

ANNUAL CURRICULUM PLAN 2020-21
SUBJECT: SCIENCE
CLASS VIII

OVERALL VISION: To develop the student competency of applying scientific knowledge to the solutions of problem, to develop the student curiosity to learn science, to build knowledge base for professional scope of higher science courses.

APRIL TO SEPTEMBER

Chapter	Transaction strategies / Innovative pedagogy	Learning outcome	Core skills/ Art Integration/ Inter-disciplinary linkages
<p>1. <i>Crop production and management</i></p> <ul style="list-style-type: none"> • Kharif and rabi crops • Basic practices of crop production 	<ul style="list-style-type: none"> • The students will be <u>introduced</u> to the topic through <u>interactive method</u> about the season of availability of the crops. The topic will be <u>assessed</u> by conducting an <u>activity</u> - showing pictures of the crops through PPT and asking students to identify them. • They will <u>develop</u> a sense of responsibility towards environment sensitization. 	<ul style="list-style-type: none"> • To identify the kharif and rabi crops. • To be able to extend students' appreciation towards the efforts of farmers and their contribution in agriculture. • To discover the different agricultural practices 	<ul style="list-style-type: none"> • Core Skills Observation skills, Identification of plants, Analytical skills • Art Integration The children will learn about the hard work done by farmer and will develop the value of dignity of labour including avoiding wastage of food. chart on methods of irrigation. PPT on agriculture in Sikkim. • Interdisciplinary linkage Agricultural sciences, Geography
<p>4. <i>Materials: Metals and non-metals</i></p> <ul style="list-style-type: none"> • Physical properties of metals and non-metals • Chemical properties of metals and non-metals 	<ul style="list-style-type: none"> • The students will be <u>introduced</u> to the topic by differentiating properties of metals and non-metals. It was concluded by <u>relating</u> them with real life examples. • The students will be <u>demonstrated</u> various chemical reactions through animations of OLABs shared in their class groups. 	<ul style="list-style-type: none"> • To classify materials around as metals and non-metals. • To demonstrate the reactions of chemical substances with metals and non-metals. 	<ul style="list-style-type: none"> • Core Skills Analytical skills, Experimental and Observational skills • Art Integration The students will understand the importance of 3 R's (Reduce, Reuse and Recycle) • Interdisciplinary linkage Environmental sciences, Automobile engineering and machinery.
<p>5. <i>Coal and Petroleum</i></p> <ul style="list-style-type: none"> • Natural resources and its types • Coal • Petroleum • Some natural resources are limited 	<ul style="list-style-type: none"> • The students will be asked to <u>recollect</u> the earlier knowledge base as a part of quiz and <u>classify</u> resources into exhaustible, inexhaustible, natural and man-made. • The students will be <u>shown and explained</u> the formation of coal and petroleum alongwith their refining through <u>animations</u>. Also there will be a discussion on conservation of the fuels. 	<ul style="list-style-type: none"> • To sensitize the students about exhaustible and inexhaustible resources, whether natural or man-made. • To anticipate the formation, properties, processed components, uses of coal and petroleum. 	<ul style="list-style-type: none"> • Core Skills Awareness skills, Problem solving • Art Integration Students will conduct a survey about the different types of fuels involved in domestic and commercial use • Interdisciplinary linkage Geography

<p>8. <i>Cell- Structure and function</i></p> <ul style="list-style-type: none"> • Discovery of cell • Organisms show variety in cell number, shape and size • Cell structure and function • Parts of cell 	<ul style="list-style-type: none"> • The students will be shown <u>animations</u> through audio-visual aids for better understanding of unicellular and multicellular organisms. Different shape and functions of cells will also be discussed. • Animations of O Labs showing the slides of onion peel cells and cheek cells will be shown in the online class. 	<ul style="list-style-type: none"> • To draw a contrast between unicellular and multicellular organisms. • To analyze parts of a cell and understand the presence of cell parts in plant cell and animal cell. 	<ul style="list-style-type: none"> • Core Skills Observational skills, Analytical skills, Diagrammatic skills • Art Integration Draw the plant cell and animal cell. • Interdisciplinary linkage Visual arts Physiology
<p>11. <i>Force and Pressure</i></p> <ul style="list-style-type: none"> • Cause of forces • Exploring forces • Effects of force • Contact force • Non-contact force • Pressure 	<ul style="list-style-type: none"> • The students will engage in preparing concept maps on effects of forces, types of forces, etc. • The students will be encouraged to perform hands-on activities to determine the effects of force. • The students will be demonstrated various contact and non-contact forces. Also the same will be done for explaining pressure along with showing animations and PPTs. 	<ul style="list-style-type: none"> • To associate the concept of force with daily life activities • To be able to demonstrate pressure in solids, liquids and gases and correlate with force 	<ul style="list-style-type: none"> • Core Skills Logical thinking, Analytical skills, Problem solving skills • Art Integration Compare your weight on earth with your weight on other planets and write the ratios in tabular form. • Interdisciplinary linkage Mathematics, Geography
<p>12. <i>Friction</i></p> <ul style="list-style-type: none"> • Factors affecting friction • Fluid friction • Friction- a necessary evil • Increasing and reducing friction 	<ul style="list-style-type: none"> • The students will be shown videos of <u>demonstration</u> of friction and the factors affecting it. • The students will <u>discuss</u> the advantages and disadvantages of friction through concept maps. • The students will perform an <u>activity</u> on increasing and reducing friction through various means and show on their online class. 	<ul style="list-style-type: none"> • To introduce the phenomenon of friction and the factors affecting it. • To build a contrast between the advantages and disadvantages of friction in our life. • To demonstrate the means of increasing and reducing friction. 	<ul style="list-style-type: none"> • Core Skills Logical thinking, Analytical skills, Problem solving skills • Art Integration Visit the website and compare the changes in the technology of automobile engineering. • Interdisciplinary linkage Mathematics, Machinery, Automobile engineering
<p>14. <i>Chemical effects of Electric current</i></p> <ul style="list-style-type: none"> • Do liquids conduct electricity? • Electroplating 	<ul style="list-style-type: none"> • The students will be <u>shown</u> animations for passing of electric current in liquids. Link of the videos will be shared in the online class groups. • The students will <u>draw</u> diagrams of electroplating and will be shown animations of electric process to help them understand the process. 	<ul style="list-style-type: none"> • To list the observations about passing of electric current in liquids. • To elaborate the process of electroplating and its advantages. 	<ul style="list-style-type: none"> • Core Skills Analytical skills, Logical thinking, Observation skills • Art Integration Explore different materials which can conduct electricity by using a simple circuit. • Interdisciplinary linkage Mathematics

OCTOBER TO MARCH

<p>2. <i>Microorganisms: Friend and Foe</i></p> <ul style="list-style-type: none"> • Microorganisms • Where do microorganisms live? • Microorganism and us 	<ul style="list-style-type: none"> • The students will be performing a laboratory <u>activity</u> to observe microorganisms / Animations of OLABs showing the slides of microorganisms will be shared in the online class group. • The students will <u>analyze</u> the positive and negative effects of microorganisms in our daily lives. Also they will <u>discuss</u> their causative organism, mode of transmission and preventive measures. 	<ul style="list-style-type: none"> • To introduce the existence of microorganisms. • To build a contrast between the advantages and disadvantages of microorganisms in our life. 	<ul style="list-style-type: none"> • Core Skills Observational skills, Analytical skills, Self awareness, Application • Art Integration Make a poster on Causes and preventive measures against 'Dengue disease'. • Interdisciplinary linkage Health sciences
<p>6. <i>Combustion and flame</i></p> <ul style="list-style-type: none"> • What is combustion? • How do we control fire? • Types of combustion • Flame • Structure of flame 	<ul style="list-style-type: none"> • The students will be <u>shown an activity</u> showcasing importance of components of combustion through a PPT. • The students will <u>draw</u> diagrams of candle flame zones and will be <u>illustrated</u> by an activity. Different types of combustion were also discussed. 	<ul style="list-style-type: none"> • To acquaint the concept of combustion and its components. • To explore the types of combustion alongwith different zones of a flame. 	<ul style="list-style-type: none"> • Core Skills Observational skills, Self awareness, Analytical skills, Application • Art Integration Make a collage on clippings of Australian bushfires. • Interdisciplinary linkage Health sciences Geography
<p>9. <i>Reproduction in animals</i></p> <ul style="list-style-type: none"> • Mode of reproduction • Sexual reproduction • Asexual reproduction 	<ul style="list-style-type: none"> • The students will be <u>shown animations</u> of diagrammatic representations of sexual reproduction through audio-visual aids. • The students will <u>draw</u> diagrams of the reproductive organs, metamorphosis and binary fission in amoeba. 	<ul style="list-style-type: none"> • To state and describe the various organs included in sexual reproduction. • To implore the process of metamorphosis and binary fission. 	<ul style="list-style-type: none"> • Core Skills Self awareness, Logical thinking, Diagrammatic skills • Art Integration Posters on Good touch and Bad touch and prevention of Child abuse. • Interdisciplinary linkage Health sciences, Psychology, Art
<p>10. <i>Reaching the age of adolescence</i></p> <ul style="list-style-type: none"> • Adolescence and puberty • Reproductive phase of life • How is sex of the baby determined? • Reproductive health • Say 'NO' to drugs 	<ul style="list-style-type: none"> • The students will be a part of <u>classroom discussion</u> involving the topic of changes during puberty, including diagrammatic representation of menstrual cycle. • The students will be <u>shown animations</u> showcasing process of gender determination in a fetus. • A classroom <u>debate</u> will be held with students involving the topic of reproductive health, sex education and prohibition of use of drugs. <u>Videos and interviews</u> will be shown to support the concept. 	<ul style="list-style-type: none"> • To relate with bodily and emotional changes during puberty. • To sensitize the future generation about deciding factor of gender in a fetus. • To implore topic of reproductive health in students' mind. Also help them become morally conscious about social taboos and effects of drug use. 	<ul style="list-style-type: none"> • Core Skills Decision making, Self awareness, Logical thinking, • Art Integration Make an advertisement promoting the use of clean sanitary napkins throughout the country. • Interdisciplinary linkage Health sciences, Psychology Civics

<p>13. <i>Sound</i></p> <ul style="list-style-type: none"> • Sound is produced by a vibrating body • Sound needs a medium for propagation • We hear sound through our ears • Noise and music • Noise pollution 	<ul style="list-style-type: none"> • The students will be performing a <u>hands-on activity</u> to understand the source of sound. • The students will <u>play a game</u> which will include demonstration of propagation of sound particles. • The students will learn about parts of human ear through <u>audio-visual aids</u>. • The students will <u>discuss</u> the effects of noise pollution. Also they will be shown <u>visuals</u> about effects of high volume music to human ears. 	<ul style="list-style-type: none"> • To develop student interest towards origination of sound. • To demonstrate the propagation of sound particles in a medium. • To acquaint students with parts of human ear. • To sensitize the students about loud volume level of noise towards the environment. 	<ul style="list-style-type: none"> • Core Skills Analytical skills, Logical skills, Observational skills, Applications • Art Integration The students will conduct a radio show around Diwali emphasizing the need to reduce noise pollution. • Interdisciplinary linkage Mathematics
<p>16. <i>Light</i></p> <ul style="list-style-type: none"> • Laws of reflection • Regular and diffused reflection • Multiple images • Sunlight – white or coloured • What is inside our eyes? • Care of the eyes • Visually challenged persons • What is braille system? 	<ul style="list-style-type: none"> • The students will be <u>demonstrated</u> an activity showcasing reflection and its laws. • The students will do a <u>hands-on activity</u> and create a kaleidoscope and Newton's disc for better understanding of concepts. • The students will be shown <u>audio-visual aids</u> to discuss working of human eye. The students will <u>draw</u> diagrams and discuss importance of eyesight. 	<ul style="list-style-type: none"> • To understand the concept of reflection and its laws. • To explore the laws of reflection of light and dispersion in the lieu of activity. • To help students understand the importance of eyesight and eye donations in world. 	<ul style="list-style-type: none"> • Core Skills Analytical skills, Logical skills, Observation skills, Problem solving skills • Art Integration Make a kaleidoscope and a periscope and draw patterns depicting optical illusion. • Interdisciplinary linkage Mathematics(Geometry) Health sciences Psychology
<p>18. <i>Pollution of air and water</i></p> <ul style="list-style-type: none"> • Air pollution • How does air get polluted? • Water pollution • How does water gets polluted • What is Potable water? • Case study – the Taj Mahal • Case study – Ganga Action Plan 	<ul style="list-style-type: none"> • The students will be a part of <u>classroom debate</u> discussing factors affecting air pollution and water pollution. • The students will be shown a <u>diagram of working water-purification system</u> for better understanding of current condition of water. • The students will be shown <u>audio-visuals</u> to help students understand the effects of air and water pollution in India and world. Also they will make <u>posters</u> to create awareness about air and water pollution. 	<ul style="list-style-type: none"> • To expand the knowledge base of air and water pollution, its causes and effects. • To sensitize the students to contribute towards cleaner air and water and prohibit their pollution. • To familiarize students with certain case studies of air and water pollution. 	<ul style="list-style-type: none"> • Core Skills Awareness, Logical thinking, Observational skills, Application • Art Integration Virtually visit Taj Mahal and observe the harmful effects of air pollution on the structure. • Interdisciplinary linkage Geography Health science History