Term-wise Syllabus
Session-2019-20
Class-IX
Subject: Science (086)

Unit No.	Unit	Marks
I	Matter - Its Nature and Behaviour	23
II	Organisation in the Living World	20
III	Motion, Force and Work	27
IV	Our Environment	06
V	Food; Food Production	04
	Total	**80**
	Internal assessment	**20**
	Grand Total	**100**

Term-I (April 2019 to September 2019)

Contents

UNIT-I Matter-Its Nature and Behaviour

Chapter -1:**Matter in our surroundings**

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.

Suggestive Practical: Determine the melting point of ice and boiling point of water.
(S.no.7 as per the List of Experiments from CBSE.)

Chapter-2: Is Matter Around Us Pure:

Elements, Compound and mixtures. Heterogeneous and homogenous mixtures, colloids and suspension.

Suggestive Practical : Preparation of
a) A true solution of common salt, sugar and alum.
b) A suspension of soil, chalk powder and fine sand in water.
c) A colloidal solution of starch in water and egg albumin/ milk in water and distinction between these on the basis of
• transparency
• filtration criterion
• stability
(S.no.1 as per the List of Experiments from CBSE.)

Suggestive Practical: Preparation of a) Mixture b) A Compound, using Iron filing and Sulphur powder and distinction between these on the basis of –
i) appearance i.e. homogeneity and heterogeneity
ii) behavior towards a magnet
iii) behavior towards Carbon disulphide as a solvent
iv) effect of heat
(S.no.2 as per the List of Experiments from CBSE.)

Suggestive Practical: Separation of components of mixture of sand, common salt and ammonium chloride (or camphor) (S.no.3 as per the List of Experiments from CBSE.)

Suggestive Practical: Performing the following reactions and classifying them as physical or chemical changes:
a) Iron with Copper Sulphate solution in water b) Burning of magnesium ribbon in air
c) Zinc with dilute Sulphuric Acid d) Heating of Copper Sulphate Crystals
e) Sodium Sulphate with Barium Chloride in the form of their Solution in water.
(S.no.4 as per the List of Experiments from CBSE.)

UNIT-II Organisation in the Living World:
Chapter-5:**The Fundamental Unit Of Life**
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.

Suggestive Practical : Preparation of stained temporary mounts of
a) Onion peel
b) Human Cheek Cells and to record observations and draw their labeled diagrams.
(S.no.5 as per the List of Experiments from CBSE.)

Chapter- 6: Tissues
Structure and functions of animal and plant tissues (only four types of tissues in animals, meristematic and permanent tissues in plants)

Suggestive Practical: Identification of Parenchyma, Collenchyma and Sclerenchyma tissues in plants, Striped, Smooth and Cardiac muscle fibres and Nerve cells in animals from prepared slides. Draw their labeled diagram.
(S.no.6 as per the List of Experiments from CBSE.)

UNIT-III – Motion, Force and Work
Chapter-8: Motion
Distance and displacement, velocity, uniform and non-uniform motion along a straight line, acceleration, distance- time and velocity- time graphs for uniform motion and uniformly accelerated motion, Derivation of equations of motion by graphical method, elementary idea of uniform circular motion.

Chapter-9: Force and Laws of Motion:
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.

UNIT-II – Organisation in the Living World
Chapter-7: Diversity In Living Organism
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).

Suggestive Practical: Study of characteristics of Spirogyra, Agaricus, moss , fern, pinus (either with male or female cone) and an Angiospermic plant. Draw and give two identifying features of the groups they belong to. (S.no.12 as per the List of Experiments from CBSE.)

Suggestive Practical: Observing the given pictures/ charts /models of earthworm, cockroach, Bony fish and Bird. For each organism, draw their pictures and record :
a) One specific feature of its phylum.
b) One adaptive feature with reference to its habitat.
(S.no.13 as per the List of Experiments from CBSE.)

Suggestive Practical: Study of the external features of root, stem, leaf and flower of monocot and dicot plants. (S.no.15 as per the List of Experiments from CBSE.)

UNIT V-FOOD PRODUCTION

Chapter-15: Improvement In Food Resources

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

Revision of syllabus for Mid –Term Examination 2019

Term –II (October 2019 to March 2020)

UNIT III – MOTION, FORCE AND WORK

Chapter-10:Gravitation

Gravitation, Universal law of Gravitation, Force of Gravitation of earth (gravity), Acceleration due to gravity; Mass and weight, Free fall.

Floatation: Thrust and pressure, Archimedes' principle, Buoyancy, Elementary idea of Relative density.

Suggestive Practical: Determination of the density of solid (denser than water) by using a spring balance and measuring cylinder. (S.no.9 as per the List of Experiments from CBSE.)

Suggestive Practical: Establishing the relation between the loss in 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. (S.no.10 as per the List of Experiments from CBSE.)

UNIT IV - OUR ENVIRONMENT

Chapter-14:Natural Resources

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 and Nitrogen

UNIT I – Matter - Its Nature and Behavior

Chapter-3: Atoms And Molecules

Particle nature, basic units: Atoms and molecules, Laws of chemical combination. Chemical formula of common compounds,Atomic and molecular masses, mole concept; Relationship of mole to mass of the particles and numbers.

Suggestive Practical: Verification of Law of Conservation of mass in a chemical reaction.
(S.no.14 as per the List of Experiments from CBSE.)

Chapter-4: Structure Of The Atom Electrons, Protons and Neutrons, Valency, atomic number and mass number, Isotopes and Isobars.

UNIT II – Organisation in the Living World

Chapter-13: Why Do We Fall ill

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 programs and Immunization.

UNIT III - MOTION,FORCE AND WORK

Chapter-11: Work and Energy

Work done by a force, Energy, Power, Kinetic and Potential energy; Law of conservation of energy.

Chapter-12: 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 Human ear (Auditory aspect only)

Suggestive Practical: Verification of Laws of reflection of sound.
(S.no.8 as per the List of Experiments from CBSE.)

Suggestive Practical: Determination of the speed of a pulse propagated through a stretched string / slinky (helical spring).
(S.no.11 as per the List of Experiments from CBSE.)

SYLLABUS SHOULD BE COMPLETED BY DECEMBER 2019

- **Revision of Syllabus**
- **Practice of Practicals.**
- **Revision of syllabus from Support Material**

COMMON ANNUAL SCHOOL EXAMINATION-(CASE) 2020

Question Paper Design
Class IX/X (2019-20)
Subject : Science (086)

Board Examination-Theory
Maximum Marks : 80 **Duration :3 Hours**

S.No.	Typology of Questions	Objective Type * (01 mark)	SA (03 marks)	LA (05 marks)	Total
1.	**Remembering**: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	**07**	**02**	**01**	**22.5%**
2.	**Understanding**: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas	**04**	**02**	**02**	**25%**
3	**Applying**: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	**04**	**01**	**02**	**21.25%**
4.	**Analyzing and Evaluating**: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.	**05**	**02**	**01**	**20%**
5.	**Creating**: Compile information together in a different way by combining elements in a new pattern or proposing alternative compulsory	**-**	**03**	**-**	**11.25%**
	Total	**20(20)**	**10(30)**	**06(30)**	**100%**

All questions would be compulsory .However, an internal choice of approximately 33% would be provided.

2) Internal Assessment: 20 Marks

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

Note: Objective Section would have 10 MCQ. Besides this, the section would include VSA, Assertion-Reasoning type questions etc.

Note: *As CBSE has changed the question Paper Design of Science, So for more information please refer Guidelines issued by CBSE for classes IX &X (2019-2020).*