

Unit-Wise weightage **Nagaland Board Class 10 Science Syllabus**

Part 'A' External

Time : 3 hours

Marks : 80

Unit	Marks
I. Chemical Substances	25
II. Living World	22
III. Natural Phenomena	12
IV. Electric Current and its Effects	12
V. Natural Resources	09
Total:	80

Part 'B' Internal

20

Grand Total: 100

PART-A: EXTERNAL

80 Marks/180 Periods

Unit I	Chemical substances	
	1. Chemical Reaction and Equations	}
	2. Acids, Bases and Salts	
	3. Metals and Non-metals	}
	4. Carbon and its compounds	
	5. Periodic Classification of Elements	
Unit II	Living World	
	6. Life Processes	}
	7. Control and Coordination	
	8. How do Organisms Reproduce?	}
	9. Heredity and Evolution	
Unit III	Natural Phenomena	
	10. Light- Reflection and Refraction	}
	11. Human Eye and Colourful World	
Unit IV	Electric Current and its Effects	
	12. Electricity	}
	13. Magnetic Effects of Electric Current	
Unit V	Natural Resources	
	14. Sources of Energy	}
	15. Our Environment	
	16. Management of Natural Resources	

Unit I: CHEMICAL SUBSTANCES

1. Chemical Reactions and Equations: Chemical equations, writing a chemical equation and balancing it, types of chemical reactions- combination, decomposition, displacement, double displacement, redox reactions; effects of oxidation in everyday life; corrosion, rancidity.

2. Acids, Bases and Salts: Properties of acids and bases; strength of acid and base solutions; pH, importance of pH in everyday life; salts- preparation and uses of sodium hydroxide, bleaching powder, baking soda, washing soda, plaster of Paris.

3. Metals and non-metals: Properties of metals and non-metals; Reactivity series; formation and properties of ionic compounds; Occurrence of metals and their extractions, refining of metals; Corrosion and its prevention.

4. Carbon and its compounds: Covalent bonding in carbon compounds, saturated and unsaturated carbon compounds, chains, branches and rings; Homologous series; nomenclature of carbon compounds; chemical properties of carbon compounds- combustion, oxidation, addition and substitution reactions; some important carbon compounds- Ethanol and Ethanoic acid; soaps and detergents.

5. Periodic Classification of Elements: Early attempts at classification of elements- Dobereiner's triads, Newton's Law of octaves; Mendeleev's periodic table-achievements and limitations; Modern periodic table, gradation in properties, metallic and non-metallic properties.

Unit II: LIVING WORLD

6. Life processes: Life processes; Nutrition- autotrophic nutrition, heterotrophic nutrition, nutrition in human beings; respiration, transportation and excretion in plants and animals.

7. Control and coordination: Nervous system; reflex action, human brain; coordination in plants- stimuli, movement due to growth; hormones in animals (in brief).

8. How do Organisms Reproduce? Reproduction, variation; reproduction in plants (asexual and sexual); reproduction in human beings.

9. Heredity and evolution: Heredity, Mendel's contributions, Law for inheritance of traits; basic concepts of evolution.

Unit III: Natural Phenomena

10. Light- Reflection and Refraction : Reflection of light; spherical mirrors, image formation by spherical mirrors; uses of concave and convex mirrors; sign conventions; mirror formula and magnification; refraction of light; refraction through a rectangular slab; refractive index; refraction by spherical lenses; image formation by lenses, sign convention; lens formula and magnification; power of a lens.

11. The Human Eye and the Colourful World: The human eye- power and accommodation, defects of vision and their correction; refraction of light through a prism; dispersion of white light by a glass prism; atmospheric refraction; scattering of light.

Unit IV: Electric Current and its Effects

12. Electricity: Electric current and circuit; electric potential and potential difference; circuit diagram; Ohm's Law; factors on which resistance of a conductor depends; resistance(resistors in series and in parallel); heating effect of electric current and its applications; electric power.

13. Magnetic Effects of Electric Current: Magnetic field and field lines; magnetic field due to a current carrying conductor; force on a current carrying conductor in a magnetic field; electric motor, electromagnetic induction, electric generator; domestic electric circuits.

Unit V: NATURAL RESOURCES

14. Sources of Energy: Good source of energy, conventional and non-conventional sources of energy; alternative sources of energy.

15. Our Environment: Ecosystem and its components; food chain, food web; environmental problems- depletion of ozone layer, managing wastes.

16. Management of natural resources: Need for management of natural resources; forest and wild life; sustainable management; dams, water harvesting, coal and petroleum.

PART-B: INTERNAL

20 Marks

Area of Assessment	Marks
1. Experiments/Activities	10

2. Records	5
3. Formal Test	5
Total	20

Experiments and activities should be conducted alongside the concepts taught in theory classes. The students should be assessed on a continuous and comprehensive basis. The role of a teacher assumes a very significant part, as such, they are expected to be fair and assess the performance of the students without any bias.

A student is expected to perform and record at least 3 experiments and 2 activities in each period of assessment from the list suggested below. Thus, a student shall perform a total of at least 6 (six) experiments and 4 (four) activities, at least one from each unit, throughout the academic year.

List of Experiments:

• CHEMICAL SUBSTANCES

- To find the pH of given samples by using pH paper-
(a) Dilute hydrochloric acid, (b) Dilute solution of sodium hydroxide, (c) Dilute solution of ethanoic acid, (d) Lemon juice, (e) Water (distilled), (f) dilute solution of sodium bicarbonate.
- To measure the change in temperature during chemical reactions (at least 4) and conclude whether the reaction is exothermic or not.
- To identify bleaching powder from a given sample of chemicals (4-5 samples).
- To identify washing soda or baking soda from given samples of chemicals (4-5 samples).
- To verify the dynamic nature of equilibrium by conducting any two reversible reactions.
- (a) To carry out the reactions of an acid (HCL) with (i) litmus solution (blue and red), (ii) zinc metal (iii) sodium carbonate and (iv) sodium hydroxide.
(b) To carry out the reactions of a base (NaOH) with (i) litmus solution (blue and red), (ii) aluminium metal, and (iii) hydrochloric acid.
- To study saponification reaction for preparation of soap.
- To study the comparative cleaning capacity of a sample of soap in soft water and hard water.

• LIVING WORLD

- To study binary fission for budding with the help of prepared slides.
- To prepare a temporary mount of a leaf peel to show its stomata.
- To show experimentally that light is necessary for photosynthesis.
- To show experimentally that oxygen evolves during photosynthesis.
- To show experimentally that carbon dioxide is produced during respiration.
- To grow different plants by different methods of propagation.
- To dissect and study the structure of a complete flower.
- To identify the different parts of an embryo of a dicot seed (pea/ gram/ red kidney beans, etc).
- To study homology and analogy with the help of preserved/ available specimens.

• NATURAL PHENOMENA

- To verify the laws of reflection of light using plane mirror.
- To determine the focal length of a concave mirror by obtaining image of a distant object.
- To find the image distance for varying object distances in case of a convex lens and draw corresponding ray diagrams to show the nature of image formed.
- To trace the path of a ray of light passing through a rectangular glass slab and measure the angle of incidence and the angle of emergence.
- To determine the focal length of a convex lens by focusing a distant object.

- To trace the path of the rays of light passing through a glass prism.

- **ELECTRIC CURRENT AND ITS EFFECTS**

- To study the dependence of current (I) on the potential difference (V) across a resistor and determine its resistance and also to plot a graph between V and I.
- To find out the resultant resistance of two resistors when connected in series.
- To find out the resultant resistance of two resistors when connected in parallel.

- **NATURAL RESOURCES**

- To find out about the organizations in your neighborhood/village/town, those are active in the spread of awareness about our environment and promote activities and attitudes that lead to sustainable management of our environment and natural resources.
- To find about any two forest produce that are the basis for an industry. And to find out whether this industry is sustainable in the long run and whether do we need to control our consumption of these products.
- To find out what happens to the waste generated at home, and to find out how the local body (Panchayat, Municipal Corporation, resident welfare organizations) deal with the waste.
- To find out how the sewage in your locality is treated.
- To find out how the local industries in your locality treat their wastes.
- To search from the library/internet how to treat hazardous materials before disposing them.
- To find out the areas suffering chronic water shortage.
- To study the rainfall patterns of your state. Identify the regions where water is abundant and the regions of water scarcity.

List of Activities:

- Group/Individual Assignments
- Information gathering and deducing
- Discussion and debate
- Science symposium/seminar
- Presentation on science concepts/experiments
- Model making
- Field Trip

Prescribed textbook:

Science Class X

***- NCERT Textbook (Nagaland edition)
Printed & distributed by Evergreen Publications***

Science Laboratory Manual Class X

***- Evergreen Publications (I) Ltd.
4738/23, Ansari Road Daryaganj
New Delhi-110002***