

## LOTUS PETAL SENIOR SECONDARY SCHOOL GRADE - X SUBJECT - SCIENCE

f - Create a colourful poster showing different types of chemical reactions.  - Creative Poster Making: Design an artistic representation of different types of chemical reactions Tie-Dye & Fabric Art: Demonstrate chemical changes using tie-dye fabric experiments with acids and bases Collage Work: Create a chart of real-life applications of chemical reactions like rusting, baking, and digestion.
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Use chemical symbols & chemical formulae correctly in order to a  Apply Law of Conservation of Mass in order to balance chemical equations.	conventions to represent units of various quantities / symbols / formulae / equations, such as balanced chemical equation by using symbols and physical states of substances, sign convention
Categorize the given reactions as (combination / decomposition)based on the reactants & products of a chemical reaction.	in optics, si units, etc.  Calculates using the data given, such as number of atoms in reactants and products to balance a chemical equation, resistance of a system of
Classify the given reactionas displacement or double displacement based on the type of reactants used & products formed.  Predict the reactionas Oxidation or Reduction based on the addition/ removal of oxygen/ 884 hydrogen/ electrons to the reactants to form	resistors, power of a lens, electric power, etc.  Differentiates materials / objects / organisms / phenomena / processes, based on, properties / characteristics, such as autotrophic and heterotrophic nutrition, biodegradable and non- biodegradable substances, various

	situations, stating any two).  Detect changes in smell,		life and solving problems, such as takes precautions to prevent sexually transmitted infections, uses appropriate		
	colour, taste of food items overtime, in order to explain effects of oxidation on food		electrical plugs (5 /15a) for different electrical devices, uses vegetative propagation to		
	items		develop saplings in gardening, performs exercise to keep in good health, avoids		
			using appliances responsible for ozone layer depletion, applies concept of decomposition reactionof baking		
			soda to make spongy cakes, etc.		
Light – Reflection and Refraction		Lectures: Introduce fundamental concepts and laws.  Demonstrations: Use ray diagrams to illustrate image	-Explain the principles of reflection and refraction.  Construct ray diagrams for mirrors and lenses.	Conduct an experiment to determine the focal length	Art Integration: Create a creative project that illustrates the concepts of reflection
	Apply mirror and lens formulas to solve numerical problems.	formation. Interactive Simulations:	Solve numerical problems using mirror and lens formulas.  Describe the significance of the	convex lens using the u-v	and refraction through artistic representations.  - Sketching &

	1	refractive index and its	light behavior.	refractive index in various		Perspective Drawing:
	ä		Problem-Solving Sessions:	contexts.		Students can draw <b>ray</b>
			Guide students through			diagrams for reflection
			numerical exercises.			& refraction.
						- Collage & Mosaic
						Work: Create a collage
						showing applications of
						refraction in real life,
						like prisms, lenses, and
						<mark>mirages.</mark>
						<mark>- Theatrical</mark>
						Representation:
						<mark>Perform a <b>small skit</b></mark>
						demonstrating real-
						world applications of
						reflection, like
						periscopes and car
						mirrors.
						Multi-Disciplinary
						<b>Approach:</b> Explore the
						role of light in
						photography, discussing
						how understanding
						reflection and refraction
						enhances photographic
						techniques.
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Life Pr	rocesses	Understand the concept of life	<b>Experiments</b> : Conduct simple	Define life processes and	"Photosynthesis Demonstration with	- Create a flowchart on
		processes and their importance in	experiments to show how yeast	explain their significance.  Differentiate between living and	Leaves"	life processes using
		maintaining life.	undergoes anaerobic respiration	<u>C</u>	Leaves	drawings.
		Explain the process of nutrition	(fermentation).	non-living things based on metabolic activities.		- <mark>Body Diagram</mark>
		in plants and animals, including	Lecture Method: Introduce the	metabone activities.		Sketching: Draw
		autotrophic and heterotrophic	concept of life processes with	Describe the mechanism of		artistic
		nutrition.	simple definitions and examples.			representations of
		nuu mon.	simple definitions and examples.	equation. Understand the		respiration, digestion,
		Discuss the types of respiration		different types of heterotrophic		and circulation.
		(aerobic and anaerobic) and the	<b>Demonstration</b> : Show	nutrition (holozoic, saprophytic,		- Collage Work: Make
		` /	photosynthesis using diagrams or			a collage showing real-
		cells.	simulations.	system in humans and explain		life examples of
		20110.		the step-by-step process of		photosynthesis,
		Understand the process of	Group Work: Assign students	digestion.		respiration, and
		transportation in plants and	to research and present different	· ·		excretion.
		animals, including circulatory	types of nutrition in animals	Differentiate between aerobic		- Theatrical Drama:

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		systems.	(e.g., herbivores, carnivores,	and anaerobic respiration with		Perform a <b>play</b>
			omnivores).	examples. Identify the role of		showing how the
				mitochondria in cellular		human body processes
			Role Play: Have students act out			food and oxygen
		in humans and plants.	how the nervous and endocrine	and function of the respiratory		
		Understand the importance of	systems coordinate responses.	system in humans.		
		coordination in organisms.	<b>Diagram Labeling</b> : Have	Describe the transport of water		
		coordination in organisms.	students label diagrams of the	and nutrients in plants through		
		Discuss the concept of	brain, spinal cord, and endocrine			
		reproduction and its types in	glands.	the role of the heart, arteries,		
		living organisms.	-	veins, and capillaries in human		
				circulatory systems. Identify the		
				difference between open and		
				closed circulatory systems.		
				Identify the structure and		
				function of kidneys in humans.		
				Explain the process of urine		
				formation and excretion.		
				Describe the role of excretory		
				pores in plants.		
				7.100		
				Differentiate between nervous		
				and hormonal coordination.  Explain the structure and		
				function of the nervous system		
				and endocrine glands in humans.		
				Identify reflex actions and their		
				role in coordination.		
				Identify the types of		
				reproduction: asexual and		
				sexual. Explain the process of asexual reproduction in plants		
				and animals (e.g., binary fission,		
				budding). Understand the human		
				reproductive system and its		
				functioning.		
May	Acids, Bases,	- Understand the concept of		Define acids, bases, and salts.	- Test the pH of various	- Develop a visual pH
11	and Salts	acids, bases, and salts and their		Classify substances as acidic,	substances like lemon	scale model with
		properties.	1. Lab Demonstrations	basic, or neutral based on their	juice, soap, and vinegar	drawings and colour

	Learn about the different types of acids and bases, including strong		Lectures and Explanations Group Research and	properties.  Identify examples of strong and	using pH paper.	coding pH Art & Color Chemistry: Use
	and weak.  Understand the concept of pH and its significance in the context		Presentations Assign groups to research and present the uses of common acids, bases,	weak acids and bases. Compare the properties of acids and bases Calculate the pH of substances		natural indicators like turmeric to create artwork that changes color with acids and
	of acids and bases.	4.	and salts in daily life.	using indicators and explain how pH is related to acidity or alkalinity.		bases Theatrical Drama:
	Study the reactions of acids with bases, metals, and carbonates.  Learn about salts, their	5. 6. 7.	Hands-on Experiments Project Work Visual Aids Class Discussions	Write and balance equations for the reactions of acids with bases		Enact a courtroom trial where acids and bases argue over their
	Learn about salts, their formation, and different types of salts.	8.	Class Discussions	(neutralization), metals, and carbonates.		usefulness and harmful effects Clay Modeling: Create 3D models of
	Explore common applications of acids, bases, and salts in daily life.			Explain the formation of salts through the neutralization of acids and bases. Classify different types of salts (e.g., neutral, acidic, basic).		pH scales and laboratory apparatus using clay.
	Understand the concept of the importance of pH in living organisms and the environment.			Identify the uses of common acids, bases, and salts in		
				everyday life (e.g., citric acid, hydrochloric acid, baking soda, table salt).		
Metals and Non- metals		non-m to dem	w samples of metals and netals Conduct activities nonstrate conductivity and reactions with acids.	* *	- Conduct an experiment to observe rusting of iron under different conditions.	- Create a collage depicting uses of metals and non-metals in daily life.
	Learn about the occurrence and extraction of metals.			reactivity).  Explain the process of extraction		- Scrap Art & Sculpture Making: Create artwork using
	Understand the reactions of metals and non-metals with oxygen, water, and acids.			of metals from ores (e.g., through reduction, electrolysis)		metals and non-metals like wires, aluminum foil, and graphite.
	Study the occurrence of metals in nature and their extraction methods.			Write and balance reactions of metals and non-metals with oxygen, water, and acids		- Photography & Collage: Click pictures of corrosion, alloy structures, and metal
	Learn about the properties of alloys and their uses.			Describe methods of extracting metals (e.g., froth flotation, electrolysis) and their applications.		uses, and make a collage.  - Drama & Role Play: Perform a skit on the

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		Explore the significance of		Understand the composition and		importance of metals
		metals and non-metals in daily		uses of common alloys (e.g.,		in industries and daily
		life.		brass, steel, bronze).		<mark>life.</mark>
July	The Human Eye	Understand the structure and	- Use 3D models and videos	Describe the structure of the	- Observe and record light	
16	and the	functioning of the human eye.	Perform experiments with prisms	-		explaining dispersion of
	Colourful World		to study dispersion.	works to form an image.	prism.	light.
		Learn about the defects of vision				
		and their correction.		Identify and explain common		- Calligraphy &
				vision defects (e.g., myopia,		Typography: Create a
				hypermetropia) and their		<b>poster</b> on how the eye
				corrective measures (e.g.,		works, using artistic
		Study the phenomenon of		lenses).		calligraphy strokes.
		dispersion of light.		II. danstand the consent of		- Puppet Show: Use
				Understand the concept of		puppets to explain vision defects and how
				dispersion and explain how a		spectacles correct them.
		Understand the formation of		prism splits white light into its constituent colors.		- Photography &
		rainbow and the scattering of		constituent colors.		Visual Arts: Capture
		light		Explain how a rainbow is		images of optical
		ngin		formed due to dispersion and		illusions and discuss
		Learn about the applications of		scattering of light.		the science behind
		the scattering of light in daily		Identify real-life applications of		them.
		life.		scattering of light (e.g., blue		thom.
		iiic.		sky, red sunsets).		
		Explore the concept of the		Describe how light bends while		
		refraction of light through a		passing through a prism and		
		prism.		explain the concept of		
		1		refraction.		
	Control and	Understand the role of the	- Use animations of nerve	Describe the structure and	- Perform a reaction-time	- Draw diagrams of
	Coordination	nervous system in control and	impulses Diagram practice of	function of the nervous system	experiment with	plant hormones with
		coordination.	the human brain.	(central and peripheral nervous	classmates to understand	their effects.
				system).	reflex actions.	- Sculpting & 3D
		Learn about the structure and		Explain how neurons transmit		Models: Make a clay
		function of neurons.		electrical impulses and their role		model of the human
				in coordination.		brain and nervous
		Study the role of hormones in				system.
		control and coordination in		Identify major glands that		- Di <mark>gital Art &amp;</mark>
		animals.		secrete hormones (e.g., pituitary,		Animation: Design a
				thyroid, adrenal glands) and		digital infographic
		Understand the coordination in		their functions.		showing how reflex
		plants through growth hormones				actions work.
				Explain the role of plant		<ul><li>- Puppet Show: Use</li></ul>

		Learn about reflex actions and		hormones (e.g., auxins,		puppets to explain how
		their importance in the nervous		gibberellins) in regulating plant		hormones control
		system		growth and responses to stimuli		body functions.
		Explore the response of human		Understand and describe reflex		
		body to different stimuli.		actions and how they help in		
				immediate responses to stimuli.		
				r		
				Understand and explain how the		
				human body responds to		
				external stimuli (e.g., light,		
				sound, touch)		
A	Carbon and Its	Understand the importance and	Conduct avectiments on soon		Danfann an avnanimant	- Clay Modeling & 3D
August		Understand the importance and		Identify the unique properties of	- Perform an experiment	Structures: Make
14	Compounds	properties of carbon.	preparation Use molecular	carbon that make it the basis for	observations.	
		Learn about the various forms of	models to demonstrate bonding.	organic chemistry (e.g.,	observations.	models of methane,
				catenation, tetravalency).		ethane, and benzene
		carbon, including allotropes		Differentiate between the		using clay or beads.
						- Tie-Dye Art: Show
		Cturder the true of of control		allotropes of carbon (diamond,		how organic chemistry
		Study the types of carbon		graphite, fullerenes) and their		is used in dyeing and
		compounds, including		properties.		textile industries.
		hydrocarbons.		C1:f		- Poster Making:
				Classify organic compounds		Create a poster on the
		Understand the concept of		into hydrocarbons (alkanes,		impact of
		functional groups in organic		alkenes, alkynes) and		hydrocarbons on the
		chemistry.		understand their properties		<mark>environment.</mark>
		To a way of a cost the way of a way of		I 1 - 4'f-		
		Learn about the reactions of		Identify common functional		
		hydrocarbons and functional		groups (e.g., alcohols, acids,		
		groups.		aldehydes) and their effects on		
		C4-1-41		the properties of organic		
		Study the significance of carbon		compounds.		
		compounds in daily life.		Waite and analain the marking		
		To a more than the discount of a subsequent		Write and explain the reactions		
		Learn about the impact of carbon		of hydrocarbons (combustion,		
		compounds on the environment.		addition, substitution) and		
				functional groups (oxidation,		
				esterification).		
				Evaluin the role of comba-		
				Explain the role of carbon		
				compounds in daily life (e.g.,		
				fuels, plastics, medicines, food).		
				Understand the environmental		
				Understand the environmental		

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				effects of carbon compounds,		
				such as pollution caused by		
				burning fossil fuels and plastic		
				waste.		
	How do	Understand the need for	- Use slides and diagrams to	Explain the importance of	- Study and explain the	- Create a life cycle
	Organisms	reproduction in living organisms.	explain asexual and sexual	reproduction for the	life cycle of a flowering	chart for any organism.
	Reproduce?		reproduction.	continuation of species.	plant.	
						- Poster & Diagram
		Learn about asexual reproduction		Identify and describe different		Making: Create an
		and its types.		methods of asexual reproduction		infographic on
				(e.g., binary fission, budding,		reproductive health
				vegetative propagation).		and birth control
		Study sexual reproduction in				methods.
		plants and animals.		Explain the process of sexual		- Clay Modeling: Make
				reproduction in plants (e.g.,		3D models of male and
				fertilization, pollination) and		female reproductive
		Learn about the structure and		animals (e.g., gametes,		systems.
		function of reproductive organs		fertilization).		- Theatrical Role Play:
		in humans.				<mark>Perform a <b>drama on</b></mark>
				Describe the male and female		the importance of
				reproductive systems in humans		reproductive health
		Understand the concept of		and explain their functions.		and hygiene.
		fertilization, pregnancy, and				
		childbirth in humans.		Explain the process of		
				fertilization, development of the		
				embryo, and stages of		
		Learn about cloning and its		pregnancy leading to childbirth		
		applications.				
				Explain the concept of cloning		
		III denote a del control de la		and its applications in biology		
		Understand the methods of		and medicine (e.g., Dolly the		
		artificial reproduction.		sheep).		
September	Heredity and	Understand the concepts of	- Discuss experiments with pea	Explain the concept of heredity	- Conduct a family trait	- Draw family trees
8	Evolution	heredity and the transmission of	plants Use Punnett squares to	and how traits are passed from	analysis for traits like	showing inherited traits.
	2.01011011	traits.	explain inheritance patterns.	parents to offspring.	dimples or handedness.	gsiited tiatts.
			r partesins.	F 2 2		- Family Tree Art &
				State and explain Mendel's		Sketching: Draw
		Learn about Mendel's Laws of		Laws of Inheritance (Law of		family trees showing
		Inheritance.		Segregation and Law of		inherited traits.
				Independent Assortment) with		- Collage Work: Make

	Study the role of chromosomes and genes in inheritance.		examples.  Describe the structure of chromosomes and the role of genes in inheritance of traits.		a collage of fossils, extinct animals, and genetic diagrams Drama & Storytelling: Act out
	Understand the concept of dominant and recessive traits.		Identify and differentiate between dominant and recessive traits and how they affect inheritance.		how evolution shaped human history.
	Study the evolution of species through natural selection.  Understand the concept of		Explain the theory of evolution by natural selection as proposed by Charles Darwin.		
	variation and its role in evolution.  Learn about the significance of fossils in understanding		Describe how variations occur and how they contribute to the process of evolution.		
	evolution.  Study the concept of adaptation		Explain how fossils provide evidence for the theory of evolution.		
	in organisms.		Understand how organisms adapt to their environment and how these adaptations help in survival and reproduction.		
	measurement. Learn about Ohm's Law and its applications. Understand the factors affecting resistance in a conductor. Discuss the concept of electrical power and energy. Know how to calculate the	the fundamental concepts using real-life examples. <b>Demonstrations:</b> Using simple experiments (like connecting a battery and light bulb to demonstrate current) to show the working of electric circuits. <b>Interactive Discussions:</b> Encourage students to relate	difference, and resistance. They will apply Ohm's Law to solve problems. Students will calculate the power consumed by electrical appliances. They will identify the factors	Construct a simple electric circuit with a switch, bulb, and battery to measure voltage, current, and resistance.  Poster Making: Create a poster showing various safety precautions related	Art Integration: Illustrate how current flows through various circuits (series and parallel) by drawing circuit diagrams on a large canvas. Integrate visual elements to make the circuits more understandable.
	devices.	household appliances work, to electrical concepts.	Students will gain an understanding of electrical safety.		Clay Modeling & Sculpting: Create 3D models of circuits using clay, wires, and small LED bulbs.

		electrical energy.			- Theatrical Drama: A short play showing the dangers of electric shocks and the importance of earthing in homes Poster Making & Digital Art: Design a poster on energy conservation and display in the classroom.  Multi-Disciplinary: Relating the concept of electrical power to the physics of energy transformations in other subjects like Chemistry (energy conversions) or Math (numerical problem solving).
Magnetic effect of electric current.	Understand the concept of magnetic field and its properties. Learn about the magnetic effects of electric current. Explore the Earth's magnetic field and its significance. Study the behavior of magnetic materials and how to use magnets in everyday life.	Interactive Lectures: Teaching concepts like the magnetic field using hands-on experiments (e.g., using iron filings to show the magnetic field around a bar magnet).  Demonstrations: Use of compass needles, bar magnets, and other props to demonstrate the working of magnetic fields.  Visualization Techniques: Use diagrams and models to help students visualize how electric current produces a magnetic field (right-hand thumb rule).  Field Visits/Guest Lecture: If possible, a visit to a local science museum or a guest lecture on the importance of	Students will be able to explain the concept of a magnetic field and its properties.  They will understand the magnetic effect of electric current and the working of electromagnets.  Students will gain knowledge about the Earth's magnetic field and its practical applications.  They will apply the concept of magnetism in real-world scenarios (like electric motors and transformers).	Magnetic Field Mapping: Use iron filings to map the magnetic field around different magnets. Hands-on Project: Create a simple electromagnet and test its strength by picking up small objects.	Art Integration: Create a visual representation of Earth's magnetic field using charts or 3D models to show how compass needles align with it.  - Sketching & Animation: Draw magnetic field lines around a bar magnet and a solenoid Music & Sound Integration: Create a musical instrument using magnets and explore the working of electric bells.

		magnets in modern technology.			- Model Making: Build a simple electric motor using wires, a battery, and magnets.  Multi-Disciplinary: Integrating Magnetism with Technology – Discuss the role of magnets in motors, speakers, and medical devices like MRI machines, linking it to the real- life application of technology in other subjects.
Our Environment	Understand ecosystems and their components. Learn about food chains, food webs, and trophic levels. Explore the impact of human activities on the environment (pollution, deforestation, waste management). Recognize the importance of biodegradable and non-biodegradable substances. Understand the concept of sustainable development and conservation of resources	Lecture & Discussion: Explain key environmental concepts and human impact. Demonstrations: Show how waste decomposes using simple experiments. Case Studies: Discuss reallife examples of pollution, global warming, and conservation efforts. Project-Based Learning: Assign group research projects on sustainability.	Identify the components of an ecosystem and their interactions.  Explain how energy flows in an ecosystem through food chains and webs.  Analyze the consequences of human activities on the environment.  Differentiate between biodegradable and non-biodegradable substances.  Suggest ways to reduce waste, recycle, and conserve natural resources.	Waste Segregation Experiment: Classify daily waste into biodegradable and non-biodegradable categories. Eco-Audit of School: Assess electricity, water, and waste usage in school and propose conservation methods. Poster Making: Create posters on environmental issues like pollution, deforestation, or climate change.	Recycled Art Project: Create useful objects from waste materials (plastic bottles, old newspapers, etc.). Theatrical Play: Mural Painting & Poster Making: Create a mural on environmental conservation Recycled Art & Craft: Make useful objects from recycled materials like paper, plastic, and cloth Street Play & Drama: Perform a nukkad natak (street play) on waste management and pollution control.