

SCIENCE - PHYSICAL SCIENCE - STANDARD VI - UNIT 1 - OUR EARTH - 8 PERIODS

Expected specific outcomes of learning	Content in Terms of Concepts	Curriculum Transactional Strategies	Illustrations	Evaluation	No. of Periods allotted
1	2	3	4	5	6
Identifies and recognizes the stars and planets, their movements and place of earth in the solar system.	1.1 The solar system, planets and moons - stars, galaxies, stellar constellations. Conditions essential for life on earth	Lists out planets of the solar system with their sizes, distances from the sun, moons, orbital period and physical conditions. Identifies the factors essential for life to exist on earth.	Develops models of the solar system to explain the movement of the planets and satellites. Demonstrates with model the formation of day and night and seasons on earth.	Name the planets in the solar system. Name the planets which do not have satellite Which planet has maximum number of satellites? State the requirements for the existence of life on earth.	3
Understands the structure of the earth	1.2 Structure of the earth - crust, mantle and core.	Explains with model, the features of thin mantle, crust and molten core.	Lists out minerals found in the crust and their uses.	Name the three layers of earth. In which layer of the earth are minerals found ?	3
Recognizes the presence and the role of atmosphere of earth.	1.3 Atmosphere - Composition - colour of sky - air pollution - oceans and water - evaporation.	Demonstrates the presence of oxygen in air. Lists out air pollutants and their harmful effects - explains the water cycle with diagram. Identifies oceans and seas on the earth. Lists out how soil is essential for existence of life on earth. Lists out types of soils found on the earth.	Illustrates with diagram different layers of atmosphere. Demonstrates the formation clouds with evaporation and condensation of water. Collects samples of different soils and observes their features.	Name the two main gases present in air. What happens to water when wet clothes dry? Mention any two properties of water that makes it a special liquid. Name any two important minerals obtained from oceans. Why soil is essential for the existence of life on earth?	2

SCIENCE - PHYSICAL SCIENCE - STANDARD VI - UNIT 2 - MEASUREMENT - 14 PERIODS

1	2	3	4	5	6
Understands the need for measurements	2.1 Need for measurement	Observes that the length units based on some parts of human body differ from person to person.	Demonstrates how the length of room, bench or table varies when measured in cubits or foot.	Why do we use standard units of measurement?	2
Appreciates the need for standard units of measurement.	2.2 Units of measurement.	Examines a metre scale and a measuring tape.	Estimates the length and breadth of a book and compares it with actual measurement.	Give examples of measurements in daily life	
Appreciates the standard unit for measurement of quantities.	2.3 SI units of length, mass and time.	Mentions SI unit of length, mass and time.	Lists out the rules to be observed while writing SI units.	Give the rules while writing SI units.	1
Observes the need for using multiples and submultiples of units	2.4 Simple multiples and submultiples of units.	Analyses the need for multiples and sub-multiples of units of measurement.	Observes the smallest length of measurements and markings/divisions in the scale. Tabulates the multiples and sub-multiples of unit of measurement.	Tabulate the distances between towns in our state and cities in our country. How will you find the thickness of a sheet of paper in your science book? State the precautions to be taken while using a metre scale.	2
Develops skills in proper use of measuring scale and tape. Develops methods to measure the length of curved lines.	2.5 Direct measurement of length - proper use of scale / tape Length of curved lines.	Measures the length of a book, class room and playground. Measures the length of curved lines with thread/measuring tape.	Experiments with metre scale / tape and measures length of objects. Measures the circumference of a bicycle wheel with a thread / measuring tape.	Use a thread to find the perimeter of a coin	2
Familiarizes with various	2.6	Identifies various measuring	Uses a measuring	How will you find the	3

1	2	3	4	5	6
containers for measurement of volume of liquids	Measurement of volume of solids and liquids.	vessels used in daily life. Demonstrates use of overflow jar/measuring jar to find the volume of regular and irregularly shaped solids.	cylinder to measure different volumes of liquids. Makes measurement of volumes of regular / irregularly shaped solids.	volume of a floating body by using displacement method?	
Observes the working of a beam balance.	2.7 Measurement of mass of solids.	Observes that mass of object is measured by comparing it to a standard mass.	Measures out fixed masses of sand/grain. Measures the correct mass of a solids by varying weights.	Name the balance used in laboratories, jewellery shops for accurate measurement of small masses.	2
Identifies methods of measurement of time. Recognizes the periodic events and motion of moon and earth and relates it to day, month and year. Identifies different devices for measurement of time.	2.8 Measurement of time.	Experiments with different timing devices - sun-dial, sand-clock, water-clock and pendulum clock.	Analyses the periodic events caused by motion of earth and moon Tabulates the multiples of time, second, minutes, hour, day, month and year.	Name any two events that repeat after fixed time intervals. What kind of watch is used to measure the time in sports events?	2

SCIENCE - PHYSICAL SCIENCE - STANDARD VI - UNIT 3 - NATURE OF MATTER - 12 PERIODS

Expected Specific Outcome Of Learning	Content In Terms Of Concepts	Curriculum Transactional Strategies	Illustrations	Evaluation	No.of Periods Allotted
? Recalls matter in and around us.	3.1 The nature of matter Definition of matter	Different forms of matter can be shown and thereby impressions can be created.	Simple experiments like floating of ice on water.		1
? Recognizes three kinds of matter in day today life	3.2. Three states of matter.	Interconversion of matter can be conducted by showing available materials	Heating of certain solids having low melting points.	What are the three states of matter? Give one example for each.	1
? Distinguishes between solids liquids and gases by mere sight	3.2.1. Solids Liquids Gases	S ? L ? G S ? G Simple experiments to show different types of matter Testing the conversion of ice into water Testing the conversion of iodine into vapour and camphor into vapour.	Direct interaction of students with available solids liquids and gaseous matters. Eg. Stone, water, gas in balloon. To explain the nature of gas perfumes can be used.	Name three solids and liquids used in homes	1
? Understands the rigidity of solids, fluidity of liquids and	3.3 Important properties. 3.3.1 Solids-	Compactness of the solids to be explained through manual handling of available solids	Experiments to show the shape of solids, liquids and gases with suitable	What will happen if you add a drop of blue ink to water?	1

expansion or contraction of gases.	Compactness, shape, solubility of solid.	and liquids	diagrams.		
? Analyses the phenomenon of perfume reaching us through the medium of air.	3.3.2 Liquids-desired shape, fluidity of liquids 3.3.3 Gases tendency to occupy any desired volume, diffusability.	Shape of the solids liquids and gases should be explained with suitable examples.	Conducting experiments to show solubility of common salts, sugar in water. Experiments to show the fluidity of liquids diffusability of gases. Demonstration of air in balloon	Explain the differences between solids liquids and Gases How does the smell of perfume reach us?	1
Identifies the magnetic materials	3.4 Attraction towards a magnet - uses.	Classifies materials into magnetic and non-magnetic. Demonstrates the uses of magnetic materials - compass, separation of iron	Demonstrates the attractive and repulsive forces between poles with bar magnets.	Name the magnetic materials.	2
Recognizes good and bad conductors of heat and electricity	3.5 Conductors of heat and electricity	Classifies good and bad conductors of heat. Classifies materials as conductors of electricity and insulators. Differentiates, with a torch cell and bulb, conducting and insulating materials.	Examines the use of good and bad conductors of heat in daily life. Illustrates the presence of conductors and insulators in electrical wire and appliances.	Why is the handle of cooking vessels made of wood or plastic? Is graphite core of a pencil a conductor of electricity?	2
Classifies materials into opaque and transparent	3.6 Transparency	Differentiates the transparent and opaque materials by passing light.	Lists out the transparent and opaque materials and their uses in our daily life.	List five each opaque and transparent materials. List out five liquids that are transparent.	1

Recognizes diffusion of gases and liquids	3.7 Diffusion in gases and liquids	Demonstrates diffusion in liquids by adding Potassium permanganate crystals, ink drops to water in a beaker.	Explains the effect of diffusion in smelling and movement of smoke in air.	Which property of gases helps us in detecting leakage of cooking gas?	2
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SCIENCE - PHYSICAL SCIENCE - STANDARD VI - UNIT 4 - SEPERATION OF SUBSTANCES - 14 PERIODS

Expected Specific Outcome Of Learning	Content In Terms Of Concepts	Curriculum Transactional Strategies	Illustrations	Evaluation	No. Of Periods Allotted
Understands various methods used for the separation of substances.	4.Separation of substances.	Separation of useful Components from the unwanted or harmful components should be explained		What is the need to separate substances?	1
Sees relationship between pure substances and mixtures.	4.1.Pure substances and mixture.	Difference between pure substances and mixture should be explained.	Experiments to show the solubility of pure substances(sugar) and mixture(sand)	What is the difference between pure substance and mixture?	1
Recognizes the need for separating components of mixture.	4.2.Need for separating the components of mixture.	Explanation of an experimental setup and need for separating mixture.	Experiments showing the separation of clay in water or sand in water.		1
Acquires skill in method of separation by hand picking and winnowing.	4.3. Methods of separation 4.3.1.Hand picking 4.3.2.Winnowing 4.3.3.Sieving	Separation of stone from wheat and pulses. Separation of husk from rice and wheat should be explained. Passing wheat flour through a sieve should be explained.	Schematic diagram for hand picking, winnowing and Sieving.	How will you separate iron nails from saw dust? How will you separate stone from rice?	3

Acquires knowledge about sedimentation, Decantation, filtration.	4.3.4. Sedimentation and Decantation.	Removal of clay from water can be explained with some other examples.	Setting of simple experiments drawn from life situations to illustrate Sedimentation and Decantation.	What method is used for separating sand and water?	2
Understands the method of magnetic separation	4.3.5. Magnetic separation.	Separation of substance by magnetic separation should be explained.	Set up experiment to separate iron fillings from sand.	Explain the method of magnetic separation	2
Appreciates the importance of filtration.	4.3.6. Filtration	Importance of filtration should be explained.	Schematic diagram of filtration.	How will you separate solid from liquid?	1
Acquires skill to do evaporation.	4.3.7. Evaporation	Explain the method of evaporation by suitable examples.	Experiments to show the preparation of common salt from sea water by evaporation	How is common salt obtained from sea water?	1
Understands The method Of crystallization and sublimation	4.3.8. Crystallization 4.3.9. Sublimation.	Explain crystal growth of CuSO_4 in copper sulphate Solution. Explain the importance of sublimation by suitable examples.	Experiment to show camphor can be converted to vapour directly.	How will you prepare blue vitriol crystals from blue vitriol powder? How will you purify camphor and Iodine?	3

SCIENCE - PHYSICAL SCIENCE - STANDARD VI - UNIT 5 - CHANGES AROUND US - 20 PERIODs

Expected Specific Outcome Of Learning	Content In Terms Of Concepts	Curriculum Transactional Strategies	Illustrations	Evaluation	No. of Periods allotted
? Recognizes the various types of changes taking place in our environment.	5. Changes around us	Various changes around us can be explained	Seasons,days and nights,Growth of plants	Lists out some of the changes in the school campus	1
? Recalls slow and fast changes	5.1 Slow and fast changes	Explanation of slow and fast changes with suitable examples	Experiments to show that rusting of iron is a slow change and burning of paper is a fast change	How will you distinguish slow and fast changes?	1
? Understands the difference between reversible and irreversible changes	5.2 Reversible and irreversible changes	Explanation of reversible and irreversible changes by taking at least two examples. Melting of ice, freezing of water, and burning of paper.	Experimental setup for boiling of water for reversible changes. cooking of food is for irreversible change	What are reversible and irreversible changes? Give examples	1
? Understands about periodic and non-periodic changes	5.3 Periodic and non-periodic changes	Differences between periodic and non-periodic changes should be explained with examples. E.g. Days and nights – periodic cyclone, volcano-non-periodic	Diagram to explain the periodic change of full moon and new moon days.	In what way day and night is periodic?	1

?	Recalls desirable and undesirable changes	5.4	Desirable and undesirable changes	Explain the desirable and undesirable changes with examples. Ripening of fruits-desirable, decaying of food – undesirable	Growth of the child desirable change, coagulation of milk-undesirable change.	What are desirable and undesirable changes? Give example.	1
?	Distinguishes between physical and chemical changes	5.5	Characteristics of physical and chemical changes	Melting of ice and heating of sugar can be differentiated	Experiment to conduct burning of candle, heating of iron to redness, souring of milk, bursting of crackers	Justify melting of ice as physical change or chemical change.	2
?	Sees relationship between physical and chemical changes	5.6	Examples of physical and chemical changes				
		5.6.1	Dissolution	Dissolution of salt in water	The different types of changes with specific examples and their impacts can be explained with	Differentiate evaporation and condensation.	1
		5.6.2	Evaporation	Evaporation of water vapour.	particular reference to dissolution of sugar in water, conversion of water to steam and steam to ice and vice versa.	Explain how the principle of boiling and condensation are used in life.	1
		5.6.3	Boiling and condensation	The concept of conversion of water into steam and steam into water		In what way sublimation differs from melting and evaporation?	2
		5.6.4	Freezing, melting and sublimation	Significance of freezing, melting and sublimation temperature.			

	5.6.5 Rusting	Corrosion and rusting irreversible nature	Corrosion of iron (Rusting), burning of fuel and function of enzymes	What is rusting?	3
	5.6.6 Burning of fuel.	The main product of carbon dioxide and its impact on environment.		How would you account that the formation of carbon dioxide disrupts the environment?	1
	5.6.7 Curdling of milk.	Nature of chemical changes – irreversible changes		What is meant by fermentation? Explain the function of enzymes?	3
	5.6.8 Cooking of food.	Irreversible changes			
	5.6.9 Fermentation.	Nature of enzymes in making fermentation of rice flour			
	5.7 Changes involve energy				
	5.7.1 Exothermic				
	5.7.2 Endothermic	Explanation of exothermic and endothermic reactions with suitable examples.	Experiments involving dissolution of dry lime, glucose or urea in water and thereby impress the students by changes accompanying hotness and coldness.	What are exothermic and endothermic reactions? Name the reaction in which heat is evolved and heat is absorbed.	2

SCIENCE - PHYSICAL SCIENCE - STANDARD VI - UNIT 6 - FORCE AND MOTION - 15 PERIODS

1	2	3	4	5	6
Differentiates state of rest and motion Recognizes different types of motion	6.1 State of rest and motion 6.2 Types of motion linear, rotational, oscillatory, periodic and non-periodic	Tabulates the different types of motion of objects with examples Distinguishes between periodic and non-periodic motions. Explains the periodic motions of earth and moon	Observes rotational and oscillatory motion of objects in daily life. Observes ripples formed in still waters	What are the motions involved in a moving bicycle? Name the type of motion of a floating body in water waves.	2
Understands that motion along a straight line can be uniform and non-uniform	6.3 Uniform and non-uniform motion along a straight line	Illustrates Uniform and non-uniform motion of a bicycle/ bus	Observes the speedometer of a bus moving at a constant speed.	Give two examples each for uniform and non-uniform motion. Name the type of motion of a bicycle being pushed from behind or when you apply brake.	2
Differentiates speed and velocity	6.4 Distance and displacement - Speed, velocity - units	Lists and differentiates the speeds of a snail, bicycle, bus, aeroplane, rocket, sound and light. Observes different types of motion-motion in straight line and curved path	Illustrates distance and displacement with a diagram. Estimates the times of travel between two cities with different modes of transport	A train moves with a speed of 120 km/hour. What is the distance traveled by it in a minute/second? Distinguish between speed and velocity. What is the unit of speed or velocity?	2
Recognizes that forces change size and shape of objects, direction of motion and speed of objects	6.5 Force-Effects of force-change in size, shape and motion-unit of force	Lists out situations where force changes size and shape of objects. Explains how force changes the direction of	Demonstrates the effect of force on a rubber band, spring, slinky and clay	Give two examples in daily life where force changes the shape and size of objects. What happens to the spring of a sofa when you	2

		motion and speed of an object.		sit on it?	
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1	2	3	4	5	6
Identifies different types of forces Appreciates the uses of magnetic and electric forces	6.6 Types of forces - muscular, frictional, gravitational, magnetic and electrical	Tabulates different types of forces with examples in daily life	Explains how forces of friction are used in daily life.	Name the force used to stop a moving bicycle or car. Name the force responsible for wearing out of bicycle or car tyre. Which force is used to collect iron dust from the floor?	2
Recognizes how pressure is related to force	6.7 Pressure-units	Demonstrates the use of sharp edges or ends in piercing and cutting. Defines Pressure as Force/Area and unit (N/m^2)	Demonstrates the force required for piercing / cutting with blunt and sharp edges of pins / knives	How is pressure related to force? What is the unit of pressure?	1
Recognizes that pressure in liquids is exerted equally in all directions	6.8 Pressure in liquids	Fill water in a rubber ball with holes around it. Squeeze the ball and observe that water flows out with equal force on all directions.	Demonstrates that pressure increases with depth of water in a can Makes a U tube manometer connected to a funnel covered with membrane and uses it to study variation of pressure with depth.	Explain the working of straw, ink filler and syringe. Why are dams built thicker at the bottom?	2

Recognizes that air exerts pressure	6.9 Atmospheric Pressure	Demonstrates atmospheric pressure with boiled egg and conical flask / crush can experiment. Explains the working of Torricelli barometer Describes that atmospheric pressure decreases with altitude.	Demonstrates air pressure with a newspaper spread on a table and a wooden strip.	What is the standard atmospheric pressure? Why is it difficult to drink through straw in high altitudes?	2
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SCIENCE - PHYSICAL SCIENCE - STANDARD VI - UNIT 7 - WORK AND ENERGY - 13 PERIODS

1	2	3	4	5	6
Understands that work is done when a force moves an object. Recognizes that ability to do work is energy	7.1 Work and Energy	Explains (1) work done by electrical energy in rotating a fan/motor (2) wind pushing sail boats, turning wind mills	Lists out where in Tamil Nadu hydroelectric, thermal and wind energy are produced	Name the fuels used in thermal power stations.	2
Identifies simple machines that help us to do work	7.2 Simple machines levers, inclined plane, screw, wheel and axle	Explains the classification of three types of levers with examples	Lists out the classification of levers with examples in daily life	What is a simple machine? Name the six classes of simple machines. Draw diagrams of three types of levers.	4
Sees the relationship between work done, force applied and distance moved	7.3 Work and energy relationship - unit of work	Explains work done in raising an object or water from well requires energy	Lists out sources of energy for works done in daily life	Define work What is the unit of work?	2
Classifies different forms of energy	7.4 Forms of energy-kinetic, potential, chemical, heat, light, sound, magnetic and electrical	Explains potential, kinetic, magnetic and electrical energies with suitable examples.	Identifies the parts and source of energy in a dry cell. Lists out devices using electric and magnetic energy	Give examples of sources of chemical energy. Name some devices that change electrical energy into mechanical energy.	3
Appreciates transformation of energy and utility of simple machines in daily life	7.5 Transformation of energy 7.6 Technological applications of simple machines	Explains conversion of energy with suitable examples Examines different machines and their uses	Illustrates conversion of energy into potential, kinetic, electrical and magnetic energy. Analyses and tabulates the applications of simple machines.	Why does rubbing of hands produce heat? Explain the conversion of energy in a bicycle dynamo light. Collect details of scientific works of Archimedes.	2