

Annual Syllabus (2022-23)
Subject – Science (086)
Class-X

Unit No.	Units	Marks
I	Chemical Substances - Nature & Behaviour	25
II	World of Living	25
III	Natural Phenomena	12
IV	Effects of Current	13
V	Natural Resources	05
	Total	80
	Internal assessment	20
	Grand total	100

Content

Unit –I Chemical Substances – Nature and Behaviour

Chapter-1: Chemical reactions and Equations- Chemical equation, Balanced chemical equation, implications of a balanced chemical equation, types of chemical reactions: combination, decomposition, displacement, double displacement, precipitation, endothermic exothermic reactions, oxidation and reduction.

Practical No.2: Performing and observing the following reactions and classifying them into:

- a) Combination reaction
- b) Decomposition reaction
- c) Displacement reaction
- d) Double displacement reaction
- (i) Action of water on Quick lime(calcium oxide)
- (ii) Action of heat on Ferrous sulphate crystals
- (iii) Iron nails kept in Copper sulphate solution
- (iv) Reaction between Sodium sulphate and Barium chloride solutions

Chapter-2: Acids, Bases and Salts- Their definitions in terms of furnishing of H^+ and OH^- ions, General properties, examples and uses, neutralization, concept of pH scale (Definition relating to logarithm not required), importance of pH in everyday life; preparation and uses of Sodium Hydroxide, Bleaching powder, Baking soda, Washing soda and Plaster of Paris.

Practical No.1:

A) Finding the pH of the following samples by using pH paper / universal Indicator:

- a) Dilute Hydrochloric acid
- b) Dilute NaOH solution
- c) Dilute Ethanoic Acid Solution
- d) Lemon juice
- e) Water
- f) Dilute sodium hydrogen carbonate solution

B) Studying the properties of acids and bases (HCl & NaOH) by their reaction with:

- a) Litmus solution (Blue/Red)
- b) Zinc metal
- c) Solid sodium carbonate

Chapter-3: Metals and Non-Metals- Properties of metals and non-metals; Reactivity series; Formation and properties of ionic compounds; Basic metallurgical processes; Corrosion and its prevention

Practical No. 3: Observing the action of Zn, Fe, Cu and Al metals on the following salt solutions:
a) ZnSO_4 (aq) (b) FeSO_4 (aq) (c) CuSO_4 (aq) (d) $\text{Al}_2(\text{SO}_4)_3$ (aq)
Arranging Zn, Fe, Cu and Al (metals) in the decreasing order of reactivity based on the above result.

Unit II: World of Living

Chapter-6: Life processes- "living being". Basic concept of nutrition, respiration, transport and excretion in plants and animals.

Practical No.6: Preparing a temporary mount of a leaf peel to show stomata.

Practical No.7: Experimentally show that carbon dioxide is given out during respiration.

Chapter-7: Control and co-ordination in animals and plants- Tropic movements in plants; Introduction of plant hormones; Control and co-ordination in animals: Nervous system; Voluntary, involuntary and reflex action; Chemical co-ordination: animal hormones.

Unit V: Natural Resources

Chapter-15: Our Environment- Eco-system, Environmental problems, Ozone depletion, waste production and their solutions. Biodegradable and non-biodegradable substances.

Unit III: Natural Phenomenon

Chapter-10: Light- Reflection and Refraction

Reflection of light by curved surfaces; Images formed by spherical mirrors, centre of curvature, principal axis, principal focus, focal length, mirror formula (Derivation not required), magnification, uses of spherical mirrors.

Refraction; Laws of refraction, refractive index.

Refraction of light by spherical lens; Image formed by spherical lenses; Lens formula (Derivation not required); Magnification. Power of a lens, uses of spherical lenses.

Practical No.10: Determination of the focal length of:

i) Concave mirror

ii) Convex lens

by obtaining the image of a distant object.

Practical No.11: Tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. Measure the angle of incidence, angle of refraction, angle of emergence and interpret the result.

Chapter-11: The Human Eye and the Colourful World

Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses. Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life (excluding colour of the sun at sunrise and sunset).

Practical No.13: Tracing the path of the rays of light through a glass prism.

Note: Completion of the syllabus till 30 September 2022

**Revision of syllabus
Mid –Term Examination 2022**

Unit I: Chemical Substances - Nature and Behaviour

Chapter-4: Carbon and its compounds- Covalent bonding in carbon compounds. Versatile nature of carbon. Homologous series. Nomenclature of carbon compounds containing functional groups (halogens, alcohol, ketones, aldehydes, alkanes and alkynes), difference between saturated hydro carbons and unsaturated hydrocarbons. Chemical properties of carbon compounds (combustion, oxidation, addition and substitution reaction). Ethanol and Ethanoic acid (only properties and uses), soaps and detergents.

Practical No.8: Study of the following properties of acetic acid (Ethanoic acid):

- i) odour
- ii) solubility in water
- iii) effect on litmus paper/solution
- iv) reaction with Sodium hydrogen carbonate

Practical No.9: Study of the comparative cleaning capacity of a sample of soap in soft and hard water.

Unit IV: Effects of Current

Chapter-12: Electricity- Electric current, potential difference and electric current. Ohm's law; Resistance, Resistivity, Factors on which the resistance of a conductor depends. Series combination of resistors, parallel combination of resistors and its applications in daily life. Heating effect of electric current and its applications in daily life. Electric power, Interrelation between P, V, I and R.

Practical No.4: Studying the dependence of potential difference (V) across a resistor on the current (I) passing through it and determine its resistance. Also plotting a graph between V and I.

Practical No.5: Determination of the equivalent resistance of two resistors when connected in series and parallel.

Chapter-13: Magnetic effects of Current- Magnetic field, field lines, field due to a current carrying conductor, field due to current carrying coil or solenoid; Force on current carrying conductor, Fleming's Left Hand Rule, Direct current, Alternating current, frequency of AC, Advantage of AC over DC, Domestic electric circuits.

Unit II: World of Living

Ch-8: Reproduction- Reproduction in animals and plants (asexual and sexual) reproductive health - need and methods of family planning. Safe sex vs HIV/AIDS. Child bearing and women's health.

Practical No.12: Studying (a) binary fission in Amoeba, and (b) budding in yeast and hydra with the help of prepared slides.

Practical No.14: Identification of the different parts of an embryo of a dicot seed (Pea, gram or red kidney bean).

Ch-9 Heredity and evolution: Heredity; Mendel's contribution- Laws for inheritance of traits: Sex determination: brief introduction: (topics excluded - evolution; evolution and classification and evolution should not be equated with progress).

Note: Complete the syllabus by 15 December 2022

- ❖ Pre-board and Annual Examination would cover complete syllabus (exclude deleted chapter)
- ❖ For more information kindly visit to CBSE Academic.

https://cbseacademic.nic.in/curriculum_2023.html

Deleted chapters of the syllabus

Ch-5 Periodic classification of the Elements

Ch-14 Sources of Energy

- Revision of Syllabus
- Practice of Sample Question Papers from CBSE and DoE
- Pre-board and Annual Examination

1. The chapter Management of Natural Resources (NCERT Chapter 16) will not be assessed in the year-end examination. However, learners may be assigned to read this chapter and encouraged to

prepare a brief write up to any concept of this chapter in their Portfolio. This may be for Internal Assessment and credit may be given (Periodic Assessment/Portfolio).

2. The NCERT text books present information in boxes across the book. These help students to get conceptual clarity. However, the information in these boxes would not be assessed in the year-end examination.

Question Paper Design
Class IX/X (2022-23)
Subject: Science (086)

Theory
Maximum Marks : 80

Duration :3 Hours

S.No.	Competencies	Total
1.	Demonstrate Knowledge and Understanding	46%
2.	Application of Knowledge/Concepts	22%
3.	Formulate, Analyze, Evaluate and Create	32%
	Total	100%

Note:

- **Typology of Questions:**
VSA including objective type questions, Assertion – Reasoning type questions; SA; LA; Source-based/ Case-based/ Passage-based/ Integrated assessment questions.
An internal choice of approximately 33% would be provided.

Internal Assessment: 20 Marks

- Periodic Assessment – 05 marks + 05 marks
- Subject Enrichment (Practical Work) – 05 marks
- Portfolio – 05 marks .

Suggestive verbs for various competencies

- **Demonstrate Knowledge and Understanding:**
State, name, list, identify, define, suggest, describe, outline, summarize, etc.
- **Application of Knowledge/Concepts:**
Calculate, illustrate, show, adapt, explain, distinguish, etc.
- **Formulate, Analyze, Evaluate and Create:**
Interpret, analyze, compare, contrast, examine, evaluate, discuss, construct, etc.