

# BHARTIYA VIDYA MANDIR SENIOR SECONDARY SCHOOL

## SECTOR-39, CHANDIGARH ROAD, LUDHIANA

### SYLLABUS OF CLASS IX

**BOOK: NCERT****SUBJECT : SCIENCE****SESSION : 2025-26****BIOLOGY**

Month	Unit/Chapter/Topic	Learning Objectives	Resources/Art-integrated pedagogy tools used		Learning Outcomes/ Skills learnt by students
			E-Resources		
APRIL	<p><b>CH-5 Fundamental unit of life</b> <b>SUB TOPICS -</b> <b>Diffusion and Osmosis</b></p> <p><b>Permeability</b> <b>Impermeable,</b> <b>Semi-permeable,</b> <b>Permeable</b></p> <p><b>Tonicity of solution -</b> <b>Hypotonic,</b> <b>Isotonic and</b> <b>Hypertonic solution.</b></p> <p><b>Plasmolysis Division of labor,</b> <b>Prokaryotic versus</b> <b>Eukaryotic cell</b> <b>Structural organization of cell- Nucleus-Its role and functions,</b> <b>Cytoplasm-its role and importance.</b></p>	<p>Students will be able to:</p> <p>1) Know about cell and structural orgization of cell.</p> <p>2) Understand the role and importance of different organelles present</p> <p>3) Analyze the function of cell membrane and cell wall with reference to their importance in vital role of life</p> <p>4) Explore their critical thinking by studying the permeability concepts</p> <p>5) Evaluate different types of tonicity depending on concentration of solute and solvent.</p> <p>6) Justify the concept of osmosis and imbibitions with real life examples.</p>	<p>TOOLS:</p> <p>* Discussion</p> <p>* Brain storming</p> <p>*Conceptual text learning</p> <p><b>ACTIVITY</b></p> <p>1) Identify the process of Diffusion and osmosis with real life examples like salt on salad and Burning of arbatti or opening of perfume or fragrance of cooked food.</p> <p>2) To study the concept of Permeability, tonicity and osmosis with it types by preparing potato osmometer</p> <p>3) Interpret swelling of raisin in desserts is due to imbibitions..</p> <p>4) Evaluate that if salt is added into vegetables during cooking its release water due to process of exosmosis..</p>	<p><a href="https://www.youtube.com/watch?v=r1qVu-aA3oY">https://www.youtube.com/watch?v=r1qVu-aA3oY</a></p>	<p>1. Learner learnt and understood about cell and structural organization of cell.</p> <p>2. Skills like observational and experimental were developed in the students and values like division of labor and team work (as all the organelles divide the work among themselves), leadership (as nucleus work as controlling unit), obedience (as all organelles obey the command of controlling unit) were inculcated among the students.</p> <p>3. Students were able to identified that cuts and wound heals due to the process of cell division</p> <p>4. They were sensitized that genetic disorder cannot be cured.</p> <p>SKILLS:</p> <p>*Critical thinking</p> <p>*Analysis</p>
MAY	<p><b>CH-5 FUNDAMENTAL UNIT OF LIFE</b> <b>SUB TOPICS</b> <b>ER-its role, importance, functions and types, Golgi bodies-role and functions, Lysosomes and Mitochondria- role, functions and importance</b> <b>Ribosome and vacuoles-Types, structure, role and function and Plastid</b></p>	<p>1) To make students learned and understand about cell and structural organization of cell.</p> <p>2) To enhance the ability to comprehend the role and importance of different organelles present in the cell.</p> <p>3) To make them share their opinion on evolution of self autonomous organelles like- Mitochondria and plastid</p> <p>4) To enhance the ability to understand the mechanism of different organelles with reference to their importance in vital role of life</p> <p>5) To make them understand about the flexibility of cell membrane and its significance with example of virus which they will correlate with the recent pandemic cause by virus as viruses lack cell membrane and therefore does not show any characteristics of life until they enter a living body.</p>	<p>TOOLS:</p> <p>* Chalk and board</p> <p>* Model of plant and animal cell</p> <p>*Slides of mitosis</p> <p>ACTIVITY:</p> <p>To prepare stained temporary mounts of onion peel and human cheek cells and to record observation and draw their labelled diagrams.</p>	<p><a href="https://www.youtube.com/watch?v=6c29znG0QYo">https://www.youtube.com/watch?v=6c29znG0QYo</a></p> <p><a href="https://youtu.be/5USZa0CKLEE?si=4_EMQFjFwnZpP_vf">https://youtu.be/5USZa0CKLEE?si=4_EMQFjFwnZpP_vf</a></p>	<p>Students are now able to:</p> <p>1)analyze that formation of one organelle lead the formation of other organelle which inculcated the value of coordination, obedience etc.</p> <p>2) Students ability were enhanced to understand the mechanism of different organelles with reference to their importance in vital role of life</p> <p>SKILLS:</p> <p>*Critical thinking</p> <p>*Scientific temper</p>
JUNE	SUMMER VACATIONS				

JULY	CH-6 TISSUE SUB TOPICS Plant tissues- Meristematic tissue, permanent tissue - simple tissue, Complex permanent tissue	1)To make students learn and understand about tissues and structural organization of different tissues 2) To enhance the ability to analyses the role and importance of different tissues present in plants	TOOLS: * Discussion * Contextual teaching and learning *Brain storming ACTIVITY: 1 To observe permanent slides of different permanent tissues like parenchyma, collenchyma, sclerenchyma, Xylem and phloem. They will draw and their labelled diagrams.	<a href="https://youtu.be/WcYb-1h0hwc?si=ktoBfhBI1wIcJzC2">https://youtu.be/WcYb-1h0hwc?si=ktoBfhBI1wIcJzC2</a>	1)Students learnt and understood about tissues and structural organization of different tissues 2) Students ability were enhanced to analysed the role and importance of different tissues present in plants and animals. 3) They were able to share their opinion on simple and complex tissues. 4)They were able to evaluate different function of tissues depending on their location and structure. SKILLS: *Observation, *Creativity *Coordination
AUGUST	CH-6 TISSUE Subtopics Animal tissues-epithelial tissue, Connective muscular and nervous tissues	1) To enhance the ability of students to analyse the role and importance of different tissues present in animals 2)To evaluate different function of tissues depending on their location and structure.	TOOLS: * Discussion * Contextual teaching and learning *Brain storming ACTIVITY : To identify striped, unstriped, cardiac,nerve tissue from prepared slides and draw their labelled diagrams.	<a href="https://youtu.be/kR6ylxub4_M?si=haTliv5Vs0cJBjfv">https://youtu.be/kR6ylxub4_M?si=haTliv5Vs0cJBjfv</a>	Division of labor( works are divided among different tissues in the body to avoid overloading) were enhanced in the students. Students wereable to identify that obesity is due to adipose tissue which stores fat in our body beneath the skin. They were aware that wrong postures while sitting, lying or watching T.V affects different tissues present in the body. They were able to analyze that pumping of heart, jumping of frog and writing with hand or movement depends on different voluntary and involuntary muscles. They were able to interpret and were be able to share to their opinion on occurrence of sprain is due to over stretched of ligaments, fatigue is due to accumulation of lactic acid in muscles. SKILLS: *Analytical skills *Critical thinking
SEPTEMBER	TERM I EXAMINATION				
OCTOBER	CH-12 IMPROVEMENT IN FOOD RESOURCES SUBTOPICS:i)Crop variety improvement ii) Crop production management iii) Cropping Pattern	Students will be able to: 1)know different types of crops like kharif and rabi and understand about micro and macro nutrients and about manures and fertilizers 2)Analyze different cropping patterns like Mixed, crop rotation, inter, organic farming. 3)Share their opinion on improvement of crop variety. 4)Explore their critical thinking by studying the importance of plant breeding	TOOLS - Lecture method, brain storming, chalk and board, Inquiry based learning. ACTIVITY: To make a list of Rabi, Kharif crops with their growing and harvesting season.	<a href="https://youtu.be/FAzM02CGZII?si=xYNBwITtDf6DRPnL">https://youtu.be/FAzM02CGZII?si=xYNBwITtDf6DRPnL</a>	) Learner learnt and understood about importance of animal husbandry. 2) Students were able to identify that livestock farming is done for dairy and drought and marineculture not only provides seafood but also for pearl cultivation along with the difference between broilers (consuming) and layers (for eggs production). 3) Students were able to share their opinion on improvement of animal variety through breeding SKILLS: *Critical thinking *Analysis *Scientific temper
NOVEMBER	CH-12 IMPROVEMENT IN FOOD RESOURCES SUBTOPICS: Animal Husbandry : Cattle farming and poultry farming, Eggs and broiler production,Fish production-i) marine ii) Inland, Bee keeping Apiculture	1)To make students learn and understand about importance of animal husbandry. 2) To enhance the ability to analyse different types of animal livestock management 3) To make them share their opinion on improvement of animal variety through breeding. 4) To evaluate different types of farming practices like –poultry, fish, beekeeping of different states or places. 6) To justify the main aim of improvement of food resources.	TOOLS: Discussion, Contextual teaching and learning , Brainstorming. ACIVITY-. News Search on latest innovations in agricultural practices and crop production and analysis	<a href="https://youtu.be/KNoa85RviSU?si=kuGEFN0Y2yMpWE7s">https://youtu.be/KNoa85RviSU?si=kuGEFN0Y2yMpWE7s</a>	1)Students were able to evaluate different types of farming practices like –poultry, fish, bee-keeping of different states or places and farming practices like –poultry, fish, bee-keeping of different states or places. 2 ) They were able to apply their knowledge to relate quality of honey depends on pasturage (availability of flower for nectar collection). SKILLS: *Critical thinking *Analysis

<b>DECEMBER</b>	<b>REVISION</b>	Students will be able to revise all the concepts and clear their doubts for preparation of examination	TOOLS: Class discussion		SKILLS: *Skill of inquiry *Learning *Drawing and labelling
<b>JANUARY</b>	<b>PRE-ANNUAL EXAMINATION</b>				
<b>FEBRUARY</b>	<b>ANNUAL EXAMINATION</b>				