

SCIENCE SYLLABUS

Class – 10

10th Class Science Syllabus – An Overview

Syllabus for Class 10 Science is designed to provide a foundational understanding of various scientific principles. It is divided into three broad sections: Physics, Chemistry, and Biology. Here's a detailed breakdown of the topics and sub-topics covered in the Class 10 Science syllabus:

Here our chapters for ITSE Examination :-

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

1. Chemical Reactions and Equations

Topics and Sub-topics:

- Chemical equations
- Types of chemical reactions: Combination, Decomposition, Displacement, Double displacement, Precipitation, Neutralization, Oxidation and Reduction.
- Effects of oxidation in everyday life (Corrosion and Rancidity).

2. Acids, Bases, and Salts

Topics and Sub-topics:

- Their definitions in terms of furnishing of H^+ and OH^- ions.
- General properties, examples, and uses.
- Concept of pH scale (Definition relating to logarithm; Simple numerical problems).
- Importance of pH in everyday life
- Preparation and uses of: Sodium Hydroxide, Bleaching powder, Baking soda, Washing soda and Plaster of Paris.

3. Metals and Non-metals

Topics and Sub-topics:

- Properties of metals and non-metals
- Reactivity series
- Formation and properties of ionic compounds.
- Basic metallurgical processes
- Corrosion and its prevention

4. Carbon and its Compounds

Topics and Sub-topics:

- Covalent bonding in carbon compounds.

- Versatile nature of carbon
- Homologous series
- Nomenclature of carbon compounds
- Chemical properties of carbon compounds (combustion, oxidation, addition, substitution reaction).
- Important carbon compounds (ethanol and ethanoic acid) and their properties.
- Soaps and detergents.

5. Periodic Classification of Elements

Topics and Sub-topics:

- Need for classification
- Modern periodic table
- Gradation in properties
- Valency
- Atomic number, metallic and non-metallic properties.

6. Life Processes

Topics and Sub-topics:

- What are life processes?
- Nutrition: Autotrophic and Heterotrophic
- Respiration: Aerobic and Anaerobic (in yeast and humans)
- Transportation in plants and animals
- Excretion in plants and animals

7. Control and Coordination

Topics and Sub-topics:

- Control and coordination in animals: Nervous system, Voluntary, involuntary, and reflex action.
- Chemical coordination: Animal hormones
- Control and coordination in plants: Tropic movements, Introduction of plant hormones.

8. How do Organisms Reproduce?

Topics and Sub-topics:

- Reproduction in animals and plants (asexual and sexual).
- Reproductive health - need and methods of family planning.
- Safe sex vs HIV/AIDS
- Childbearing and women's health.

9. Heredity and Evolution

Topics and Sub-topics:

- Heredity; Mendel's contribution – Laws for inheritance of traits.
- Sex determination: Brief introduction
- Basic concepts of evolution

10. Light – Reflection and Refraction

Topics and Sub-topics:

- (i) Reflection of light by curved surfaces
- (ii) Images formed by spherical mirrors - Centre of curvature, principal axis, principal focus, focal length.
- (iii) Mirror Formula (Derivation not required).
- (iv) Refraction; Laws of refraction, refractive index - Refraction of light by spherical lens.
- (v) Image formed by spherical lenses.
- (vi) Lens formula (Derivation not required)
- (vii) Magnification - Power of a lens

11. Human Eye and Colourful World

Topics and Sub-topics:

- 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 (Tyndall effect, Blue colour of the sky and Reddish appearance of the sun at sunrise and sunset).

12. Electricity

Topics and Sub-topics:

- (i) Electric current, potential difference and electric current.
- (ii) Ohm's law; Resistance, Resistivity
- (iii) Factors on which the resistance of a conductor depends - Series combination of resistors, parallel combination of resistors and its applications in daily life.
- (iv) Heating effect of electric current and its applications in daily life.
- (v) Electric power, Interrelation between P, V, I and R.

13. Magnetic Effects of Electric Current

Topics and Sub-topics:

- 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.
- Electric Motor, Electromagnetic induction.
- Induced potential difference, Induced current, Fleming's Right-Hand Rule.
- Direct current. Alternating current: frequency of AC, Advantage of AC over DC.
- Domestic electric circuits

14. Sources of Energy

Topics and Sub-topics:

- (i) Different forms of energy - Conventional and non-conventional sources of energy - Fossil fuels, Solar energy, Biogas, Wind, Water, Tidal, Geothermal, Nuclear (Brief introduction).
- (ii) Renewable versus non-renewable sources of energy.

15. Our Environment

Topics and Sub-topics:

- Eco-system, Environmental problems, Ozone depletion, waste production and their solutions.
- Biodegradable and non-biodegradable substances.

16. Management of Natural Resources

Topics and Sub-topics:

- Conservation and judicious use of natural resources.
- Forest and wildlife, Coal and Petroleum conservation.
- Examples of people's participation for conservation of natural resources.
- Big dams: Advantages and limitations.
- Water harvesting, Sustainability of natural resources.