INFANT JESUS CONVENT SCHOOL
ANNUAL PLAN
SCIENCE
CLASS: IX

MONTH/NO OF DAYS	TOPIC: SUB TOPIC	OBJECTIVES	AIDS/ ACTIVITIES	MULTIPLE INTELLIGENCE SKILLS	LEARNING OUTCOME
APRIL No of Days: 18	**CHAPTER 7**: - Motion (PHYSICS) **TOPIC**: Scaler and Vector quantities, reference point Distance, displacement, speed, velocity, acceleration, uniform and non-uniform motion, **CHAPTER 5**: - Fundamental Unit of Life (BIOLOGY) **TOPIC**: Cell as a basic unit of life; prokaryotic and eukaryotic cells, Unicellular and multicellular organisms, cell membrane and cell wall (basic structure and function), Different types of solutions (hypertonic solution, hypotonic solution and isotonic solution) **CHAPTER 1**: - Matter in our surroundings	**Student will be able to** • Understand the difference between displacement and distance, uniform and non- uniform motion. • Know about cell and its structural organization • Analyze the function of cell membrane and cell wall with reference to their importance in vital role of life • Justify the concept of osmosis and imbibition with real life examples. • Study the types of tonicities and explore their impact on cell. • Reason out the differences	**KNOWLEDGE:** • Know the concept of describing motion and reference point. • Cell theory time line. • Understands the cell theory • Learns the physical properties of matter. **SKILL:** • Diagram making • Analyzing • Scientific skill • Problem solving • Creative thinking Critical thinking **UNDERSTANDING:** • Understand the difference between distance and displacement.	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence • Linguistic Intelligence	**Student are able to:** • Differentiate between scalar and vector quantities • Explain the difference between distance and displacement, speed and velocity with examples • Identify accelerated and non-accelerated motion in a body and reasons out for the same. • Explain average velocity and average speed. • Solve numerical problems on velocity and acceleration. • Apply the concept of uniform circular motion and the concept of

	(CHEMISTRY) **TOPIC**: Define Matter, Physical properties of matter, characteristics of solid, liquid and gas; shape, volume, density	between the various states of matter. • Define matter with examples from day today life and state the composition of matter.	• Differentiate between prokaryotic and eukaryotic cells • Analyze the concepts of hypertonic solution is responsible for shrinkage of finger when we wash clothes. Evaluate that vegetables releases water while cooking. • States the properties of matter. **APPLICATION:** • Observation of instantaneous speed from speedometer and distance from odometer. • Applies in real life situations. • Preparation of stained temporary mounts of Onion peel and human cheek cell. • To observe the result of hypertonic solution the		uniformly accelerated motion • Know about cell and its structural organization. • Justify the concept of osmosis and imbibition with real life examples. • Study the types of tonicities and explore their impact in cell. • Reason out the differences between the various states of matter on the basis of rigidity, fluidity, • Compressibility, density, i.e., shape, density, diffusion etc. • Define matter with examples from day today life and state the composition of matter. • Analyze the characteristics of the particles of matter applicable in day today life activities.

			concept of plasmolysis will be explained to the students.		
MAY No of Days: 14	**CHAPTER 7**: - Motion (PHYSICS) elementary idea of circular motion and distance-time and velocity-time graphs for uniform motion and uniformly accelerated motion, Numerical problem **CHAPTER 5**: - Fundamental Unit of Life (BIOLOGY) **TOPIC** Nucleus, Basic structure of Nucleus, Functions of Nucleus. **CHAPTER 1**: Matter in Our Surrounding (CHEMISTRY) **TOPIC**: Changes of state of matter: Effect of temperature Effect of pressure Latent heat, Boiling, Evaporation	**Learners will be able to:** • Define uniform circular motion, acceleration. • Identify accelerated and non-accelerated motion in a body • Draw the graphs. • Know the three equations of motion. • Understand the role and importance of Nucleus present in it. • Explain terms related -melting, freezing, boiling, condensation and sublimation. • Apply the knowledge of latent heat (ice, steam) in day today life activities. • Analyze the difference between evaporation and boiling.	**KNOWLEDGE:** • Graphical representation of distance time and velocity time graphs for real life situations. • Understands the interconversion of states of matter. • Mind map **SKILL:** • Diagram making • Analyzing • Scientific skill • Problem solving • Creative thinking • Critical thinking **UNDERSTANDING:** • Draw graphs • Differentiates the solids, liquids and gases. • Identifies the type of equation and solve the numerical problem • Learns the basic structure of nucleus.	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence • Linguistic Intelligence	**Learners are able to:** • Know about cell and its structural organization. • Analyze the function of cell membrane and cell wall with reference to their importance in vital role of life • Explain terms related -melting, freezing, boiling, condensation and sublimation, latent heat. • Learns the equations of motion • Solve the numerical • Explain heating and applying the pressure changes the state of matter. • Differentiate boiling and evaporation • Explain the functions of nucleus.

		• Interpret the factors affecting evaporation.	• Learns the concept of changes of state of matter. **APPLICATION:** • Applies formulae to solve numerical problem • Identify motion through graphs in different situations. • Determination of the melting point of ice and the boiling point of water. • Draw a structure of nucleus		
REVISION: PT-1					
CONDUCTION OF PT-1 ASSESSMENT (Third Week of May)					
JULY No of Days: 27	**CHAPTER 8**: - Force & Laws of Motion (PHYSICS) **TOPIC**: Force, Inertia of a body, Inertia and mass, Momentum, laws of motion **CHAPTER 5**: - Fundamental Unit of Life (BIOLOGY)	**Learners will be able to: -** • Differentiate between balanced and unbalanced forces • Learns relationship inertia and mass. • Calculate value of momentum.	**KNOWLEDGE:** • Illustrate the examples of balanced and unbalanced forces. • Explains inertia through real life examples. • Explain the three laws of motion	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence	**Learners are able to:** • Differentiate between balanced • and unbalanced forces • Relate real life situations with where inertia concept is seen. • Explain the laws of motion in various situations.

	TOPIC: cell organelles and cell inclusions; chloroplast, mitochondria, vacuoles, endoplasmic reticulum, Golgi apparatus; nucleus, chromosomes - basic structure, number. **CHAPTER 2**: Is Matter Around Us Pure? (CHEMISTRY) define pure substance Heterogeneous and homogenous mixtures. True solutions, colloids and suspensions. Physical or Chemical changes: Concentration of solution	• Explain the laws of motion in various situations. • Calculate change in momentum in different situations. • Understand the role and importance of different organelles present • Know about pure and impure substances. Classify pure substances as element and compound. • Classify mixture into homogeneous and heterogeneous substances. • Understand the properties of true solutions, colloids and suspension	• GO (Graphic Organization) of Organelles and their functions. • Differentiate the types of solutions. **SKILL:** • Diagram making • Analyzing • Scientific skill • Problem solving • Creative thinking • Critical thinking **UNDERSTANDING:** • Identifications of laws of motion in real life situation. • Explains momentum through real life situations. • Observes and identify Tyndall effect in colloids, suspensions. • Characterize the pure substance according to its composition. **APPLICATION:** • Sketching and applying Newton's laws of motion in real life applications.	• Linguistic Intelligence.	• Calculate change in momentum in different situation. • Recognize the role and importance of various organelles. • Know about pure and impure substances. • Classify pure substances as element and compound • Understand solubility and factors affecting solubility. • classify mixture into homogeneous and heterogeneous substances. • Learn various ways of expressing concentration. • Calculate concentration in terms of mass and volume%. • Categorize and contrast physical and chemical changes.

			• Collage on Tyndall effect • Draw 3D diagram of plant and animal cell.		
AUGUST No of Days: 23	**CHAPTER 9**: Gravitation (PHYSICS) **TOPIC**: Gravitation; Universal Law of Gravitation, Force of Gravitation of the earth (gravity), Acceleration due to Gravity; Mass and Weight; Free fall. **CHAPTER 6**: - Tissues (BIOLOGY) **TOPIC**: Structure and functions of plant tissues, Meristematic and Permanent tissues in plants **CHAPTER 2**: Is Matter Around Us Pure? (CHEMISTRY) Elements, compounds and mixtures.	**Learners will be able to: -** • Derive State the importance of universal law of gravitation. • Understands the concepts of mass and weight • Define free fall. • Interpret various types of tissues • Differentiate between meristematic and permanent tissues • Locate different tissues in the plant body. • Differentiate between elements, compounds and mixture	**KNOWLEDGE:** • Cover Page**:** Importance of Universal law of Gravitation. • Diagrammatically differentiate between Parenchyma, Collenchyma and Sclerenchyma Tissues. • Crossword puzzle **SKILL:** • Diagram making • Analyzing • Scientific skill • Problem solving • Creative thinking • Critical thinking **UNDERSTANDING:** • Explanation through pics for any 3 applications of universal law of gravitation. • Prepare a flow-chart to discuss the types of Animal and Plant tissues.	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence • Linguistic Intelligence	**Learners are able to:** • Evaluate the numerical value of g at different places like earth and moon. • Calculate the weight of given object on moon and earth. • Interpret various types of tissues • Identify elements, compounds and mixtures around them

			APPLICATION: • Identify free fall in real life applications • Identification of tissues in plants, muscle fibers and nerve cells in animals from prepared slides. • Prepare a flow chart showing different type of plant tissues. • Separation of components of a mixture.		
SEPTEMBER No of Days: 05	**REVISION: TERM-1**				
CONDUCTION OF TERM-1 ASSESSMENT (Second Week of September)					
	CHAPTER 9: Floatation (PHYSICS) **TOPIC**: Thrust and Pressure. Archimedes' Principle; Buoyancy **CHAPTER 6**: - Tissues (BIOLOGY) **TOPIC:** Structure and functions of animal tissues, Types of animal tissues:	**Learners will be able to: -** • Understand the concept of buoyancy and buoyant force • Solve numerical problems based on thrust and pressure. • Calculate the density of a given solid.	**KNOWLEDGE:** • Define thrust and pressure • Discuss applications of Archimedes principle. • Discussion on the fact that element combine in the fixed proportion through various examples	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence • Linguistic Intelligence	**Learners are able to:** • Understand the concept of buoyancy and buoyant force • Solve numerical problems based on thrust and pressure. • Calculate the density of a given solid.

OCTOBER No of Days: 22	Epithelial tissue, connective tissue **CHAPTER 3**: Atoms and Molecules (CHEMISTRY) **TOPIC**: Atoms and molecules, Law of Chemical Combination,	• Locate different tissues in various animal tissues in the living organisms • Correlate various animal tissues and their functions. • Define atoms and molecules and can give examples. • State the laws of chemical combination.	**SKILL:** • Diagram making • Analyzing • Scientific skill • Problem solving • Creative thinking Critical thinking **UNDERSTANDING:** • Understands the force requires floating of an object on the water surface using buoyancy. • Calculates the pressure exerted on a surface by thrust. **APPLICATION:** • Determination of the density of solid (denser than water) by using a spring balance and a measuring cylinder • Establishing the relation between the loss in weight of a solid when fully immersed in Tap water • Strongly salty water with the weight of water displaced by it by		• Differentiate between an atom and an ion. • Define and write examples of cations, anions and polyatomic ions. • Locate different tissues in various animal tissues in the living organisms • Correlate various animal tissues and their functions. •

			taking at least two different solids. • Verification of the law of conservation of mass in a chemical reaction. • Draw the diagrams of Epithelial tissue and connective tissue		
NOVEMBER No of Days: 23	**CHAPTER 10**: Work and Energy (PHYSICS) **TOPIC**: Define Work done Types of work done, Define Energy, Kinetic and Potential energy, Mechanical energy. **CHAPTER 3**: Atoms and Molecules (CHEMISTRY) **TOPIC**: Chemical formula of common compounds, Atomic and molecular masses **CHAPTER 6**: - Tissues (BIOLOGY) **TOPIC:**	**Learners will be able to: -** • Derive expression of KE and PE • Understand different types of energy. • Understand the meaning of work according to science • Analyze • Differentiate between an atom and an ion. • Define and write examples of cations, anions and polyatomic ions. • Apply their knowledge of ions in writing	**KNOWLEDGE:** • Explains the type of work done and energy • List the Symbols of elements and Chemical formulas of compounds. **SKILL:** • Diagram making • Analyzing • Scientific skill • Problem solving • Creative thinking Critical thinking **UNDERSTANDING**: • Differentiate between striated, unstriated and cardiac tissues. • Quiz on writing formulae and	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence • Linguistic Intelligence	**Learners are able to:** • Analyse the criterion to classify the work as positive, negative or zero and gives illustrations. Identify potential energy and kinetic energy in bodies. • Apply their knowledge of ions in writing chemical formulae. • Calculating molecular mass • Evaluate different functions of tissues depending on their location and structure.

	Types of animal tissues: Muscular and Nervous tissue.	chemical formulae. • Calculating molecular mass • Understanding the structure and functions of Muscular and Nervous tissue.	calculation for molecular mass, number of moles and particles. • **APPLICATION:** Verification of the law of conservation of mass in a chemical reaction. • PPT on types of work done / types of energy • Draw diagram of muscular and nervous tissue		
	REVISION: PT-2				
CONDUCTION OF PT-2 ASSESSMENT (Fourth Week of November)					
DECEMBER No of Days: 11	**CHAPTER 10**: Work and Energy(PHYSICS) **TOPIC**: Power; Law of conservation of energy **CHAPTER 12**: Improvement in Food Resources (BIOLOGY) **TOPIC**: Plant and animal breeding and selection for quality improvement and managements	**Learners will be able to: -** **Learners will be able to: -** • Learn and understand the concept of Power • Solve numerical • Comprehend various examples showing transformation of energy.	**KNOWLEDGE:** • Define power. • Explain conservation of energy in real life situation. • To make a list of Rabi, Kharif and Zaid crops with their growing and harvesting season • Crossword **SKILL:**	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence • Linguistic Intelligence	**Learners are able to:** • Illustrate interconversion of energy. • Solve the conceptual numerical. • Compare the power of different gadgets. • Comprehend various examples showing transformation of energy.

		• different cropping patterns like Mixed, crop rotation, inter, organic farming. • Share their opinion on improvement of crop variety.	• Diagram making • Analyzing • Scientific skill • Problem solving • Creative thinking Critical thinking **UNDERSTANDING**: • Calculate Power. • News analysis: - search a news on latest innovations in agricultural practices and crop production and analysis it according to own understanding. **APPLICATION:** • Displaying law of conservation of energy. • Identify and compare the various management practices involved in animal husbandry.	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence • Linguistic Intelligence	• Derive expression of KE and PE • Understand different types of energy. • Understand the meaning of work according to science • Analyze different cropping patterns like Mixed, crop rotation, inter, organic farming. • Share their opinion on improvement of crop variety.

JANUARY No of Days: 21	**CHAPTER 11**: Sound (PHYSICS) **TOPIC**: Characteristics of sound, speed of sound, range of hearing in humans; ultrasound; reflection of sound; echo. **CHAPTER 12**: Improvement in Food Resources (BIOLOGY) **TOPIC**: Use of fertilizers and manures; Protection from pests and diseases; Organic farming **CHAPTER 4**: Structure of Atom (CHEMISTRY) **TOPIC**: Atomic models Electrons, protons and neutrons, Valency, Atomic Number and Mass Number, Isotopes and Isobars.	**Learners will be able to: -** • Understand how the sound is produced and propagates • Understand different types of waves and their characteristics • Know about condition that is required for echo to take place. • Apply concept of multiple reflection of sound in real life situations • Understand the concept of ultrasound • list the applications of ultrasound • Calculate the distance using the concept of SONAR • Explore their critical thinking by studying the importance of plant breeding. • Appreciate the importance of organic farming	**KNOWLEDGE:** • Gains knowledge of various pesticides. • Discussion on the topic: The problem of energy can be solved by using nuclear fuels. The age of fossil can be determined by calculating the % of C-14 isotope in fossil. • Timeline for structure of atom. **SKILL:** • Diagram making • Analyzing • Scientific skill • Problem solving • Creative thinking Critical thinking **UNDERSTANDING:** • Role play to understand the concept of sound. • Explore the benefits of Organic farming • TIMELINE for the discovery of the structure of atom. **APPLICATION:**	• Naturalist Intelligence • Logical-Mathematical Intelligence • Interpersonal Intelligence • Visual-Spatial Intelligence. • Existential Intelligence • Linguistic Intelligence	**Learners are able to:** • Understand how the sound is produced and propagates • Understand different types of waves and their characteristics • Know about condition that is required for echo to take place. • Apply concept of multiple reflection of sound in real life situations • Understand the concept of ultrasound • list the applications of ultrasound • Calculate the distance using the concept of SONAR • Critically analyze alpha scattering experiment by comparing with the previous proposed model of atom. • Describe Thomson model, Rutherford model and Bohr's model of an atom • Compare the properties of the

		• Critically analyze alpha scattering experiment by comparing with the previous proposed model of atom. • Describe Thomson model, Rutherford model and Bohr's model of an atom • Compare the properties of the sub-atomic particles. • Explain the observations of alpha scattering experiment in detail along with the supporting reasons. • Calculate the average atomic mass of the isotopes and give explanation for fractional atomic masses.	• Explore the uses of radioactive atoms in daily life. • Comic strip on discovery of atom and fundamental particles. • Determination of the speed of a pulse propagated through a stretched string/slinky (helical spring). • Verifications of laws of reflection of sound • Make a PPT on animal husbandry.		sub-atomic particles. • Explain the observations of alpha scattering experiment in detail along with the supporting reasons. • Calculate the average atomic mass of the isotopes and give explanation for fractional atomic masses. • Explore their critical thinking by studying the importance of manure • Appreciate the importance of organic farming
FEBRUARY No of Days: 22	**REVISION: TERM-2**				
MARCH	**FINAL ASSESSMENT**				