HANSRAJ MODEL SCHOOL

PUNJABI BAGH, NEW DELHI

CURRICULUM

SESSION: 2024-25

SUBJECT: Science

CLASS: IX

MONTH	TOPIC/SUBTOPIC	LEARNING INTENTIONS	ACTIVITY	ASSIGNMENTS
April	**<u>CHAPTER MOTION(PHYSICS)</u>** ● Rest and Motion ● Scalar and Vector quantities ● Distance and displacement ● Speed and Velocity	The learner ● classifies different types of motion as uniform-non uniform; linear circular that she/he sees in everyday life ● Is able to differentiate between scalar and vector ● Calculates speed ,Average speed ,acceleration from the given data	● Design a colorful poster on scalar and vector quantities	● Intext questions pg 74 ● Intext questions pg 77 ● \Numericals pg 82

	• Acceleration • Graphical representation of motion • Equations of Motion and its numericals • uniform circular motion **L-Matter in our surroundings(CHEM)** • States of matter • Interconversion between different states of matter	• draws graphs, such as distance time and velocity time graph • analyses and interprets graphs/ figures etc., such as distance time ; velocity time graphs, to compute distance/ speed/ acceleration of objects in motion . • Applies scientific concepts in daily life and records & reports experimental data objectively and honestly. Students will be able to : • describe, identify and recognize all the three states of matter.	• word search activity ACTIVITY Calculate the speed at which the earth revolves around the sun in m/s. A game in the form of Treasure hunt	• NCERT back ex questions **LINK FOR WORKSHEETS** https://drive.google.com/file/d/1QpWMUMi4ebo7C8E3_xk2UM6AER1UHHx0/view?usp=drive_link https://drive.google.com/file/d/1tucP-fyw0vQIt_LHJO2VriPPv0oqBYWe/view?usp=drive_link Intext questions pg 3

		● correlate the properties of matter with daily life situations. ● infer the definitions of fusion, condensation, solidification and sublimation. ● Problem solving skills ● Cooperation, coordination and team work	**Adventure-Team building and problem solving** will be played in school playground on the Properties of Solids, Liquids and Gases. Activity in the lab demonstrating inter conversion of physical state of matter. (Boiling point and melting point of water along with sublimation of ammonium chloride/iodine)	Intext questions pg 6 Intext questions pg 9
May	**<u>L-Matter in our surroundings</u> (contd.)** ● Evaporation – factors ● Evaporation causes cooling	Students will be able to: ● distinguish between evaporation and boiling. ● integrate latent heat of vaporisation and latent heat of fusion in their daily lives. develop, compute and construct the concept of "Evaporation causes cooling".	The students will be asked to demonstrate the role of evaporation causes cooling daily life in the form of power point presentation.	In-text question pg10 Back exercise Questions+ Assignment based on Competency based questions.

July	**<u>L- Is Matter Around Us Pure</u>** ● Elements, Compounds and mixtures ● Types of Mixtures- Solution, Suspension and Colloid	Students will be able to: ● identify, enumerate and define elements, compounds and mixtures. ● discriminate between the three kinds of mixture. ● predict the properties of the three kinds of mixture. ● demonstrate the Tyndall effect. ● incorporate and integrate the importance of concentration of solutions.	<u>ROLE PLAY</u> Assign the role of solution, suspension and colloid to the students and ask them to collect information on the topics allotted.	In-text questions pg 15 In-text questions pg 18
	<u>Chapter-5, Cell - The Basic Unit of Life</u> (Biology) ● Introduction ● What are living organisms made up of? (Activity-5.1) ● What are these structures? ● Discoveries related to cells and 'Cell theory'.	The students will be able to- ● Enable students to understand the importance of the cell -the fundamental unit of life. ● Inculcate drawing skills.	● Diagrammatic representation of plant cell and animal cell to show various cell organelles.	Pages-51 & 53 Intext questions, Extra Questions

	• Unicellular and multicellular organisms • Shape and size of cell (Activity 5.2) • Division of labor • What is a cell made up of? • Plasma Membrane (Osmosis, diffusion & Plasmolysis) • Cell wall • Nucleus • Prokaryotic and Eukaryotic cell • Cytoplasm **CHAPTER FORCE AND LAWS OF MOTION '(PHYSICS)** • Balanced and unbalanced force • Concept of inertia • Newton's laws of motion	• Interpret the knowledge with slides prepared in the lab by the students. Explain and apply the concepts of cellular functions such as diffusion and osmosis. • Compare and contrast the plant cells and the animal cells. • Differentiate Prokaryotic and Eukaryotic cells. The learner • Differentiates between balanced and unbalanced forces	• To show the process of exosmosis in fresh grapes and endosmosis in raisins and record them. **(Content related)** Showcase applications of newton's laws of motion (	Extra Questions

	• First law -law of inertia • Newton's 2nd law & its applications, • Newton's 1st Law is a special case of Newton's 2nd Law • Newton's 3rd law and its applications, • Numericals based on Newton's 2nd Law • Numericals on momentum	• Plans and conducts investigations/ experiments to arrive at and verify the facts/ principles/ phenomena to seek answers to queries on their own, such as force can be used to change the magnitude of velocity of an object , or to change its direction of motion • explains processes / laws such as Newton's laws of motion • Calculates using the data given, such as force, momentum, acceleration • Draws figures/ diagram to illustrate Newton's laws of motion	Submit your powerpoint presentation)	NCERT Intext questions pg 91 Intext questions pg 94 Back exercise NCERT Exemplar questions Competency based questions
August	**L- <u>Is Matter Around Us Pure (contd.)</u>**	Students will be able to: • recognize physical and chemical changes taking place in daily life.	Demonstration of • types of mixture • distinguish between mixture and compound	In-text questions pg 19

	• Physical and Chemical changes **<u>Chapter-5, Cell - The Basic Unit of Life</u>** (Biology) Contd. • **<u>Cell organelles</u>** a. Endoplasmic Reticulum b. Golgi Apparatus c. Lysosomes d. Mitochondria e. Plastids f. Vacuoles • **<u>Cell division</u>** a. Mitosis b. Meiosis **<u>CHAPTER GRAVITATION (PHYSICS</u>**	• To express themselves and share their experience without inhibition. • Be responsible and take care of lab apparatus while performing activities in Lab. The students will be able to- • Understand the structure and functions of cell organelles. • Differentiate the types of cell division.	in Lab. • To prepare a 3-D model of Plant Cell and Animal Cell using waste materials available at home. Also, compare the two and enlist their differences. **(Art integration)**	NCERT Back exercise questions+Assignment based on competency based questions. Pages-55 & 57 Intext questions, Extra Questions

	• Newton's universal Law of Gravitation - formula and numericals, its importance. • Free fall and the concept of acceleration due to gravity • Calculate the value of 'g' • Motion of objects under the influence of gravitational force of earth. • Numericals based on the above topics.	The learner • Draws figures or diagrams to illustrate universal law of gravitation • Applies scientific concepts of gravitation in daily life in solving problems • Uses measures physical quantities using appropriate apparatus/ instruments, such as, spring balance • Comprehends the concept of acceleration due to gravity and the factors affecting it.	Make a colourful comic strip on free fall/mass and weight/buoyancy	NCERT Intext questions pg 104 ,106 NCERT Exemplar questions

	• Difference between mass and weight. • Weight of an object on the moon			
September	Revision for TERM-I examination			
October	**<u>Chapter- Structure Of Atom</u>** • Definition of atoms and molecules • Models of Atom- Thomson, Rutherford and Bohr	Students will be able to: • define atom and molecule • compare the properties of subatomic particles of an atom • describe and sketch the structure of an atom according to Thomson's Model • sketch Bohr's model of an atom • formulate electronic configuration of elements with atomic no. 1 to 20	Design the Thomson's Model of an atom using the concept of 4R's Assign each child an element and ask him /her to prepare a headgear and depict its symbol, electronic configuration, atomic number and valency	In-text questions pg 39 In-text questions pg 41 In-text questions pg 42

	<u>Chapter-6, Tissues (Biology)</u> **<u>Define</u>**-Tissues, Division of Labor, Utility of Tissues in multicellular organisms **<u>I. Plant Tissues-Types</u>** **<u>1. Meristematic Tissue</u>** ● Location and functions of different types of Meristematic Tissues in the Plant Body. **<u>2. Simple Permanent Tissues</u>** ● Types of Simple Permanent Tissues(supportive) - Parenchyma, Collenchyma, Sclerenchyma. **<u>CHAPTER GRAVITATION (CONTD)</u>** **Topic - Thrust & Pressure**	The students will be able to- ● State the importance of different types of tissues . ● Explain the difference between plant and animal tissue.	To Study permanent Slides of : ● Parenchyma ● Collenchyma ● Sclerenchyma	Page-61 & 65 Intext questions, Extra Questions

	• Thrust and pressure • Mathematical relationship between thrust & pressure • SI unit of pressure • Practical applications of relationship between thrust, area and pressure • Pressure in Fluids • Upthrust or Buoyancy, • Principle of floatation, • Archimedes Principle, • Application of Archimedes Principle Numericals based on the above topics	The learner • Differentiates between thrust and pressure • Plans and conducts investigations/ experiments to arrive at and verify the facts/ principles/ phenomena to seek answers to queries on their own, such as to understand the meaning of buoyancy; How objects float/ sink when placed on the surface of liquid? • Describes scientific discoveries/ inventions • Explains processes / laws such as Archimedes' principle • enhances their creative and critical thinking skills	Experiment 1 To calculate the density of a given solid Experiment 2 To verify Archimedes principle	NCERT back exercise

November	**<u>Chapter -Structure Of Atom (contd.)</u>** ● Valency ● Atomic No. and Mass No. ● Isotopes and Isobars **<u>Chapter- Atoms and Molecules</u>** ● Laws of Chemical Combination ● Atomic mass **<u>L-6, Tissues (Contd.)</u>** ● Types of Simple Permanent Tissues(protective) - ● Epidermis	Students will be able to ● apply the concept of valency, atomic no. and mass no. in solving numericals. ● enhance their creative and critical thinking ● acquire the ability to utilise technology and information for the betterment of their living. Students will be able to: ● analyse which includes contrast, distinguish and examine the various characteristics of elements The students will be able tto- ● Classify different types of plant tissues.	Role play by the students in small groups to present different plant tissues.	In-text questions pg 44 In-text questions pg 45 Back exercise questions ie Assignment on competency based questions. In-text questions pg 27-28 In-text questions pg 30

	• Cork **3. Complex Permanent Tissues** • Xylem • Phloem **CHAPTER WORK AND ENERGY (PHYSICS)** **Work** – • Definition, formula, unit, numericals • Positive work done and negative work done, zero work done • Energy - Definition, Forms of Energy • Kinetic Energy - Definition, Derivation of the formula of K.E. • Potential Energy -	• Explain the structure of plant tissues. THE Learner • Understands the concept of work and defines types of work • Identifies and lists different types of work • Explains the term energy and its types • Comprehends various examples showing transformation of energy. Derives expression of KE and PE	ACTIVITY - To make a board game on positive , negative and zero work. ACTIVITY To complete a scientific story using terms studied in physics	NCERT Intext questions pg 118,119

	Definition, Derivation of the formula of P.E., ● Numericals based on the above topics ● Law of Conservation of Energy ● Explanati on of the law of conservat ion of energy ● . Power - Definitio n,			Activity 10.5 pg 1222 Ncert back exercises

	formula, unit • Numericals based on the above topics			

December	**<u>L- Atoms and Molecules (contd.)</u>** ● Ions- Cations and Anions ● Writing Chemical Formulae **L-6, Tissues (Contd.)** **<u>II. Animal tissues</u>** ● Epithelial ● Connective ● Muscular ● Nervous **<u>Chapter-15, IMPROVEMENT IN FOOD RESOURCES</u>** **<u>Introduction</u>**	Students will be able to: ● compare the properties of cations and anions ● apply the knowledge of valency and then interpret it in the form of chemical formula for compounds ● strengthen knowledge and attitude related to lifelong learning ● nurture effective communication and interpersonal relationship ● develop the sense of collective belonging. The students will be able to- ● Draw flow chart on the basis of different tissue structure and functions ● Apply a broad based foundation of knowledge of cells and tissues to understand the functioning of living organisms. The students will be able to-	Activity on the concept of conservation of mass in lab A game in the form of **Relay Race** will be played in the School playground on chemical formulae. ● To illustrate diagrammatically nerve cell using waste materials easily available.**(Art integration)**	In-text questions pg 34 Back exercise questions+ Assignment on competency based questions. Pages-69 Intext questions, Back exercise questions

	• Improvement in Crop Yields • Kharif crops and rabi crops • Practices involved in farming **<u>Crop Variety improvement</u>** • Hybridisation • Factors for which crop variety improvement is done • Fertilizers and manures • Irrigation **<u>CHAPTER SOUND (PHYSICS)</u>** • Production of sound • Propagation of sound, Explanation of sound as a wave • Difference between	• Relate the importance of the irrigation system with crop production. The learner • Understands the concept of -propagation of sound, Differentiates between /electromagnetic and mechanical waves Compares the speed of sound in different media/echo formation and relate it to daily life experiences.	• To discuss the advantages of manures over fertilizers. **(Content related)** <u>ACTIVIT Y</u>	NCERT INTEXT QUESTIONS

	Mechanical and Electromagnetic waves, Experiment to show that sound needs medium to travel, ● Speed of sound in different media ● Reflection of sound ● Echo-definition, explanation -		Use the vibrating tuning fork and a tennis ball to produce sound <u>ACTIVITY</u> Group presentations 1 sound needs a medium to travel 2 speed of sound in solids liquids and gases 3 loudness depend on amplitude 4 pitch depends on frequency 5 light spot dance	

			<u>EXPERIMENT</u> Verification of the Laws of reflection of sound	
January	**CHAPTER SOUND (CONTD)** ● Multiple reflection of sound and its applications ● Reverberation & methods to reduce it ● Range of hearing- normal range, infrasonic, ultrasonic waves Ultrasound- application of ultrasound	The learner ● •Differentiates between Ultrasound and Infrasound ● Gains knowledge about applications of ultrasound in daily life		NCERT BACK EXERCISES ASSIGNMENT ON CASE STUDY,COMPETENCY BASED QUESTIONS

	L- Atoms and Molecules (contd.) ● Molecular Mass ● Molar Mass	Students will be able to: ● calculate molecular mass of given molecule ● distinguish between molecular mass and formula unit mass ● calculate the molar mass of given substance	Assignment based on numericals	In-text questions pg 35 Back exercise questions+ assignment on competency based questions.
	<u>Chapter-15, IMPROVEMENT IN FOOD RESOURCES (Contd.)</u> **<u>Cropping Patterns</u>** ● Mixed Cropping ● Inter Cropping ● Crop Rotation **<u>Crop Protection Management</u>** **<u>Storage of Grains</u>** **<u>Organic Farming</u>** **<u>Animal Husbandry</u>** ● Cattle farming ● Poultry farming	The students will be able to- ● Analyze the different ways of growing crops to get the maximum benefit.	● Students will frame different patterns among themselves to study various cropping patterns. **(Sports integration)** ● To search for biological methods to protect crops from pests.	Page-204 & 205 Intext questions, Extra Questions Page-206, 207 & 208, Extra Questions

	• Egg and broiler production • Fish Production- (I) Marine Fisheries (II) Inland Fisheries • Bee keeping		• To gather information regarding: a) Poultry birds b) Pisciculture c) Apiculture **(Content related)**	Page-211 & 213, Extra Questions
February		Revision for Annual Examination		