

ANNUAL LESSON PLAN AND SCHEME OF WORK

CLASS IX – BIOLOGY

COURSE STRUCTURE & MONTH-WISE DISTRIBUTION (2026-2027)

• First Term

April:

- Cell: The Building Block of Life

May:

- Cell : the building block of life (continued)
- Tissues in Action (Introduction)

July:

- Tissues in Action (continued)

August:

- Patterns in Life: Diversity & Classification (Plant Kingdom) and Revision of term 1

September: First Term Examination

Periodic Test I: Cell: the building block of life (before cell organelles

• Second Term (Final Term)

October:

- Patterns in Life: Diversity & Classification (Animal Kingdom)

November:

- Animal Kingdom continued

December:

- Reproduction: How Life Continues (Plant Reproduction)

January:

- Reproduction: How Life Continues (Animal Reproduction)

February: Revision of term 1 and 2

Periodic test II: Patterns in life: Diversity and classification (Animal Kingdom only)

CHAPTER 1: THE FUNDAMENTAL UNIT OF LIFE

Month: April- May

Number of Periods Required: 20 Periods

Learning Objectives

- Understand cell as the basic structural and functional unit of life.
- Differentiate between prokaryotic and eukaryotic cell structures.
- Describe the structure and functions of cell organelles (Mitochondria, Plastids, ER, Golgi apparatus, Lysosomes, Vacuoles).
- Explain the concepts of plasma membrane and transport of materials via diffusion and osmosis.
- Describe the structure and functions of the cell wall.
- Describe the structure and functions of the nucleus.
- Explain the role of chromosomes in heredity and describe the significance of genes.
- Compare plant cells and animal cells.
- Explain the importance of cell division in growth and repair.
- Develop observation and analytical skills through laboratory activities.
- Develop scientific temperament and inquiry-based learning skills.

Previous Knowledge Testing

- What are houses built of? What is the corresponding building block of a living body?
- If you put raisins in water, why do they swell up after a few hours?
- Why is the cell called the dynamic functional unit of an organism?

EXPLANATION WITH INNOVATIVE METHODS

Brainstorming

- What would happen if our body had no cells?
- Can a single cell perform all life processes?
- Why do different organisms have different kinds of cells?

Demonstration Method

- Observation of onion peel cells under a microscope.
- Observation of cheek cells under a microscope.
- Demonstration of osmosis using raisins.

Inquiry-Based Learning

- Why do raisins swell when placed in water?
- Why do fingers wrinkle after staying in water for a long time?
- How do substances enter and leave cells?

Collaborative Learning

- Group discussion on “Cell as a Mini Factory”.
- Peer teaching on cell organelles.
- Concept mapping activities.

ICT Integration

- Animated videos on cell organelles.
- Digital microscope demonstrations.
- Interactive quizzes and simulations.

Activity-Based Learning

- Cell organelle role play.
- Cell city analogy activity.
- Flash card learning.

EXPERIENTIAL LEARNING

- Preparation and observation of temporary mount of onion peel cells.
- Observation of cheek cells under a microscope.
- Raisin experiment to demonstrate osmosis.
- Potato cup experiment to understand osmosis.
- Comparative observation of plant and animal cells.
- Preparation of labelled diagrams based on microscopic observations.
- Use of virtual laboratory simulations for understanding cell structure.

PROJECT WORK

Individual Project

- Prepare a portfolio on the discovery of the cell and the scientists associated with it.

Group Project

- Design a 3D model of a plant cell or animal cell.

Research-Based Project

- Study diseases associated with malfunctioning cell organelles.

ICT Project

- Create a PowerPoint presentation on “The Cell – The Building Block of Life”.

TEACHING PROCEDURE

Introduction

- Introduce the concept of cells through discussion, visuals and real-life examples.

Development of Concept

- Explain Cell Theory, cell structure, plasma membrane, cell organelles, diffusion, osmosis and cell division through activities, demonstrations and digital resources.

Reinforcement

- Conduct diagram practice, worksheets, quizzes and concept mapping activities.

Closure

- Summarise key concepts through recap questions, reflection and classroom discussion.

STUDENT PARTICIPATION

Students will:

- Observe microscopic slides.
- Draw and label diagrams.
- Participate in discussions and debates.
- Perform experiments and investigations.
- Prepare charts and models.
- Present project findings.
- Participate in quizzes and concept mapping activities.

ASSIGNMENTS / RECAPITULATION

Oral Questions

- Why is the cell called the structural and functional unit of life?
- What is Cell Theory?
- Why is the plasma membrane selectively permeable?
- Why are mitochondria called the powerhouse of the cell?
- Why are lysosomes called suicidal bags?

Written Work

- Draw and label plant and animal cells.
- Differentiate between plant and animal cells.
- Differentiate between prokaryotic and eukaryotic cells.
- Explain diffusion and osmosis with examples.

HOTS Questions

- What would happen if mitochondria stopped functioning?
- What would happen if the plasma membrane lost selective permeability?
- How would life be affected if cells could not divide?

ART INTEGRATION

- Cell City Model.
- Cell Organelle Flash Cards.
- Scientific Illustrations of Plant and Animal Cells.
- Poster Making on Cell Organelles.
- Infographic Creation on Cell Functions.

INTERDISCIPLINARY LINKAGES

English

- Scientific report writing.
- Vocabulary enhancement.

Mathematics

- Comparison tables and graphical representation.

ICT

- Digital presentations.
- Online simulations.

Environmental Education

- Understanding cellular basis of life.

LIFE SKILLS INFUSION

- Critical Thinking

- Observation Skills
- Problem Solving
- Communication Skills
- Teamwork
- Decision Making
- Scientific Temper
- Creativity

LEARNING OUTCOMES

Students will be able to:

- Identify the cell as the basic unit of life.
- Explain the discovery of cells and the contributions of scientists.
- State Cell Theory and distinguish between unicellular and multicellular organisms.
- Describe the structure and functions of major cell parts and organelles.
- Explain diffusion, osmosis and selective permeability with examples.
- Differentiate between plant and animal cells, and between prokaryotic and eukaryotic cells.
- Explain the role of chromosomes, genes and cell division in growth, repair and heredity.
- Draw and label basic cell diagrams accurately.
- Apply cell concepts to real-life situations and laboratory observations.

SUSTAINABLE DEVELOPMENT GOALS (SDGs)

SDG 3 – Good Health and Well-Being

- Understanding cells helps explain growth, repair and maintenance of health.
- Awareness of cellular functioning promotes healthy lifestyle choices.

SDG 4 – Quality Education

- Encourages scientific literacy and inquiry-based learning.
- Develops critical thinking and problem-solving abilities.

RESOURCES

- Exploration Science Textbook.
- Xact Super simplified Biology Reference Book.
- Smart Board.
- Educational Videos.
- Worksheets.
- Flash Cards.

CO-SCHOLASTIC ACTIVITIES

- Science Quiz.
- Model Making Competition.
- Peer Tutoring.
- Group Presentations.
- Scientific Story Writing.

ASSESSMENT

Diagnostic Assessment

- Previous knowledge questions.

Formative Assessment

- Oral questioning.
- Classroom observation.
- Activity performance.
- Worksheet evaluation.

Competency-Based Assessment

- MCQs.

- Assertion–Reason Questions.
- Case-Based Questions.
- Source-Based Questions.
- Diagram-Based Questions.

Summative Assessment

- Chapter Test.
- Practical Assessment.
- Project Evaluation.

FEEDBACK AND REMEDIAL MEASURES

- Identify misconceptions through class discussions and assessments.
- Provide additional worksheets for reinforcement.
- Conduct peer tutoring sessions.
- Use simplified concept maps.
- Provide extra diagram practice.
- Organise small-group reteaching sessions.
- Use animations and videos to clarify difficult concepts.
- Conduct follow-up assessments to monitor progress.
- Provide enrichment activities for advanced learners.
- Offer individual guidance wherever required.

INCLUSIVE PRACTICES AND FULL PARTICIPATION WITHOUT DISCRIMINATION

- Ensure equal opportunities for participation.
- Use mixed-ability grouping.
- Provide visual and auditory learning aids.
- Encourage collaborative learning.

- Use flexible assessment strategies.
- Support students with diverse learning needs.
- Promote respect, empathy and inclusiveness in the classroom.

Encourage participation of every learner irrespective of background or ability.

CHAPTER 2: TISSUES

Month: May- July

Number of Periods Required: 20 Periods

LEARNING OBJECTIVES

Students will be able to:

- Define tissue and explain its importance in multicellular organisms.
- Explain the concept of division of labour in plants and animals.
- Differentiate between plant tissues and animal tissues.
- Describe the characteristics and functions of meristematic tissues.
- Explain the structure and functions of permanent tissues.
- Differentiate between simple and complex permanent tissues.
- Explain the structure and functions of parenchyma, collenchyma and sclerenchyma.
- Describe the structure and functions of xylem and phloem.
- Explain the structure and functions of epithelial tissue.
- Describe connective, muscular and nervous tissues.
- Differentiate between various types of muscles.
- Develop observation, analytical and scientific inquiry skills.

PREVIOUS KNOWLEDGE TESTING

Teacher will ask:

- Why do different parts of a plant perform different functions?
- Why does our body need different organs?
- What helps plants grow continuously?
- Why is blood important in our body?
- How do we move and respond to our surroundings?

EXPLANATION WITH INNOVATIVE METHODS

- Brainstorming and concept mapping.
- Think–Pair–Share activities.
- Demonstration using charts, models and slides.
- Inquiry-based discussions.
- Collaborative learning activities.
- ICT-enabled learning through videos and animations.

EXPERIENTIAL LEARNING

- Observation of permanent slides of plant and animal tissues.
- Comparative study of different tissue types through charts and models.
- Identification of tissues from microscope images.
- Preparation of tissue classification charts.
- Recording observations and drawing labelled diagrams.

PROJECT WORK

Individual Project

- Prepare a scrapbook on plant and animal tissues.

Group Project

- Design a comparative chart showing different types of tissues and their functions.

ICT Project

- Prepare a digital presentation on transport tissues in plants.

TEACHING PROCEDURE

Introduction

- Introduce the concept of division of labour and tissue organisation through discussion and real-life examples.

Development of Concept

- Explain plant tissues, animal tissues and their functions using diagrams, activities and models.

Reinforcement

- Conduct worksheet practice, diagram drawing, quizzes and tissue identification activities.

Closure

- Summarise key concepts through recap questions and classroom discussion.

STUDENT PARTICIPATION

Students will:

- Observe and analyse tissue slides and images.
- Participate in discussions and collaborative activities.
- Draw and label diagrams.
- Prepare charts and presentations.

Participate in quizzes and project work.

ASSIGNMENTS / RECAPITULATION

Oral Questions

- What is a tissue?
- Why is division of labour important in organisms?

- What is the difference between xylem and phloem?

Written Work

- Differentiate between plant and animal tissues.
- Explain the functions of xylem and phloem.
- Draw and label a neuron.

HOTS Question

- What would happen if transport tissues were absent in plants?

ART INTEGRATION

- Tissue classification charts.
- Scientific illustrations of tissues.
- Posters showing plant and animal tissues.

INTERDISCIPLINARY LINKAGES

English

- Scientific report writing and presentations.

Mathematics

- Classification tables and data organisation.

ICT

- Digital presentations and virtual learning.

Environmental Education

- Role of plant tissues in growth and survival.

LIFE SKILLS INFUSION

- Observation Skills
- Critical Thinking

- Communication Skills
- Collaboration
- Scientific Temper

LEARNING OUTCOMES

Students will be able to:

- Explain the concept of tissue and division of labour.
- Differentiate between plant and animal tissues.
- Describe the characteristics and functions of meristematic and permanent tissues.
- Explain the role of simple and complex permanent tissues.
- Describe the structure and functions of xylem and phloem.
- Explain the structure and functions of epithelial, connective, muscular and nervous tissues.
- Differentiate between different types of muscles.
- Draw and label diagrams accurately.
- Apply tissue concepts to real-life situations.

SUSTAINABLE DEVELOPMENT GOALS (SDGs)

SDG 3 – Good Health and Well-Being

- Understanding body tissues helps promote awareness of health and proper functioning of organ systems.

SDG 4 – Quality Education

- Encourages scientific inquiry, observation and critical thinking.

RESOURCES

- Exploration Science Textbook
- XACT Super Simplified Biology Reference Book
- Charts and Models

- Smart Board and Educational Videos
- Worksheets

CO-SCHOLASTIC ACTIVITIES

- Science Quiz
- Poster Making
- Model Making
- Group Presentations
- Science Exhibition

ASSESSMENT

Diagnostic Assessment

- Previous knowledge testing questions.

Formative Assessment

- Oral questioning, classroom observation and worksheets.

Competency-Based Assessment

- MCQs, case-based questions, assertion–reason questions and diagram-based questions.

Summative Assessment

- Chapter Test, Practical Assessment and Project Evaluation.

FEEDBACK AND REMEDIAL MEASURES

- Identify misconceptions through classroom discussions and assessments.
- Provide additional worksheets and practice exercises.
- Conduct peer tutoring and collaborative learning sessions.
- Use visual aids and videos to reinforce difficult concepts.
- Organise small-group reteaching sessions where required.

- Conduct follow-up assessments to monitor progress.

INCLUSIVE PRACTICES AND FULL PARTICIPATION WITHOUT DISCRIMINATION

- Ensure equal participation opportunities for all learners.
- Use mixed-ability grouping during activities.
- Provide visual and auditory learning support.
- Encourage collaborative and peer learning.

Support learners with diverse learning needs through differentiated instruction.

CHAPTER 4: REPRODUCTION: HOW LIFE CONTINUES

Month: August, October- November

Number of Periods Required: 20

LEARNING OBJECTIVES

Students will be able to:

- Define reproduction and explain its significance in living organisms.
- Explain the need for reproduction for continuity of life.
- Differentiate between asexual and sexual reproduction.
- Describe various methods of asexual reproduction.
- Explain binary fission, budding, fragmentation and vegetative propagation.
- Describe the structure and functions of a flower.
- Identify male and female reproductive parts of a flower.
- Explain the process of pollination and its types.
- Differentiate between self-pollination and cross-pollination.
- Describe the process of fertilisation in flowering plants.
- Explain seed and fruit formation.

- Describe different methods of seed dispersal.
- Develop observation, analytical and scientific inquiry skills.

PREVIOUS KNOWLEDGE TESTING

Teacher will ask:

- Why do living organisms reproduce?
- Have you seen a new plant growing from a potato or onion?
- What is the role of flowers in plants?
- How are seeds formed?
- Why is reproduction necessary for survival of species?

EXPLANATION WITH INNOVATIVE METHODS

- Brainstorming and Think–Pair–Share activities.
- Demonstration using flowers, fruits and seeds.
- Inquiry-based discussions.
- Role play on pollination and fertilisation.
- Collaborative learning activities.
- ICT-enabled learning through videos, animations and simulations.

EXPERIENTIAL LEARNING

- Observation and identification of floral parts in different flowers.
- Collection and study of various fruits and seeds.
- Observation of vegetative propagation in potato, onion and money plant.
- Seed germination activity and recording observations.
- Preparation of labelled diagrams of flowers and reproductive structures.

PROJECT WORK

Individual Project

- Prepare a scrapbook on different methods of reproduction in plants.

Group Project

- Design a model showing the structure of a flower and the process of pollination.

ICT Project

- Create a digital presentation on seed dispersal and its importance.

TEACHING PROCEDURE

Introduction

- Introduce the concept of reproduction through discussion on continuity of life and growth of living organisms.

Development of Concept

- Explain asexual reproduction, sexual reproduction, flower structure, pollination, fertilisation, seed formation and seed dispersal through activities and demonstrations.

Reinforcement

- Conduct diagram practice, worksheets, quizzes and classroom discussions.

Closure

- Summarise key concepts through recap questions and reflection.

STUDENT PARTICIPATION

Students will:

- Observe flowers, fruits and seeds.
- Participate in group discussions and role plays.
- Draw and label diagrams.
- Prepare charts and models.
- Present project findings.

- Participate in quizzes and classroom activities.

ASSIGNMENTS / RECAPITULATION

Oral Questions

- Why is reproduction important?
- What is pollination?
- What is fertilisation?

Written Work

- Differentiate between sexual and asexual reproduction.
- Explain the process of pollination.
- Draw and label the structure of a flower.

HOTS Question

- What would happen if pollination did not occur in flowering plants?

ART INTEGRATION

- Floral structure charts.
- Posters on pollination and seed dispersal.
- Scientific illustrations of flowers and seeds.

INTERDISCIPLINARY LINKAGES

English

- Scientific report writing and presentations.

Geography

- Study of seed dispersal through wind, water and animals.

ICT

- Digital presentations and animations.

Environmental Education

- Importance of reproduction in maintaining biodiversity.

LIFE SKILLS INFUSION

- Observation Skills
- Critical Thinking
- Communication Skills
- Collaboration
- Scientific Temper

LEARNING OUTCOMES

Students will be able to:

- Explain the importance of reproduction in living organisms.
- Differentiate between asexual and sexual reproduction.
- Describe various methods of asexual reproduction.
- Identify and explain the reproductive parts of a flower.
- Explain pollination and fertilisation.
- Describe seed and fruit formation.
- Explain different methods of seed dispersal.
- Draw and label reproductive structures accurately.
- Apply concepts of reproduction to everyday observations in plants.

SUSTAINABLE DEVELOPMENT GOALS (SDGs)

SDG 3 – Good Health and Well-Being

- Understanding life processes promotes awareness of healthy growth and development in living organisms.

SDG 4 – Quality Education

- Encourages scientific literacy, observation and inquiry-based learning.

SDG 15 – Life on Land

- Promotes understanding of plant reproduction and conservation of biodiversity.

RESOURCES

- Exploration Science Textbook
- XACT Super Simplified Biology Reference Book
- Charts and Models
- Smart Board and Educational Videos
- Worksheets

CO-SCHOLASTIC ACTIVITIES

- Science Quiz
- Poster Making
- Model Making
- Group Presentations
- Science Exhibition

ASSESSMENT

Diagnostic Assessment

- Previous knowledge testing questions.

Formative Assessment

- Oral questioning, classroom observation and worksheets.

Competency-Based Assessment

- MCQs, case-based questions, assertion–reason questions and diagram-based questions.

Summative Assessment

- Chapter Test, Practical Assessment and Project Evaluation.

FEEDBACK AND REMEDIAL MEASURES

- Identify misconceptions through classroom discussions and assessments.
- Provide additional worksheets and practice exercises.
- Conduct peer tutoring and collaborative learning sessions.
- Use visual aids, specimens and videos to reinforce difficult concepts.
- Organise small-group reteaching sessions where required.
- Conduct follow-up assessments to monitor progress.

INCLUSIVE PRACTICES AND FULL PARTICIPATION WITHOUT DISCRIMINATION

- Ensure equal participation opportunities for all learners.
- Use mixed-ability grouping during activities.
- Provide visual and auditory learning support.
- Encourage collaborative and peer learning.
- Support learners with diverse learning needs through differentiated instruction.

CHAPTER 3: PATTERNS IN LIFE: DIVERSITY AND CLASSIFICATION

Month: December- January

Number of Periods Required: 20 Periods

LEARNING OBJECTIVES

Students will be able to:

- Explain the concept of biodiversity and its importance.

- Describe the need for classification of living organisms.
- Explain the basis and significance of biological classification.
- Understand the hierarchy of classification.
- Explain the Five Kingdom Classification system.
- Describe the characteristics of Kingdom Monera.
- Explain the characteristics of Kingdom Protista.
- Describe the characteristics of Kingdom Fungi.
- Explain the characteristics of Kingdom Plantae.
- Describe the characteristics of Kingdom Animalia.
- Understand the concept of binomial nomenclature and scientific naming.
- Explain the importance of biodiversity conservation.
- Develop observation, analytical and scientific inquiry skills.

PREVIOUS KNOWLEDGE TESTING

Teacher will ask:

- Why are there so many different kinds of living organisms around us?
- What similarities and differences do you observe among plants and animals?
- Why do scientists classify living organisms?
- Have you heard scientific names of organisms?
- Why is it important to conserve biodiversity?

EXPLANATION WITH INNOVATIVE METHODS

- Brainstorming and Think–Pair–Share activities.
- Classification games and sorting activities.
- Inquiry-based discussions.
- Collaborative learning through group tasks.
- Concept mapping and chart preparation.

- ICT-enabled learning through videos, animations and virtual tours.

EXPERIENTIAL LEARNING

- Nature walk to observe biodiversity in the school surroundings.
- Collection and classification of pictures of different organisms.
- Preparation of biodiversity records and observation journals.
- Identification of organisms based on their characteristics.
- Preparation of classification charts and concept maps.

PROJECT WORK

Individual Project

- Prepare a biodiversity journal showing different organisms found in the local area.

Group Project

- Design a Five Kingdom Classification chart with examples.

ICT Project

- Create a digital presentation on biodiversity conservation and its importance.

TEACHING PROCEDURE

Introduction

- Introduce biodiversity through observation of living organisms in the surroundings and discussion on their differences.

Development of Concept

- Explain classification, Five Kingdom Classification, characteristics of different kingdoms, scientific naming and biodiversity conservation using activities, charts and digital resources.

Reinforcement

- Conduct classification exercises, worksheets, quizzes and concept mapping activities.

Closure

- Summarise key concepts through recap questions and reflective discussion.

STUDENT PARTICIPATION

Students will:

- Observe and classify living organisms.
- Participate in group discussions and collaborative activities.
- Prepare charts and concept maps.
- Present project findings.
- Participate in quizzes and classroom activities.

ASSIGNMENTS / RECAPITULATION

Oral Questions

- Why is classification necessary?
- What is binomial nomenclature?
- Why is biodiversity important?

Written Work

- Explain the Five Kingdom Classification system.
- Differentiate between Monera and Protista.
- Explain the importance of biodiversity conservation.

HOTS Question

- What would happen if biodiversity decreased significantly on Earth?

ART INTEGRATION

- Biodiversity posters.
- Classification charts.
- Scientific illustrations of living organisms.

- Infographics on biodiversity conservation.

INTERDISCIPLINARY LINKAGES

Geography

- Biodiversity and ecosystems.

English

- Scientific report writing and presentations.

ICT

- Digital presentations and research work.

Environmental Education

- Conservation of biodiversity and sustainable living.

LIFE SKILLS INFUSION

- Observation Skills
- Critical Thinking
- Communication Skills
- Collaboration
- Environmental Awareness
- Scientific Temper

LEARNING OUTCOMES

Students will be able to:

- Explain the importance of biodiversity.
- Describe the need and basis of classification.
- Explain the Five Kingdom Classification system.
- Identify the characteristics of Monera, Protista, Fungi, Plantae and Animalia.

- Use scientific names appropriately through binomial nomenclature.
- Classify organisms based on their characteristics.
- Explain the importance of biodiversity conservation.
- Draw and interpret classification charts accurately.
- Apply classification concepts to organisms found in their surroundings.

SUSTAINABLE DEVELOPMENT GOALS (SDGs)

SDG 13 – Climate Action

- Develop awareness about environmental sustainability and the impact of biodiversity loss.

SDG 14 – Life Below Water

- Understand the importance of conserving aquatic biodiversity and ecosystems.

SDG 15 – Life on Land

- Promote conservation of terrestrial ecosystems and protection of biodiversity.

SDG 4 – Quality Education

- Encourage scientific literacy, inquiry-based learning and environmental responsibility.

RESOURCES

- Exploration Science Textbook
- XACT Supet Simplified Biology Reference Book
- Charts and Classification Tables
- Biodiversity Records
- Smart Board and Educational Videos
- Worksheets
- Internet and Digital Resources

CO-SCHOLASTIC ACTIVITIES

- Science Quiz
- Biodiversity Poster Making
- Classification Chart Competition
- Group Presentations
- Science Exhibition

ASSESSMENT

Diagnostic Assessment

- Previous knowledge testing questions.

Formative Assessment

- Oral questioning, classroom observation and worksheets.

Competency-Based Assessment

- MCQs, case-based questions, assertion–reason questions and classification-based questions.

Summative Assessment

- Chapter Test, Project Evaluation and Practical Activities.

FEEDBACK AND REMEDIAL MEASURES

- Identify misconceptions through discussions and assessments.
- Provide additional worksheets and practice exercises.
- Conduct peer tutoring and collaborative learning sessions.
- Use charts, videos and concept maps to reinforce difficult concepts.
- Organise small-group reteaching sessions where required.
- Conduct follow-up assessments to monitor progress.

INCLUSIVE PRACTICES AND FULL PARTICIPATION WITHOUT DISCRIMINATION

- Ensure equal participation opportunities for all learners.
- Use mixed-ability grouping during activities.
- Provide visual and auditory learning support.
- Encourage collaborative and peer learning.
- Support learners with diverse learning needs through differentiated instruction.
- Foster respect for diversity, inclusion and environmental responsibility among all learners.