

ANNUAL CURRICULUM PLAN 2020-21
SUBJECT: SCIENCE
CLASS X

EDUCATION VISION-

- To see each student as an individual unique learner.
- Students will be balanced and open minded critical thinker.
- They will be reflective and will explore their surroundings and environment for achieving all their goals.
- To foster information gathering skills, analytical thinking.

APRIL TO SEPTEMBER

Chapter	Transaction strategies / Innovative pedagogy	Learning outcome	Core skills/ Art Integration/ Inter-disciplinary Linkages
<p>Chapter 12 : Electricity</p> <p>Electric circuit, current, potential difference, 1A, 1V, Ohms law, resistance, resistivity, series and parallel circuit, numericals.</p>	<ul style="list-style-type: none"> • Observe, Application, Analysis, Collaborative Learning • Discussion and Explanation with the help of PPT and chapter PDF. • Sharing link of videos related to concepts. • Summarization • Visualization • Activation and use of prior knowledge • Thinking • Connection creation and explanation. • Hands on learning • Instructional conversations • Thinking maps • Context based learning • Documented problem solving • Solving CBSE question papers • Calculate the monthly bill of one's household. • Sharing OLAB activity to verify Ohm's Law. 	<ul style="list-style-type: none"> • Define and understand circuit • Define current • Define 1A. • Define potential difference and define 1V • Develop meaning of resistance using Ohm's law • List the factors which affect resistance. • Cause of resistance • Numerical based on Ohms law and combination of resistors • Explain resistivity, Conductors, resistors & insulators • Experimentally verify Ohm's Law. • Calculate effective resistance in series and in parallel combination • Experimentally verify the laws of resistances in series and in parallel • Advantages of parallel circuit in domestic circuits • The learner has a practical understanding of power, electrical energy and calculation of electricity bill for a household. 	<ul style="list-style-type: none"> • Core Skills Observational skills, Problem solving skill, Analytical skills, Application • Art Integration Make a model of a simple circuit. Find out the amount of energy consumed at home for one month considering the details from your electricity bill. • Interdisciplinary linkage Mathematics
<p>Chapter 13 : Magnetic effects of electric current</p> <p>1. Magnets, magnetic field , magnetic field lines, 2. Magnetic effect of electric current, field due to a straight wire, coil, solenoid, Right hand rule, magnetic force, Fleming's left hand rule, electric motor.</p>	<ul style="list-style-type: none"> • Discussion and explanation with the help of PPT and chapter PDF. • Sharing link of videos related to concepts. • Summarization • Visualization • Activation and use of prior knowledge • Thinking • Personal responses to texts 	<ul style="list-style-type: none"> • Recall magnets and list their important properties • Conceptualize magnetic field lines and list their properties • Experimentally trace magnetic lines of force • Discover magnetic effect of current with the help of electromagnets • Interpret construction of Solenoid, permanent magnets 	<ul style="list-style-type: none"> • Core Skills Observational skills, Analytical skills, Application, Drawing skills • Art Integration Make a diagram of different phases of working of an Electric motor.

<p>3. Electromagnetic induction, Induced current and potential difference, Fleming right hand rule.</p>	<ul style="list-style-type: none"> • Connection creation and explanation. • Problem solving • Show the students an electromagnet and its working. • Sharing OLabs activity to demonstrate the force experienced by a current carrying conductor kept in a magnetic field. • Hands on learning • Instructional conversations • Thinking maps • Context based learning • Documented problem solving 	<p>& electro-magnet and their uses</p> <ul style="list-style-type: none"> • Observe experimentally electro- magnetic induction. • Comprehend induced current, state Fleming's Right hand rule and apply it to find direction of induced current • Comprehend and apply Maxwell's right hand thumb rule to find the direction of magnetic field • Experimentally study the force acting on a current carrying conductor. • Comprehend and apply Fleming's Left hand rule for finding direction of force on a current carrying conductor. • Principle, construction , uses and working of an Electric motor 	<ul style="list-style-type: none"> • Interdisciplinary linkage Mathematics, Medical Science, Geology
<p>Chapter 14 - Sources of energy</p> <p>Various sources of energy, Good source of energy Improvement in the technology for using conventional sources of energy (a) Biomass-Biogas plant (b) Wind energy, water, tidal energy; nuclear energy, Renewable versus non-renewable sources of energy</p>	<ul style="list-style-type: none"> • Discussion and Questioning • Summarization • Prediction • Visualization • Activation and use of prior knowledge • Thinking • Understanding when comprehension breaks down • Personal responses to texts • Connection creation and explanation. • Hands on learning • Instructional conversations • Thinking maps • Context based learning • Computational thinking • Documented problem solving 	<ul style="list-style-type: none"> • Learners get to know how to select a good fuel. • They know how to distinguish between renewable and non-renewable sources of energy. • Learners know about the advantages and disadvantages of various sources of energy • They know about the technological improvements like charcoal, biogas plant. • Learners can distinguish between nuclear fission and fusion • They can distinguish between conventional and non-conventional sources of energy 	<ul style="list-style-type: none"> • Core Skills Design, Conduct, Scientific research, Problem solving, Systematic and Precise • Art Integration Drawing, Poster making, Skit, Drama, Talk show • Interdisciplinary linkage Chemistry, History, Social Science
<p>Chapter 1: Chemical equation and reactions *Occurrence of a chemical reaction *Chemical equation *Types of chemical reactions *Oxidation in everyday life</p>	<ul style="list-style-type: none"> • OLAB activities based on types of reactions. • Lecture cum discussion • A short quiz. • Concept mapping. Predict–observe–explain • Socratic seminar, Ticket out the door, pen–paper assessment. • Power point presentation • Develop scientific temperament • Hands on experience Develop cognitive and psychomotor domain 	<p>Students will be able to</p> <ul style="list-style-type: none"> • Demonstrate & verify chemical changes • Relate chemical changes to a daily life situation. Convert chemical change into word equations • Substitute it by symbols and formula • Correlate law of conservation to balancing chemical equations • Observe the changes to determine a chemical reaction • Compare the different types of reactions • Classify the reactions as oxidation or reduction • Compare the reaction 	<ul style="list-style-type: none"> • Core Skills Observation skills, experimental and analytical skills, formulation skills • Art Integration Perform rusting of any iron object in presence and absence of moisture. Observe the chemical changes on its outer surface and summarize the conditions required for formation of rusting. • Interdisciplinary linkage Mathematics

		<ul style="list-style-type: none"> Apply oxidation in daily life Application Critical thinking Environment awareness 	
<p>Chapter 2: Acids bases and salts</p> <ul style="list-style-type: none"> Acids and Bases Acid base indicators. pH scale Salts and their importance 	<ul style="list-style-type: none"> Lecture cum discussion. OLAB activities involving acids and bases. A short quiz. Concept mapping. Predict–observe–explain Socratic seminar, Ticket out the door, pen–paper assessment. Power point presentation Develop scientific temperament Hands on experience Develop cognitive and psychomotor domain 	<p>Students will be able to</p> <ul style="list-style-type: none"> Demonstrate the properties of acids and bases Identify the substances as acids or bases List the properties of acids and bases after performing the activities Compare the properties of acids and bases Correlate the pH to acidic, basic or neutral substances. Test the pH values of solutions Classify the substances into acids & bases by noting the color of pH paper Discuss the importance of pH in everyday life Associate formation of salts to various reactions Substitute the names of salts by their formulae Identify the parent acid and base from which the salt is formed Tabulate the salts into their families Predict and check the pH of few common salts Justify the various uses of salts in daily life. 	<ul style="list-style-type: none"> Core Skills Observation skills, experimental and analytical skills, formulation skills, Evaluation skills Art Integration Prepare a greeting card using turmeric and soap base reaction. Interdisciplinary linkage Mathematics
<p>Chapter 3: Metals and nonmetals.</p> <ul style="list-style-type: none"> Physical and Chemical properties. Reactivity Series Minerals and ores Electron dot structure and bonding 	<ul style="list-style-type: none"> Lecture cum discussion. OLAB activities based on reactivity series. A short quiz. Concept mapping. Predict–observe–explain Socratic seminar, Ticket out the door, pen–paper assessment. Power point presentation Develop scientific temperament Hands on experience Develop cognitive and psychomotor domain 	<ul style="list-style-type: none"> Demonstrate properties of metals and non-metals Compare properties of both metals and non-metals Identify metals and non-metals from the given samples Tabulate the reactivity series of metals Arrange metals into ascending and descending order of reactivity Illustrate electronic configuration of elements Correlate valency and type of bond formed Draw schematic diagrams of ionic compounds Demonstrate properties of ionic compounds Apply conceptual and experimental knowledge of metals in daily life Relate the metal to the 	<ul style="list-style-type: none"> Core Skills Observation skills, experimental and analytical skills, organizational skills Art Integration Take a pure metal (like iron or copper) and an alloyed substance (like stainless steel or brass). Perform corrosion on them simultaneously. Observe and tabulate the difference in their chemical change and duration of corrosion. Interdisciplinary linkage Geography

		coating formed	
<p>Chapter 6-LifeProcesses</p> <p>-What are life processes? -Nutrition -Autotrophic Nutrition -Heterotrophic Nutrition -Nutrition in Amoeba -Nutrition in Human Beings -Respiration -Transportation -Excretion</p>	<p>The topic will be introduced after testing the previous knowledge of the students. Activity and lecture cum discussion method will be used. Mounting of stomata will be done by students to study stomata, guard cells and their function. Activities to show that light is necessary for photosynthesis will be shown to students. An experimental set up to show that carbon dioxide is evolved during respiration will also be shown in the lab. The topic will be explained with appropriate diagrams on the chalk board. Model of heart will be used to explain its structure. Through drawing and painting Observing the breathing rate of fishes through aquarium By making simple model of lungs working kidney working at home with balloon, bottle, colored water.</p>	<p>The students will be able to know about:</p> <ul style="list-style-type: none"> • Life processes • Photosynthesis • Nutrition in Amoeba and Human Beings • Breakdown of glucose • Human Respiratory System • Structure of Human Heart and Blood Circulation • Transport in plants • Excretion • Hemodialysis <p>This will help the students to become familiar with the physiological functioning of their body.</p>	<ul style="list-style-type: none"> • Core Skills Design, Conduct, Scientific research, Problem solving, Systematic and Precise • Art Integration Drawing, Poster making, Skit, Drama, Talk show • Interdisciplinary linkage Chemistry, History, Physics, Social Science
<p>Chapter 8-How do organisms reproduce?</p> <p>-Do organisms create exact copy of themselves? -Importance of variation -Asexual reproduction -Fission -Fragmentation -Regeneration -Budding -Vegetative Propagation -Tissue culture -Spore Formation -Sexual Reproduction -Importance of Sexual Reproduction -Sexual Reproduction in flowering Plants and Human Beings -Reproductive Health</p>	<p>The topic will be introduced after testing the previous knowledge of the students. Lecture cum discussion method to be used. Topic will be explained by appropriate diagrams on a blackboard. Dissection of flower will be done in class to study its parts. Permanent slides of budding in yeast and fission in Amoeba will be shown in lab. Germination of seeds will be done by students to study parts of embryo. Smartboard and chalkboard will be used. Planting the plants through cutting and grafting in pots at home and observing the difference in these plants with that of sexually reproducing plants of same type. Growing the plants through potato and onion bulb to study asexual reproduction Through drawing and painting.</p>	<p>The students will be able to know about:</p> <ul style="list-style-type: none"> • DNA Copying • Variations • Asexual method of reproduction • Sexual Reproduction in plants. • Contraception 	<ul style="list-style-type: none"> • Core Skills Design, Conduct, Scientific research, Problem solving, Systematic and Precise • Art Integration Drawing, Poster making, Skit, Drama, Talk show • Interdisciplinary linkage Chemistry, History, Physics, Social Science

OCTOBER TO MARCH

<p>Chapter 10 : Light – Reflection and Refraction</p> <p>Reflection of light by curved surfaces; Images formed by spherical mirrors, centre of</p>	<ul style="list-style-type: none"> • Analysis Discussion and Questioning • Summarization • Visualization • Activation and use of prior knowledge 	<ul style="list-style-type: none"> • Identify light as a form of energy that affects sight • Distinguish between ray and beam • Conceptualize the term 	<ul style="list-style-type: none"> • Core Skills Observational skills, Problem solving skill, Analytical skills, Application, Drawing skills
---	--	---	--

<p>curvature, principal axis, focus, mirror formula.</p>	<ul style="list-style-type: none"> • Thinking • Personal responses to texts • Connection creation and explanation • Hands on learning • Instructional conversations • Thinking maps • Context based learning • Documented problem solving • Understanding, Application, Analysis • Discussion, explanation with the help of PPT and chapter PDF. • Solving CBSE question papers 	<p>reflection of light and laws of reflection</p> <ul style="list-style-type: none"> • Analyze image formation in plane mirror and name the characteristics of this image • Distinguish between real and virtual image • Comprehend the term spherical mirrors, identify their types and define the terms—pole, aperture, focus, principal axis, centre of curvature, radius of curvature focal length • Discover rules for obtaining image formed by spherical mirrors. • Draw ray diagrams to show formation of image by concave and convex mirror. • Investigate the uses of plane mirrors, concave mirrors and convex mirrors in our day-to-day life, with the help of activity • Comprehend mirror formula $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$ and magnification formula • Solve numerical problems using above relations 	<ul style="list-style-type: none"> • Art Integration Find out the image distance for different object distance using a concave mirror. • Interdisciplinary linkage Mathematics
<p>Refraction, laws of refraction, image formation by spherical lenses, lens formula, power of lens</p>	<ul style="list-style-type: none"> • Discussion and Questioning • Summarization • Visualization • Activation and use of prior knowledge • Thinking • Personal responses to texts • Connection creation and explanation. • Hands on learning • Instructional conversations • Thinking maps • Context based learning • Documented problem solving 	<ul style="list-style-type: none"> • Classify optical medium as a rarer or a denser medium. • Comprehend definition of refraction of light and represent it diagrammatically • Interpret the meaning of the term refractive index and its relation to the velocity of light. • Evolve the laws of refraction of light and explain Snell's Law • Analyze the reason behind everyday phenomena using knowledge of refraction of light. • Identify types of lens. • Discover rules for image formation in lenses • Sketch ray diagrams to locate image in convex and concave lenses 	<ul style="list-style-type: none"> • Core Skills Observational skills, Problem solving skill, Analytical skills, Application, Drawing skills • Art Integration Find out the focal length of lenses in spectacles used by students in the class by asking the power of the lens. • Interdisciplinary linkage Mathematics, Medical Science
<p>Chapter 11 : Human Eye and Colorful World</p> <p>Human eye, Functioning of a lens in human eye, Defects of vision and their corrections</p>	<ul style="list-style-type: none"> • Explanation and Discussion • Use of animations 	<ul style="list-style-type: none"> • Identify human eye as a natural optical device which works like camera. • Explain the terms—far point, near point, least distance of distinct vision • Infer the advantages of having two eyes. • List what to do and not to do for safety of eyes 	<ul style="list-style-type: none"> • Core Skills Observational skills, Problem solving skill, Analytical skills, Application, Drawing skills • Art Integration Make a list of the eye defects of each student using spectacles in your

		<ul style="list-style-type: none"> • Need for eye donation 	<p>class.</p> <ul style="list-style-type: none"> • Interdisciplinary linkage Biology, Mathematics
<p>1. Refraction of light through a glass prism</p> <p>2. Dispersion of light, violet colour deviates the most.</p> <p>3. Atmospheric Refraction, twinkling of stars, formation of rainbow.</p> <p>4. Scattering of light, Tyndall effect, reddish appearance of sky during sun rise and sun set, bluish appearance of sky.</p>	<ul style="list-style-type: none"> • Understanding, Analysis, Application, Evaluation • Discussion, explanation • Solving CBSE question papers • Use of smart board / animations of OLABs • Summarization • Visualization • Activation and use of prior knowledge • Thinking • Personal responses to texts • Connection creation and explanation. • Hands on learning • Instructional conversations • Thinking maps • Context based learning • Documented problem solving 	<ul style="list-style-type: none"> • Trace the path of a ray of light through a glass prism • Comprehend the term dispersion of light • Develop the meaning of spectrum and name its colors • Deduce the cause of dispersion • Illustrate that white light is composed of seven colors • Logically analyze the reason for the formation of rainbow • Develop the meaning of atmospheric refraction • Justify how stars appear to twinkle but planets do not twinkle • Understand the reason for advanced sunrise and sunset • Develop concept of scattering of light and Tyndall Effect • Reason out the blue colour of the sky and red colour of sun at sunrise and sunset • Observe the scattering of blue light by colloidal solution 	<ul style="list-style-type: none"> • Core Skills Observational skills, Problem solving skill, Analytical skills, Application, Drawing skills • Art Integration Make a Newton's disc. • Interdisciplinary linkage Mathematics, Astronomy
<p>Chapter 4 : Carbon and Compounds</p> <ul style="list-style-type: none"> • Importance of the carbon element • Covalent bond • Homologous Series 	<ul style="list-style-type: none"> • Lecture cum discussion. • OLAB activities. • A short quiz. • Concept mapping. Predict–observe–explain • Pen–paper assessment. • Power point presentation • Develop scientific temperament • Oral expression. 	<ul style="list-style-type: none"> • Compile the various substances that are used in daily life which contain carbon • Illustrate carbon with 4 valence electrons forming only covalent bonds • Correlate the bonds formed as single, double or triple to the number of pairs of electrons shared between them • Connect electronic dot structure of atoms for the formation of covalent bonds • Classify the homologous series and its characters • Apply the general formula of homologous series • Identify the name of the homologous series • Select the compound and identify the functional group • Convert the chemical reactions into chemical equations • Identify the reactants used and 	<ul style="list-style-type: none"> • Core Skills Observation skills, experimental and analytical skills • Art Integration Make a 3D model of an alkane consisting of three carbon atoms using foil balls and toothpicks. • Interdisciplinary linkage Mathematics(Geometry), Environmental sciences

		the products formed in different reactions.	
<p>Chapter 5 : Classification of Elements</p> <ul style="list-style-type: none"> • Classification of elements • Modern Periodic Table • Trends of properties along the period and down the group. 	<ul style="list-style-type: none"> • Lecture cum discussion. • A short quiz. • Concept mapping. Predict–observe–explain • Socratic seminar, Ticket out the door, pen–paper assessment. • Power point presentation • Develop scientific temperament • Encouraging individual response 	<ul style="list-style-type: none"> • Classify elements according to their properties • Discover salient features of each classification • Understand the changes • Correlate the properties with atomic mass • Find out the achievements and limitations of each classification • Discover the salient features of the periodic table • Appreciate the periodic trends in the properties of elements • Predict the properties of the element from its position in the periodic table • Associate the electronic configuration of a particular element to its atomic number • Calculate the number of valence electrons and the valency of an element • Draw inference from the given data 	<ul style="list-style-type: none"> • Core Skills Observation skills, Problem solving skills, Analytical skills, • Art Integration Make a periodic table on A4 size sheet specifying at least one use of each element till atomic no. 30. • Interdisciplinary linkage Mathematics History
<p>Chapter 9- Heredity and Evolution</p> <ul style="list-style-type: none"> -Accumulation of variations -Heredity -Rules for the inheritance of Traits -How do these Traits gets expressed -Sex Determination 	<p>The topic will be introduced after testing the previous knowledge of the students. Lecture cum discussion method will be used. Mendelian crosses will be done to show laws of inheritance. Smartboard and Chalkboard will be used. The topic will be explained by taking suitable examples. Through museum specimen.</p>	<p>The students will be able to know about:</p> <ul style="list-style-type: none"> • Heredity • Laws of inheritance • Monohybrid cross • Dihybrid cross • Sex Determination • Evolution • Tracing Evolutionary Relationships 	<ul style="list-style-type: none"> • Core Skills Design, Conduct, Scientific research, Problem solving, Systematic and Precise • Art Integration Drawing, Poster making, Skit, Drama, Talk show • Interdisciplinary linkage Chemistry, History, Physics, Social Science
<p>Chapter 15-Our Environment</p> <ul style="list-style-type: none"> -Effect of addition of waste to the environment -Ecosystem -Food chains -Food Webs -Human Activities affect the environment 	<p>The topic will be introduced after testing the previous knowledge of the students. Lecture cum discussion method will be used. Chalkboard and Smartboard will be used. Destruction of Ozone Layer by human activities and garbage production and disposal will be discussed. Through drama, skit. Street play to make children aware of the environmental issues and their solutions. Through placards showing food chains and food web concept. Story telling.</p>	<p>The students will be able to know about:</p> <ul style="list-style-type: none"> • Biodegradable and non-biodegradable waste • Components of Ecosystem • Food Chains • Food Webs • Ozone Layer • Garbage Disposal <p>Students will be able to co-relate it with CLEAN INDIA.</p>	<ul style="list-style-type: none"> • Core Skills Design, Conduct, Scientific research, Problem solving, Systematic and Precise • Art Integration Drawing, Poster making, Skit, Drama, Talk show • Interdisciplinary linkage Chemistry, History, Physics, Social Science

<p>Chapter 16-Management of natural resources</p> <ul style="list-style-type: none"> -Environmental Degradation -3R'S to save Environment -Need to manage the resources -Forest and Wildlife -Sustainable Management -Water for all -Water Harvesting -Coal and Petroleum 	<p>The topic will be introduced after testing the previous knowledge of the students. Lecture cum discussion method will be used. Smartboard and chalkboard will be used. Sustainable management of resources will be discussed with help of suitable examples.</p> <p>Through poster making. Slogan writing. Dramatization. Story telling.</p>	<p>The students will be able to know about:</p> <ul style="list-style-type: none"> • 3R'S to save environment • Sustainable Development • Water Harvesting • Judicious use of resources <p>Our survival depends on living in harmony with the environment.</p>	<ul style="list-style-type: none"> • Core Skills Design, Conduct, Scientific research, Problem solving, Systematic and Precise • Art Integration Drawing, Poster making, Skit, Drama, Talk show • Interdisciplinary linkage Chemistry, History, Physics, Social Science
--	---	--	---