Science text book class 10

by Goa Board · Language: EN

Overview

The "Science text book class 10" by the Goa Board serves as the foundational science textbook for students enrolled in Class 10 under the Goa Board of Secondary and Higher Secondary Education curriculum. This comprehensive textbook is meticulously designed to cover the essential concepts across Physics, Chemistry, and Biology, adhering strictly to the prescribed syllabus for the secondary level. It aims to provide students with a robust understanding of scientific principles, theories, and their practical applications in everyday life.

The book is structured to facilitate systematic learning, presenting complex topics in an accessible manner with clear explanations, illustrative diagrams, and practical activities. Its primary objective is to prepare students for their Class 10 board examinations, equipping them with the necessary knowledge and problem-solving skills. Beyond examination preparation, the textbook endeavors to foster scientific temper, critical thinking, and an appreciation for the natural world, laying a strong groundwork for further studies in science and technology.

Key Takeaways

- Understand the fundamental principles of chemical reactions, including types, balancing, and their applications.
- Grasp the concepts of acids, bases, and salts, their properties, and importance in daily life and industry.
- Learn about the structure and functions of various life processes in living organisms, such as nutrition, respiration, and reproduction.
- Comprehend the basics of electricity, including circuits, Ohm's law, and the magnetic effects of electric current.
- Explore the phenomena of light, including reflection, refraction, and the working of the human eye and optical instruments.
- Recognize the importance of environmental conservation and sustainable management of natural resources.
- Develop problem-solving skills through numerical examples and conceptual questions provided in each chapter.

Chapter Summaries

Chemical Reactions and Equations

This chapter introduces students to the concept of chemical changes and how they are represented by chemical equations. It covers different types of chemical reactions like combination, decomposition, displacement, double displacement, oxidation, and reduction reactions, along with examples from daily life. The importance of balancing chemical equations is also emphasized.

Acids, Bases and Salts

The chapter delves into the properties of acids, bases, and salts, their definitions, and indicators used to distinguish them. It explains the pH scale and its significance in everyday life, as well as the preparation and uses of important salts like sodium hydroxide, bleaching powder, baking soda, washing soda, and plaster of Paris.

Metals and Non-metals

This section explores the physical and chemical properties of metals and non-metals. It discusses their reactivity series, how they react with oxygen, water, acids, and salt solutions. The chapter also covers the concepts of ionic and covalent bonding, extraction of metals, corrosion, and its prevention methods.

Carbon and its Compounds

Focusing on the versatility of carbon, this chapter introduces covalent bonding and the unique properties of carbon like catenation and tetravalency. It covers various carbon compounds, their nomenclature, functional groups, homologous series, and important reactions of carbon compounds, including combustion, oxidation, addition, and substitution.

Life Processes

This foundational biology chapter describes the essential life processes necessary for the survival of living organisms. It covers nutrition (autotrophic and heterotrophic), respiration (aerobic and anaerobic), transportation in plants and animals (circulatory system), and excretion in both plants and humans, detailing the structure and function of kidneys.

Control and Coordination

The chapter explains how living organisms control and coordinate their activities. It details the nervous system in humans (brain, spinal cord, nerves), reflex actions, and the endocrine system (hormones). Plant movements, including tropisms, and the role of plant hormones are also discussed.

How do Organisms Reproduce?

This chapter explores the different modes of reproduction in living organisms. It covers asexual reproduction (fission, fragmentation, regeneration, budding, vegetative propagation, spore

formation) and sexual reproduction in both plants (flower structure, pollination, fertilization) and humans (male and female reproductive systems, menstruation, birth control methods).

Heredity and Evolution

This section introduces the concepts of heredity, variations, and the laws of inheritance proposed by Mendel. It explains how traits are inherited, sex determination, and the basic ideas of evolution, including natural selection, speciation, and the evidence for evolution.

Light – Reflection and Refraction

This physics chapter covers the phenomena of reflection and refraction of light. It explains laws of reflection, image formation by plane and spherical mirrors, mirror formula, and magnification. It also details laws of refraction, refractive index, image formation by spherical lenses, lens formula, and power of a lens.

Electricity

This chapter introduces fundamental concepts of electricity, including electric current, potential difference, Ohm's Law, resistance, and resistivity. It covers series and parallel combinations of resistors, heating effect of electric current, electric power, and practical applications in daily life.

Magnetic Effects of Electric Current

This section explores the relationship between electricity and magnetism. It discusses the magnetic field produced by a current-carrying conductor, solenoid, and electromagnet. It also covers Fleming's Left-Hand Rule, electric motor, electromagnetic induction, Fleming's Right-Hand Rule, and electric generator.

Our Environment

The final chapter focuses on environmental issues and their management. It discusses ecosystems, food chains, food webs, trophic levels, and the role of decomposers. It also addresses environmental problems like ozone layer depletion, waste management, and the importance of sustainable practices.

Themes

- Scientific inquiry
- Interconnectedness of nature
- Energy transformation
- Chemical principles
- Biological processes
- Environmental stewardship

Frequently Asked Questions

What is Science text book class 10 about?

The "Science text book class 10" by the Goa Board is a comprehensive educational resource covering core concepts in Physics, Chemistry, and Biology. It aligns with the Class 10 curriculum, providing detailed explanations, diagrams, and exercises to help students understand fundamental scientific principles and prepare for their board examinations.

Is Science text book class 10 worth reading?

Yes, for Class 10 students following the Goa Board curriculum, this textbook is essential reading. It is the primary resource for understanding the prescribed syllabus, building a strong foundation in science, and performing well in the board examinations. It's also valuable for teachers and parents to support student learning.

How does Science text book class 10 end?

Spoiler: The "Science text book class 10" typically concludes with chapters focused on environmental science. These sections cover topics such as ecosystems, food chains, environmental problems like ozone depletion, and the sustainable management of natural resources, emphasizing the importance of environmental responsibility.

Who should read Science text book class 10?

This textbook is primarily intended for students studying in Class 10 under the Goa Board of Secondary and Higher Secondary Education. It is also a valuable resource for science teachers, tutors, and parents who wish to understand the curriculum and support students in their learning journey.

How long does it take to read Science text book class 10?

Reading the "Science text book class 10" thoroughly, including understanding concepts, solving exercises, and reviewing, would typically take a student several months over the academic year. For a continuous, focused read without deep study, it might take approximately 900-1200 minutes (15-20 hours).