SCERT Kerala · Class 11 · Biology

Biology

ORIGINAL STUDY COMPANION
PADIKAM
CLASS 11 | SCIENCE
Biology
Kerala SCERT / prescribed NCERT core lessons
20 chapter lessons
Quick explanations, core points, exam practice and chapter-specific notation in one
consistent format.
Padikam explanations are independently written. Official textbooks are used as the coverage map, chapter sequence and terminology
reference.

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Absorption
Study rhythm
Read the quick explanation, recall the core points aloud, then answer the prompts without looking
back. Use the official textbook links for full prescribed readings, activities and diagrams.
Textbook and verification links
1. https://samagra.kite.kerala.gov.in/files/samagra-resource/uploads/tbookscmq/Class_XI/Biology/Biology.pdf
2. https://ncert.nic.in/textbook.php

CHAPTER 01
The Living World
Quick understanding
Define living organisation and use taxonomy to name and arrange biodiversity.
Core points Check your learning
Growth alone does not define life. Differentiate taxonomy and systematics.
Binomial names use genus and species. Arrange taxonomic categories correctly.
Taxonomic categories form a hierarchy from species
upward.
One-line recall Growth alone does not define life.

CHAPTER 02
Biological Classification
Quick understanding

Compare major groups through cell type, organisation, nutrition and reproduction.
Core points Check your learning
Five-kingdom classification uses multiple characters. Compare Monera, Protista and Fungi.
Archaea, bacteria and eukaryotic microbes differ Explain lichen or mycorrhiza as
fundamentally. association.
Viruses are acellular and reproduce only inside
hosts.
One-line recall Five-kingdom classification uses multiple characters.
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CHAPTER 03
Plant Kingdom
Quick understanding
Trace major plant groups from algae to angiosperms and compare life cycles.
Core points Check your learning
Vascular tissue and seeds mark major evolutionary Compare bryophytes and pteridophytes.
transitions.
Draw one life-cycle pattern.
Bryophytes need water for fertilisation.
Alternation of generations varies in dominant phase.
One-line recall Vascular tissue and seeds mark major evolutionary transitions.
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CHAPTER 04
Animal Kingdom
Quick understanding
Classify animals using level of organisation, symmetry, germ layers, coelom and segmentation.
Core points Check your learning
Body-plan characters are more reliable than habitat Prepare a comparison table of major
alone. phyla.
Chordates possess a notochord at least during Distinguish chordates and non-
development. chordates.
Use defining features before examples.
One-line recall Body-plan characters are more reliable than habitat alone.
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CHAPTER 05
Morphology of Flowering Plants
Quick understanding
Study external plant structures and their modifications as adaptations.
Core points Check your learning
Root, stem and leaf modifications perform special Describe a flower using floral formula
functions. and diagram.
Floral formula condenses flower structure. Identify a modification and its function.
Fruit develops mainly from ovary; seed from ovule.
One-line recall Root, stem and leaf modifications perform special functions.
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CHAPTER 06
Anatomy of Flowering Plants
Quick understanding
Connect tissues and internal structure with plant function and growth.
Core points Check your learning
Meristems divide; permanent tissues specialise. Compare dicot and monocot stem
sections.

Xylem and phloem are complex tissues.
Explain secondary growth briefly.
Dicot and monocot roots, stems and leaves show
diagnostic differences.
One-line recall Meristems divide; permanent tissues specialise.
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CHAPTER 07
Structural Organisation in Animals
Quick understanding
Relate animal tissues and organ systems to coordinated function.
Core points Check your learning
Epithelial tissue covers; connective supports; muscle Compare tissue types.
contracts; nervous tissue conducts.
Explain one organ system using labelled
Organ systems integrate specialised tissues. structure.
Structure should be linked to function.
One-line recall Epithelial tissue covers; connective supports; muscle contracts; nervous tissue conducts.
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CHAPTER 08
Cell: The Unit of Life
Quick understanding
Treat the cell as the structural and functional unit and compare organelles.
Core points Check your learning
Prokaryotic cells lack membrane-bound organelles. Compare prokaryotic and eukaryotic
cells.
Membranes control transport and compartmentalise
reactions. Explain structure and function of
mitochondria or chloroplast.
Organelles cooperate rather than function
independently.
One-line recall Prokaryotic cells lack membrane-bound organelles.
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CHAPTER 09
Biomolecules
Quick understanding
Relate carbohydrates, proteins, lipids, nucleic acids and enzymes to cellular structure and metabolism.
Core points Check your learning
Monomers combine into macromolecules. Compare major biomolecule classes.
Protein shape determines function. Interpret an enzyme activity graph.
Enzymes lower activation energy and are affected by
conditions.
One-line recall Monomers combine into macromolecules.
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CHAPTER 10
Cell Cycle and Cell Division
Quick understanding
Follow DNA duplication and chromosome movement through mitosis and meiosis.
Core points Check your learning
Interphase prepares the cell; it is not a resting Compare mitosis and meiosis.
absence of activity.
Identify stages from chromosome

Mitosis preserves chromosome number. behaviour.
Meiosis halves chromosome number and creates
variation.
One-line recall Interphase prepares the cell; it is not a resting absence of activity.
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CHAPTER 11
Photosynthesis in Higher Plants
Quick understanding
Explain light capture, electron transfer, ATP/NADPH production and carbon fixation.
Core points Check your learning
Light reactions occur in thylakoids; Calvin cycle in Compare cyclic and non-cyclic
stroma. photophosphorylation.
C_4 plants concentrate CO_2 and reduce Explain C_3 and C_4 pathways.
photorespiration.
Rate depends on light, CO_2, temperature and plant
condition.
Equation and notation
$6CO_2 + 12H_2O \rightarrow C_6H_{12}O_6 + 6O_2 + 6H_2O$
SYMBOLS AND UNITS
CO2: carbon dioxide H2O: water
C6H12O6: glucose O2: oxygen
Arrow: overall reaction direction in the presence of light
and pigments
One-line recall Light reactions occur in thylakoids; Calvin cycle in stroma.
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CHAPTER 12
Respiration in Plants
Quick understanding
Trace oxidation of food through glycolysis, Krebs cycle and electron transport.
Core points Check your learning
Glycolysis occurs in cytoplasm. Compare aerobic respiration and
fermentation.
Most aerobic ATP is linked to oxidative
phosphorylation. Locate major stages and products.
Fermentation partially oxidises glucose without
oxygen.
Equation and notation
$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{energy}$
SYMBOLS AND UNITS
C6H12O6: glucose O2: oxygen
CO2: carbon dioxide H2O: water
Energy is conserved in ATP and released as heat
One-line recall Glycolysis occurs in cytoplasm.
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CHAPTER 13
Plant Growth and Development
Quick understanding
Distinguish growth, differentiation and development and examine hormonal control.
Core points Check your learning
Growth may be measured as increase in size, mass Draw a sigmoid growth curve.
or cell number.
Match hormones with major actions.

Meristems produce open growth in plants.
Auxin, gibberellin, cytokinin, ABA and ethylene have
interacting effects.
One-line recall Growth may be measured as increase in size, mass or cell number.
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CHAPTER 14
Breathing and Exchange of Gases
Quick understanding
Follow ventilation, diffusion and transport of oxygen and carbon dioxide.
Core points Check your learning
Pressure gradients move gases. Trace air to the alveoli.
Haemoglobin greatly increases oxygen transport. Explain oxygen dissociation factors.
Medullary centres regulate breathing rhythm.
One-line recall Pressure gradients move gases.
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CHAPTER 15
Body Fluids and Circulation
Quick understanding
Compare blood, lymph, vessels and the cardiac cycle in a closed double circulation.
Core points Check your learning
Plasma and formed elements have distinct roles. Trace one complete circulation.
Valves maintain one-way flow. Interpret an ECG or cardiac-cycle
diagram.
Human circulation separates oxygenated and
deoxygenated blood.
One-line recall Plasma and formed elements have distinct roles.
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CHAPTER 16
Excretory Products and Their Elimination
Quick understanding
Explain nitrogenous wastes, nephron filtration and regulation of water and ions.
Core points Check your learning
Filtration, reabsorption and secretion form urine. Label a nephron and trace filtrate.
Counter-current mechanisms concentrate urine. Compare ammonotelic, ureotelic and
uricotelic animals.
ADH regulates water reabsorption.
One-line recall Filtration, reabsorption and secretion form urine.
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CHAPTER 17
Locomotion and Movement
Quick understanding
Relate muscle contraction, bones and joints to movement.
Core points Check your learning
Actin and myosin slide rather than shorten. Explain the sliding-filament model.
ATP and calcium are essential for contraction. Classify joints with examples.
The skeleton supports, protects and provides levers.
One-line recall Actin and myosin slide rather than shorten.
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CHAPTER 18
Neural Control and Coordination

Quick understanding
Follow electrical and chemical signalling through neurons, synapses, brain and sensory organs.
Core points Check your learning
Resting and action potentials depend on ion distribution. Draw a neuron and explain impulse transmission.
Chemical synapses transmit in one direction. Relate eye or ear structure to function.
Different brain regions specialise but coordinate.
One-line recall Resting and action potentials depend on ion distribution.
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CHAPTER 19
Chemical Coordination and Integration
Quick understanding
Understand endocrine glands, hormones, feedback and homeostasis.
Core points Check your learning
Hormones act on target cells with receptors. Prepare a gland-hormone-function table.
Peptide and steroid hormones use different signalling routes. Explain one endocrine disorder through feedback.
Negative feedback stabilises internal conditions.
One-line recall Hormones act on target cells with receptors.
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CHAPTER 20
Formative Reading: Digestion and Absorption
Quick understanding
Trace food through the alimentary canal and connect enzymes, absorption surfaces and assimilation with nutrition.
Core points Check your learning
Mechanical processing increases surface area while enzymes hydrolyse specific nutrients. Prepare an enzyme-substrate-product table.
Villi and microvilli enlarge the intestinal absorptive surface. Explain how small-intestinal structure supports absorption.
Absorbed nutrients enter blood or lymph and are distributed for use, storage or conversion.
Watch this This restored textbook topic is formative reading unless the current school assessment notice states otherwise.
One-line recall Mechanical processing increases surface area while enzymes hydrolyse specific nutrients.
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