



Biology

Curriculum for Grade XII

Class 12 Biology Curriculum Overview

The Class 12 Biology curriculum provides students with a detailed understanding of key concepts in reproduction, genetics, evolution, human welfare, biotechnology, and ecology. This curriculum is designed to strengthen the foundational knowledge of biological sciences, preparing students for further studies and careers in fields like medicine, biotechnology, and environmental science. The curriculum is divided into five major units, each focusing on specific aspects of biological science.

Unit VI: Reproduction

Chapter 1: Sexual Reproduction in Flowering Plants

This chapter explores the reproductive processes in flowering plants, including flower structure, pollination, fertilization, seed formation, and fruit development.

Chapter 2: Human Reproduction

Focuses on the anatomy and physiology of the human reproductive system, including gametogenesis, menstrual cycle, fertilization, pregnancy, and childbirth.

Chapter 3: Reproductive Health

Covers important aspects of reproductive health, including family planning, sexually transmitted diseases (STDs), infertility, and the importance of reproductive health awareness in society.

Unit VII: Genetics and Evolution

Chapter 4: Principles of Inheritance and Variation

This chapter introduces students to Mendelian genetics and the principles of inheritance. It also covers genetic variations and chromosomal abnormalities.

Chapter 5: Molecular Basis of Inheritance

Focuses on the structure and function of DNA and RNA, gene expression, and regulation, as well as the process of DNA replication, transcription, and translation.

Chapter 6: Evolution

Explains the mechanisms of evolution, including natural selection, speciation, and human evolution. The chapter discusses the evidence of evolution and evolutionary theories.

Unit VIII: Biology in Human Welfare

Chapter 7: Human Health and Disease

This chapter discusses the immune system, diseases caused by pathogens, prevention and control of diseases, vaccines, and cancer. It also covers lifestyle disorders and the role of healthcare in maintaining public health.

Chapter 8: Microbes in Human Welfare

Focuses on the role of microbes in industries like fermentation, antibiotics production, and biogas. The chapter highlights the importance of microbes in agriculture, sewage treatment, and bioremediation.

Unit IX: Biotechnology



Chapter 9: Biotechnology: Principles and Processes

Introduces the principles of biotechnology, including genetic engineering, recombinant DNA technology, and the tools and techniques used in modern biotechnology.

Chapter 10: Biotechnology and its Applications

Discusses the applications of biotechnology in agriculture, healthcare, industry, and environmental management. Topics include genetically modified organisms (GMOs), gene therapy, and bioethics.

Unit X: Ecology

Chapter 11: Organisms and Populations

Explores the interactions between organisms and their environment, population growth, and dynamics. The chapter also covers adaptations of organisms to different environments.

Chapter 12: Ecosystem

This chapter provides a comprehensive understanding of ecosystems, including energy flow, food chains, ecological pyramids, and nutrient cycling. It also discusses ecosystem productivity and stability.

Chapter 13: Biodiversity and Conservation

Focuses on the importance of biodiversity, the threats to biodiversity, and conservation strategies. Topics like protected areas, conservation efforts, and sustainable development are covered.

The Class 12 Biology curriculum is structured to cover essential biological topics ranging from the reproductive systems of plants and humans to complex concepts in genetics, biotechnology, and ecology. The inclusion of real-world applications, such as human welfare and biotechnology, ensures that students can relate the theoretical aspects to practical implications. This curriculum not only strengthens students' understanding of biological sciences but also equips them with knowledge crucial for higher education and competitive exams in medical and life sciences

