CBSE Class 12 Biology Updated Syllabus

CBSE Class 12 Biology Revised Syllabus - Course Structure

S.No	Unit Name	Marks
VI	Reproduction	16
VII	Genetics and Evolution	20
VIII	Biology and Human Welfare	12
IX	Biotechnology and its Applications	12
X	Ecology and Environment	10
	Total	70

Unit-VI: Reproduction

Chapter-2: Sexual Reproduction in Flowering Plants

Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; out breeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and

formation of fruit; special modes- apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.

Chapter-3: Human Reproduction

Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis -spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).

Chapter-4: Reproductive Health

Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); birth control - need and methods, contraception and medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (elementary idea for general awareness).

Unit-VII: Genetics and Evolution

Chapter-5: Principles of Inheritance and Variation

Heredity and Variation: Mendelian inheritance; deviations from Mendelism – incomplete dominance, co-dominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; Sex determination - in humans, birds and honey bee; linkage and crossing over; sex linked inheritance - haemophilia, colour blindness; Mendelian disorders in humans - thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter' s syndromes.

Chapter-6: Molecular Basis of Inheritance

Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed. Description of family Solanaceae

Chapter- 7: Evolution

Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin' s contribution, modern synthetic theory of evolution; mechanism of evolution - variation (mutation and

recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; adaptive radiation; human evolution.

Unit-VIII: Biology and Human Welfare

Chapter-8: Human Health and Diseases

Pathogens; parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.

Chapter-10: Microbes in Human Welfare

Microbes in food processing, industrial production, sewage treatment, energy generation andmicrobes as bio-control agents and bio-fertilizers. Antibiotics; production and judicious use.

Unit-IX: Biotechnology and its Applications

Chapter-11: Biotechnology - Principles and Processes

Genetic Engineering (Recombinant DNA Technology).

Chapter-12: Biotechnology and its Applications

Application of biotechnology in health and agriculture: Human insulin and vaccine production , stem cell technology, gene therapy; genetically modified organisms - Bt crops; transgenic animals; biosafety issues, biopiracy and patents.

Unit-X: Ecology and Environment

Chapter-13: Organisms and Populations

Population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate and death rate, age distribution. (Topics excluded: Organism and its Environment, Major Aboitic Factors, Responses to Abioitic Factors, Adaptations)

Chapter-14: Ecosystem

Ecosystems: Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy (Topics excluded: Ecological Succession and Nutrient Cycles)

Chapter-15: Biodiversity and its Conservation

Biodiversity-Concept, patterns, importance; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, Sacred Groves, biosphere reserves, national parks, wildlife, sanctuaries and Ramsar sites.

Class 12 Biology Practicals Syllabus - Evaluation Scheme

The following table highlights the mark distribution for the Class 12 Biology lab experiments which students can refer to gain an overview of the syllabus for lab practicals.

Evaluation Scheme	**Marks**
One Major Experiment (5)	5
One Minor Experiment (2&3)	4
Slide Preparation (1&4)	5
Spotting	7
Practical Record + Viva Voce	4
Investigatory Project and its Project Record + Viva Voce	5
Total	**30**

Class 12 Biology Practicals Syllabus:

The following tables contain the list of experiments that comprise the Class 12 Biology Practicals Syllabus:

List of Experiments
Prepare a temporary mount to observe pollen germination.
Study the plant population density by quadrat method.
Study the plant population frequency by quadrat method.
Prepare a temporary mount of onion root tip to study mitosis.
Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc.

Study and observe the following (Spotting):
Flowers adapted to pollination by different agencies (wind, insects, birds).
Pollen germination on stigma through a permanent slide or scanning electron micrograph.

Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary through permanent slides (from grasshopper/mice).
Meiosis in onion bud cells or grasshopper testis through permanent slides.
T.S. of blastula through permanent slides (Mammalian).
Mendelian inheritance using seeds of different colours/sizes of any plant.
Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, ear lobes, widow's peak, and colour blindness.
Controlled pollination - emasculation, tagging and bagging.
Common disease-causing organisms like Ascaris, Entamoeba, Plasmodium, any fungi causing ringworm through permanent slides, models, or virtual images or specimens. Comment on symptoms of diseases that they cause.
Models specimen showing symbolic association in root modules of leguminous plants, Cuscuta on host, lichens.
Flash cards models showing examples of homologous and analogous organs.

Lab Practicals
Study of flowers adapted to pollination by different agencies (wind, insects).
Identification of T.S of morula or blastula of frog (Model).
Study of Mendelian inheritance pattern using beads/seeds of different sizes/texture.
Preparation of pedigree charts of genetic traits such as rolling of tongue, colour blindness.
Study of emasculation, tagging, and bagging by trying out an exercise on controlled pollination.
Identify common disease-causing organisms like Ascaris (model) and learn some common symptoms of the disease that they cause.
Comment upon the morphological adaptations of plants found in xerophytic conditions.

Question Paper Design CBSE Class 12 Biology Syllabus (Theory)

Competencies	
Demonstrate Knowledge and Understanding	50%
Application of Knowledge / Concepts	30%
Analyse, Evaluate, and Create	20%

Note:

- Typology of questions: VSA includes MCQs, assertion–reasoning type questions, SA, LA-I, LA-II, and source-based/case-based/passage-based/integrated assessment questions.
- An internal choice of approximately 33% would be provided.

Prescribed Books:

1. Biology, Class-XII, Published by NCERT

2. Other related books and manuals brought out by NCERT (consider multimedia also)

3. Biology Supplementary Material (Revised). Available on the CBSE website.