

MONTHLY SYLLABUS

SESSION-2017-18

CLASS-IX

SUBJECT : SCIENCE

MONTH	CONTENTS
April 2017	<p>Matter – Nature and behaviour</p> <p>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.</p> <p>Experiment No. 7: Determine the melting point of ice and boiling point of water.</p> <p>Experiment No. 3 : Separation of components of mixture of sand, common salt and ammonium chloride (or camphor)</p> <p>Cell – Basic unit of Life:</p> <p>Cell as a basic unit of life; Prokaryotic and Eukaryotic cells, multicellular organisms, cell membrane and Cell Wall, Cell Organelles and Cell inclusions; Chloroplast, Mitochondria, Vacuoles, Endoplasmic reticulum, Golgi apparatus; Nucleus, Chromosomes – basic structure, number.</p> <p>Experiment No. 5: Preparation of stained temporary mounts of</p> <ul style="list-style-type: none">a) Onion peelb) Human Cheek Cells and to record observations and draw their labeled diagrams.
May 2017	<p>Motion:</p> <p>Distance and displacement, velocity, uniform and non-uniform motion and uniformly accelerated motion, derivation of equations of motion by graphical method; elementary ideas of</p>

	uniform circular motion.
July 2017	<p>Nature of Matter:</p> <p>Elements, Compound and mixtures. Heterogenous and homogenous mixtures, colloids and suspension.</p> <p>Experiment No. 1 : Preparation of</p> <ol style="list-style-type: none"> A true solution of common salt, sugar and alum. A suspension of soil, chalk powder and fine sand in water. A colloidal solution of starch in water and egg albumin/ milk in water and distinction between these on the basis of <ul style="list-style-type: none"> • transparency • filtration criterion • stability <p>Experiment No. 2: Preparation of</p> <ol style="list-style-type: none"> Mixture A Compound <p>Using Iron falling and Sulphur powder and distinction between these on the basis of –</p> <ol style="list-style-type: none"> appearance i.e. homogeneity and heterogeneity behavior towards a magnet behavior towards Carbon disulphide as a solvent effect of heat. <p>Experiment No. 4 : Performing the following reactions and classifying them as physical or chemical changes:</p> <ol style="list-style-type: none"> Iron with Copper Sulphate solution in water Burning of magnesium ribbon in air

	<p>c) Zinc with dilute Sulphuric Acid</p> <p>d) Heating of Copper Sulphate Crystals</p> <p>e) Sodium Sulphate with Barium Chloride in the form of their solution in water.</p> <p>Tissue, Organs, Organ System Organism</p> <p>Structure and functions of animal and plant tissues (only four types of tissues in animals, meristematic and permanent tissues in plants)</p> <p>Experiment No. 6: Identification of parenchyma, Collenchyma and Sclerenchyma tissues in plants, striped, smooth and cardiac muscle fibres and nerve cells in animals from prepared slides. Drawing of their labelled diagram.</p>
August 2017	<p>Force and Newton's Law's</p> <p>Force and motion, Newton's Laws of Motion, Action and reaction forces, Inertia of body, Inertia and mass, Momentum, force and acceleration. Elementary idea of conservation of momentum.</p> <p>Food Production:</p> <p>Plant and animal breeding and solution for quality improvement and management; uses of fertilizers and measures; protection from pests and diseases, organic farming.</p> <p>Gravitation:</p> <p>Gravitation: Universal law of Gravitation, force of Gravitation of earth (gravity), Acceleration due to gravity; Mass and weight, Free fall.</p>
September 2017	<p>Revision of syllabus taught since April to August.</p> <p>Half yearly exams and evaluation</p>

October 2017	<p>Floatation:</p> <p>Thrust and pressure, Archimedes' principle, Buoyancy, Elementary idea of Relative density.</p> <p>Biological Diversity:</p> <p>Diversity of plants and animals – basic issues in scientific naming, basis of classification. Hierarchy of categories/ groups, major groups of plants (Salient features) (Bacteria, Thallophyta, Bryophyta, Pteridophyta, Gymnosperm and angiosperms). Major groups of animals (salient features) (Non Chordates upto Phyla and Chordates upto class)</p> <p>Experiment No. 12: Study of characteristics of Spirogyra, agriacus, moss (fern, pinus (either with male or female cone) and an angiospermic plant. Drawing and providing two identifying features of the groups they belong to.</p> <p>Experiment No. 13: Observing the given pictures/ charts / models of earthworm, cockroach, bony fish and bird. For each organism, drawing of their picture and recording :</p> <p>Experiment No. 15: Study of the external features of root, stem, leaf and flower of monocot and dicot plants.</p>
November 2017	<p>Structure of atom:</p> <p>Electrons, Protons and Neutrons, Valency, Chemical formula of common compounds, Isotopes and Isobars.</p> <p>Experiment No. 9: Determine the density of solid (denser than water) by using a spring balance and measuring cylinder.</p> <p>Experiment No. 10: Establishing the relation between the loss on weight of solid when fully immersed in (a) tap water (b) Strongly salty water. With the weight of water displaced by it by taking at least two different solids.</p> <p>Work Energy and Power:</p>

	<p>Work done by force, Energy, Power, Kinetic and Potential energy; Law of conservation of energy.</p> <p>Practical Nature, Basic Unit:</p> <p>Atoms and molecules, Law of constant proportions. Atomic and molecular masses, mole concept; Relationship of mole to mass of the particles and numbers.</p> <p>Experiment No. 14: Verification of Law of Conservation of mass in a chemical reaction</p> <p>Health and Diseases:</p> <p>Health and its failure. Infection 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.</p> <p>Sound:</p> <p>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 human ear (Auditory aspect only)</p> <p>Experiment No. 8: Verification of Law of reflection of sound</p> <p>Experiment No. 11: Determine the speed of pulse propagated through a stretched string / slinky.</p>
December 2017	<p>Our Environment:</p> <p>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.</p> <p>Biogas Chemical cycles in nature:</p>

	Water, Oxygen, Carbon and Nitrogen
January 2018	Revision of Whole Syllabus taught since April 2017 to Jan. 2018 MCQ Practice
February 2018	ANNUAL PRACTICAL EXAMS Revision and Mock Test for Annual Exams
March 2018	Annual Exams, Evaluation and Result Preparation
List of Practical	
Experiment No. 1 : Preparation of	
d) A true solution of common salt, sugar and alum.	
e) A suspension of soil, chalk powder and fine sand in water.	
f) A colloidal solution of starch in water and egg albumin/ milk in water and distinction between these on the basis of	
<ul style="list-style-type: none"> • transparency • filtration criterion • stability 	
Experiment No. 2: Preparation of	
c) Mixture	
d) A Compound	
Using Iron filings and Sulphur powder and distinction between these on the basis of –	
v) appearance i.e. homogeneity and heterogeneity	
vi) behavior towards a magnet	
vii) behavior towards Carbon disulphide as a solvent	

viii) effect of heat.

Experiment No. 3 : Separation of components of mixture of sand, common salt and ammonium chloride (or camphor)

Experiment No. 4 : Performing the following reactions and classifying them as physical or chemical changes:

- f) Iron with Copper Sulphate solution in water
- g) Burning of magnesium ribbon in air
- h) Zinc with dilute Sulphuric Acid
- i) Heating of Copper Sulphate Crystals
- j) Sodium Sulphate with Barium Chloride in the form of their solution in water.

Experiment No. 5: Preparation of stained temporary mounts of

- c) Onion peel
- d) Human Cheek Cells and to record observations and draw their labeled diagrams.

Experiment No. 6: Identification of parenchyma, Collenchyma and Sclerenchyma tissues in plants, striped, smooth and cardiac muscle fibres and nerve cells in animals from prepared slides. Drawing of their labeled diagram.

Experiment No. 7: Determine the melting point of ice and boiling point of water.

Experiment No. 8: Verification of Law of reflection of sound.

Experiment No. 9: Determine the density of solid (denser than water) by using a spring balance and measuring cylinder.

Experiment No. 10: Establishing the relation between the loss on weight of solid when fully immersed in (a) tap water (b) Strongly salty water. With the weight of water displaced by it by taking at least two different solids.

Experiment No. 11: Determine the speed of pulse propagated through a stretched string / slinky.

Experiment No. 12: Study of characteristics of Spirogyra, agriacus, moss (fern, pinus (either with male or female cone) and an angiospermic plant. Drawing and

providing two identifying features of the groups they belongs to.

Experiment No. 13: Observing the given pictures/ charts / models of earthworm, cockroach, bony fish and bird. For each organism, drawing of their picture and recording :

- a) One specific feature of its phylum.
- b) One adaptive features with reference to its habitat.

Experiment No. 14: Verification of Law of Conservation of mass in a chemical reaction.

Experiment No. 15: Study of the external features of root, stem, leaf and flower of monocot and dicot plants.