

S.B.P D.A.V CENTENARY PUBLIC SCHOOL, FATEHABAD.

CLASS-IX

SUBJECT-SCIENCE

MONTH	CHAPTER	CONTENT	ACTIVITIES & EXPERIMENTS
APRIL- MAY	Motion The fundamental unit of life.	Distance, 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, equations of motion by graphical method; elementary idea of uniform circular motion. 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 and cell inclusions; chloroplast, mitochondria, vacuoles,	To measure the reading of odometer and speedometer of a car in given interval of time. Show osmosis with the help of raisins. Preparation of stained temporary mounts of (a) onion peel, (b) human cheek cells & to record observations and draw their labeled diagrams (Experiment-4)

		endoplasmic reticulum, Golgi apparatus; nucleus, chromosomes - basic structure, number.	
	Is Matter around us Pure	Elements, Compound, Mixture, types of mixtures, three solutions, Colloids & Suspension, Solubility, Separation by suitable solvent, separation by sublimation, Separation by filtration, Separation by centrifugation, Separation by crystallization, Separation by chromatography.	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 distinguish (Experiment-1) Preparation of a) A mixture b) A compound (Experiment-2) Perform the following reactions and classify them as physical or chemical changes. (Experiment-3)
JUNE - JULY	Force and Laws of Motion	Force and motion, Newton's laws of motion, inertia of a body, inertia and mass, momentum, force and acceleration.	Pushing a wall by man and moves backward

	Matter in our surroundings	Elementary idea of conservation of momentum, action and reaction forces.	To dissolve Potassium permanganate in water to show the characteristics of particles of matter.
	Tissue	Matter, Classification of Matter, properties of solids, liquids & gases, Temperature scale, Effect of change of temperature & pressure on states of Matter, Evaporation Structure and functions of Plant and animal tissues (only four types of tissues in animals).	To demonstrate latent heat. To show permanent slides of Parenchyma, Collenchymas and sclerenchyma (Experiment-5) To show permanent slides of different types of muscular tissue.
	Gravitation	Gravitation; universal law of gravitation, force of gravitation of the earth (gravity), acceleration due to gravity; mass and weight; free fall.	Determination of the density of solid (denser than water) by using a spring balance and a measuring cylinder (Experiment-1) Establishing the relation between the loss in weight of a solid when fully immersed in a) Tap water b) Strongly salty water with the weight of water displaced by it by taking at

Syllabus of Unit test- I – Motion, Is Matter around us Pure, Fundamental unit of Life

			least two different solids. (Experiment-2)
AUGUST	Atoms and Molecule(Half) Revision of Unit test-I	Atoms and molecules. Law of constant proportions. Atomic and molecular masses.	Verification of the law of conservation of mass in a chemical reaction (Experiment-3)
SEPTEMBER	Atom and Molecule(Half) Why do we fall ill Revision of Unit- II	Relationship of mole to mass of the particles and numbers. Valency. Chemical formula of common compounds. 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.	Survey of Neighborhood to find how many people suffer from chronic and acute diseases

October	Work and energy(Half) Revision of Term -I Syllabus	Work done by a Force, Energy, Kinetic and Potential energy.	
NOVEMBER	Term - I Exams		
DECEMBER	Work and Energy(Half) Structure of Atom	Power, Law of Conservation of Energy Electrons, protons and neutrons, valency, chemical formula of common compounds. Isotopes and Isobars.	Calculate the Electricity bill of your house for the month of September Chart of Atomic number and Mass Number of Different atoms with Electronic Configuration
JANUARY	Unit test-III Exams		
FEBRUARY- MARCH	Revision of term-II and Exams		

Syllabus of Unit test- II- Force and laws of motion, Tissue

Syllabus of Term – I - Motion, Is Matter around us Pure, Fundamental unit of Life, Force and laws of motion, Tissue

Syllabus of Unit test- III – Gravitation, Atom and molecule, Why do we fall ill

Syllabus of Term – II – Gravitation, Work and Energy, Atom and Molecule, Structure of atom, Why do we fall ill

COURSE STRUCTURE

CLASS IX

EVALUATION SCHEME

Theory

Units Term- I Marks

I Matter-Its Nature and Behaviour: Chapter - 2	09
II Organization in the Living World: Chapter - 5 and 6	18
III Motion, Force and Work: Chapter - 8 and 9	13

Units Term - II Marks

I Matter-Its Nature and Behaviour: Chapter 3 and 4	18
II Organization in the Living World: Chapter -13	08
III Motion, Force and Work: 10 and 11	14

Total Theory (Term I+II) 80

Internal Assessment: Term I 10

Internal Assessment: Term II 10

Grand Total 100

TERM – I

Theme: Materials

Unit I: Matter- It's Nature and Behaviour

Chapter – 2 Is matter around us Pure

Nature of matter: Elements, compounds and mixtures. Heterogeneous and homogeneous mixtures, colloids and suspensions.

Theme: The World of the Living

Unit II: Organization in the Living World

Chapter – 5 The Fundamental Unit of Life

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 and cell inclusions; chloroplast, mitochondria, vacuoles, endoplasmic reticulum, Golgi apparatus; nucleus, chromosomes - basic structure, number.

Chapter – 6 Tissues, Organs, Organ System, Organism:

Structure and functions of animal and plant tissues (only four types of tissues in animals; Meristematic and Permanent tissues in plants).

Theme: Moving Things, People and Ideas

Unit III: Motion, Force and Work

Chapter – 8 Motion

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 Newton's laws: Force and Motion, Newton's Laws of Motion, Action and Reaction forces, Inertia of a body, Inertia and mass, Momentum, Force and Acceleration. Elementary idea of conservation of Momentum.

TERM - II

Theme: Materials

Unit I: Matter- It's Nature and Behaviour

Chapter – 3 Atoms and Molecules

Particle nature and their 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.

Chapter – 4 Structure of Atom

Structure of atoms: Electrons, protons and neutrons, valency, chemical formula of common compounds. Isotopes and Isobars.

Theme: Moving Things, People and Ideas

Unit III: Motion, Force and Work

Chapter – 10 Gravitation

Gravitation: Gravitation; Universal Law of Gravitation, Force of Gravitation of the earth (gravity), Acceleration due to Gravity; Mass and Weight; Free fall.

Chapter – 11 Work and Energy

Work, energy and power: Work done by a Force, Energy, power; Kinetic and Potential energy; Law of conservation of energy.

Theme: The World of the Living

Unit II: Organization 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 programmes.

ONLY FOR INTERNAL ASSESSMENT

Note: Learners are assigned to read the below listed part of Unit IV. They can be encouraged to prepare a brief write up on any one concept of this Unit in their Portfolio. This may be an assessment for Internal Assessment and credit may be given (Periodic assessment/Portfolio). This portion of the Unit is not to be assessed in the year-end examination.

Theme: Natural Resources: Balance in nature

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.

PRACTICALS

Practicals should be conducted alongside the concepts taught in theory classes.

TERM-I

LIST OF EXPERIMENTS

1. 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 distinguish between these on the basis of
 - transparency
 - filtration criterion
 - stability

Unit-I: (Chapter -2)

2. Preparation of

- a) A mixture
 - b) A compound
- using iron filings and sulphur powder and distinguishing between these on the basis of:
- i. appearance, i.e., homogeneity and heterogeneity
 - ii. behaviour towards a magnet
 - iii. behaviour towards carbon disulphide as a solvent
 - iv. effect of heat

Unit-I:(Chapter-2)

3. Perform the following reactions and classify 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 solutions in water.

Unit-I:(Chapter-2)

4. Preparation of stained temporary mounts of (a) onion peel, (b) human cheek cells & to record observations and draw their labeled diagrams. **Unit-II:(Chapter-5)**

5. Identification of Parenchyma, Collenchyma and Sclerenchyma tissues in plants, striped, smooth and cardiac muscle fibers and nerve cells in animals, from prepared slides. Draw their labeled diagrams. **Unit-II:(Chapter-6)**

TERM-II

LIST OF EXPERIMENTS

1. Determination of the density of solid (denser than water) by using a spring balance and a measuring cylinder. **Unit-III:(Chapter-10)**

2. Establishing the relation between the loss in weight of a 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. **Unit-III:(Chapter-10)**

3. Verification of the law of conservation of mass.