

Academic planner-2026-2027

Class -XII Biology

Date & number of days	Topics/ Content	Assignment/ H.W	Lab activity/Practical	Interdisciplinary approach	Learning outcomes
1/4/26-15/4/26, No.of days-11	Chapter-1 Sexual reproduction in flowering plants, Structure of flower, Pre fertilization grains, pistil, megasporangium & embryo sac, devices, artificial hybridization, double fertilization post fertilization events apomixes seed, fruit and polyembryony,	Assignment containing NCERT and extra questions	1. Pollen germination on stigma through a permanent slide. 2. Study of flowers adapted to pollination by different agencies.	Chemistry - Role of plant hormones in fruiting and flowering, chemical nature of pollen wall. Physics - Pollination mechanisms involving physical forces like wind and gravity Agriculture and economics seed production, storage and distribution and trade	1. Draws labelled diagrams, flow charts, concept maps 2. Understands process of plant reproduction in angiosperms 3. Is able to prepare slide of pollen germination
16/4/2026 - 30/4/2026 No.of days-13	Chapter 2 Human reproduction Female reproductive system, gametogenesis & menstrual cycle Fertilization & implantation, Pregnancy & embryonic devpt. Parturition & lactation (elementary idea).	Assignment containing NCERT and extra questions	1. To study pollen germination on a slide in nutrient medium 2. Exercise on controlled pollination emasculation, bagging and tagging	Chemistry - Role of human hormones like testosterone, estrogen etc., chemical regulation of menstrual cycle and spermatogenesis	1. Draws labelled diagrams, flow charts, concept maps of male and female reproductive systems and gametogenesis 2. Understands process of menstruation and hygiene; pregnancy and embryonic development, etc. 3. is able to make practical observation of gametogenesis from permanent slides and relate the process

<p>1/5/26 - 15/5/26 No.of days- 6</p>	<p>Chapter-3 Reproductive health, problems & strategies, population explosion & Birth control, medical termination of pregnancy (MTP), STDs infertility. infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (elementary</p>	<p>Assignment containing extra questions and from NCERT</p>	<p>1. Identification of stages of gamete development T.S of testis and T.S of ovary through permanent slide. 2. Study of T.S of Blastula through permanent slide</p>	<p>Medicine - Diagnosis and treatment of infertility, STDs Psychological- Emotional and behavioural changes during puberty and parenthood. Economics -Population growth affects employment resources and economy.</p>	<p>1. understands the of contribution of scientists/researchers to solve reproductive health related problems 2. Understands population explosion & Birth control, medical termination of pregnancy (MTP), STDs infertility. infertility and assisted reproductive technologies - IVF, ZIFT, GIFT</p>
<p>1/7/26 - 15/7/26 No.of days- 12</p>	<p>Chapter-4 Principles of inheritance & variation Mendel's laws ,Incomplete dominance Mendel's laws ,Incomplete dominance Codominance, blood groups, inheritance thalassaemia, pleiotropy, polygenic inheritance (elementary idea)v</p>	<p>Assignment containing problems in genetics and NCERT questions</p>	<p>1. Study Mendelian inheritance using seeds of different colours size of any plant. 2. Study prepared pedigree charts of genetic traits such as rolling of tongue, blood groups and widow's peak</p>	<p>Mathematics - Biostatistics involving Mendelian ratios 3:1 & 9:3:3:1</p>	<p>1. understands the of contribution of scientists and principles of inheritance & variation</p>

UNIT TEST I SYLLABUS Chapters 1 to 3

<p>16/7/2026 - 31/7/2026 No.of days- 14</p>	<p>Chapter-5 Molecular basis of inheritance Introduction, DNA, search for genetic material, RNA world, replication, transcription, the genetic code, mutationtranslation, regulation of gene expression,human and rice genome project, DNA fingerprinting.</p>	<p>Assignment containing extra questions and from NCERT</p>	<p>Isolate DNA from available plant material</p>	<p>Chemistry - chemical structure of DNA, RNA, nucleotides Nitrogen bases, sugar, phosphate bonding. Enzymes involved in replication, transcription, translation. Physics (Biophysics) X-ray diffraction helped in DNA structure discovery. Centrifugation used in DNA separation. Computer Science (Bioinformatics) Genome sequencing and mapping. Storage and analysis of DNA data. Human Genome Project studies.</p>	<p>1. Draws labelled diagrams, flow charts, concept maps 2. Understands process of replication, transcription, translation and DNA finger printing human genome etc. 3. Prepares acetocarmine stained slides of onion root tips to study mitosis.</p>
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<p>1/8/2026 - 15/8/2026 No.of days- 11</p>	<p>Chapter 6 Evolution Evolution of life forms, evidences for evolution, (paleontology), comparative anatomy, embryology and mechanism of evolution - variation(mutation and recombination) and natural selection with examples and types of natural selection, gene flow and genetic drift, Hardy Weinberg equilibrium molecular evidences; Darwin's contribution human evolution.</p>	<p>Assignments based on mechanism & evidences of evolution</p>	<p>Flash cards models showing examples of homologous and analogous organs</p>	<p>Paleontology - Study of fossils & fossil records show transitional forms and extinct species. Geology- Age of rocks and fossils determined by radioactive dating. Continental drift explains species distribution. Earth's climatic changes influenced evolution. Chemistry (Biochemical Evolution)Origin of life explained through chemical evolution, Formation of organic molecules from inorganic substances. Study of biomolecules (proteins, nucleic acids) Mathematics / Statistics Hardy–Weinberg equilibrium, Calculation of allele frequencies and population genetics.</p>	<p>1. understands the of contribution of scientists and mechanisms of evolution. 2. Understands evolution of life forms, evidences for evolution, (paleontology), comparative anatomy, embryology - variation(mutation and recombination) and natural selection with examples and types of natural selection, gene flow and genetic drift, Hardy Weinberg equilibrium molecular evidences; Darwin's contribution human evolution.</p>
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<p>16/8/26 - 31/8/26 days-11</p>	<p>Chapter - 7 Human health & diseases- Pathogens, parasites causing human diseases and their control, common Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse. Diseases in humans, (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control and immunity.</p>	<p>Assignment containing NCERT and extra questions</p>	<p>Study common disease causing organisms like Ascaris. Entamoeba, plasmodium any fungus causing ringworm through permanent slides, models or virtual images</p>	<p>Medicine-Study of pathogens (bacteria, viruses, parasites). Diagnosis, treatment, vaccination. Chemistry (Pharmaceutical Chemistry Chemical composition of medicines. Psychology Mental health, stress, depression, anxiety, Addiction (drugs, alcohol, smoking). Economics Healthcare costs and medical infrastructure Economic burden of epidemics/pandemics.</p>	<p>Human health & diseases their control, common Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse, malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control and immunity.understands Draws labelled diagrams, flow Understands causes symptoms and preventive steps of diseases afer observing slides</p>
<p>1/9/2026- 15/9/2026 No.of days- 11</p>	<p>Revision for term I</p>				
<p>16/9/26 - 30/9/26 No.of days- 13</p>	<p>Term I examination</p>				

<p>1/10/26 - 15/10/26 No.of days- 11</p>	<p>Chapter 8 Microbes in Human Welfare Microbes & Household products, Industrial Products, Antibiotics, Microbes & Sewage Treatment & Production of Bio-Gas. Microbes as biocontrol agents & as biofertilisers.</p>	<p>Assignment containing NCERT and extra questions</p>	<p>Prepare temporary stained mount of onion root tips & study mitosis in them</p>	<p>Medicines - production of antibiotics, vaccines & probiotics Chemistry - Production of alcohol, organic acids Agriculture - Biofertilizers, biopesticides, composting Economics - Dairy, bakery, brewing industries based on microbes, generate employment and revenue.</p>	<p>1. Understands the applications of microbes in industry, agriculture and medicine and contribution of scientists 2. Understands the working of sewage treatment plants & biogas plants 3. Is able to prepare temporary stained mount of onion root tips & study mitosis in them.</p>
<p>16/10/26 - 31/10/26 No.of days- 9</p>	<p>Chapter 9 Biotechnology: Principles & processes Introduction & Revision tools of rDNA technology</p>	<p>Assignment containing NCERT and extra questions</p>	<p>To study meiosis in onion bud cell or grasshopper testis through permanent slides</p>	<p>1. Chemistry (Biochemistry) Enzymes used in genetic engineering (restriction enzymes, ligase). Chemical structure of DNA, RNA, proteins. Physics (Biophysics/Instrumentation) Centrifugation for cell and DNA separation. Electrophoresis, PCR machine Engineering (Bioprocess) Engineering Design of bioreactors, Large-scale fermentation technology.</p>	<p>1. Understands the tools and steps of rDNA technology and contribution of scientists.</p>

	<p>Chapter-10 Biotechnology & its applications Biotechnological applications in agriculture health Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms - Bt crops; transgenic animals; biosafety issues, bio piracy and patents.</p>	<p>Assignment containing NCERT and extra questions</p>	<p>Study of plant population density by quadrat method</p>	<p>Medicine - Production of insulin, vaccines, antibiotics, Gene therapy for genetic disorders, Molecular diagnosis (PCR, ELISA). Agriculture Genetically modified (GM) crops (Bt cotton, Golden rice). Pest resistance, drought tolerance. Tissue culture and micropropagation.</p>	<p>1. understands role of rDNA technology & its applications in industry, agriculture and medicine. 2. Is able to isolate DNA in lab</p>
<p>1/11/26 - 15/11/26 No.of days- 9</p>	<p>Chapter-11: Organisms and Populations Organisms and environment: Habitat and niche, population and population attributes; population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate population growth curves</p>	<p>Assignment containing NCERT and extra questions</p>		<p>Geography Distribution of organisms depends on climate, latitude, linked to geographic conditions Migration patterns influenced by seasons and regions. Mathematics / Statistics (Population Ecology), Population density, growth rate calculations. Exponential and logistic growth curves. Birth rate, death rate, age structure analysis.</p>	<p>1. Understands populations, organisms and their interactions 2. Learns to perform field experiments and record analyse and interpret data 3. Understands population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate population growth curves</p>

<p>16/11/26 - 30/11/26 No.of days- 12</p>	<p>Chapter -12 Ecosystem Ecosystem structure & function, productivity, decomposition, energy flow and ecological pyramids decomposition, Energy flow ecological pyramids of energy, Biomass and number</p>	<p>Assignment containing NCERT and extra questions</p>	<p>Models specimen showing symbiotic association in root nodules of leguminous plants, cuscuta on host and lichens</p>	<p>Environmental Science Energy flow, food chains, food webs. Nutrient cycles (carbon,) Chemistry (Biogeochemical Cycles) Chemical cycling of nutrients in ecosystems. Role of microbes in decomposition. Carbon dioxide–oxygen balance. Physics Energy transfer follows laws of thermodynamics. Light intensity affects photosynthesis. Heat balance influences ecosystems.</p>	<p>1. Understands ecosystem structure & function, productivity, decomposition, energy flow and ecological pyramids decomposition</p>
	<p>Chap. 13 Biodiversity & conservation Biodiversity types, Patterns, Loss of biodiversity endangered organisms, extinction, Red Data Book, biosphere & its conservation supplementary text Discussion of CBSE sample papers & other sample papers reserves, national parks sanctuaries and Ramsar sites</p>	<p>Assignment containing NCERT and extra questions</p>	<p>Study of plant population frequency and density by quadrat method</p>	<p>Geography (Biogeography) Distribution of biodiversity across regions. Biodiversity hotspots, latitudinal gradients. Environmental Science - conservation strategies (in-situ, ex-situ). Wildlife protection, national parks, sanctuaries Sociology Role of indigenous communities in conservation, Cultural values linked to biodiversity. Economics - Economic value food, medicine, tourism loss of biodiversity affects livelihoods</p>	<p>1. Understands biodiversity & its conservation 2. Understands red data Book, biosphere reserves, national parks sanctuaries and Ramsar sites</p>

1/12/26 - 15/12/26 days - 12	Preboard Examination Complete syllabus				
16/12/26- 31/12/26 days - 13	Revisions				
1/1/27 - 15/1/27 No.of days- 5	Winter Break				
16/1/27 - 31/1/27 days-12	Revisions				
1/2/27 - 15/2/27 days-12	Revisions				
16/2/27 - 28/2/27 days-12					
1/3/27 - 15/3/27 No.of days- 11					
16/3/26- 31/3/26 days - 13					

