

CHOITHRAM SCHOOL, MANIK BAGH, INDORE

ANNUAL CURRICULUM PLAN SESSION 2017 – 2018

CLASS: X

SUBJECT: SCIENCE

CHEMISTRY

Month & Working Days	Theme/ Sub-theme	Learning Objectives		Activities & Resources	Expected Learning Outcomes	Assessment
		Subject Specific (Content Based)	Behavioural (Application based)			
June & July  10	Chemical reactions and equations	Students will be able to <ul style="list-style-type: none"> <li>Know about the changes occur in our surroundings</li> <li>Understand the characteristics of physical and chemical changes.</li> <li>Differentiate between these changes into physical and chemical.</li> <li>Learn the method to balance a chemical equation and need of balancing it.</li> <li>Understand various types of reactions and their symbolic representation.                             <ul style="list-style-type: none"> <li>Understand</li> </ul> </li> </ul>	Students will be able to <ul style="list-style-type: none"> <li>Observe the changes occur in our surroundings and in terms of physical and chemical changes.</li> <li>Students will appreciate the use of photolytic decomposition reaction in photography and aluminium foil for packing food items</li> <li>Students will recognize respiration and combustion as an oxidation reaction.</li> <li>Students will analyse the harmful effects</li> </ul>	Students will perform a set of reaction including - burning of magnesium wire, reaction of zinc and sulphuric acid, reaction of barium chloride and magnesium sulphate solution, reaction of quick lime and water, reaction of iron nail and copper sulphate solution, heating of lead nitrate and - identify their type and characteristics of reactions accompanied with chemical change	Students have learnt <ul style="list-style-type: none"> <li>Characteristics of physical and chemical change</li> <li>Balancing of chemical equations and need of balancing.</li> <li>To distinguish combination and decomposition reaction, displacement and double displacement reaction, exothermic and endothermic reaction</li> <li>To identify the substance reduced, oxidized, oxidizing agent and reducing agent in a redox reaction.</li> <li>The effects of oxidation</li> </ul>	<b>Assignment Unit test</b>  <b>Activity - To study the characteristics of chemical reactions and identify their type.</b>

		phenomenon of rancidity and corrosion and its effects	<p>of corrosion of metals and rancidity on packaged food items.</p> <ul style="list-style-type: none"> <li>• Students will be sensitized towards the environmental impacts of combustion of fossil fuel and minimize their use.</li> <li>• Students will apply the methods to prevent iron from rusting and food items to become rancid</li> </ul>		<p>of oils and fats resulting in to bad smell and bad taste and methods to prevent rancidity.</p> <ul style="list-style-type: none"> <li>• About corrosion of metals, rusting of iron, favourable conditions for corrosion and common methods to prevent rusting.</li> </ul>	
<b>July &amp; August</b>  <b>10</b>	<b>Acid bases and salts</b>	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Know indicators and their types.</li> <li>• Identify acids and bases with the help of indicators.</li> <li>• Understand chemical properties of acids and bases.</li> <li>• Compare, contrast and classify properties of acids and bases.</li> <li>• Illustrate chemical reactions of acids with metal, metallic</li> </ul>	<p>Students will be able to</p> <ul style="list-style-type: none"> <li>• Recognize acid and base on the basis of taste.</li> <li>• Test acid and base with the help of indicators</li> <li>• Use china rose, red cabbage, turmeric, bougainvillea, beet root as natural indicator.</li> <li>• Prepare olfactory indicators like onion and clove oil.</li> <li>• Appreciate and use lemon and tamarind</li> </ul>	<p>Reaction of NaCl and H<sub>2</sub>SO<sub>4</sub> to show the release of HCl gas which is exposed to dry and moist blue litmus paper). reaction of HCl &amp; NaOH with</p> <ul style="list-style-type: none"> <li>• Metal</li> <li>• Metal oxide</li> <li>• Metal carbonate</li> </ul> <p>Base</p>	<p>Students have learnt</p> <p>About indicators and their types. To identify acids and bases with the help of indicators. Chemical properties of acids and bases. To compare, contrast and classify properties of acids and bases. Chemical reactions of acids with metal, metallic oxide and bases. Chemical reaction of bases with metal, non metallic oxides and acids. The use of PH scale in comparing the strength of acids</p>	<p>Action of indicators like litmus, methyl orange, phenolphthalein etc on acids and bases. Action of following chemicals on PH Paper . HCl, acetic acid ,baking soda, citric acid, sodium hydroxide and water</p>

		oxide and bases. <ul style="list-style-type: none"> <li>Express the chemical reaction of bases with metal, non metallic oxides and acids.</li> <li>Explain the use of PH scale in comparing the strength of acids and bases.</li> <li>Describe use of PH in day to day life.</li> </ul>	to clean corrosive layer on utensils like brass and copper. <ul style="list-style-type: none"> <li>Handle and store acids safely.</li> <li>Treat acidity in stomach and tooth decay.</li> </ul>		and bases. The importance of PH in day to day life. Students developed environmental sensitivity .	
<b>August &amp; September 10</b>	Metals and Non metals	Students will be able to <ul style="list-style-type: none"> <li>Know physical properties of elements as metals and non-metals.</li> <li>Understand the chemical properties of metals.</li> <li>Learn the reactivity series of metals.</li> <li>Compare and contrast the properties of metals and non-metals on the basis of their physical and chemical properties.</li> <li>Understand ionic bond formation between atoms and properties of ionic compound.</li> <li>Define ore and mineral.</li> <li>Understand the differences between</li> </ul>	Students will be able to <ul style="list-style-type: none"> <li>Avoid the storage of acidic food in metal containers.</li> <li>Prevent corrosion of iron articles at home by oiling/painting/greasing.</li> <li>Encourage the use of solder as a fuse wire due to its low melting point and high resistance.</li> <li>Make use of sour substances like lemon or tamarind to regain the shine of copper vessels.</li> <li>To collaborate to yield better output or results like in alloying a better</li> </ul>	<ul style="list-style-type: none"> <li>Reaction of metals with acids.</li> <li>Reaction of metals with salt solution in lab to compare the reactivity of metals Al, Zn, Fe and Cu</li> </ul>	The students have learnt <ul style="list-style-type: none"> <li>The physical and chemical properties of metals and non-metals and differences between them.</li> <li>The reactivity series of metals &amp; its applications.</li> <li>The properties and formation of ionic compounds.</li> <li>The ores of several metals and the different steps of metallurgy</li> <li>The differences between roasting and calcinations.</li> <li>The methods to prevent corrosion of metals.</li> <li>The purpose of making alloys and their uses.</li> <li>To avoid the storage of</li> </ul>	<b>Assignment</b> <b>Unit test</b> <b>Activity</b> - Reactivity toward oxygen and nature of metal and non-metal oxide. The teacher will demonstrate the burning of magnesium ribbon and sulphur powder and show the nature of their oxides with the help of litmus paper.

		<p>ores and minerals.</p> <ul style="list-style-type: none"> <li>Describe the different steps of metallurgy of metals.</li> <li>Differentiate between roasting and calcinations.</li> <li>Illustrate various methods to prevent corrosion of metals.</li> <li>Understand the purpose of making alloys and their uses.</li> </ul>	<p>property is obtained by mixing two or more metal or non-metal.</p> <ul style="list-style-type: none"> <li>To discourage and stop practicing giving gold jewellery to goldsmith for polishing to restore their glitter.</li> </ul>		<p>acidic food like lemon pickle /curd in metal containers.</p> <ul style="list-style-type: none"> <li>To prevent corrosion of iron articles at home by oiling /painting/greasing.</li> </ul>	
<b>October &amp; November 15</b>	Carbon and its compounds	<p>Students will be able to</p> <ul style="list-style-type: none"> <li>Define combustion, oxidation, hydrogenation, addition and substitution reactions.</li> <li>Distinguish between combustion of saturated and unsaturated hydrocarbons</li> <li>Know about the terms covalent bond, tetravalency, catenation, homologous series and functional group.</li> <li>Learn electron dot structure and IUPAC nomenclature.</li> <li>Understand</li> </ul>	<ul style="list-style-type: none"> <li>Students will learn the use of <b>alcohol</b> as a fuel, as an antiseptic in hospitals, as a preservative for biological specimen.</li> <li>Students will be sensitized about the harmful effects of consumption of ethanol on human health and will be aware how consumption of alcohol leads to addiction and lack of control and coordination in the body which may result in accidents.</li> <li>Students will analyse ill effects of drinking alcohol on society.</li> <li>Students will be familiarized about denaturation of ethanol</li> </ul>	<ul style="list-style-type: none"> <li>Making Ball and stick model of saturated and unsaturated carbon compounds.</li> <li>Combustion of saturated and unsaturated compounds</li> <li>reaction of ethanol with sodium metal and observe the evolution of hydrogen gas.</li> <li>Test acidic nature of ethanoic acid by using litmus and methyl orange</li> </ul>	<p>Students have learnt</p> <ul style="list-style-type: none"> <li>About Versatile nature of carbon</li> <li>To distinguish between saturated and unsaturated hydrocarbon</li> <li>chemical properties of saturated and unsaturated hydrocarbon</li> <li>IUPAC nomenclature of compounds containing functional group</li> <li>Chemical properties of ethanol and ethanoic acid.</li> <li>Saponification reaction and method of preparation of soap.</li> <li>Mechanism of Cleansing action of soap</li> </ul>	<p><b>Class test</b></p> <p><b>Written Assignment</b></p> <p>Prepare soap from vegetable oil.</p> <p>Identification of hard water and soft water by foaming capacity of soap.</p> <p>To Carry out reaction of ethanoic acid with sodium bicarbonate and alcohol</p>

		<p>properties of covalent compound,</p> <ul style="list-style-type: none"> <li>• Understand various properties of carbon compounds, cleaning action of soap, action of soap on hard and soft water.</li> </ul>	<p>to make it unfit for drinking.</p> <ul style="list-style-type: none"> <li>• Students will appreciate the use of soap for washing clothes in soft water and detergent in hard water.</li> </ul>			
<b>December 10</b>	Periodic classification of elements	<p>Students will be able to -</p> <ul style="list-style-type: none"> <li>• Understand the need of classifying elements.</li> <li>• Know how the concept of grouping elements in accordance to their properties led to the development of Periodic Table.</li> <li>• Compare the positive points and drawbacks of previous models of classification of elements e.g. laws of triads and octaves, Mendeleev's law</li> <li>• Appreciate the utility of Mendeleev's periodic classification in designing of the modern periodic classification</li> <li>• understand the Periodic Law; understand the significance of atomic number and electronic configuration as the basis for periodic classificat</li> </ul>	<p>Students will be able to</p> <ul style="list-style-type: none"> <li>• Understand and appreciate the importance of classification and will learn how to proceed to study, analyze and solve a problem through a systematic and sequential approach.</li> <li>• They will develop the skills of analysis, classification (sorting) and critical thinking.</li> <li>• They will also develop analytical and critical thinking through thoughtful study of the pattern of the classification and the properties of elements followed by discussion on normal &amp; exceptional trends in the properties.</li> <li>• Through study and discussion on work done by the scientists, they</li> </ul>	<ul style="list-style-type: none"> <li>• To predict group and period of the elements having same valence electrons.</li> <li>• To predict the formula oxide and hydride of the elements through periodic table chart.</li> </ul>	<ul style="list-style-type: none"> <li>• Students have developed an understanding about the need &amp; importance of classification of elements and knowledge of historical back ground of the classification of elements.</li> <li>• With the help of the above information and subsequent discussion held thereon they have developed an insight into significance of having skills of classifying &amp; arranging things systematically so that further studies become easier and effective.</li> <li>• They have developed the skills of analysis, sorting, arranging through the study of this chapter and now critically think before explaining reasons about particular pattern of classification.</li> <li>• Students can predict periodic position of</li> </ul>	<p><b>Unit test</b> <b>Written assignment</b></p> <p><b>Activity</b> To find the position of elements through its electronic configuration. To name the elements having <math>Z &gt; 100</math></p>

		<p>recognize the periodic trends in physical and chemical properties of elements;</p> <ul style="list-style-type: none"> <li>• compare the reactivity of elements and correlate it with their occurrence in nature;</li> <li>• explain the relationship between ionization enthalpy and metallic character;</li> <li>• ion;</li> <li>• properties of atoms e.g., atomic/ ionic radii, ionization enthalpy, electron gain enthalpy, electronegativity, valence of elements</li> </ul>	<p>will be motivated to follow a path of optimum values and life skills so that they can get success in life.</p>		<p>elements and can predict probable trends in properties of the elements in terms of their metallic/ non-metallic nature, ionization enthalpy, size, electro affinity, electronegativity, nature of compounds etc.</p> <ul style="list-style-type: none"> <li>• They can explain the periodic trends in the properties of the elements.</li> </ul>	
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**SUBJECT: BIOLOGY**

Month & Working Days	Theme/ Sub-theme	Learning Objectives		Activities & Resources	Expected Learning Outcomes	Assessment
		Subject Specific (Content Based)	Behavioural (Application based)			

<p><b>June –july 10</b></p>	<p>Life Process</p>	<p>To make the students learn and understand about different modes of nutrition and differentiate between autotrophic and heterotrophic nutrition.  2. To enhance the ability to understand that autotrophic nutrition involves the intake of simple inorganic materials from the environment and by using an external energy source like sun to synthesize complex high energy organic material.  3. To comprehend that the heterotrophic nutrition involves the intake of complex material prepared by other organisms.  4. To understand and summarize the various steps of digestion in human beings in the alimentary canal and the mode of absorption in the small intestine.</p>	<p>Students will be able to –  1. Identify that different food items consumed by them take different duration of time for digestion.  2. Analyze that heavy food items should be consumed during morning hours and lighter in evening.  3. Interpret that problem of acidity is due to the presence Different gastric enzymes.</p>	<p>To prove that chlorophyll,CO<sub>2</sub>, light is essential for photosynthesis. Students will observe the activity carefully and note down all the components required for photosynthesis</p> <p>Following activity will be conducted in lab were students will prepare temporary mount of a leaf peel to show stomata. They will observe the slide and identify the stomata and will draw a well labeled diagram as stomata helps in the exchange of gases.</p> <p>A Self made video will be shown in the class on the process of human digestion. After observing this video they will draw the well labeled diagram of Human digestive system and also locate the parts where digestion of carbohydrate, protein and fats starts along with the name of enzyme associated with it.</p>	<ol style="list-style-type: none"> <li>1. Students understood different modes of nutrition involved in life process.</li> <li>2. They were able to analyze that duration for digestion of fats is more than protein and carbohydrates.</li> <li>3. They were able to evaluate the importance of enzymes and gastric juices in the process of digestion.</li> <li>4. They were able to recognize that problem of acidity or ulcer or any other disorder is due to improper function of different organs of digestive system.</li> <li>5. They were able to synthesized the importance of light, water and co<sub>2</sub> for the light and dark reaction of photosynthesis along with the role of stomata.</li> </ol>	<p><b>Role play on life process-digestion, respiration, transportation, excretion Assignment Unit test Practical</b></p>
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<p><b>July-August</b></p>	<p>Respiration- Aerobic and Anaerobic Transportation- 1.blood, heart, arteries, vein capillaries, double circulation 2. Xylem and phloem and ascent of sap, transpiration. Excretion- kidney, nephron, dialysis</p>	<p>Students will be able to learn and understand the concept of respiration and can compare between aerobic and anaerobic respiration. * They will be able to comprehend and relate how in cellular respiration, complex organic compounds such as glucose are broken down to provide energy in the form of ATP which is used to provide energy for other reactions in the cell. *They will be able to infer the mechanism of circulatory system where materials such as oxygen, carbon-dioxide, food and excretory products are transported. *They will explore their critical thinking by studying the importance of transport of water, minerals, food and other materials in highly differentiated plants</p>	<p>Students will be able to – 1. Identify the process of fermentation is due to anaerobic respiration which is used in production of alcohol, vinegar and bakery industries as well as in making of dosa etc. and also heavy exercise leads to anaerobic respiration which is responsible for cramps in muscle in human 2. Apply their knowledge that improper functioning of these organs like lungs, heart and kidneys</p>	<p>Following activity will be conducted in the class were the process of inspiration and expiration with the help of a working model of lungs will be demonstrated.  An activity will be conducted in a lab. were student will be given opportunity to do and observe themselves that CO<sub>2</sub> is given out during the process of breathing.  TRANSPORTATION- A video chart of human heart will be shown in the class were different parts will be explained. Students will be asked to draw the well labeled diagram of human heart and will locate the path of double circulation of blood. EXCRETION- A Self made video will be shown in the class on the process of human excretion. Students will be aware of different parts of excretory system and will understand that process of removal of nitrogenous waste from the blood and importance of nephron. After observing this video they will draw the well labeled diagram of Human excretory system and nephron also locate the parts where ultra-filtration and selective re-absorption takes place.</p>	<p>1. Students understood the importance of different life process and were able to understand mechanism of circulatory system where materials such as oxygen, carbon-dioxide, food and excretory products are transported 2. They were able to analyze that cramps in muscle as well as bakery products, south Indian dishes and production of alcohol is due to anaerobic respiration. 3. They were able to analyze the importance of valve in veins and heart and will also able to evaluate the reason behind cardiovascular diseases and BP. 4. They were able to analyze the importance of blood group and Rh factors play major role in blood transfusion and childbirth. 5. They were able to recognize that problem in improper functioning of kidney or nephron leads to accumulation of</p>	<p><b>ROLE PLAY ON LIFE PROCESS</b></p>
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		<p>* To enhance the ability to understand the mechanism of excretion in human beings in the form of soluble nitrogenous compounds.</p> <p>* To understand and summarize about different technologies and its implementation for survival like renal dialysis, pacemaker etc.</p>			<p>toxic substances in the blood which are fatal.</p> <p>5. They were able to synthesize the importance of dialysis, heart surgery, pace-maker for vital function.</p>	
August & September	CONTROL & COORDINATION	<p><b>Students will be able to</b></p> <p>Describe the structure and types of neurons.</p> <p>Explain Reflex action, Involuntary and Voluntary actions.</p> <p>Describe the Central Nervous system- Structure of Brain and its function</p> <p>To understand the role of Plant hormones, plant movement,</p> <p>Understand the role of Human hormones and their secretions.</p>	<p>Students will be able to learn to appreciate the leadership quality of brain to control hunger, anxiety, anger ,memory ,thirst, riding, writing, balancing of the body, body postures etc are controlled by the Central Nervous System and it coordinates with different systems in the body to maintain oneness in running all the physiological activities together.</p> <p>Sensitize the body response during adverse situation like touching hot water or any utensils, when suddenly any foreign</p>	<p>A self made video on Brain, highlighting the different parts of brain and its function. There after the teacher will cite different daily life examples to explain the various parts of brain that are responsible to carry various function. Reflex action will be introduced by demonstrating some activities in which the student responds to the stimuli without thinking.</p> <p>The students will be asked to make the diagram of brain and label its various parts &amp; relate with different the physiological activity controlled by it.</p>	<p>Students have learnt to :</p> <p>Illustrate and describe the structure of brain</p> <p>Analysed the concept of reflex action, voluntary and involuntary actions and could apply in real life situation</p> <p>Analyse and interpret the role of different hormones and its secretion in the life span of the organism.</p> <p>Interpret and describe various plant movements with phytohormones.</p>	<b>Brain storming on activities of brain.</b>

		<p>Comprehend that control and coordination in human beings is the sum of nervous system and endocrine system</p>	<p>object comes in contact with our eyes, etc through reflex action.</p> <p>Infer the effect of hormones for the changes in human after puberty .</p> <p>Appreciate the role of hormone to cope stress.</p> <p>Realize the role of plant hormones in regulating the process of phototropism, geotropism, hydrotropism, chemotropism etc.</p> <p>Illustrate examples from daily life to relate the effect of hormones on living system.</p> <p>Learn to imbibe positive qualities of others and ignore the negative ones.</p>			
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<p><b>Oct- Nov</b></p>	<p><b>Chapter:- How do organism reproduce?</b></p>	<p>*Students will be able to learn and understand the concept DNA its structure, DNA copying and its importance.          *They would be able to analyze and relate the concept of DNA copying with variation.          *They would be able to acquire knowledge about different modes of reproduction and apply the concept in different living organisms.          *They would be able to comprehend the mechanism of sexual reproduction in flowering plants and human beings.          *They will be able to analyze and think critically about the changes in the human body at puberty.            *They will explore their critical thinking by studying the importance of reproductive health their problems and</p>	<p>To emphasized on development of skills like observational, experimental and inculcating values like Awareness, Responsibility, Accuracy,            Students will be able to identify the significance of bright colour of flower for pollination.            They will be able to interpret that night blooming flowers are white whereas the day blooming flowers are brightly coloured.          They will be able to evaluate that congenital anomalies are due to genetic and environmental factors.          They will be able to construct High- Yielding varieties of wheat and rice.          They will be able to appreciate different technologies used towards prenatal anomalies like molecular techniques involving analysis of DNA</p>	<p>*To study the binary fission and budding in Amoeba and yeast through permanent slides.          *To study the different parts of dicot seeds.          * To study budding and binary fission with help of slides.  <b>*To study the vegetative Propagation in potato, Bryophyllum leaf.</b></p>	<p>1) Learner learnt and understood about the concept DNA its structure, DNA copying and its importance.            2) Students were able to identify the significance of bright colour of flower for pollination.            3) Students were able to share their opinion on DNA copying with variation.          4) They were able to evaluate different types of High- Yielding varieties of wheat and rice.            5) They were able to explore their critical thinking by studying the importance of reproductive health their problems and strategies            6) They were able to apply their knowledge to relate congenital anomalies are due to</p>	<p>*To study the different parts of dicot seeds.  <b>*Unit test</b>  <b>*Class Test</b>          *Assignment</p>
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		strategies	and DNA patterns by electrophoresis separation. They will be able to evaluate the importance of high yield variety like Norin 10 wheat.		genetic and environmental factors.  7) They were to analyzing importance and male and female sex ratio and sex determination of child is male heterogamy.	
<b>Nov- Dec</b>	<b>Chapter:-</b> Heredity and Evolution	<p>*Students will be able to learn and understand the concept DNA its structure, DNA copying and its importance in variation.</p> <p>*They will be able to understand variations arising during the process of reproduction can be inherited.</p> <p>*Students will comprehend about different Mendel laws of inheritance.</p> <p>*They will be able to understand about sex determination in human</p> <p>*They will be able to differentiate between</p>	<p>*To emphasized on development of skills like observational, experimental, knowledge ,understanding, analysis, interpretation and inculcating values like Awareness, Responsibility, responsibility, coordination and empathy</p> <p>Students will be able to identify the existence of wisdom teeth, auricular muscles and excessive growth of body hairs are vestigial organs in human population.</p> <p>They will be able to interpret inheritance of</p>	<p><b>To observe the ears of all students in class to study the rule of inheritance.</b></p> <p><b>To make a punnet square for dihybrid cross.</b></p> <p>To flip the coin and to sketch a face with different traits using genetic trait chart.</p> <p>To observe the specimens of evidence of evolution:.</p> <p>*Homologous and Analogous organ in plants and animals, Vestigial organs by specimens and charts.</p>	<p>1) Learner learnt and understood about the concept DNA its structure, DNA copying and its importance in variation.</p> <p>2) Students were able to identify the existence of wisdom teeth, auricular muscles and excessive growth of body hairs are vestigial organs in human population.</p> <p>3) Students were able to share their opinion on sex determination in human</p> <p>4) They were able to evaluate between</p>	<p><b>To make a punnet square for dihybrid cross.</b></p> <p>To analyze their genetical character through pedigree analysis</p> <p><b>Assignment</b></p> <p><b>Unit Test</b></p>

		<p>inherited and acquired traits and will be able to understand to trace evolutionary relationships.</p>	<p>blood groups in human being.  They will be able to evaluate that increased incidence of female foeticide in northern India and on basis of sex chromosome who is responsible for sex determination of sex of baby.  They will be able to interpret that illegal abortion of female foetus is a crime that affects sex ratio in future.  They will be able to appreciate fossils help to unfold the mystery of evolution reflects phylogeny  They will be able to evaluate the transmission of resemblances, with ancestors or parent is due to genes.</p>	<p>To analyze their genetical character through pedigree analysis</p>	<p>inherited and acquired traits and will be able to understand to trace evolutionary relationships.  5) They were able to explore their critical thinking that illegal abortion of female foetus is a crime that affects sex ratio in future.  6) They were able to apply their knowledge to relate congenital anomalies are due to genetic and environmental factors.   7) They were to analyzing importance of transmission of resemblances, with ancestors or parent is due to genes.</p>	
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<p><b>Dec- Jan</b></p>	<p><b>Chapter:- Our Environment</b></p>	<p>*To make the students learn and understand about the various abiotic and biotic factors that interacts in the environment. *Students will learn about various food chain and web in ecosystems. *They will be able to analyze the impact of human in the deteriorating the environment. *They will able to interpret the cause of global warming and depletion of ozone layer. *They will learn about how to use and manage biodegradable substances. *They will be able to analyze Three concepts of 'R'. *The students would be familiarized with various methods to manage the garbage</p>	<p>*To emphasized on development of skills like observational, experimental, knowledge, understanding, analysis, interpretation and inculcating values like Awareness, Responsibility, responsibility, coordination and empathy towards environment.</p> <p>Students will be able to identify that tertiary consumers required more energy according to 10% law and therefore depends on multiple food options. They will be able to interpret layer of atmosphere in which ozone is present (stratosphere) and its importance. They will be able to evaluate that increased increase in size of ozone hole is due to human activities. They will be able to interpret the importance of bacteria and decomposers and consequences if</p>	<p>The students will be asked to calculate the total amount of waste generated at home per day. They will be segregating into biodegradable and non biodegradable.</p> <p>Create an aquarium- Design an aquarium on a paper. What are the things we keep in mind when we create?....( O2 pump to provide oxygen, Aquatic plants and animals for self sustaining...etc)</p> <p>What would happen if you do not take care while putting the aquatic animals which would eat others?</p>	<p>1) Learner learnt and understood about the various abiotic and biotic factors that interacted in the environment. 2) Students were able to identify that tertiary consumers required more energy according to 10% law and therefore depends on multiple food options. 3) Students were able to share their opinion on cause of global warming and depletion of ozone layer. 4) They were able to evaluate that increased increase in size of ozone hole is due to human activities. 5) They were able to explore their critical thinking with various methods to manage the garbage 6) They were able to apply their knowledge to relate Three concepts of 'R'. 7) They were to analyzing importance of bacteria and</p>	<p>Create an aquarium- Design an aquarium on a paper. What are the things we keep in mind when we create?....( O2 pump to provide oxygen, Aquatic plants and animals for self sustaining...etc)</p> <p>What would happen if you do not take care while putting the aquatic animals which would eat others?</p>
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<b>Jan</b>	Management of Natural Resources	<p>*Students will be able to understand about use of different natural resources. *They will be able to comprehend and infer their knowledge in deciding the ways by which these resources will be managed for sustainable development.</p>	<p>*To emphasized on development of skills like observational, experimental, knowledge, understanding, analysis, interpretation and inculcating values like Awareness, Responsibility, coordination and empathy towards environment.</p> <p>Students will be able to identify that how we and our family member can play important role in regulation the daily use of some natural resources. They will be aware of</p>	<p>*The students will be asked to find out about the international norms to regulate emission of carbon dioxide.</p> <p>*Panel discussion on how we can contribute towards meeting those norms.</p>	<p>1) Learner learnt and understood about the use of different natural resources.</p> <p>2) Students were able to identify that how we and our family member can play important role in regulation the daily use of some natural resources.</p> <p>3) Students were able to share their opinion on in deciding the ways by which these resources will be managed for sustainable development.</p>	<p>Panel discussion on how we can contribute towards meeting the international norms to regulate emission of carbon dioxide.</p>

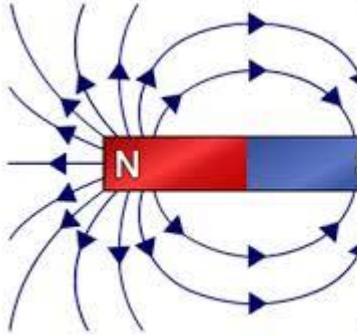
			<p>importance of sustainable management.</p> <p>They will be able to interpret importance of making water potable and consequences of drinking unclean water.</p> <p>They will be able to evaluate that energy can be produce from waste.</p> <p>They will be able to interpret the use of new technology in India like WTE programme i.e. waste to energy project.</p> <p>They will be able to evaluate the hazards of burning fossil fuels.</p>		<p>4) They were able to evaluate that energy can be produce from waste.</p> <p>5) They were able to explore their critical thinking with importance of making water potable and consequences of drinking unclean water.</p> <p>6) They were able to apply their knowledge to interpret the use of new technology in India like WTE programme i.e. waste to energy project.</p>	
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**SUBJECT: PHYSICS**

Month & Working Days	Theme/ Sub-theme	Learning Objectives		Activities & Resources	Expected Learning Outcomes	Assessment
		Subject Specific (Content Based)	Behavioural (Application based)			
<b>JUNE And JULY</b>	<b>ELECTRICITY</b>	Students will be able to- <ul style="list-style-type: none"> <li>State properties of charges</li> <li>State coulomb's law</li> <li>Define and calculate current</li> <li>Define and</li> </ul>	Students will be able to – <ul style="list-style-type: none"> <li>Understand potential difference is required for the flow of current.</li> <li>Identify sources of current</li> <li>Relate transfer of</li> </ul>	Activity- Various devices which provide potential difference will be discussed and will be shown.  Class Activity- Teacher will introduce various components of electric circuit in the lab/ classroom by elaborating how to	Students learnt to- <ul style="list-style-type: none"> <li>State properties of charges</li> <li>State coulomb's law</li> <li>Define and calculate current</li> <li>Define and</li> </ul>	<ul style="list-style-type: none"> <li><b>To verify Ohm's law.</b></li> <li><b>To calculate net resultant resistance in series combination.</b></li> </ul>

		<p>calculate potential difference,</p> <ul style="list-style-type: none"> <li>• Define and calculate resistance and resistivity.</li> <li>• Arrange various resistances in combinations to get desired result.</li> <li>• Explain factors affecting resistance and resistivity</li> <li>• Elaborate how electric appliance are rated</li> <li>• Understand uses of specific materials</li> <li>• Draw various circuit diagrams</li> </ul>	<p>charges in day today life.</p> <ul style="list-style-type: none"> <li>• Relate resistance of various objects in daily life.</li> <li>• Analyse the rating of various electric appliances.</li> <li>• Start using particular material on the basis of its property.</li> <li>• Understand the rating of various types of fuse and their functions.</li> <li>• Calculate and verify electricity bills.</li> <li>• Can assemble various electrical appliances correctly in electric circuits.</li> </ul>	<p>connect it and its use.</p> <p>Lab Activity- Ohm's law will be verified by the students in the lab. They will note down observations and will calculate the result.</p> <p>Class Activity- Students will be explained about various combinations of resistors and will be asked to identify series and parallel combinations.</p> <p>Lab Activity- Students will be taken to lab and will be asked to calculate net resistance of the given resistors in series and parallel combinations.</p> <p>Class Activity- Students will be given various combinations and can be asked to calculate the result theoretically and then verify with the help of apparatus.</p>	<p>calculate potential difference,</p> <ul style="list-style-type: none"> <li>• Define and calculate resistance and resistivity.</li> <li>• Arrange various resistances in combinations to get desired result.</li> <li>• Explain factors affecting resistance and resistivity</li> <li>• Elaborate how electric appliance are rated</li> <li>• Understand uses of specific materials</li> <li>• Draw various circuit diagrams</li> <li>• Potential difference is required for the flow of current.</li> <li>• To Identify sources of current</li> <li>• To explain transfer of charges between two objects in day today life.</li> <li>• The application of Resistance of</li> </ul>	<ul style="list-style-type: none"> <li>• <b>To calculate net resultant resistance in parallel combination.</b></li> </ul>
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					<ul style="list-style-type: none"> <li>various objects.</li> <li>To analyse the rating of various electric appliances.</li> <li>To use particular material on the basis of its electrical property.</li> <li>To rate of various types of fuse and their functions.</li> <li>To Calculate and verify electricity bills.</li> <li>To assemble various electrical appliances correctly in electric circuits.</li> </ul>	
<b>AUGUST And SEPTEMBER</b>	<b>MAGNETIC EFFECT OF ELECTRIC CURRENT</b>	<p>Students will be able to-</p> <ul style="list-style-type: none"> <li>Draw and State properties of magnetic field lines.</li> <li>Explain and perform Orested experiment.</li> <li>Draw and explain properties of magnetic field lines due to current carrying</li> </ul>	<p><b>BEHAVIOURAL LEARNING OBJECTIVES:</b> Students will be able to –</p> <ul style="list-style-type: none"> <li>Appreciate the use of science in various applications like electric bell etc.</li> <li>Apply Fleming’s left hand rule to understand working of Dynamo.</li> <li>Apply Fleming’s</li> </ul>	<p>1. Class Activity-Concept of the magnetic field is introduced with the help of following activity.</p>	<p>Students learnt to-</p> <ul style="list-style-type: none"> <li>Draw and State properties of magnetic field lines.</li> <li>Explain and perform Orested experiment.</li> <li>Draw and explain properties of magnetic field lines due to current carrying</li> </ul>	<b>Application Of Various Rules To Various Situations Given.</b>

		<p>circular coil.</p> <ul style="list-style-type: none"> <li>• State and apply Right hand thumb rule.</li> <li>• Draw and explain properties of magnetic field lines due to current carrying straight conductor.</li> <li>• State and apply Clock rule.</li> <li>• Draw and explain properties of magnetic field lines due to current carrying solenoid.</li> <li>• Differentiate between electromagnet and permanent magnet.</li> <li>• Explain Kicking wire experiment.</li> <li>• State and apply Fleming's left hand rule.</li> <li>• Explain and apply electromagnetic induction.</li> <li>• State and apply Fleming's right hand rule.</li> </ul>	<p>right hand rule to Generator.</p> <ul style="list-style-type: none"> <li>• Can prepare electromagnets and make use of them.</li> </ul>	 <p>Class Activity- Oersted experiment will be conducted in the class.</p>	<p>circular coil.</p> <ul style="list-style-type: none"> <li>• State Right hand thumb rule</li> <li>• Draw and explain properties of magnetic field lines due to current carrying straight conductor.</li> <li>• State and apply Clock rule.</li> <li>• Draw and explain properties of magnetic field lines due to current carrying solenoid.</li> <li>• Differentiate between electromagnet and permanent magnet.</li> <li>• Explain Kicking wire experiment.</li> <li>• State and apply Fleming's left hand rule to the working of Dynamo.</li> <li>• Deduce properties of magnetic field lines.</li> <li>• Draw and explain properties of</li> </ul>	
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					<p>magnetic field lines due to current carrying circular coil.</p> <ul style="list-style-type: none"><li>• Apply Right hand thumb rule.</li><li>• Deduce properties of magnetic field lines due to current carrying straight conductor.</li><li>• Find out the direction of magnetic field lines due to current carrying solenoid.</li><li>• Differentiate between electromagnet and permanent magnet.</li><li>• Explain electromagnetic induction.</li><li>• State and apply Fleming's right hand rule to generator.</li><li>• To appreciate the use of science in various applications like electric bell etc.</li></ul>	
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					<ul style="list-style-type: none"> <li>• Can prepare electromagnets and make use of them.</li> </ul>	
<b>September</b>	<b>SOURCES OF ENERGY</b>	<p>STUDENTS WILL BE ABLE TO –</p> <ul style="list-style-type: none"> <li>• Define Solar, Wind, Hydro And Ocean Energy</li> <li>• Explain The Working Of Solar Devices Along With Their Advantages And Disadvantages</li> <li>• Explain Working Of Hydro Power Plant, Wind Mills</li> <li>• Understand How Geothermal And Ocean Energy Is Harnessed</li> <li>• State advantages and limitations of various resources</li> </ul>	<p>STUDENTS WILL BE ABLE TO-</p> <ul style="list-style-type: none"> <li>• Appreciate various types of resources.</li> <li>• Make judicious use of these resources.</li> <li>• Will start using renewable resources in all the possible manners.</li> <li>• Spread awareness about conservation of resources.</li> <li>•</li> </ul>	<p>Class Activity-</p> <ul style="list-style-type: none"> <li>• Preparation of solar cooker in groups.</li> <li>• Videos of working of – Hydro power plants Wind mills Harnessing of geothermal and ocean energy. Students will be asked to find the locations of above plants and the energy harnessed by them.</li> <li>• Students will be asked to prepare ppt on various types of resources, their harnessing, advantages and disadvantages.</li> </ul>	<p>STUDENTS WILL BE ABLE TO –</p> <ul style="list-style-type: none"> <li>• Define Solar, Wind, Hydro And Ocean Energy</li> <li>• Explain The Working Of Solar Devices Along With Their Advantages And Disadvantages</li> <li>• Explain Working Of Hydro Power Plant, Wind Mills</li> <li>• Understand How Geothermal And Ocean Energy Is Harnessed</li> <li>• State advantages and limitations of various resources</li> </ul>	<b>Powerpoint On Various Types Of Resources</b>
<b>October And November</b>	<b>LIGHT-REFLECTION</b>	<p>Students will be able to-</p> <ul style="list-style-type: none"> <li>• Define reflection</li> <li>• State laws of reflection</li> <li>• Differentiate between types of reflection</li> <li>• Differentiate between real and</li> </ul>	<p>Students will be able to –</p> <p>Prove laws of reflection of light</p>	<p>Class activity-</p> <p>Students will be able to prove laws of reflection of light.</p>		

		virtual image. <ul style="list-style-type: none"> <li>Define terms related to spherical mirror.</li> </ul>				
<b>November</b>	<b>LIGHT-REFLECTION</b>	Students will be able to- <ul style="list-style-type: none"> <li>Draw image formation for spherical mirrors and state the nature and position of image.</li> <li>Make use of mirror formula</li> </ul>	Students will be able to- <ul style="list-style-type: none"> <li>Understand the application of spherical uses</li> <li>Can make use of mirror formula</li> <li>Apply sign conventions correctly</li> </ul>	Class activity- To identify various types of mirrors without touching. Lab activity- To determine focal length of concave mirror.		<b>Class activity-</b> <b>Lab activity-</b> <b>To determine focal length of concave mirror.</b>

<p><b>December And January</b></p>	<p><b>Refraction</b></p>	<p>Students will be able to-</p> <ul style="list-style-type: none"> <li>• Define refraction</li> <li>• State laws of refraction</li> <li>• State causes for refraction</li> <li>• Define and calculate refractive index</li> <li>• State factors affecting refractive index</li> <li>• Explain refraction through spherical lenses</li> <li>• Draw image formation by spherical lenses.</li> <li>• Apply sign conventions correctly</li> <li>• Calculate power of lens.</li> <li>• Calculate focal length of combinations</li> </ul>	<p>Students will be able to-</p> <ul style="list-style-type: none"> <li>• Apply the concept of refraction to day today life for e.g. twinkling of stars, apparent bending of straw/ spoon when kept in glass filled with water etc.</li> <li>• To apply that apparent depth is less than real depth.</li> <li>• Use various lenses.</li> <li>• Calculate focal length and power of lens.</li> </ul>	<p>Lab activity-</p> <ul style="list-style-type: none"> <li>• To determine focal length of convex lens.</li> <li>• To trace the path of ray of light passing through glass slab and calculate its refractive index.</li> </ul>		<p><b>Lab activity-</b></p> <ul style="list-style-type: none"> <li>• <b>To determine focal length of convex lens.</b></li> <li>• <b>To trace the path of ray of light passing through glass slab and calculate its refractive index.</b></li> </ul>
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<p><b>February</b></p>	<p><b>Human eye and colorful world</b></p>	<p>Students will be able to-</p> <ul style="list-style-type: none"> <li>• Explain the working of human eye.</li> <li>• State cause and correction of defects of vision like myopia, hypermetropia, presbyopia etc.</li> <li>• Draw the diagrams of defected eye and corrected eye.</li> <li>• Draw path of light through a glass prism.</li> <li>• Define phenomenon of dispersion and state its cause.</li> <li>• Explain Rayleigh scattering.</li> </ul>	<p>Students will able to-</p> <p>Apply concepts to daily life-</p> <p>Apparent position of stars.</p> <p>Advanced and delayed sunrise and sun set.</p> <p>Blue colour of clear sky.</p> <p>White colour of clouds.</p> <p>Etc.</p>	<p>Lab activity-</p> <p>To trace path of light ray through glass prism.</p>	<p>Students learnt to-</p> <ul style="list-style-type: none"> <li>• Explain the working of human eye.</li> <li>• State cause and correction of defects of vision like myopia, hypermetropia, presbyopia etc.</li> <li>• Draw the diagrams of defected eye and corrected eye.</li> <li>• Draw path of light through a glass prism.</li> <li>• Define phenomenon of dispersion and state its cause.</li> <li>• Explain Rayleigh scattering.</li> <li>• Apply concepts to daily life-</li> </ul> <p>Apparent position of stars.</p> <p>Advanced and delayed sunrise and sun set.</p> <p>Blue colour of clear sky.</p> <p>White colour of clouds.</p>	<p><b>To trace path of ray through glass prism.</b></p>
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