Ncert science class 10

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Overview

NCERT Science Class 10, authored by the NCERT Expert Team, serves as the fundamental textbook for science education for students in the tenth grade across India, adhering to the curriculum prescribed by the Central Board of Secondary Education (CBSE). The book comprehensively covers core concepts in Physics, Chemistry, and Biology, along with an introduction to Environmental Science. Its primary objective is to build a strong foundational understanding of scientific principles, foster scientific temper, and prepare students for higher studies and competitive examinations.

The book is structured to facilitate clear and logical learning, starting with basic chemical reactions and progressing to complex biological processes and physical phenomena. It emphasizes conceptual clarity through detailed explanations, illustrative diagrams, activities, and solved examples. Each chapter includes 'In-text Questions' and 'Exercises' to reinforce learning and encourage critical thinking. The content is presented in an accessible language, making complex scientific ideas understandable for young learners. By integrating theoretical knowledge with practical applications, NCERT Science Class 10 aims to develop problem-solving skills and an appreciation for the role of science in everyday life and the natural world. It is an indispensable resource for students, teachers, and anyone seeking a robust introduction to secondary-level science.

Key Takeaways

- Understand the fundamental types of chemical reactions and their representation through balanced equations.
- Grasp the properties and reactions of acids, bases, and salts, recognizing their importance in daily life.
- Differentiate between the characteristics and applications of metals and non-metals, including the formation of ionic and covalent bonds.
- Learn about the vital life processes in living organisms, such as nutrition, respiration, transportation, and excretion.
- Explore the principles of heredity and evolution, understanding how traits are passed down and species change over time.
- Master the concepts of light reflection and refraction, along with their applications in optical instruments.

• Comprehend the basics of electricity, including circuits, Ohm's Law, and the heating effects of current.

• Recognize the interdependence of organisms within ecosystems and the importance of sustainable resource management.

Chapter Summaries

Chemical Reactions and Equations

This chapter introduces students to chemical changes, distinguishing them from physical changes. It covers various types of chemical reactions, including combination, decomposition, displacement, double displacement, and oxidation-reduction (redox) reactions, providing examples for each. A significant part focuses on balancing chemical equations, adhering to the law of conservation of mass. The chapter also discusses the effects of oxidation in everyday life, specifically addressing corrosion of metals and rancidity of food items, explaining the underlying chemical processes and methods to prevent them.

Acids, Bases and Salts

This chapter delves into the properties and characteristics of acids, bases, and salts. It explains how to identify them using indicators and introduces the pH scale for measuring their strength. Key reactions covered include acids and bases reacting with metals, metal carbonates, metal hydrogen carbonates, and each other (neutralisation reaction). The chapter also details the preparation, properties, and uses of important salts such as common salt (sodium chloride), sodium hydroxide, bleaching powder, baking soda, washing soda, and plaster of Paris, highlighting their chemical formulas and industrial applications.

Metals and Non-metals

This chapter explores the distinct physical and chemical properties that differentiate metals from non-metals. It discusses their reactivity with oxygen, water, acids, and salt solutions, introducing the reactivity series of metals. The formation of ionic compounds through electron transfer and covalent compounds through electron sharing is explained. The chapter also covers the occurrence of metals in nature (minerals and ores), various metallurgical processes for extraction (enrichment, reduction, refining), and the phenomenon of corrosion, along with methods to prevent it, such as painting, oiling, galvanising, and alloying.

Carbon and its Compounds

This chapter focuses on the unique properties of carbon, such as catenation (self-linking) and tetravalency, which lead to the formation of a vast number of organic compounds. It introduces different types of hydrocarbons (saturated and unsaturated), functional groups (alcohols, aldehydes, ketones, carboxylic acids, haloalkanes), and the concept of isomerism. The chapter discusses the nomenclature of carbon compounds and explores the chemical properties of

ethanol and ethanoic acid. Finally, it explains the structure and cleansing action of soaps and detergents, differentiating between them.

Periodic Classification of Elements

This chapter traces the historical development of the periodic table, starting with early attempts like Dobereiner's Triads and Newlands' Law of Octaves. It then details Mendeleev's Periodic Table, highlighting its achievements and limitations. The modern periodic table, based on atomic number, is introduced, explaining its structure with periods and groups. The chapter discusses periodic trends in properties such as valency, atomic size, metallic and non-metallic character, and electronegativity, providing a systematic understanding of element classification.

Life Processes

This chapter introduces the fundamental life processes essential for the survival of living organisms. It covers nutrition (autotrophic and heterotrophic, including the human digestive system), respiration (aerobic and anaerobic, with details on the human respiratory system), transportation (circulation of blood in humans, including the heart and blood vessels, and transport in plants via xylem and phloem), and excretion (the human excretory system and waste removal in plants). Each process is explained with relevant biological structures and mechanisms.

Control and Coordination

This chapter explores how living organisms control and coordinate their activities in response to stimuli. It details the human nervous system, including the brain, spinal cord, and nerves, explaining the mechanism of reflex action. The chapter also covers the endocrine system, discussing major glands like the pituitary, thyroid, adrenal, pancreas, and gonads, and the role of hormones in regulating various bodily functions. Additionally, it examines coordination in plants, focusing on plant hormones (auxins, gibberellins, cytokinins, abscisic acid) and tropic movements (phototropism, geotropism, hydrotropism, chemotropism).

How do Organisms Reproduce?

This chapter explains the various modes of reproduction in living organisms. It covers asexual reproduction methods such as fission, fragmentation, regeneration, budding, vegetative propagation, and spore formation, providing examples for each. The chapter then delves into sexual reproduction, detailing the structure of a flower and the process of sexual reproduction in flowering plants (pollination, fertilisation, seed formation). It also describes the human male and female reproductive systems, the process of fertilisation, pregnancy, and various methods of birth control, emphasizing reproductive health.

Heredity and Evolution

This chapter introduces the concepts of heredity and variation, explaining how traits are passed from one generation to the next. It details Mendel's experiments with pea plants, covering monohybrid and dihybrid crosses, and his laws of inheritance. The chapter also discusses sex

determination in humans. Furthermore, it explores the theory of evolution, providing evidence from homologous and analogous organs, and fossils. Concepts like speciation, natural selection, and human evolution are discussed, differentiating between inherited and acquired traits and their roles in evolution.

Light – Reflection and Refraction

This chapter covers the fundamental phenomena of light: reflection and refraction. It explains the laws of reflection and describes image formation by plane mirrors and spherical mirrors (concave and convex), including ray diagrams, mirror formula, and magnification. The chapter then moves to refraction, explaining Snell's Law, refractive index, and image formation by spherical lenses (concave and convex). It also covers lens formula, magnification for lenses, and the concept of power of a lens, providing practical applications for mirrors and lenses.

Human Eye and Colourful World

This chapter describes the structure and functioning of the human eye, including its ability to accommodate. It explains common vision defects like myopia (nearsightedness), hypermetropia (farsightedness), and presbyopia, along with their correction methods using appropriate lenses. The chapter also explores optical phenomena related to light, such as the dispersion of white light by a prism, atmospheric refraction (leading to twinkling of stars and advanced sunrise/delayed sunset), and scattering of light (explaining the Tyndall effect, the blue color of the sky, and the reddish appearance of the sun at sunrise and sunset).

Electricity

This chapter introduces the basic concepts of electricity, including electric current, electric potential, and potential difference. It explains Ohm's Law and the factors affecting resistance, such as resistivity. The chapter details series and parallel combinations of resistors, deriving formulas for equivalent resistance. It also covers the heating effect of electric current (Joule's Law) and its practical applications, such as electric bulbs and fuses. Finally, the chapter discusses electric power and the calculation of energy consumed in domestic circuits.

Magnetic Effects of Electric Current

This chapter explores the relationship between electricity and magnetism. It begins with Oersted's experiment, demonstrating that electric current produces a magnetic field. It describes magnetic field lines around current-carrying conductors and solenoids. The chapter introduces the force on a current-carrying conductor in a magnetic field, explaining Fleming's Left-Hand Rule and the working principle of an electric motor. It then covers electromagnetic induction, Fleming's Right-Hand Rule, and the working of an electric generator. Finally, it discusses domestic electric circuits, including AC/DC, earthing, short circuiting, and overloading.

Sources of Energy

This chapter examines various sources of energy, classifying them into conventional and non-conventional categories. Conventional sources discussed include fossil fuels (coal, petroleum, natural gas), thermal power plants, hydropower plants, biomass, and wind energy, detailing their generation and limitations. Non-conventional sources covered are solar energy (solar cookers, solar cells), ocean thermal energy, geothermal energy, and nuclear energy. The chapter emphasizes the need for sustainable energy management and the environmental implications of different energy sources, promoting the use of renewable alternatives.

Our Environment

This chapter introduces the concept of an ecosystem, defining its components (biotic and abiotic) and their interactions. It explains food chains and food webs, illustrating the flow of energy through different trophic levels. The chapter discusses environmental problems such as ozone layer depletion, explaining its causes and effects, and waste management, differentiating between biodegradable and non-biodegradable wastes. It highlights various methods of waste disposal and emphasizes the impact of human activities on the environment, promoting responsible environmental practices.

Management of Natural Resources

This chapter focuses on the sustainable management of natural resources. It emphasizes the importance of the '3 R's' – Reduce, Reuse, and Recycle – as key strategies for conservation. The chapter discusses the conservation of forests and wildlife, highlighting their ecological and economic significance. It also covers water harvesting techniques and the need for judicious use and conservation of coal and petroleum. The role of public participation in resource management, with examples like the Ganga Action Plan and Chipko Andolan, is also discussed, promoting a holistic approach to environmental stewardship.

Themes

- Chemical reactions
- Life processes
- Electricity and magnetism
- Heredity and evolution
- Environmental sustainability
- Light and optics

Frequently Asked Questions

What is Ncert science class 10 about?

NCERT Science Class 10 is a comprehensive textbook covering fundamental concepts in Physics, Chemistry, Biology, and Environmental Science for tenth-grade students in India. It aims to build a strong scientific foundation, explain natural phenomena, and prepare students for academic progression and competitive exams by fostering critical thinking and problem-solving skills.

Is Ncert science class 10 worth reading?

Yes, NCERT Science Class 10 is highly worth reading, especially for students following the CBSE curriculum in India. It is the prescribed textbook, essential for understanding core scientific principles, excelling in board examinations, and building a strong base for further studies in science. Its clear explanations and exercises make it an invaluable resource.

How does Ncert science class 10 end?

Spoiler: NCERT Science Class 10 concludes with chapters on environmental science. It discusses various sources of energy, their impact, and the need for sustainable practices. The final chapters focus on 'Our Environment,' covering ecosystems, food chains, and environmental problems like ozone depletion, and 'Management of Natural Resources,' emphasizing conservation and sustainable use.

Who should read Ncert science class 10?

This book is primarily intended for students enrolled in Class 10 under the CBSE board or any state board adopting the NCERT curriculum in India. It is also highly beneficial for educators, parents, and anyone seeking a clear, foundational understanding of secondary-level science concepts, particularly those preparing for competitive exams that reference the Indian school curriculum.

How long does it take to read Ncert science class 10?

Reading NCERT Science Class 10 cover-to-cover without engaging in exercises or deep study might take approximately 12-15 hours. However, for effective learning and retention, students typically spend an entire academic year (hundreds of hours) studying the book, completing exercises, and revising the concepts.

Best Quotes

“The process of burning of a substance in the presence of oxygen to produce heat and light is called combustion.”

Carbon and its Compounds

This line defines combustion, a fundamental chemical process discussed in the chapter on Carbon and its Compounds. It's crucial for understanding energy release and the properties of fuels, laying the groundwork for further chemical concepts.

“Acids are substances which produce H+ ions in aqueous solutions.”

Acids, Bases and Salts

This is the Arrhenius definition of an acid, a core concept in the chapter on Acids, Bases, and Salts. It explains the chemical behavior of acids and is foundational for understanding pH and acid-base reactions.

“Bases are substances which produce OH- ions in aqueous solutions.”

Acids, Bases and Salts

This is the Arrhenius definition of a base, presented alongside the definition of an acid. It's essential for comprehending the properties of bases and their reactions with acids, forming the basis of acid-base chemistry.

“The SI unit of electric current is ampere (A).”

Electricity

This statement introduces the standard unit for electric current, a key physical quantity in the Electricity chapter. Understanding SI units is vital for quantitative problem-solving and consistent scientific communication.

“The SI unit of potential difference is volt (V).”

Electricity

This line defines the standard unit for potential difference, another crucial concept in the Electricity chapter. It's essential for calculating electrical energy and power, and for understanding circuit behavior.

“Ohm's Law states that the current flowing through a conductor is directly proportional to the potential difference across its ends, provided the temperature and other physical conditions remain unchanged.”

Electricity

This is a fundamental law in electricity, establishing the relationship between current, voltage, and resistance. It is central to analyzing and designing electrical circuits, forming the backbone of electrical engineering principles.

“The SI unit of resistance is ohm (Ω).”

Electricity

This statement provides the standard unit for electrical resistance, a property that opposes current flow. It's directly linked to Ohm's Law and is necessary for quantitative analysis of electrical circuits.

“The phenomenon of splitting of white light into its constituent colours on passing through a transparent medium like a glass prism is called dispersion of light.”

Light – Reflection and Refraction

This definition explains dispersion, a key concept in the Light – Reflection and Refraction chapter. It describes how white light separates into a spectrum, illustrating the wave nature of light and its interaction with matter.

“The process by which green plants and some other organisms use sunlight to synthesize foods with the help of chlorophyll is called photosynthesis.”

Life Processes

This definition describes photosynthesis, the fundamental process by which plants produce their own food. It's a cornerstone of biology, explaining energy flow in ecosystems and the basis of life on Earth.

“Respiration is the process of releasing energy from food.”

Life Processes

This concise definition introduces respiration, a vital life process where organisms break down food to release energy. It's fundamental to understanding metabolism and how living beings sustain themselves.

“The movement of water and minerals in plants occurs through xylem.”

Life Processes

This statement identifies xylem as the primary tissue responsible for transporting water and dissolved minerals from roots to other parts of the plant. It's a key concept in plant physiology, explaining how plants acquire essential nutrients.

“The transport of food from the leaves to other parts of the plant occurs through phloem.”

Life Processes

This line explains the function of phloem, the tissue responsible for translocating synthesized food (sugars) from the leaves to growth regions and storage organs. It complements the role of xylem in plant transport systems.

“The brain is the main coordinating centre of the body.”

Control and Coordination

This statement highlights the central role of the brain in the nervous system, emphasizing its function in coordinating all bodily activities. It's a foundational concept in understanding human control and coordination.

“Reflex action is a sudden, involuntary response to a stimulus.”

Control and Coordination

This definition describes reflex actions, an important aspect of the nervous system. It explains how the body responds quickly and automatically to protect itself, illustrating the efficiency of neural pathways.

“Reproduction is the process by which living organisms produce new individuals of their own kind.”

How Do Organisms Reproduce?

This fundamental definition introduces reproduction, a universal characteristic of life. It sets the stage for discussing various modes of reproduction and their importance for the continuation of species.

“Genetic material is transferred from parents to offspring during reproduction.”

Heredity and Evolution

This statement underscores the core principle of heredity, explaining how traits are passed down through generations. It's a crucial concept for understanding genetics and evolution.

“Evolution is the process of gradual change in living organisms over successive generations.”

Heredity and Evolution

This definition provides a concise explanation of biological evolution, a central theory in biology. It highlights the long-term changes that lead to the diversity of life on Earth.

“A chemical reaction involves the rearrangement of atoms.”

Chemical Reactions and Equations

This fundamental statement explains the essence of chemical reactions: atoms are neither created nor destroyed, but merely rearranged to form new substances. It's a cornerstone of

chemistry, emphasizing the conservation of mass.

“The law of conservation of mass states that mass can neither be created nor destroyed in a chemical reaction.”

Chemical Reactions and Equations

This is a foundational law of chemistry, explaining why chemical equations must be balanced. It's crucial for understanding stoichiometry and the quantitative aspects of chemical changes.

“An exothermic reaction is a reaction in which heat is released along with the formation of products.”

Chemical Reactions and Equations

This definition describes exothermic reactions, a type of chemical change that releases energy into the surroundings. It's important for understanding energy changes in chemical processes and their practical applications.

“An endothermic reaction is a reaction in which energy is absorbed from the surroundings.”

Chemical Reactions and Equations

This definition describes endothermic reactions, a type of chemical change that absorbs energy from the surroundings. It contrasts with exothermic reactions and is crucial for understanding energy transformations in chemistry.

“The pH scale is a scale for measuring H+ ion concentration in a solution.”

Acids, Bases and Salts

This line introduces the pH scale, a critical tool for quantifying the acidity or basicity of a solution. It's essential for understanding chemical properties, biological systems, and environmental chemistry.

“Metals are generally malleable and ductile.”

Metals and Non-metals

This statement highlights two key physical properties of metals: malleability (can be hammered into thin sheets) and ductility (can be drawn into wires). These properties are central to understanding the uses and characteristics of metals.

“Non-metals are generally brittle and are poor conductors of heat and electricity.”

Metals and Non-metals

This line describes general properties of non-metals, contrasting them with metals. Understanding these characteristics helps differentiate between the two major categories of elements and explains their diverse applications.

“The phenomenon of light bouncing back from a surface is called reflection.”

Light – Reflection and Refraction

This fundamental definition introduces reflection, a key concept in optics. It explains how light interacts with surfaces, forming the basis for understanding mirrors and how we see objects.

“The bending of light as it passes from one transparent medium to another is called refraction.”

Light – Reflection and Refraction

This definition explains refraction, another core concept in optics. It describes how light changes direction when moving between different media, which is essential for understanding lenses, prisms, and vision.

“The human eye is one of the most valuable and sensitive sense organs.”

The Human Eye and the Colourful World

This statement emphasizes the importance and complexity of the human eye, setting the stage for a detailed discussion of its structure and function. It highlights its role in perception and interaction with the world.

“Electric power is the rate at which electric energy is consumed or dissipated in an electric circuit.”

Electricity

This definition explains electric power, a crucial concept in the Electricity chapter. It quantifies how quickly energy is used, which is vital for understanding appliance ratings and energy consumption.

“Magnetic field lines are closed curves.”

Magnetic Effects of Electric Current

This statement describes a key characteristic of magnetic field lines, which are used to represent magnetic fields. Understanding this property is essential for visualizing and analyzing magnetic phenomena.

“The phenomenon of electromagnetic induction is the production of induced current in a coil due to relative motion between a magnet and the coil.”

Magnetic Effects of Electric Current

This definition explains electromagnetic induction, a fundamental principle discovered by Faraday. It's crucial for understanding how generators work and the production of electricity on a large scale.

Questions & Answers

What are the different types of chemical reactions discussed in the book?

The book discusses several types of chemical reactions: combination reactions (where two or more reactants combine to form a single product), decomposition reactions (a single reactant breaks down into two or more products), displacement reactions (a more reactive element displaces a less reactive element from its compound), double displacement reactions (exchange of ions between two compounds), and oxidation-reduction (redox) reactions (involving gain or loss of oxygen/hydrogen or electrons).

Explain the concept of pH and its importance.

The pH scale is a measure of the acidity or alkalinity of a solution, ranging from 0 to 14. A pH of 7 is neutral, values below 7 are acidic, and values above 7 are basic. It's important because pH affects chemical reactions, biological processes (e.g., enzyme activity in the human body), and environmental conditions (e.g., soil pH for plant growth, acid rain). Maintaining appropriate pH levels is crucial in many contexts.

How does the human digestive system work?

The human digestive system breaks down complex food substances into simpler, absorbable forms. It starts in the mouth with mechanical and chemical digestion, moves through the esophagus to the stomach where proteins are digested, then to the small intestine for further digestion and absorption of nutrients, and finally to the large intestine for water absorption and waste formation. Various enzymes and digestive juices aid this process.

What is the difference between aerobic and anaerobic respiration?

Aerobic respiration occurs in the presence of oxygen, completely breaking down glucose into carbon dioxide, water, and a large amount of energy (ATP). It typically happens in mitochondria. Anaerobic respiration occurs in the absence of oxygen, partially breaking down glucose into products like lactic acid (in animals) or ethanol and carbon dioxide (in yeast), producing a much smaller amount of energy. It occurs in the cytoplasm.

Describe the structure and function of the human heart.

The human heart is a four-chambered muscular organ that pumps blood throughout the body. It has two atria (upper chambers) and two ventricles (lower chambers). The right side pumps deoxygenated blood to the lungs, while the left side pumps oxygenated blood to the rest of the body. Valves ensure unidirectional blood flow, preventing backflow. Its rhythmic contractions maintain blood circulation, delivering oxygen and nutrients and removing waste.

How do plants respond to stimuli like light and gravity?

Plants exhibit tropisms, which are growth responses to stimuli. Phototropism is the growth response to light; shoots grow towards light (positive phototropism), while roots grow away from it (negative phototropism). Geotropism (or gravitropism) is the growth response to gravity; roots grow downwards (positive geotropism), and shoots grow upwards (negative geotropism). These responses are mediated by plant hormones like auxins.

What is the significance of DNA in heredity?

DNA (Deoxyribonucleic Acid) is the genetic material that carries hereditary information from parents to offspring. It contains the instructions for building and maintaining an organism. During reproduction, DNA is replicated and passed on, ensuring that offspring inherit traits from their parents. Variations in DNA sequences lead to genetic diversity, which is crucial for evolution and adaptation.

Explain the laws of reflection of light.

The laws of reflection state two principles: First, the angle of incidence is equal to the angle of reflection. This means the angle between the incident ray and the normal (a line perpendicular to the surface) is equal to the angle between the reflected ray and the normal. Second, the incident ray, the reflected ray, and the normal to the surface at the point of incidence all lie in the same plane.

How is electric current measured in a circuit?

Electric current is measured using an ammeter. An ammeter must always be connected in series with the component through which the current is to be measured. This ensures that the entire current flows through the ammeter, allowing it to accurately measure the flow of charge. Ammeters have very low resistance to minimize their impact on the circuit's current.

What are the advantages of connecting electrical appliances in parallel in a household circuit?

Connecting appliances in parallel offers several advantages. Each appliance receives the full supply voltage, allowing them to operate at their rated power. If one appliance fails or is switched off, others continue to function independently. Also, each appliance can have its own switch, providing individual control. This contrasts with series connections where voltage divides, and a single failure breaks the entire circuit.

Describe the phenomenon of electromagnetic induction.

Electromagnetic induction is the process by which a changing magnetic field through a conductor (like a coil) induces an electric current in that conductor. This change can be caused by moving a magnet relative to a coil, or by changing the current in a nearby coil. This principle is fundamental to the operation of electric generators, transformers, and many other electrical devices, converting mechanical energy into electrical energy.

What are the main components of an ecosystem?

An ecosystem consists of two main components: biotic and abiotic. Biotic components include all living organisms, categorized as producers (e.g., plants), consumers (e.g., animals), and decomposers (e.g., bacteria, fungi). Abiotic components are the non-living physical and chemical factors of the environment, such as sunlight, temperature, water, soil, air, and minerals. These components interact to form a functional unit.

Why is the conservation of natural resources important?

Conservation of natural resources is crucial for sustainable development and the well-being of future generations. Resources like water, forests, minerals, and fossil fuels are finite. Over-exploitation leads to depletion, environmental degradation (e.g., pollution, deforestation), and loss of biodiversity. Conservation ensures that these resources are used wisely, minimizing waste and promoting their availability for long-term human needs and ecological balance.

What is the role of the ozone layer in the atmosphere?

The ozone layer, found in the stratosphere, plays a vital role in protecting life on Earth by absorbing most of the Sun's harmful ultraviolet (UV) radiation. UV radiation can cause skin cancer, cataracts, and damage to crops and marine life. The ozone layer acts as a natural shield, preventing these dangerous rays from reaching the Earth's surface, thus maintaining a habitable environment.

How does sexual reproduction lead to variation in offspring?

Sexual reproduction involves the fusion of gametes (sperm and egg) from two different parents. Each parent contributes half of the genetic material, leading to a unique combination of genes in the offspring. Additionally, processes like crossing over during meiosis (gamete formation) further shuffle genetic material. This genetic recombination and the combination of traits from two parents result in significant variation among offspring, which is essential for evolution and adaptation.

Explain the concept of homologous and analogous organs with examples.

Homologous organs are those that have a similar basic structural plan and origin but may perform different functions. For example, the forelimbs of a human, a bird, and a whale have similar bone structures but are used for grasping, flying, and swimming, respectively. Analogous

organs, on the other hand, have different basic structural plans and origins but perform similar functions. An example is the wings of a bird and the wings of an insect, both used for flight but structurally very different.

What are the main differences between metals and non-metals?

Metals are generally lustrous, malleable, ductile, good conductors of heat and electricity, and solid at room temperature (except mercury). They tend to lose electrons to form positive ions. Non-metals are typically dull, brittle, poor conductors of heat and electricity (except graphite), and can be solids, liquids, or gases at room temperature. They tend to gain electrons to form negative ions.

How does the human eye accommodate to see objects at different distances?

The human eye accommodates by changing the focal length of its lens. This is achieved by the action of the ciliary muscles. When viewing distant objects, the ciliary muscles relax, making the suspensory ligaments taut and the lens thinner, increasing its focal length. For nearby objects, the ciliary muscles contract, relaxing the suspensory ligaments, allowing the lens to become thicker and more convex, thereby decreasing its focal length. This adjustment ensures the image is always focused on the retina.