

2009—2010
Class - IX
SCIENCE
COURSE STRUCTURE
(THEORY)

| One Paper | Time : 3 Hours | Marks : 60 |
|--|----------------|------------|
| UNITS | | MARKS |
| I. Food | | 05 |
| II. Matter - Its nature and behaviour | | 15 |
| III. Organisation in living world | | 13 |
| IV. Motion, Force and Work | | 20 |
| V. Our Environment | | 07 |
| TOTAL | | 60 |

Theme : Food

Unit 1 : Food

Plant and animal breeding and selection for quality improvement and management ; use of fertilizers, manures; protection from pests and diseases; organic farming.

Theme : Materials

Unit 2 : Matter - Nature and behaviour

Definition of matter; solid, liquid and gas; characteristics - shape, volume, density; change of state-melting (absorption of heat), freezing, evaporation (Cooling by evaporation), condensation, sublimation.

Nature of matter : Elements, compounds and mixtures. Heterogenous and homogenous mixtures, colloids and suspensions.

Particle nature, basic units : atoms and molecules. Law of constant proportions. Atomic and molecular masses.

Mole Concept : Relationship of mole to mass of the particles and numbers. Valency. Chemical formula of common compounds.

Structure of atom : Electrons, protons and neutrons; Isotopes and isobars.

Theme : The World of the living

Unit 3 : Organization in the living world.

Biological Diversity : Diversity of plants and animals - basic issues in scientific naming, basis of classification. Hierarchy of categories / groups, Major groups of plants (salient features) (Bacteria, Thalophyta, Bryo phyta, Pteridophyta, gymnosperms and

Angiosperms). Major groups of animals (salient features) (Non-chordates upto phyla and chordates upto classes).

Cell - Basic Unit of life : Cell as a basic unit of life; prokaryotic and eukaryotic cells, multicellular organisms; cell membrane and cell wall, cell organelles; chloroplast, mitochondria, vacuoles, ER, golgi apparatus; nucleus, chromosomes - basic structure, number.

Tissues, organs, organ systems, organism.

Structure and functions of animal and plant tissues (four types in animals; merismatic and permanent tissues in plants).

Health and diseases : Health and its failure. Infectious and Non-infectious diseases, their causes and manifestation.

Diseases caused by microbes (Virus, Bacteria and Protozoans) and their prevention, Principles of treatment and prevention. Pulse polio programmes.

Theme : Moving things, people and ideas

Unit 4 : Motion, Force and Work

Motion : Distance and displacement, velocity; uniform and non-uniform motion along a straight line; acceleration, distance-time and velocity-time graphs for uniform and uniformly accelerated motion, equations of motion by graphical method; elementary idea of uniform circular motion.

Force and Newton's laws : Force and motion, Newton's laws of motion, inertia of a body, inertia and mass, momentum, force and acceleration. Elementary idea of conservation of momentum, action and reaction forces.

Gravitation : Gravitation; universal law of gravitation, force of gravitation of the earth (gravity), acceleration due to gravity; mass and weight; free fall.

Floatation : Thrust and pressure. Archimedes' principle, buoyancy, elementary idea of relative density.

Work, Energy and Power : Work done by a force, energy, power; kinetic and potential energy; law of conservation of energy.

Sound : Nature of sound and its propagation in various media, speed of sound, range of hearing in humans; ultrasound;

reflection of sound; echo and SONAR.

Structure of the human ear (auditory aspect only).

Theme : Natural Resources

Unit 5 : Our Environment

Physical resources : Air, Water, Soil.

Air for respiration, for combustion, for moderating temperatures, movements of air and its role in bringing rains across India.

Air, water and soil pollution (brief introduction). Holes in ozone layer and the probable damages.

Bio-geo chemical cycles in nature : water, oxygen, carbon, nitrogen