** -: ch- ‘Plant kingdom’ will be introduced to the students by asking simple questions related to the topic. Divisions Algae, bryophyta, Pteridophyte,.gymnosperms and angiosperm will be introduced .Characteristics and examples will be explained and slide will be observed. Plant life cycles & alternation of generation will be explained by using coloured Chalks on green board. Virtual specimens will be shown in the lab.

**Students Participation** : -

(i) Observation of pics of specimens by the students.



(ii) Students will make a comparison table of divisions of kingdom plantae



spirogyra funaria

III) Students will draw colourful diagrams of plant spicemens.

## THALLOPHYTA

vs

## BRYOPHYTA

vs

## PTERIDOPHYTA

Thallophyta refers to seedless and flowerless organisms consisting of algae, fungi, lichens, and bacteria

Lives in aquatic environments, on or within plants, on snow, and on rocks

Mostly unicellular

Plant body is a thallus

Lacks a vascular system

Does not show alterations of generations

Sex organs are unicellular

Does not form an embryo

Consists of plant-like organisms

Cyanobacteria, algae, lichens, and fungi are examples

Bryophyta refers to small, flowerless plants consisting of liverworts, mosses, and hornworts

Mainly lives in aquatic environments

Multicellular

Plant body shows stem-like, root-like, and leaf-like structures

Lacks a true vascular system

Shows alterations of generations with a prominent gametophyte

Sex organs are multicellular

Forms an embryo after fertilization

Shows the least organization in the plant kingdom

Liverworts, mosses, and hornworts are examples

Pteridophyta refers to flowerless plants consisting of ferns and their relatives

Mainly lives in dry, terrestrial environments

Multicellular

Plant body is differentiated into stem, root, and leaves

Consists of a true vascular system

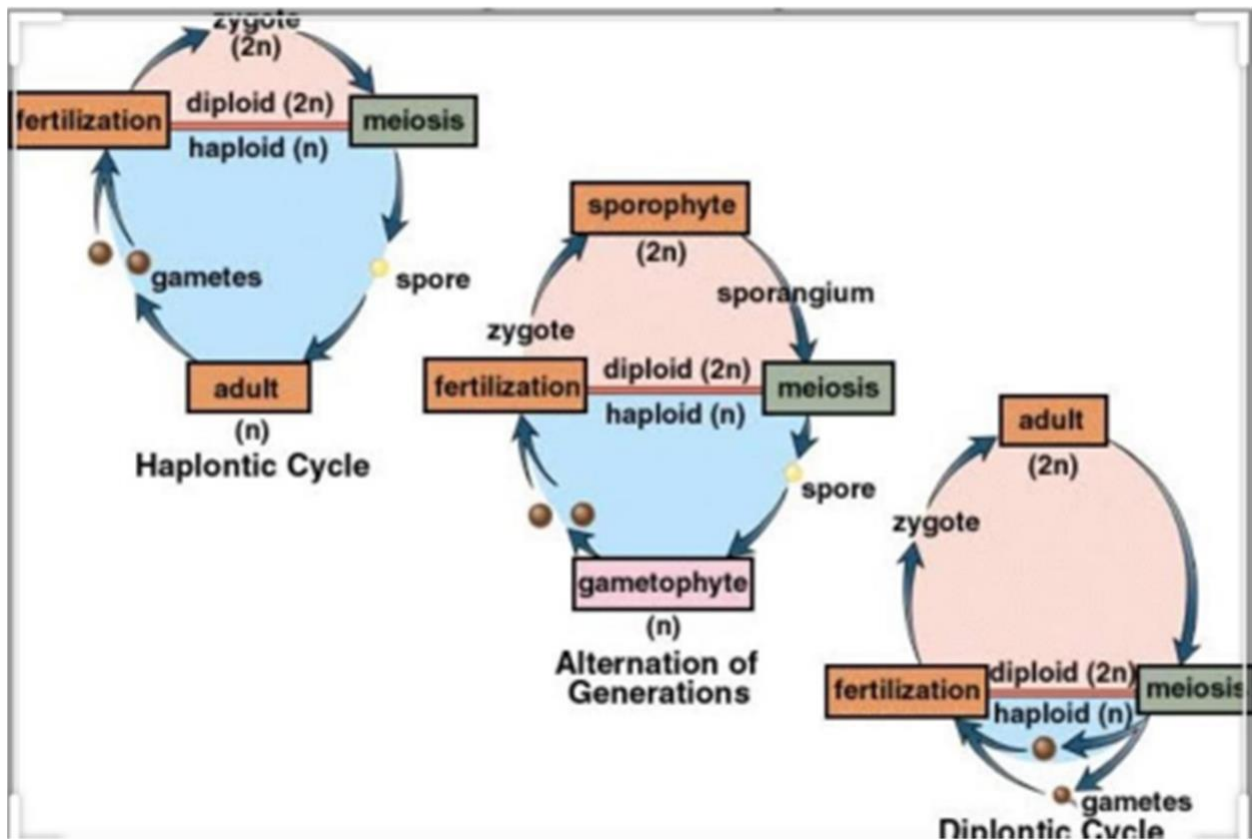
Shows alterations of generations with a prominent sporophyte

Sex organs are multicellular

Forms an embryo after fertilization

Shows a higher organization than Bryophyta

Ferns and their relative are examples



### Art of Integration with other domain -:

Students will draw colourful diagrams and try to identify plants of their own garden

### Expected learning outcome -:

- (i) Students will be able to recognize divisions of various types of plants.
- (ii) Students will be able to write characteristics of various divisions of kingdom Plantae.
- (iii) Students will be able to explain types of plants. life cycles and alternation of generation.

**Resources -:** NCERT text book.

[https://www.slideshare.net/prof\\_aarif/kingdom-plantae-16813098](https://www.slideshare.net/prof_aarif/kingdom-plantae-16813098)

**Recapitulation -:** Students will fill ups in the work sheet.

**Co-scholastic activities-:** - Love & care towards plants

**Assessment -:** Prepare a table for divisions of Plant Kingdom.

**INCLUSIVE PRACTICES:-**worksheets for above average,average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES:-**tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

Assignment-:Do the following questions

1. What do you know about the phylogenetic system of classification ?
2. Name the characters considered in cytotaxonomic studies.
3. What is meant by isogamy? Give example of an alga that shows isogamy.
4. Name two algae from which agar is obtained. Mention the important uses of agar.
5. Describe the common mode by which the brown algae reproduces asexually.
6. Name the different parts in which an algae plant body of class Phaeophyceae is differentiated. Which structure fixes the brown algae to the substratum?
7. What are phycocolloids? What advantages do they confer in algae?
8. Differentiate between brown algae and green algae.
9. Why the bryophytes are called amphibians of the plant kingdom?
10. How bryophytes are advanced over algae?
11. What are gemmae? What role does it play in reproduction?
12. Mention two economic importance of *Sphagnum*.
13. Describe the leaves found in pteridophytes.
14. What are homosporous ferns? Give two examples.
15. Name two heterosporous ferns. Why are they referred so?
16. Which important event in the life cycle of heterosporous ferns is considered to be a precursor of seed habit?
17. Why are the spread of living pteridophytes limited and restricted to narrow geographical regions?

**CLASS 11 SUBJECT-BIOLOGY**

no of period-5

**CHAPTER- ANIMAL KINGDOM**

(MONTH-JULY)

**Learning objectives-:**

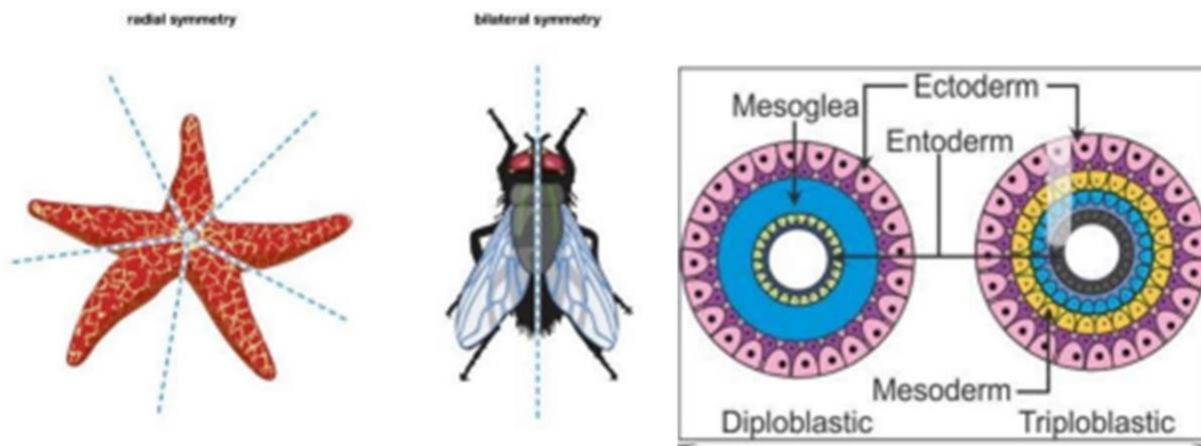
- (i) To understand the basis of classification
- (ii) To know the habitat, characteristics and examples of phylums of kingdom Animalia

**P.K. Testing** -:some oral questions will be asked to the students

- (i) What is classification?
- (ii) How is classification important ?

(iii) Mention the five kingdoms of Classification given by Whittaker? Vocabulary / **Important Spellings** -: metamerism, choanocytes, metagenesis, bioluminescence radula, placoid scales, poikilothermous, tympanum, homiothermous, scutes etc.

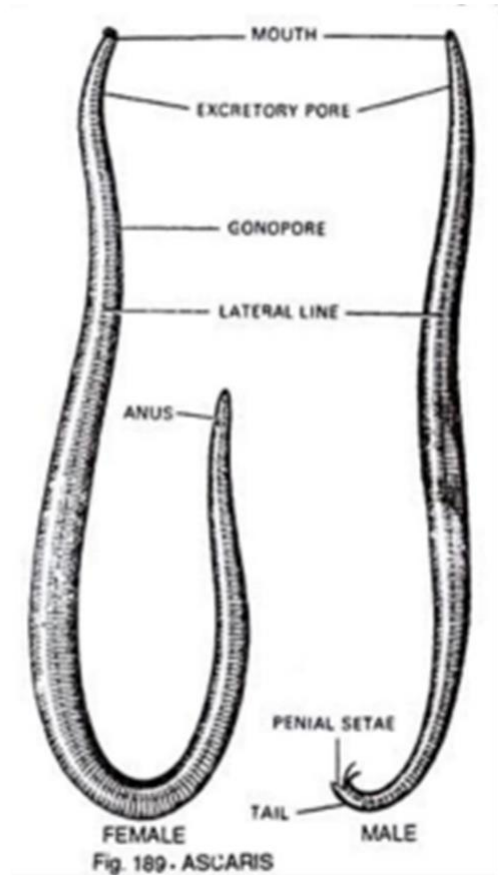
**Procedure** -: Ch - Animal Kingdom will be introduced, Important terms related to animal kingdom, symmetry ,level of organisation, Coelom, germ layers will be explained by using zoom app (screen sharing of chapter). Characteristics of various phylums of animals along with examples will be explained. Students will observe pictures of various specimens on screen. Some diagrams will be explained by using Coloured pens on white board screen. Deductive approach will be followed



**TEACHING AIDS/ INNOVATIVE PEDAGOGIES**:- smart board ,specimens,visual cards

### **Participation of students :-**

- (i) Students will write peculiar features of phylums
- (ii) Students will draw diagrams
- (iii) students. will prepare virtual Specimens - earthworm, Spongilla, ascaris honey bee, pigeon, rabbit, fish etc



**Recapitulation** - Students will fill ups in work sheet.

**Art Integration with other domain** : Students will prepare virtual 3-D Specimens. Expected Learning outcome -: The students will be able to - Classify animals as vertebrates and invertebrates

- write characteristics, habitat & examples of various phylums of kingdom

animalia. Resources -: NCERT Text Book <https://www.askitians.com> > biology

<https://www.youtube.com/watch?v=gLGXYaRKHuQ> -Biology

By Dinesh Publications.

Assignment-:Do the questions

**Co scholastic activities**-:skill of identifying specimens, Love and care towards nature.

**Assessment** - seminar

**INCLUSIVE PRACTICES**-:worksheets for above average,average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES**-:tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

## CHAPTER-: MORPHOLOGY OF FLOWERING PLANTS

Class -11

No. of periods-08 (MONTH-JULY)

**LEARNING OBJECTIVES:-** students will be able to (i) Explain the different parts of flowering plants with their functions.

(ii) Explain the modified function of roots, stem & leaves with example. ii.

(iii) understand the concept of phyllotaxy and venation

(iv) To know about flower and its parts, aestivation, placentaion, fruit and different families

**P.K. Testing :-** Some oral questions will be asked to the students

(i) Which part of the plant grows above the ground?

(ii) Which part of the plant grows under the ground?

(iii) Which part of the plant is known as Kitchen of: the plant ?

(iv) Which part of the plant is reproductive unit?

**Vocabulary / important spellings -:** Pneumatophores, pulvinus, petiole, pinnate and palmate compound leaves, , actinomorphic, perigynous, epigynous, gamosepalous, apocarpons, zygomorphi etc.

**Teaching Aids/ Innovative Pedagogic methods.**

- Hands on learning, Walk of garden

,specimens,charts .

- some specimens of root, stem, leaf modification.

- Display of parts of flower

**Procedure-** Plant parts will be shown The root, the stem, the leaf, inflorescence flower, fruit, seed, semi technical description of a typical flowering plant, vegetative parts, medicinal and economic importance of solanaceae and liliaceae families will be studied by using smart board .Floral diagrams will be drawn.

**STUDENTS PARTICIPATION:-**

- (i) To display parts of Petunia flower.
- (ii) Students will observe modified root, stem & leaf specimens.

**Recapitulation -:** Written questionnaire.

**Art Integration with other domain -:** Students will draw

Colourful diagrams of types of aestivation, placentation , etc.

**Expected Learning outcomes :-**

- i. Students will be able to understand the Primary & secondary functions of root, stem & leaf etc along with their modification.
- ii. Students will understand venation & Phyllotaxy.
- iii. ) Students will know about flower and its parts, aestivation, placentation, fruit different families

**Assignment-:** Do short and long questions

**Resources -:** Text Book by NCERT, Reference Book by Trueman's

<https://ncesthelp.com>> text> ques ...

[https://www.slideshare.net/prof\\_aarif/kingdom-plantae-16813098](https://www.slideshare.net/prof_aarif/kingdom-plantae-16813098)-for mcq practice

**Co-scholastic activities** - development of keen observation,  
scientific attitude

**Assessment :-** An open ended question discussion

**INCLUSIVE PRACTICES:-** worksheets for above average, average and below average will be used. visual pic related to content will be used



**REMEDIAL MEASURES:-**tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

## **CLASS-11 SUBJECT-BIOLOGY**

**CHAPTER -Structural organization in Animals**

No of periods-05

(MONTH-JULY)

**Learning Objective -:** To make the students understanding of

- (i) Types of animal tissues.
- (ii) Organ and organ system.
- (iii) Morphology and anatomy of cockroach.

**P.K Testing-:** Some oral questions will be asked to the students -:

- (i) What is tissue?
- (ii) What type of tissue is blood?
- (iii) Which muscle tissue never gets fatigue?
- (iv) What is scientific name of cockroach ?

**Vocabulary / Important spellings -:** Tight junctions, adhering junctions, gap junctions, osteocytes, Chondrocytes, lacunae, neuroglia, sclerites, labrum, mandibles, maxillae, labium, hypopharynx, gizzard, gonopore, ootheca etc. Teaching

Aids / Innovative Pedagogic methods -:

white board,smart board,you tube video

Procedure -: Types of animal tissues will be introduced by asking simple questions related to the topic.Location,charactristics and functions of various types of epithelial

tissue, connective tissue, muscular tissue and nervous tissue will be explained along with diagrams.

### **Students participation : -**

- (i) Students will observe various types of animal tissues under microscope.
- (ii) Students will draw diagrams of types of animal tissues.

**Recapitulation** -: Students will do NCERT Questions and extra questions related to content. Students will do mcq from the following link-:

<https://www.studiestoday.com/mcq-biology-ncert-ug-biology-animal-tissue211505.html>

**Art Integration with other domain**: - Students will draw colorful diagrams.

### **Expected learning outcomes-:**

-Students will recognize types of tissues along with their location, characteristics and function.

**Resources** -: NCERT text book.

[https://www.youtube.com/watch?v=e\\_2O8pzi\\_DI](https://www.youtube.com/watch?v=e_2O8pzi_DI)

**Co-Scholastic activities** -: keen observation, scientific attitude

**INCLUSIVE PRACTICES**:-worksheets for above average, average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES**:-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

**CLASS-11**

**SUBJECT-BIOLOGY**

CHAPTER - Cell: The Unit of life.

NO. OF PERIODS-06

(MONTH-APRIL)

## **Learning objectives : -**

- (i) To understand cell and cell theory.
- (ii) To know various cell organelles of Prokaryotic and eukaryotic cells (Structure and functions alongwith diagrams)

## **Vocabulary / Important Spellings:** - bacillus, spirillum, plasmid,

mesosome, pili, fimbriae, polysome, fluid mosaic model, cytoskeleton axonome, kinetochores etc.

## **P.K. Testing :** - some oral questions will be asked to the students

(i) Name the structural and functional unit of life.

(ii) Name the scientist who discovered first dead cell.

(iii) What is nucleoid in Prokaryotic cell?

## **Teaching AIDS / Innovative Pedagogic methods: -**

,diagrams of cell organelles,slides,videos of cell organelles

**Procedure:-** Different type of cells and cell theory will be explained with the help of smart board. Structure of Prokaryotic and eukaryotic cells will be explained with the help of points from NCERT and slides. Structure and functions of various cell organelles will be explained with the help of slides and video. Types of chromosomes based on the position of centromere by drawing diagrams on white board . Deductive approach will be followed.

## **Students participation: -**

i)Students will draw diagrams of various cell organelles and fluid mosaic model.

(ii) Students will frame questions from the content & discussion will be done.

**Recapitulation:-** Unlabelled diagrams of various cell organelles will be given & students will do labelling.

**Art Integration with other domain** : - drawing of colourful

diagrams of various cell organelles.

**Learning outcome** : - Students will be able to

(i) Correlate shapes of cells along with their functions.

ii) draw fluid mosaic model.

(iii) recognize types of chromosomes based on the position of centromere.

**Resources** : - NCERT text Book.

www.biology direussion.com >cell

<https://www.slideshare.net/rachuriemail/cell-is-the-basic-unit-of-life>

**Co-scholastic activities**: - Students will develop drawing skill by drawing diagrams of various cell organelles.

**Assessment** –MCQ, NCERT exercise questions and extra questions.

<https://byjus.com/biology/cell-biology-mcqs/>

[Assignment:-Do the following questions](#)

**INCLUSIVE PRACTICES**:-worksheets for above average, average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES**:-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

## **CLASS-11 SUBJECT-BIOLOGY**

CHAPTER – Biomolecules  
(MONTH-SEPTEMBER)

No. of periods -05

**Learning objectives:**

(i) To understand how to analyze chemical compounds.

- (ii) To define primary and secondary metabolites.
- (iii) To specify the structure of different types of proteins.
- (iv) To deduce nature of bond linking monomers in a polymer.
- (v) To explain the concept of activation energy, nature of enzyme action and factors affecting enzyme action.

**P.K Testing** -: Some oral questions will be asked to the students

- (i) look at the pictures and identify type of nucleic acid
- (ii) What are enzymes?
- (iii) What is ATP ? Give its full form.

**Vocabulary / Important spellings**: - zwitter ion, palmitic acid, glycine, alanine, serine, lecithin, adenine, guanine, uracil thymine, polysaccharides, activation energy, prosthetic group, coenzyme, apoenzyme etc.

**Teaching AIDS/ Innovative pedagogic methods**: -

Smart board, you tube video

**Procedure** : - . Structure of small molecular weight organic compounds, Primary and secondary metabolites, biomolecules will be explained with the help of points from NCERT . Structure of different types of protein, nature of bond linking monomers in a polymer will be explained from video and writing important points on the board.

Enzymes, nature of enzyme action factors affecting enzyme activity concentration of substrates, classification and nomenclature of enzymes will be explained

with the help of smart board. Deductive approach will be

**STUDENT PARTICIPATION** : (i) Students will do diagrammatic representation of small molecular weight organic compounds in living tissues.

**Assignment**:-: mcq and short question

**RECAPITULATION**-Students will do worksheet .

**LEARNING OUTCOMES**: Students will be able to

(i) recognize different types of metabolites

(ii) draw different types of proteins and various small molecular organic compounds in living tissues.

(iii) explain nature and factors of enzyme action

(iv) correlate apoenzyme and coenzyme

**RESOURCES:** NCERT text book, <https://mycbseguide.com>blog>bi.....>

<https://www.youtube.com/watch?v=lkoDv6ggRjE>

**ASSESSMENT**-short and long question test will be taken.

**INCLUSIVE PRACTICES:**-worksheets for above average, average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES:**-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

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**CLASS 11**  
**CHAPTER - Cell Cycle and Division**

**SUBJECT- BIOLOGY**  
**(MONTH-NOVEMBER)**

No. of periods-04

**Learning Objectives: -**

(i) To describe phases of cell cycle.

(ii) To trace various stages of mitosis.

(iii) To explain various stages of meiosis

(iv) To specify the significance of mitosis and meiosis.

**P.k. Testing**

(i) How a single cell forms large organism?

(ii) What is mitosis ?

(iii) What is the function of chromosomes in a cell?

(iv) When are chromosomes visible in a cell ?

**Vocabulary / Important spellings** :- Quiescent stage, Furrow, Cell plate, Synaptonemal Complex, Bivalent, Leptotene, Zygotene, Pachytene, Diplotone, Diakinesis, Prophase, Metaphase, Anaphase, Telophase.

## **Teaching AIDS/Innovative pedagogic**

**methods:** -videos of mitosis and meiosis, charts related to content

**Procedure** -: Cell cycle, and Interphase will be explained by showing video. Stages of mitosis and meiosis cell division will be explained by drawing diagrams on board and will also be shown by video.

Significance of mitosis and meiosis will be explained by using NCERT points . Slides of mitosis and meiosis will also be shown. Deductive approach will be followed.

## **Students Participation**

(i) students will draw diagrams of mitosis and meiosis phases.

(ii) students will differentiate between mitosis and meiosis

**Assignment** - Students will do NCERT questions. worksheet will be given to do

**Art Integration with other domain** : - Students will learn to prepare temporary slides of mitosis from onion root tip

**Learning outcomes** -: students will be able to

- Draw various stages of mitosis
- Differentiate between mitosis and meiosis
- Signify the importance of mitosis and meiosis

**Resources** -: NCERT text book

Mitosis 3-D animation on you tube ,

<https://www.youtube.com/watch?v=lkoDv6qgRjE> <https://www.slideshare.net/geonyzl/mitosis-and-meiosis-499728>

**Co-Scholastic activates** -: drawing skill, keen observation, think pair share.

**Assessment** -: MCQ

**INCLUSIVE PRACTICES**:-worksheets for above average,average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES**:-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

**CLASS 11**

**SUBJECT-BIOLOGY**

(MONTH-NOVEMBER)

**UNIT IV PLANT PHYSIOLOGY**

No. of Period 06

CHAPTER- Photosynthesis in Higher Plants

**Learning outcomes-**

1. To make the students understand the early experiments related to photosynthesis.
2. The students will be able to illustrate with a diagram the ultra structure of chloroplast.
3. To recognize the role of photosynthetic pigments in photosynthesis
4. To explain the mechanism of light and dark reactions in photosynthesis.
5. To list the factors that affect rate of photosynthesis.

**P. K. Testing** -: Some oral questions will be asked to the students :

1. what is photosynthesis ?
2. which pigment is involved in this process and what is it's function?
3. which organelle is known as kitchen of plant ?



**Vocabulary / Important spellings** - Carotenoid, xanthophylls, reaction centre, z-scheme, photo phosphorylation, Calvin cycle, Kranz anatomy

photorespiration, RuBisCo, Blackman's law of limiting factors etc.

**teaching aids/Innovative Pedagogic methodology**

Flow charts, videos related to content ,charts

**Procedure** -: Ch- "Photosynthesis in higher plants" will be taken up by asking some basic questions on photosynthesis for p.k. Testing. Early experiments done by Joseph Priestley ,T.W Engelmann etc will be discussed. Structure of chloroplast will be explained by drawing on white board. Pigments involved in photosynthesis , Light reaction, electron transport cyclic and non cyclic photo phosphorylation, chemiosmotic hypothesis will be explained by slide videos. C<sub>3</sub> and C<sub>4</sub> cycles will be explained by showing flow Chart on screen, factors affecting photosynthesis will also be discussed by using NCERT points. Activity of paper chromatography will also be demonstrated

**Students participation** -:

1. Students will make flow Charts of C<sub>3</sub> and C<sub>4</sub> cycle.
2. Separation of various pigments will be done by using paper chromatography by the students.
3. Students will draw diagrams related to content.

**Recapitulation** -:

1. fill ups from flow Chart of C<sub>3</sub> and C<sub>4</sub> Cycles will be given.
2. students will draw graphs for absorption and action spectrum

Art Integration with other domain : - Students will learn to draw graph and they will know how to separate photosynthetic pigments by paper chromatography

**Learning outcome** -: Students will be able to a

1. draw diagrams of chloroplast.
2. differentiate between cyclic and non-cyclic photo phosphorylation
3. Compare C<sub>3</sub> and C<sub>4</sub> cycles.
4. correlate factors affecting photosynthetic

**Resources** : - NCERT text Book ,NCERT Exemplar

<https://mycbseguide.com> blog p....

<https://www.slideshare.net/blessiemary/photosynthesis-in-higher-plants>

**Co-scholastic activities** -: Scientific attitude and drawing skill.

**Assessment** :- NCERT questions, Work sheets with extra questions

MCQ -<https://www.gneet.com/biology/b25/mainf.html>

**Assignment**:-Do the questions discussed in class

**INCLUSIVE PRACTICES**:-worksheets for above average,average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES**:-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

**CLASS 11**

**SUBJECT- BIOLOGY**

**chapter - Respiration in Plants**

**No. of Period 05**

(month-december)

**Learning objectives** :-

1. To explain steps of glycolysis.
2. To explain pathways of anaerobic respiration
3. To explain tricarboxylic acid cycle.
4. To explain electron transport system and oxidative phosphorylation, respiratory pathway and respiratory quotient

**P.k. Testing** :- Some oral questions will be asked to the students : -

1. What is respiration ?
2. What are respiratory substrates?
3. Name the openings present in leaf and stem for exchange of gases.

**Vocabulary / Important spellings** -: glycolysis, phosphorylation,

Oxaloacetic acid, ubiquinone, cytochrome, amphibolic, pathway, respiratory quotient.

### **Teaching AIDS / Innovative pedagogic methods -:**

Flow chart for glycolysis & kreb cycle (charts)

Visual clues for electron transport system, oxidative phosphorylation & amphibolic pathway

**Procedure -:** ch- Respiration in Plants will be introduced by asking some simple questions related to concept. Glycolysis and kreb cycle will be explained by sharing flow chart on screen. Electron transport system and oxidative phosphorylation, respiratory pathway and respiratory quotient will be explained by showing related video

### **Students participation :-**

1. Students will draw flow charts for glycolysis and kreb cycle.
2. Students will frame questions related to content
3. Students will calculate energy used and produced during various cycles

**Recapitulation -:** Fill ups from glycolysis and TCA cycle will be given. Art Integration with other domain -: Student will practice how to express concepts in flowchart form.

### **Learning outcomes -:**

1. Students will be able to recall the steps of glycolysis.
2. They will be able to draw and describe major pathways of anaerobic respiration.
3. They will be able to draw Citric acid cycle.
4. They will be able to analyze respiratory quotient of Carbohydrates, Protein and fats.

**Resources-:** NCERT text Book.

NCERT Exemplar of Class XI.

<https://mycbseguide.com> > blog > re....

**Co-scholastic activities -:** By keen observation, students will

Choose Key words to draw flow charts for Various topics.

**Assignment -:** Work sheet containing fill ups for TCA cycle and glycolysis.

**INCLUSIVE PRACTICES:-**worksheets for above average, average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES:-**tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

**CLASS 11**

**SUBJECT -BIOLOGY**

**CHAPTER- PLANT GROWTH AND DEVELOPMENT.**

**(MONTH –DECEMBER)**

No of periods-02

**LEARNING OBJECTIVES-:**To signify physiological effects of growth regulators

**P.k. Testing -:** some oral questions which asked to the students -:

1. What do you mean by growth?
2. Name 5 plant hormone ?
3. Name the hormone that is present at the tip of root and stem.

**Vocabulary / Important spellings -:** arithmetic, geometric, differentiation, dedifferentiation, redifferentiation, plasticity, Plant growth regulators, dormancy, abscission, parthenocarpy, juvenile.

**Teaching AIDS/ Innovative Pedagogic methods -:**

Role play for physiological effects of Plant growth regulators.

**Procedure -:** Teacher will explain definition of growth, discovery, characteristics and functions (physiological effects) will be explained with the help of NCERT and smart board.

**Students Participation -:**

1. Students will do role play activity to signify physiological effects of growth regulators
2. Students will make a graph of Sigmoid growth curve.

**Recapitulation -:** Students will do NCERT Exercise.

**Art Integration with other domain -:** Students will draw graphs to show constant linear growth and sigmoid growth

**Learning outcomes-:**

1. Students will be able to recall growth .

2. They will specify the discovery of plant growth regulators & signify the physiological effects of plant growth regulators.

**Resources** -: NCERT text book.

<https://ncenthelp.com> text> ques=....>

<https://www.youtube.com/watch?v=zmlYQxzHpfM>

**Co-scholastic activities** - Students will develop the skill of drawing graph.

**Assignment**:- Written questionnaire to do

**INCLUSIVE PRACTICES**:-worksheets for above average,average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES**:-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

**CLASS 11**

**SUBJECT -BIOLOGY**

### **Unit V Human physiology**

**Chapter : Breathing and exchange of gases** (DECEMBER)No. of Periods : 04

**Learning Objective** :- - To give the knowledge of various respiratory organs to the students .To understand the mechanism of breathing.

- To know the concepts of exchange of gases. -To understand the transportation of gases.

-To know the regulation of respiration and disorders of respiratory system.

**P.K.Testing** :- Some oral question will be asked to the students:-

(i) What do you mean by respiration?

(ii) Which are the main organs of respiration in humans?

(iii) Name the gases involved in breathing.

Vocabulary / Important spellings :- Nasopharynx, pleura, Carbonic anhydrase, pneumotoxic centre, chemosensitive area, emphysema, fibrosis etc.

## **Teaching AIDS / Innovative Pedagogic methods :-**

Respiratory system model/Hands on learning, Visual Clues

**Procedure :-** Parts of human respiratory system will be explained by screen sharing on zoomapp. Mechanism of breathing and respiratory volumes and capacities will be explained by using NCERT points. Mechanism of exchange of gases and transport of O<sub>2</sub> and CO<sub>2</sub> will also be explained by showing videos. Disorders of respiration will be shown by screen sharing. Inspiration & expiration mechanism will be elaborated by activity done by students

**. Students Participation :-** - Students will draw diagram of human respiratory system - Students will observe the movement of ribs, lungs by inspiration & expiration. -Students will frame question related to the concepts

**Recapitulation :-** MCQ from NCERT Content

**Art Integration with other domain :** Students will draw colourful diagram of human respiratory system.

**Learning outcomes :-** -Students will be able to recall the parts of respiratory system.

-They will be able to differentiate between breathing and respiration.

-They will be able to correlate respiratory centres along with their functions.

-They will be able to recall respiratory disorders along with their causes.

**Resources :-** NCERT text book

<https://www.gneet.com/biology/b25/mainf.html> [https://www.youtube.com/watch?v=12ln\\_H15Q6o](https://www.youtube.com/watch?v=12ln_H15Q6o)

**Co-Scholastic activities :-** Scientific attitude, Care towards environment to prevent respiratory disorders.

**Assignment :-** Worksheet with extra question

**INCLUSIVE PRACTICES:-** worksheets for above average, average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES:-** tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

CLASS 11

SUBJECT BIOLOGY

Chapter : Body Fluids and Circulation

(JANUARY)

No of Periods : 04

**Learning Objective :-** To know the composition of blood & lymph.

- (i) To understand the concept of blood groups.
- (ii) To understand the mechanism of human circulatory pathway along with diagram of structure of heart.
- (iii) To draw ECG & Signify P Wave, T Wave & QRS complex & disorders of circulatory system.

**P.K. Testing :-** Some oral question will be asked to the students:- -Which is the most common fluid for transport of materials?

- What are the components of circulatory system?
- Which is the pumping organ for blood in humans?
- Which blood vessels carry oxygenated & deoxygenated blood?

**Vocabulary / Important spellings :-** Erythrocytes, leucocytes, eosinophyl, basophyl, neutrophil, thromobocytes, purkinje fibres, electrocardiograph, repolarisation, depolarisation, atherosclerosis

**Students Participation :-** Students will draw diagram of section of human heart. Students will draw standard ECG.

- Students will also draw schematic plan of blood circulation in human
- Students will check their pulse rate

**Teaching AIDS / Innovative Pedogogic methods :-**ncert ,ECG

Graph,Role Play,Visual Clues

**Procedure :-** Chapter – Body fluids and circulation will be introduced by asking simple questions related to the content. Composition of blood & structure of heart will be explained by showing 3-D diagram of heart. Blood groups lymph, circulatory pathways, cardiac cycle, ECG double circulation will be explained by showing videos and NCERT points. Regulation of cardiac activity and disorders of circulatory system will also be explained .

. **Recapitulation :-** NCERT Questions.

**Art Integration with other domain :** Students will draw colourful diagram of structure of heart. Understanding of P-Wave, QRS complex & T wave significance for reading ECGgroups.

**Learning outcomes :-** Students will be able to

- Recall the composition & differences between lymph & blood.
- Students will be able to draw diagram of section of heart.
- Students will be able to correlate disorders along with their causes.

**Resources** :- NCERT text book, ...

. <https://www.youtube.com/watch?v=hBxZ7RfchSg>

**Co-Scholastic activities** :- Students will be able to correlate any abnormality in heart along with ECG graph/Scientific attitude

Assessment :- Ticket out door

**INCLUSIVE PRACTICES**:-worksheets for above average,average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES**:-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

CLASS 11

SUBJECT- BIOLOGY (JANUARY)

Chapter: Excretory Products and their elimination . No. of Periods : 04

**Learning Objective** :- The students will be able to illustrate the excretory system in man and the L.S of human kidney with a diagram.

-The students will be able to understand the process of elimination of nitrogenous wastes in different animal species.

-The students will be able to describe the process of urine formation.

-The students will be able to enumerate the process of haemodialysis and kidney transplantation.

-List the other excretory organs and their role in excretion.

**P.K. Testing** :- Some oral question will be asked to the students:-

(i) What is excretion?

(ii) Which are the organs of excretion in amoeba, earthworm, cockroach & human beings.

(iii) What is the shape and location of kidneys?

**Vocabulary / Important spellings** :- Helium, medullary, pyramids, Column's of Bertini, nephrons, rennin-angiotension atrial natriuretic factor, juxta glomerular apparatus, micturition, glycosuria, ketonuria, uremia, glomerulonephritis, renal calculi.

**Teaching AIDS / Innovative Pedagogic methods** :-zoom app, white board ,Cross over learning,videos



**Procedure :-** Teacher will introduce the Chapter – ‘Excretory products and their elimination by asking simple question. Excretory products by different organisms will be discussed. Diagrams of human Urinary system, L.S of kidneys & nephron will be explained by drawing on white board. Concept of urine formation, functions tubules, mechanism of concentration of filtrate, regulation of kidney function, micturition and disorders of the excretory system will be explained by showing videos of concepts.

Diagram of excretory system in humans will also be shown to explain different parts.

**Students Participation :-** Students will draw diagram of human urinary system, L.S of kidneys & nephron in their note book with the help of teacher.

-Students will frame questions from mechanism of concentration of the filtrate, urine formation & regulation of kidney function.

**Recapitulation :-** Labelling of following diagrams :-

- (i) Human excretory & system
- (ii) L.S of kidneys
- (iii) Nephron

**Art Integration with other domain :** Drawing of colourful diagrams, awareness of excretory disorders of human body.

**Learning outcomes :-** Students will be able to identify various parts of human urinary system, L.S of kidney, nephron.

-Students will be able to analyze urine formation, function of tubules, mechanism of concentration of the filtrate.

-Students will be able to correlate various hormones with regulation of kidney function.

**Resources :-** NCERT text book,

<https://www.youtube.com/watch?v=K9vrysezRpI>

**Co-Scholastic activities :-** Drawing skill, Care towards own body.

**Assessment :-** Think pair share (Topics – urine formation, mechanism of concentration of urine)

**Assignment:-** Work sheet of extra questions of content.

**INCLUSIVE PRACTICES:-** worksheets for above average, average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES:-** tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

**(February)**

Topic :Neural Control &amp; Coordination

**Learning Objective :-** (i) To explain the neuron as a structural and functional unit of the nervous system.

- Illustrate conduction of nerve impulse with a diagram.
- To describe neurons system in humans.
- To describe neural coordination and physiology of reflex action. - To understand the structural of eye and ear along with mechanism of vision & hearing.

**Previous Knowledge Testing :-** Some oral questions will be asked to the students

- Which is the control centre of our body?
- What do you mean by Coordination?
- Name the structural and functional unit of neural system. - What is reflex action?

Give some example.

**Vocabulary / Important used :-** Nissil's granules, neurotransmitters, Schwann cells, resting potential, action potential, duramater, arachnoid, pia mater, cerebral aqueduct, corpora quadrigemina, opsin, tympanic membrane, labyrinth, cochlea, macula etc.**Teaching AIDS / Innovative Pedagogic method**

-white Board

-3-D virtual Models of eye and ear &amp; Brain

**Procedure :-** Chapter – Neural Control and Coordination will be taken up by asking some previous knowledge questions to the students. Neural system, structure & types of neurons, generation and conduction of nerve impulse, transmission of impulses will be explained by using zoom app. Structure of brain will be explained by showing 3-D model of brain.

Reflex action &amp; reflex arc will be explained by drawing diagram on white board. Structure of eye &amp; ear will be explained by showing 3-D models. Mechanism of vision &amp; hearing will also be explained by showing videos on screen.

**Student Participation** : Students will draw diagrams of neuron, brain, reflex action, eye & ear.

- Students will observe 3-D models of brain, eye & ear.

**Recapitulation** :- Written questionnaire, Unlabelled diagram for labelling.

HUMAN EAR

**Assignment**:-Label the diagram of eye and ear

**Art Integration with other domain** :- Students will draw colourful diagram of brain, eye & ear.

**Expected learning outcomes**:-The students will be able to Recall structure of neuron and transmission of impulses.

- Identify the parts of brain along with their function.

- Correlate reflex action with movements in various parts. - Recall structure of eye & ear.
- Understand mechanism of vision & hearing.

**Resources**:-ncert book

<https://www.youtube.com/watch?v=w7XMMgiavkk>

**Co-Scholastic activities** :- Drawing skill, Scientific attitude.

**Assessment** :- Socratic seminar

**Assignment**:-<https://www.youtube.com/watch?v=w7XMMgiavkk>

**INCLUSIVE PRACTICES**:-worksheets for above average,average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES**:-tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

**class 11**

**Subject : Biology (February)**

**No. of Period 04**

**Topic :Chemical Coordination and Integration**

**Learning Objective :-**

- To describe endocrine glands & concept of hormones. - To explain the location of various glands present in human body. - To describe the secretion of various endocrine glands & mechanism of hormone action.

**Previous Knowledge Testing :-** Some oral questions will be asked to the students - What are endocrine glands?

- What are hormones?
- What is the location of Thyroid gland?
- Which hormone regulates glucose level?
- Which gland is known as master's gland?

**Vocabulary / Important spelling used :-** Adenohypophysis, neurohypophysis, luteinizing hormone, melanocyte stimulate, hormone, glucocorticoids, thymosins, corticoids, glucagon, corpus luteum, catecholamines

**Teaching AIDS / Innovative Pedagogic methods :-** , White Board, ncert content ,smart board

**Procedure :-** Deductive approach will be followed. Teacher will ask some simple questions related to content. Various endocrine glands along with their secretions will be explained. Hormones secreted & mechanism of hormonal action will be explained by using videos. By Co-operative learning method students will make a table of various endocrine glands, their location, hormones secreted along with their functions.

**Student Participation :** Making of a table of endocrine glands, their location, hormones secreted and functions by the students.

**Recapitulation :-** Fill ups related to content.

**Expected Learning outcomes :-** Students will be able to

- (i) recall endocrine glands & hormones.

(ii) locate various glands on human body.

(iii) correlate hormone secretions with various endocrine glands. (iv)

describe mechanism of hormonal action

**Resources :-** NCERT text book

**Link :-** <https://www.youtube.com/watch?v=gfjTBaMF8pY>

**Co-Scholastic activities :-** Scientific attitude

**. Assessment :-** MCQ, Worksheets.

**INCLUSIVE PRACTICES:-** worksheets for above average, average and below average will be used. visual pic related to content will be used

**REMEDIAL MEASURES:-** tutorial classes during practical period and oral drill for below average students. Practice of Higher order thinking questions for above average students will be taken

