**SCIENCE TEACHING IN UPPER PRIMARY STAGE**

**INTRODUCTORY NOTE**

Science is best understood when it is related to real life situations. Teaching in local contexts allows students to be aware of how science influences their everyday lives. Through learning science in schools, students will become aware of some of the natural laws that explain the world around us. They will learn to gather evidence according to methods developed in science such as hypothesizing, experimenting observing, recording, interpreting, analyzing and drawing conclusion. The nature of science provides students with many opportunities to solve problems using recognized scientific thinking skills and procedure.

At this Upper Primary Stage, children get their first exposure to ‘Science’ as a discipline. There is a gradual transition from Environmental Studies to the elements of science. Concepts of science at this stage are not governed by disciplinary approach. The child should be engaged in working with hands to design simple technological units and models

This module is for teachers teaching Science at Upper Primary Stage and following points have been covered in this module

1. Learning objectives
2. Some teaching and learning strategies and evaluation criteria
3. Some e resources
4. Comprehensive syllabus
5. Split up of syllabus for Class VI ,Class VII and Class VIII

**Objectives of teaching learning science at the Upper Primary Level**

Major objectives of teaching-learning of Science at this stage is to enable children to

1. Have basic understanding of science as a subject at Upper Primary Stage.
2. How to appreciate science as a process of inquiry and knowledge construction.
3. How to integrate content, pedagogy and assessment during teaching learning process.
4. Design various learning situations for students to facilitate learning .

**Teaching and learning strategies**

This table outlines some student - centered teaching and learning and learning strategies that are appropriate for science.

|  |  |  |
| --- | --- | --- |
| **Teaching and learning Strategies** | **Descriptions and Examples of Strategies** | **Suggestive evaluation criteria** |
| **Survey** | A survey is usually used to find out what other people think about an issue .It involves interviewing people or giving out questionnaires. Results may be presented as reports ,tables or graphs  **Examples of survey topics .Drinking water supply, household wastes, explaining natural phenomena, uses of plants, traditional science and effects of drought.** | Methodology  Collection of data  Inference drawn  Interpretation  Involvement |
| **Testing predictions** | This involves making a prediction and testing it. Choose a problem you want to investigate, carry out background research on the problem and predict what might happen  **Examples of issues: Energy content of different fuels, effects of some, detergents on environment, water quality, effectiveness of insecticides, what makes a healthy soil.** | Scientific idea  Relevance  Materials (cost wise)  Presentation  Explanation |
| **Collecting and observation** | Observing is an open ended activity .Observations may be carried out over a short or long period .Specific or general observations may be made and data collected to be later classified and analysed  **Examples of observations:Bird study,changes in tides ,growth of seedlings,pollution on different areas** | Relevance to the topic  Presentation  Understanding ability  Collection of samples  Neatness |
| **Making models** | Models can be used to show a Science concept .Models can be working models or built to scale if they are demonstration models  **Examples of models :waste disposal,making a telescope,weather station and operation,model house circuit,model of periscope,** | Scientific idea  Relevance  Materials (cost wise)  Presentation  Explanation |
| **Excursions and field trips** | Excursions and field trips are a valuable and positive addition to any Science programs.  It will help to study and increase their knowledge of local resources and places suitable for excursions  **Examples of excursions: Use the local environment outside the school, both natural and built. we can consider local resources and landscapes such as rivers, mining sites, fisheries ,hydroelectric plants and local industries** | Participation  Observation  Scientific thought  Conclusion  Involvement |
| **Demonstrations** | In science, demonstration steps or procedures are outlined and then followed, while others are observing and taking notes. It can be conducted by the teacher, students or an expert | Correct set up  Correct handling  Observation  Interpretation & inference  Neatness |
| **Projects** | Should focus on practical work carried out by one or more students  **Examples of projects: Studying marine life, pollution or erosion, weather and climate change ,food resources, growth of particular plants, animals of the neighbourhood,** | relevance  Scientific reasoning  Neatness |
| **Discussions** | Discussions are a way of exploring issues. It can be between teacher and students and students and students .  **Examples of discussion topics :Global warming ,Depletion of ozone layer ,Conservation of forests** | Content based relevance  Extent of participation  Areas covered  Conclusion  Confidence |
| **Role play** | Students imitate the behaviour or characteristics of something  **Examples of role play :How energy is passed from one form to another, electrical circuits ,behaviour of particles in matter ,food chains ,digestive system in action ,force and friction** | Relevance  Scientific thought& its extent  Presentation  Involvement  Teamwork |
| **Peer teaching and learning** | This is organised as a partnership activity .One student performs while the other observes and assists in making corrections and suggesting new ideas and changes .The teacher’s role in this strategy is to observe as well encourage positive interaction and effective communication through which the intended outcome is achieved  **Examples of peer teaching and learning :Thunderstorms and cyclones ,understands the flow of blood from heart to organs and vice versa** | Presentation  Content  Interaction  Areas covered  Confidence |
| **Group work** | The purpose of group work is to give students opportunities to share ideas and at the same time learn from group members .Every group should have a group leader .Group work activities can take place anywhere : in the classroom ,under a tree ,or school garden  **Examples of group work. Grow any one vegetatively propagated plant, Study of various parts of stamen and pistil, Find out the blood groups and their importance, Carry out a campaign to conserve water at home.** | Relevance  Scientific thought its extent  Presentation  Involvement  Teamwork |
| **Research** | Research involves collection of data and analysing them in order to gain new information or knowledge about a particular subject  **Examples of research: Common diseases in their local community, Certain species of animals that are becoming rare in the local area ,Food that is unsafe for human consumption, rubbish dumps being a health hazard to the community.** | Originality  Scientific content  Correctness  Presentation  Neatness |
| **Debates** | A debate is a fair and formal way of discussing a topic or issue. It normally takes place after preparations from two groups -one **FOR** the topic and one **AGAINST** the topic  **Examples of debates topic: Chemical fertilizers should be used to treat agricultural and commercial crops., use of plastics ,** | Content  Presentation  Correctness of format of debate  Scientific reasoning and skill  Confidence |

**Resources**

Resources can be obtained from

1. www.Diksha.gov.in
2. https://kvno2jaipur.wordpress.com/online study material : we can get notes, ncert solutions ,ppt,videos for each lesson class wise .
3. <https://kviffcogimlibrary.files.wordpress.com/2019/08/joyful-learning-activities-pisa-2021.pdf>
4. https://www.khanacademy.org/
5. http://ww7.academicearths.org/
6. https://www.coursera.org/
7. https://www.edx.org/
8. https://www.open2study.com/
9. <http://www.academicjournals.org/>
10. <https://www.coursera.org>
11. <https://www.youtube.com/education>
12. <http://cbseacademic.nic.in/web_material/Manuals/Teachers_handbook-Science.pdf>
13. [https://www.education.gov.in/sites/upload\_files/mhrd/files/pragyata-guidelines\_0.p](https://www.education.gov.in/sites/upload_files/mhrd/files/pragyata-guidelines_0.pdf)df
14. <http://nroer.gov.in>
15. [http://aven.amritalearning.co](http://aven.amritalearning.com)m

**COMPREHENSIVE SYLLABUS FOR UPPER PRIMARY**

**SUBJECT: SCIENCE**

**CLASS – VI**

**Chapter 1: Food: Where Does It Come From? :** Food variety, Food materials and sources, Plant parts and animal products as food, What do animals eat?.

**Chapter 2: Components Of Food :** What do different food items contain?, What do various nutrients do for our body?, Balanced diet, Deficiency diseases.

**Chapter 3: Fibre To Fabric :** Variety in fabrics, Fibre, Some plant fibres, Spinning cotton yarn, Yarn to fabric, History of clothing material.

**Chapter 4: Sorting Materials Into Groups :** Objects around us, Properties of materials.

**Chapter 5: Separation Of Substances :** Methods of separation.

**Chapter 6: Changes Around Us :** Can all changes always be reversed?, Could there be other ways to bring a change?.

**Chapter 7: Getting To Know Plants :** Herbs, Shrubs and Trees, Stem, Leaf, Root, Flower.

**Chapter 8: Body Movements :** Human Body and its movements, “Gait Of Animals”.

**Chapter 9: The Living Organisms – Characteristics And Habitats :** Organisms and the surrounding where they live, Habitat and adaptation, A journey through different habitats, Characteristics of organisms.

**Chapter 10: Motion And Measurement Of Distances :** Story of transport, How wide is the desk?, Some measurements, Standard units of measurements, Correct measurement of length, Measuring the length of a curved line, Moving thigs around us, Types of motion.

**Chapter 11: Light, Shadows And Reflections :** Transparent and Opaque and Translucent objects**,** what exactly are shadows?, Pinhole Camera, Mirrors and Reflections.

**Chapter 12: Electricity And Circuits :** Electric cell, A bulb connected to an electric cell, An electric circuit, Electric Switch, Electric conductors and insulators.

**Chapter 13: Fun With Magnets :** Magnetic and Non – Magnetic materials, Poles of magnet, Finding directions, Make your own magnet, Attraction and repulsion between magnets.

**Chapter 14: Water :** How much water do we use?,Where do we get water from?, Water Cycle, Back to the oceans, What if it rains heavily?, What happens if it does not rain for a long period?, How can we conserve water?, Rainwater harvesting.

**Chapter 15: Air Around Us :** Is air present everywhere around us?, What is air made up of?, How does oxygen become available to animals and plants living in water and soil, How is the oxygen in the atmosphere replaced?.

**Chapter 16: Garbage In, Garbage Out :** Dealing with garbage, Vermicomposting, Think and Throw, Recycling of paper, Plastics – Boon or a curse?.

**CLASS – VII**

**Chapter 1**: **Nutrition In Plants :** Mode of nutrition in plants, Photosynthesis – Food making process in plants, Other modes of nutrition in plants, Saprotrophs, How nutrients are replenished in the soil.

**Chapter 2: Nutrition In Animals :** Different ways of taking food, Digestion in humans, Digestion in Grass – Eating animals, Feeding and digestion in amoeba.

**Chapter 3: Fibre To Fabric :** Wool, Silk.

**Chapter 4: Heat :** Hot and cold, Measuring temperature, Laboratory thermometer, Transfer of heat, Kinds of clothes we wear in summer and winter.

**Chapter 5: Acids, Bases And Salts :** Acids and bases, Natural indicators around us, Neutralisation, Neutralisation in everyday life.

**Chapter 6: Physical And Chemical Changes :** Physical changes, Chemical change, Rusting of iron, Crystallisation.

**Chapter 7: Weather, Climate and Adaptations Of Animals To Climate :** Weather, Climate, Climate and adaptation.

**Chapter 8: Winds, Storms And Cyclones :** Air exerts pressure, High speed winds are accompanied by reduced air pressure, Air expands on heating, Wind currents are generated due to uneven heating on the earth, Thunderstorms and cyclones, Destruction caused by cyclones, Effective safety measures, Advanced technology has helped.

**Chapter 9: Soil :** Soil teeming with life, Soil profile, Soil types, Properties of soil, Moisture in soil, Absorption of water by soil, Soil and crops.

**Chapter 10: Respiration In Organisms :** Why do we respire?, Breathing, How do we breathe?, What do we breathe out?, Breathing in other animals, Breathing under water, Do plants also respire?.

**Chapter 11: Transportation In Animals And Plants :** Circulatory system, Excretion in animals, Transport of substances in plants.

**Chapter 12: Reproduction In Plants :** Modes of reproduction, Sexual reproduction, Fruits and seed formation, Seed dispersal.

**Chapter 13: Motion And Time :** Slow or fast, Speed, Measurement of time, Measuring speed, Distance - Time graph.

**Chapter 14: Electric Current And Its Effects :** Symbols of electric components, Heating effect of electric current, Magnetic effect of electric current, Electromagnet, Electric bell.

**Chapter 15: Light:** Light travels along a straight line, Reflection of light, Right or Left!, Playing with spherical mirrors, Images formed by lenses, Sunlight – White or coloured?.

**Chapter 16: Water : A Precious Resource :** How much water is available, Forms of water, Groundwater as an important source of water, Depletion of Water Table, Distribution of water, Water management, What role you can play, Effect of water scarcity on plants.

**Chapter 17: Forests: Our Lifeline :** Visit to a forest.

**Chapter 18: Wastewater Story:** Water - Our lifeline, What is sewage?, Water freshens Up – an eventful journey, Wastewater treatment plant (WWTP), Better housekeeping practices, Sanitation and Disease, Alternative arrangement for sewage disposal, Sanitation at public places.

**CLASS – VIII**

**Chapter 1** : **Crop Production And Management :** Agricultural practices, Basic practices of crop production, Preparation of soil, Sowing, Adding manure and Fertilisers, Irrigation, Protection from weeds, Harvesting, Storage, Food from animals.

**Chapter 2: Microorganisms : Friend and Foe :** Microorganisms, Where do microorganisms live ?, Microorganisms and us, Harmful microorganisms, Food preservation, Nitrogen fixation, Nitrogen cycle.

**Chapter 3: Synthetic Fibres And Plastics :** What are synthetic fibres?, Types of synthetic fibres, Characteristics of synthetic fibres, Plastics, Plastics as materials of choice, Plastics and the environment.

**Chapter 4: Materials : Metals And Non – Metals:** Physical properties of metals and non-metals, Chemical properties of metals and non – metals, Uses of metals and non – metals.

**Chapter 5: Coal And Petroleum :** Inexhaustible and exhaustible natural resources, Coal, Petroleum, Natural gas, Some natural resources are limited.

**Chapter 6: Combustion And Flame:** What is combustion, How do we control fire?, Types of combustion, Flame, Structure of flame, What is a fuel?, Fuel efficiency.

**Chapter 7: Conservation Of Plants And Animals:** Deforestation and its causes, Consequences of deforestation, Conservation of forest and wildlife, Biosphere reserve, Flora and Fauna, Endemic species, Wildlife sanctuary, National park, Red data book, Migration, Recycling of paper, Reforestation.

**Chapter 8: Cell – Structure And Function:** Discovery of the cell, The cell, Organisms show variety in cell number,shape and size, Cell structure and function, Parts of the cell, Comparison of plant and animal cells.

**Chapter 9: Reproduction In Animals:** Modes of reproduction, Sexual reproduction, Asexual reproduction.

**Chapter10:Reaching The Age Of Adolescence:** Adolescence and puberty, Changes at puberty, Secondary sexual characters, Role of hormones in initiating reproductive function, Reproductive phase of life in humans, How is the sex of the baby determined?, Hormones other than sex hormones, Role of hormones in completing the life history of insects and frogs, Reproductive health.

**Chapter11:Force And Pressure:** Force – a push or a pull, Forces are due to an interaction, Exploring forces, A force can change the state of motion, Force can change the shape of an object, Contact forces, Non- contact forces, Pressure, Pressure exerted by liquids and gases, Atmospheric pressure.

**Chapter12:Friction:** Force of friction, Factors affecting friction, Friction-a necessary evil, Increasing and reducing friction, Wheels reduce friction, Fluid friction.

**Chapter13:Sound:** Sound is produced by a vibrating body, Sound produced by humans, Sound needs a medium for propagation, We hear sound through our ears, Amplitude,time period and frequency of vibration, Audible and inaudible sounds,Noise and music, Noise pollution.

**Chapter14:Chemical Effects Of Electric Current:** Do liquids conduct electricity?, Chemical effects of electric current, Electroplating.

**Chapter15:Some Natural Phenomena:** Lightning, Charging by rubbing, Types of charges and their interaction, Transfer of charge, The story of lightning, Lightning safety, Earthquakes.

**Chapter16:Light:** What makes things visible, Laws of reflection, Regular and diffused reflection, Reflected light can be reflected again, Multiple images, Sunlight- white or coloured, What is inside our eyes?, Care of the eyes, Visually challenged persons can read and write, What is the Braille system?

**Chapter17:Stars And The Solar System:** The moon, The stars, Constellations, The solar system, Some other members of the solar system.

**Chapter18:Pollution Of Air And Water:** Air pollution, How does air get polluted?, Case study- the taj mahal, Greenhouse effect, What can be done?, Water pollution, How does water get polluted?, What is potable water and how is water purified? What can be done?

**KENDRIYA VIDYALAYA SANGATHAN RO CHENNAI REGION**

**SPLIT-UP SYLLABUS**

**SESSION 2021-22**

**NCERT TEXTBOOK:VI CLASS: VI SUBJECT: SCIENCE**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.**  **NO** | **NAME OF THE EXAM** | **CHAPTER** | **PERIODS NEEDED** | **MONTH** | **TENTATIVE NUMBER OF WORKING DAYS** | **LEARNING OUTCOMES** | **ACTIVITIES** | **ASSESSMENT AREAS** |
| 1 | PART-I  Periodic test -1 | FOOD:  WHERE DOES IT COME FROM | 4 | April | 16 | Know and understand   * The Importance of food variety * Ingredients required to make a dish * Edible parts of plant.   Able to explain   * Need of food variety * Categorization of animals into herbivores, carnivores, omnivores | Ask your friends about the food items they would be eating during the day.  Food taken by students of different states.  [Food in different states](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31309253109186560011044) ( link for video)  Write the ingredients used to prepare the food items and their resources.  [ingredients](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31309252636325478411043)  How to make moong bean sprouts.  [sprout](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3130908842653532161670) | Relevancy  Presentation  Understanding ability  Collection of samples  Neatness  Originality  Scientific content  Correctness  Presentation  Neatness |
| 2 | COMPONENTS OF FOOD | 6 | April | 16 | Know and understand   * Food components * Test for carbohydrates , proteins, fats * Functions of dietary fibres and water * Deficiency diseases and symptoms   Skill to draw   * Food items rich in vitamins * Identifies the food items rich in carbohydrates, proteins, fats | Test the food usually eaten by cattle to find out which nutrients are present in animal food.  [components of food](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31308374961981849612019)  To test the Presence of starch in food  To test the presence of fat in food  Presence of protein in a sample of food  Would it be harmful for the body to take too much of proteins vitamins and fats in the diet discuss | Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 3 | FIBRE TO FABRIC | 5 | May/ June | 6 | Know and understand   * Variety of fabrics * History of clothing material   Able to   * Explain the process of obtaining different fibres * Analyze the process of spinning * Distinguish between weaving and knitting. * Identify the types of fibres by burning test | [fibre to fabric](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3131424791701504001142) Video  Find out if any crop is grown in your region for obtaining fibre. if yes what it is used for.  [sources of fibre](https://drive.google.com/file/d/1mozgxrGXxPfma4WuTe8xrsvZC3MUI06o/view)  In India's map label the states where cotton and jute are cultivated.  Collect pictures of fibre yielding plants and animals and paste it in your science activity book  Visit a nearby handloom and powerloom unit and observe the weaving of fabric  [Process of spinning](https://drive.google.com/file/d/1I1_UmEPWDK9fnNz_8mPp35VZd731bAsA/view) | Relevance to the topic  Presentation  Understanding ability  Collection of data  Neatness  Collection  Relevancy  Creativity and presentation  Scientific idea behind  Neatness  Participation  Observation  Scienitific temperament  involvement  conclusion |
| 4 | SORTING MATERIALS INTO GROUPS | 3 | July | 18 | Able to   * Sort materials into group according to the properties * Distinguish soluble and insoluble materials. * Differentiate transparent, translucent and opaque materials. | To identify the given substances as soluble and insoluble substances.  [different types of materials](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31318502418910412811345)  To identify objects as transparent translucent and opaque  [sorting out materials](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31306694576303308818548) | Correctness  Reasoning  Interpretation  Involvement  Inference |
| 5 | SEPARATION OF SUBSTANCES | 4 | July | 18 | Able to know   * Various methods of separation * The need of separating constituents from their mixture.   Develop skill   * To analyse the methods of separation based on the shape, size and the materials * To analyse the term winnowing, threshing and sieving and where they are used. | To separate a mixture of iron fillings and sulphur powder.  [separation of salt from seawater](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3130908388635443201258)  Filtration  Sedimentation  Decantation  [sedimentation and decantation](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31309254315382374411042)  [PPT Separation of substances](https://drive.google.com/file/d/19FWGTA4E-2dR43jAexiw_f-v4C0ZnK2Z/view) | Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 6 | CHANGES AROUND US | 4 | July | 18 | Able to   * Categorize various changes around them as reversible and irreversible   Develop skill   * To conduct experiments based on reversible and irreversible changes * To explain the expansion and contraction of metals | Classify the given changes as slow fast reversible or irreversible  Identify any five changes that cannot be reversed during the preparation of dishes at your home.  [changes around us](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31307881365133721619747) | Correctness  Reasoning  Interpretation  Involvement  Inference |
| 7 | Half yearly Examination  (Cumulative) | GETTING TO KNOW PLANTS | 5 | August | 16 | Know and understand   * Herbs , shrubs , trees , creepers, climbers * Parts of leaves * Differentiate tap root and fibrous root * Parallel and reticulate venation   Able to   * Identify the different parts of plant * Analyze the various parts of flower   Develop skill to conduct experiments on transpiration | Exploration of different plants in the school premises observe the different sizes forms colours etc in the plants  [Types of plants](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3130830389412495361436)  To show that stem conducts water  [Activity Stem conducts water](https://drive.google.com/file/d/1xpy15BfJHfxDj_h4n1IgdZu9MIW4pNWP/view)  Trace the venation of various leaves in a sheet of paper  Activity to show transpiration in plants  [Transpiration in plants Activity](https://drive.google.com/file/d/1qpgpIV2GD5Cx4P1DxCLIJBkGD88Ehdfv/view)  Prepare herbarium of leaves  [Getting to know plants](https://drive.google.com/drive/u/0/mobile/folders/12DqM3jROceOB0jcZoht-FFxRSm6DFxTW/1ht88plZBrrYQ5EOcmctKYOuIn20Nbs5U/1xXoE9RlpgNqGlnlzPfjnmPXQoGlzc6r3/1kVxxcb4EuP_IR1Jf8MKhyPY2gzsIf-ks/1U-odtk2EKQe7lHGt6HNGNQ9CPozY0Hvx?usp=sharing&sort=13&direction=a) | Participation  Observation  Scientific temperament  Conclusion  Involvement |
| 8 | BODY MOVEMENTS | 5 | August | 16 | Know and understand   * Different kinds of joints * Functions of skeleton * Role of muscles in the movement of bones * Body movements of other animals   Develop the skill   * To observe and differentiate various kinds of joints in our body and their functions. * To analyse the movements of other animals * To appreciate the body structure | Observe the joints in the human skeleton  [Skeletal dance](https://youtu.be/e54m6XOpRgU)  Joints are needed for the movement activity  [Joints are needed for movements](https://images.app.goo.gl/3FVk2jDzLXeEv7DY9)  Observe the movement of snail  [Body movements PPT](https://drive.google.com/file/d/16A3h2fzidEJuMLUQgoTuzT0lywZF_CbR/view) | Correctness  Presentation  Relevancy  Scientific reasoning  Neatness |
| 9 | MOTION AND MEASUREMENT OF DISTANCES | 10 | september | 16 | Able to   * Explain the different types of motion with diagrams * List the various methods used in olden times for measurement of distance * Understand the change in the mode of transport   Develop skill   * To measure the length of the curved line using thread * To analyse the importance of standard unit of measurement. | Activity to show circular motion using thread and stone  [Thread and stone activity](https://youtu.be/KvCezk9DJfk)  Measure the length of your dining table using hand span by all members of your family  [Non standard units of measurements](https://youtu.be/ftB5VU64yGA)  Collect the items like Items like hair band bangle hanger and measure its length and record your observations  [Different types motion of objects](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_313078814175862784111677) | Set up  Handling  Observation  Interpretation  Neatness |
| 10 | THE LIVING ORGANISMS AND THEIR SURROUNDINGS | 6 | October | 11 | Able to know and understand   * The different types of habitat * Explain the adaptation of animals in different hbitats. * Classify the organism on the basis of their habitat * Enlist the features of living and non living things * Understand the need of adaptation in animals to survive | Types of habitat and  Discussion on life outside the earth  Activity to show the effects of abiotic factors on the germination of seeds  [Factors needed for germination](https://youtu.be/WztV5c5Hlxk)  Transpiration in cactus plants  [cactus](https://youtu.be/PcSTbh1mC3g)  [PPT](https://drive.google.com/file/d/1Zx_rAJ-CKj0WyY13af7s5VXeqdghKGuc/view) | Set up  Handling  Observation  Interpretation  Neatness |
| 11 | LIGHT,SHADOWS AND REFLECTIONS | 5 | November | 17 | Able to   * Understand how shadows are formed * Make out the difference between luminous and non luminous objects * Classify the materials on the basis of transparency   Skill   * To make pin hole camera * To understand the principle of pin hole camera * Analyse the term reflection of light with the help of activities. * To perform experiment to prove that light travels in a straight line. | Activity to show the formation of shadow  [formation of shadows](https://drive.google.com/file/d/1YID-VUgrdpSBzSDdlYbgjkdOFLDs1Rny/view)  activity to make a pinhole camera  [pinhole camera](https://youtu.be/IcNEfwNeZss)  Activity to show that light travels in a straight line  [Light travels in a straight line](https://images.app.goo.gl/y8MZrVEM8Ksw6ZbX8)  Reflection of light using torch  [Reflection of light](https://youtu.be/_K1k7lHlVRI) | Set up  Handling  Observation  Interpretation  Neatness |
| 12 | ELECTRICTY AND CIRCUITS | 5 | November | 17 | Able to   * List the uses of electricity * Understand the working of electric bulb, electric torch * Differentiate conductor and insulator * Understand the components of electric circuit * Understand the terms closed and open circuit * Identify the path of electricity in the circuit   Skill   * To make a simple circuit on their own | Imagine there were no electric supply for a month how would that affect your day to day activities .present your imagination  Activity to show how steady is your hand  [How steady is your hand](https://youtu.be/nF3pjapJyG8)  Test whether a material is a conductor or an insulator  [switch,open and closed conductor](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3131920763481374721410)  Making of a simple switch | Content based relevance  Extent of participation  Knowledge  Confidence  Conclusion |
| 13 | FUN WITH MAGNETS | 7 | December | 12 | Able to   * Explain how magnets were discovered * Gain knowledge about artificial and natural magnets * Explain about the properties of magnet. * Classify magnetic and nonmagnetic materials   Skill   * To make their own magnets * To critically analyse about finding directions with the help of magnets. * To make magnetic compass | Using a compass find the direction in which Windows and entrance to your house open.  [fun with magnet video](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3131871141200773121601)  Effect of magnet--- a paper clip hanging in air.  [compass box](https://youtu.be/mhimOYZ_Vq8)  A freely suspended bar magnet always comes to rest in the north south direction.  [activity](https://youtu.be/pdYaw7DCDkI)  Making your own magnets  [fun with magnets](https://drive.google.com/file/d/1Wav7DPf8ZoY4jQ4jHclBYDUccHn7tvCE/view) PPT  [concept map](https://diksha.gov.in/play/collection/do_3131034750873272321967?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31308456248886886411311) | Set up  Handling  Observation  Interpretation  Neatness |
| 14 | Session Ending Exam  (Cumulative) | WATER | 5 | January | 16 | Able to   * Understand the water cycle in nature * Explain the consequences of heavy and no rainfall * Gain knowledge about conservation of water * Critically analyse per day consumption of water * Analyse the factors affecting the rate of evaporation * Understand the method of rain water harvesting | List three activities and describe in which you can save water.  [flood and drought](https://youtu.be/WP3sRqeUe6k) Video  Collect pictures relating to floods and droughts from old magazines and newspapers and paste them in the activity book.  [water conservation video](https://youtu.be/27TUmzyL9DI)  prepare a poster on ways of saving water.  write few slogans of your own on the topic save water. | Collection  Relevancy  Creativity and presentation  Scientific idea behind  Neatness |
| 15 | AIR AROUND US | 5 | January | 16 | Able to   * List the properties and components of air. * Explain how the oxygen in the atmosphere is replaced.   Skill  .To perform experiment to prove the prese nce of air in soil, air in water etc. | activity to show that air occupies space using bottle and water.  [Is the bottle really empty video](https://drive.google.com/file/d/1OEAv3hrlBzkrbfg0lBviDJo1w1FhWkHQ/view)  Activity to show that oxygen is needed for burning.  [Oxygen is needed for burning](https://youtu.be/mnZDjmFnJds)  To show that water contains air.  **AIR AROUND US.pptx** | Set up  Handling  Observation  Interpretation  Neatness |
| 16 | GARBAGE IN GARBAGE OUT | 5 | February | 16 | Know and understand  . The terms like garbage  Landfill  Vermicompost  Degradable  Gains knowledge about the method of Composting  Able to  Differentiate Compost and manure.  Skill to  Manage the garbage efficie ntly  Make art out of waste  Make own compost pit. | Making any useful product out of waste.  [Say no to plastic](https://drive.google.com/file/d/12fMbQwguiREE4mWqP9WXTAH2LBaL6dXq/view)  Recycling of Paper at home paper mache.  Debate plastic is a boon or bane. | Originality  Scientific content  Correctness  Presentation  Neatness  Content  Presentation  Expression  Scientific reasoning  Confidence |

KENDRIYA VIDYALAYA SANGATHAN ,RO CHENNAI REGION

SPLIT-UP SYLLABUS

SESSION: 2021-2022

NCERT TEXTBOOK:VII CLASS: VII SUBJECT : SCIENCE

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S.NO | CHAPTER | TENTATIVE NO.OF PERIODS REQUIRED | MONTHS | TENTATIVE NO.OF WORKING DAYS | LEARNING OUTCOMES | ACTIVITIES/TLM | ASSESSMENT AREAS |
| 1 | NUTRITION IN PLANTS | 4 | APRIL | 16 | 1. Able to distinguish between autotrophs and heterotrophs, parasites and saprotrophs.  2.Critically analyse why spoilage of food increases during rainy season  3. Understand and identifies insectivorous plants.  4. Exhibits creativity in designing, planning , or making a magnifier. | 1. Discuss from where we get nutrients for our body.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31308518095738470411538>  2. Draw a chart showing process of photosynthesis and its equation.  3. Purpose of adding nitrogen rich fertilizers.  4. Fungus growing on bread. Study using home -made magnifier.  <https://youtu.be/6RXAgrHr6A8>  https://youtu.be/PyWeQBtiyIA | Content based relevance  Extent of participation  Areas covered  Conclusion  Confidence  Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 2 | NUTRITION IN ANIMALS | 5 | APRIL | 16 | 1.Know and understand the term nutrition, digestion,  egestion and assimilation  2. Analyses the importance of various steps in nutrition of human and what will be the effect if they don’t fall in sequence.  3. Compare the mode of nutrition in amoeba and human being.  4. Draw the digestive system in human being.  5. To explain and understand that how the process of digestion takes place in human being. | 1.To observe the types and number of teeth.  https://diksha.gov.in/play/collection/do\_31310347512270848011288?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content&contentId=do\_313066191022063616115461  2. Effect of saliva on starch.  https://youtu.be/dtJGDtpK7lw  3. To determine the different taste regions of the tongue. | Correctness  Reasoning  Interpretation  Involvement  Inference  Correct set up  Handling the experiment  Observation  Inference  Neatness  Correctness  Reasoning  Interpretation  Involvement  Inference |
| 3 | FIBRE TO FABRIC | 5 | MAY/JUNE | 6 | 1. Know and understand the term: natural and synthetic fibre and cite the examples.  2. Compare the types of hair present on animal skin.  3. Understand the process of processing of animal fibre to obtain wool.  4. Explain the selective breeding and lifecycle of silk moth.  5. Analyses the importance of various steps in processing of fibre and then obtaining fabric from them. | 1. Explore and make a list of different breeds of sheep. Mark the states in map where these breeds are reared.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31306629391835955219642>  2 Watch video on processing of fibre into wool.  <https://diksha.gov.in/play/content/do_313066296243896320110277?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  3. Watch the video on life history of silkmoth.  <https://diksha.gov.in/play/content/do_31320538428009676815821?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  4. Collect information on different types of silk fibres. | Relevance to the topic  Presentation  Understanding ability  Neatness  Inference |
| 4 | HEAT | 4 | JULY | 18 | 1. Know and understand the term: transfer of heat, kink, range, thermometer  , conduction, convection and radiation.  2. Compare different types of thermometers and their units of temperature.  3. Understand about different modes of transfer of heat.  4. Critically analyse the safe use of thermometer.  5. Understand the phenomenon of land and sea breeze.  6. Understand the type of fabric appropriate in different climatic condition and properties of dark and light colour on the absorption of heat. | 1. Make a list of hot and cold objects.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31318502676468531211437>  2. Activity to show that touch sense not enough for classifying objects as hot or cold.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31310503539407257612252>  3. Reading a thermometer and measuring body temperature of family members.  4 Draw diagrams of laboratory and clinical thermometer.  5. Flow of heat through metal strip.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3130958589958225921257>  6. Activity to show dark coloured objects absorb more heat than light coloured objects. | Relevance to the topic  Presentation  Understanding ability  Neatness  Inference  Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 5 | MOTION AND TIME | 3 | JULY | 18 | 1. Know and understand the term : uniform, non-uniform motion, periodic motion and SI units.  2. Compare uniform, non -uniform motion and solve numerical based on speed and time.  3. Identify the graphs of different types of motion.  4. Critically analyse the motion in their surrounding and concepts of periodic motion for measurement of time. | 1. Observe the surroundings and make a table of different things in motion and classify them to their type of motion.  2. Find the speed of hopping on one leg.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31308447250123161612390>  3. Gather information on ancient time measuring devices.  4. Measure the time required for different daily life activities.  5. Make sundial and simple pendulum and find its time period.  6. Measure speed of any rolling object. | Correctness  Reasoning  Interpretation  Involvement  Inference  Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 6 | ELECTRIC CURRENT AND ITS EFFECT | 4 | JULY | 18 | 1. Know and understand the term : electric current, heating and magnetic effect.  2. Draw circuit diagram using symbols.  3. Identify the heating and magnetic effects of electric current.  4. Critically analyse the heating and magnetic effects of electric current. | 1. Identify the electric components ,draw their diagram, Write their name and symbols.  2. Make a simple circuit using dry cells, LED and wire.  <https://diksha.gov.in/play/content/do_3132640139251712001306?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  3. Heating effect of electric current.  4. Magnetic effect of electric current.  <https://diksha.gov.in/play/content/do_31291520822072934419031?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  5. Make an electromagnet.  https://diksha.gov.in/play/content/do\_3130577656745902081342?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content | Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 7 | WEATHER,CLIMATE AND ADAPTATION OF ANIMALS TO CLIMATE | 4 | AUGUST | 16 | 1. Define the term like Adaptation, Prey and predator.  2. Describes the features of animals living in polar region and tropical rain forest.  3. Gives examples of animals living in polar region and tropical rain forest.  4. Lists plants of tropical rain forest.  5.Explain adaptation and their importance  6. Applies the knowledge in real life situation. | 1. To record changes in weather for a week.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31308815442128076813>  2.To mark polar region and tropical region on an outline map of the world  3. Collect information about the Indian Meteorological Department. | Collection  Relevancy  Presentation  Neatness  Conclusion |
| 8 | WIND,STORMS AND CYCLONES | 6 | AUGUST | 16 | 1. Able to know and understand the term : pressure, expansion,rising, conductors.  2. Understand about formation of thunderstorms and cyclones.  3. Identify conditions and areas prone to thunderstorms and cyclones.  4. Analyse the safety measures.  5. Collaborate with each other and follow these safety norms. | 1 Air exerts pressure.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_313233721638027264161>  2. High speed wind are accompanied by reduced air pressure.  3. Air expands on heating.  4. Listen to weather news.  5. Make a model of cyclone and anemometer.  https://diksha.gov.in/play/content/do\_312582606131068928113677?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content | Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 9 | SOIL | 4 | SEPTEMBER | 16 | 1. Able to define soil.  2. Understand the concepts of soil profile.  3.Able to differentiate between different types of soil  4. Understand the difference between water absorption and percolation rate.  5. Gains knowledge about soil erosion and soil pollution. | 1. Layers of soil.  2. Measuring rate of Percolation.  <https://diksha.gov.in/play/content/do_313255134827470848129048?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  3. Removing moisture in soil.  4. Absorption of water by soil.  https://diksha.gov.in/play/content/do\_312580367141134336111983?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content | Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 10 | TRANSPORTATION IN ANIMAL AND PLANTS | 6 | SEPTEMBER | 16 | 1. Explain the term pulse rate, heartbeat.  2. Understands the flow of blood from heart to organs and vice versa.  3. Differentiate between arteries and veins.  4. Different ways of transportation in different animals.  5. Critically analyse the effect on body if transportation and excretory system are not working properly.  6.Explain the term vascular tissue, Xylem and phloem  2. Understands the transport of water and minerals in plant.  3.Learns about transpiration | 1. Recording pulse rate of yours and family members.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3131006608483123201593>  2. Make a model of stethoscope.  <https://youtu.be/JKqXyaqo854>  3. Find out blood groups and their importance.  4. Collect information about ECG.  5.Stem conducts water  https://diksha.gov.in/play/content/do\_312580363527962624111874?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content | Correctness  Reasoning  Interpretation  Involvement  Inference  Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 11 | RESPIRATION IN ORGANISMS | 6 | OCTOBER | 11 | 1. Describe the process of respiration.  2. Identify the role and function of diaphragm.  3. Understands why rate of breathing increase during exercises.  4. Identify bronchi and the function of alveolar capillaries.  5. Compares different modes of respiration.  6. Understand the mechanisms of breathing in different organisms.  7. Understand the impact of smoking on one’s health.  8. Critically analyse the importance of clean air and its effect on human health. | 1. Changes in breathing rate under different conditions.  2. Effect of breathing on chest size.  3. Model to show mechanisms of breathing.  <https://diksha.gov.in/play/content/do_3130576118611558401304?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  4. Effect of exhaled air on lime water.  5. Collect materials on harmful effect of smoking. |  |
| 12 | REPRODUCTION IN PLANTS | 4 | NOVEMBER | 17 | 1. Explain the difference between sexual and asexual reproduction in plants.  2. Compares different modes of asexual reproduction.  3. Draw different modes of asexual reproduction.  4. critically analyse method of seed dispersal. | 1. Activity to grow any one vegetatively propagated plant.  2. Reproduction in yeast by budding.  <https://diksha.gov.in/play/content/do_312580379866267648212189?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  3. Study of various parts of stamen and pistil. | Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 13 | ACIDS,BASES AND SALTS | 3 | November | 17 | 1.Identify the variations shown by different indicators in acidic and basic solutions  2. Compare the properties of acids and bases.  3. Observe and record the changes involved in mixing of acids and bases.  4. Identify acids and bases present in natural sources and properties which demonstrate their presence.  5. Describe the application of Neutralisation in everyday life. | 1. To identify tastes of some common edible substances.  2. Effect of litmus paper on different solutions.  3. Effect of turmeric solution on different solutions.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31308367874308505611408>  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_3130837504022036481715>  4. Effect of china rose solution on different solutions.  5.Effect of acids and bases on natural indicators  6. Process of Neutralisation.  https://diksha.gov.in/play/collection/do\_31310347512270848011288?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content&contentId=do\_31316018232163532813465 | Participation  Observation  Scientific temperament  Involvement  Conclusion  Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 14 | PHYSICAL AND CHEMICAL CHANGES | 4 | NOVEMBER | 17 | 1. To teach about physical and chemical changes.  2. Explain and differentiate between physical and chemical changes.  3. Give examples of physical and chemical changes.  4. To learn about characteristics of chemical changes.  5. Learn about Crystallization. | 1.To observe the changes around us and classify them as physical and chemical changes.  <https://diksha.gov.in/play/collection/do_31310347512270848011288?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content&contentId=do_31316018213925683213248>  2. Burning of magnesium ribbon.  3. Reaction between copper sulphate and iron.  4. Reaction between vinegar and baking soda  5. To prepare crystals of copper sulphate. | Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 15 | LIGHT | 4 | DECEMBER | 12 | 1. Know and understand the term : bouncing of light, plane, real and virtual image, converging and diverging.  2. Draw diagrams of mirrors and lens.  3. Identify lens and mirrors and their uses.  4. Understands the phenomenon of reflection of light.  5. Examine dispersion of light.  6. Able to construct Newton’s disc. | 1. Light travels along a straight line.  <https://diksha.gov.in/play/content/do_31305547286160998412778?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  2. Reflection of light.  <https://diksha.gov.in/play/content/do_313261227704352768133041?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  3. Characteristics of image formed by plane mirror.  4. Image formation by spherical mirrors.  5. Dispersion of light.  6. Mixing rainbow colours to produce white colour-Newton’s disc.  https://diksha.gov.in/play/content/do\_312608069230067712211852?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content | Correct set up  Handling the experiment  Observation  Inference  Neatness |
| 16 | WATER A PRECIOUS RESOURCE | 5 | JANUARY | 16 | 1. Identify different forms of water and their availability.  2. Understand the process involved in recycling of water in nature and changes involved in it.  3. Explain the term ground water and understand the significance of different sources of ground water.  4. Critically analyse the concept depletion of water, factors and process which relate with recharging of ground water.  5. Understand the concept of water management and examine the role of an individual in this. | 1 Carry out a campaign to conserve water at home.  <https://diksha.gov.in/play/content/do_312530864369655808210226?referrer=utm_source%3Dmobile%26utm_campaign%3Dshare_content>  2. Design posters on importance of water resources.  3. Collect clippings from newspaper related to water shortage. List the problems and discuss.  4. Activity to show how much water is available.  5. Catching rain water –Traditional methods. | Originality  Scientific content  Correctness  Presentation  Neatness  Content based relevance  Extent of participation  Areas coverd  Conclusion  Confidence |
| 17 | FORESTS OUR LIFELINE | 5 | JANUARY | 16 | 1. Define creeper, climber, canopy and crown of the tree.  2. Understand and explain the importance of food chain in forest.  3. Define humus and decomposers and critically analyse its importance in forest.  4. Explain the meaning of deforestation.  5. List the importance of forest in our daily lives. | 1. Observe the various things in your home and make a list of those which are made from material which may have been obtained from the forest.  2. Observe the trees around your house and identify them. List the characteristics of trees. Draw the crowns of trees.  https://diksha.gov.in/play/collection/do\_31310347512270848011288?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content&contentId=do\_3131892650501570561103 | Correctness  Reasoning  Interpretation  Involvement  Inference |
| 18 | WASTE  WATER STORY | 10 | FEBRUARY | 16 | 1. Identify and list ways in which waste water is generated.  2. Explain the process involved in clarification of wastewater.  3. Collaborate and understand the significance of WWTP.  4. Elaborate each step involved in working of WWTP.  5. Critically analyse the importance of using better housekeeping practices and better sanitation in conservation of water. | 1. Clean water is a basic need of human being. Make a mind map of the many uses of clean water.  2. Locate an open drain near your house and inspect water flowing through it. Record colour, odour and any other observation and tabulate.  3. Treatment of polluted water.  https://diksha.gov.in/play/collection/do\_31310347512270848011288?referrer=utm\_source%3Dmobile%26utm\_campaign%3Dshare\_content&contentId=do\_31308447250123161612390 | Methodology  Collection of data  Inference drawn  Interpretation  Involvement |

KENDRIYA VIDYALAYA SANGATHAN RO CHENNAI REGION

SPLIT-UP SYLLABUS

SESSION 2021-22

**NCERT TEXTBOOK: VIII CLASS: VIII SUBJECT: SCIENCE**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl.  No. | Name of the  Exam | CHAPTER | TENTATIVE  NO. OF PERIODS REQUIRED | MONTHS | Tentative  No. of working days  available | Learning Outcomes | Activities and Resources | Assessment areas |
| 1 | PART – I  Periodic  Test 1 | SYNTHETIC FIBRES AND PLASTICS | 5 | APRIL | 16 | Differentiates and classifies natural and man-made materials applies concepts in day-to-day life, makes efforts to protect environment by following 5Rs. | 1.Textual activities-  2. Solicit a campaign -Say No to Plastics  and few more relevant slogans.  3.Debate-My fabric is Superior  [Natural and Synthetic]  4.Write slogans to create an awareness about 5Rs  a.https://diksha.gov.in/play/content/do\_312580368134692864211784. .  b. NCERT Textbook.  c. NCERT E-Resources NROER | Participation  Relevance  Presentation  Confidence  Knowledge  Message |
| 2 | MATERIALS: METALS AND NON METALS | 5 | Classifies metals and non-metals based on their physical and chemical properties and writes word equation for chemical equations. | 1.Textual activities  2.Collect and identify items from house made of metals and non-metals a.https://diksha.gov.in/play/content/do\_312580368444579840211798.  b.https://nroer.gov.in/55ab34ff81fccb4f1d806025/file/58a3fd42472d4a68b79527f2 | Observation  Involvement  Presentation |
| 3 | COAL AND PETROLEUM | 4 | MAY/  JUNE | 06 | Classifies petroleum products, differentiates various fractions of petroleum, discusses fossil fuels, and makes efforts to use resources judiciously. | 1.Textual activities.  2.Prepare a poster depicting types of natural resources-exhaustible and inexhaustible.  a. <https://www.youtube.com/watch?v=A0VWuz6zRes>  Coal and Petroleum b.http://ncert.nic.in/ncerys/1/heep105.pdf | Participation  Relevancy  Neatness  Attraction  Message |
| 4 | COMBUSTION AND FLAME | 4 | JULY | 16 | Learner seeks queries about combustion and conditions needed for combustion, differentiates combustible and non-combustible substances, draws labelled diagram of structure of flame, applies the concepts to use the fire extinguisher and to  control fire sources. | 1.Prepare a list of substances from your household which are combustible and non-combustible 2. Draw a labelled diagram of the structure of a flame. 3.Make a model of fire extinquisher by using household substances.  Combustion and flame a.http://ncert.nic.in/ncerts/1heep106.pdf | Involvement  Perfection  Sequence  Presentation  Involvement  Neatness  Correctness  Low cost  Working model/Non-working model |
| 5 | FORCE AND PRESSURE | 3 | Learner appreciates and differentiates force, pressure, contact and non-contact force etc. also conducts simple investigations of related concepts, applies scientific concepts in everyday life also constructs simple models for illustration. | 1.Textual activities.  2. Make a model to explain how liquid exerts pressure on the walls of the container.  a.<http://ncert.nic.in/textbook/textbook.htm?hesc1=11-18>  b.<http://www.ncert.nic.in/exemplar/labmanuals.html>  c.http://ncert.nic.in/ncerts/1/heep111.pdf | Model making  Nature of materials  Working/Non working models  Conceptual clarity/Involvement/Appreciation |
| 6 | CROP PRODUCTION AND  IMPROVEMENT | 3 | The learner classifies kharif and rabi crops, relates various agricultural processes, applies concepts in day-to-day life, discusses green revolution and develops efforts to protect the environment | 1.Possible textual activities to be carried out.  2.Collection of animal pictures and classify them under - milk, egg, meat producing animals.  3.Prepare a detailed report on kharif and rabi crops with examples.  4.Write a short note on Green Revolution.  a. NCERT Textbook.  b. NCERT E-Resources NROER  c.[http://www.ncert.nic.in/ exemplar/labmanual s.html](http://www.ncert.nic.in/%20exemplar/labmanual%20s.html).  d. https://diksha.gov.in  e.https://en.wikipedia.org/wiki/ | Content Relevance  Extent of Participation  Areas covered Involvement Conclusion and Any other special mention. |
| 7 | PART – II Half Yearly Exam (Cumulative) | MICRO  ORGANISMS: FRIENDS AND FOE | 5 | AUGUST | 16 | The learner differentiates microorganisms as friend and foe, able to discuss communicable and non-communicable diseases,  anti-bodies, antibiotics, vaccines, vaccination, and food preservation techniques. | 1.Textual activities  2.Collect the labels from the bottles of jams and jellies and write down the list of contents printed on the labels.  3.Prepare a short report-Why antibiotics should not be overused a.<https://diksha.gov.in/play/content/do_313276167032053760118879> .[www.microorganism.com](http://www.microorganism.com)  b.www.biology4kids.com/files/micro\_main.htm | Correctness  Reasoning  Interpretation  Involvement  Inference. |
| 8 | CELL: STRUCTURE AND  FUNCTIONS | 5 | Learner appreciates cell, its discovery, structure, prokaryotes, eukaryotes, unicellular, multicellular, and comparison of plant and animal cells. | 1.Textual activities.  a.www.sciencebuddies.com  b.www.enchaTedbearing.com/subject/plants/cell | Lab oriented group/individual  Responses. |
| 9 | REPRODUCTION IN ANIMALS | 5 | SEPTEMBER | 16 | Learner defines the definition, differentiates sexual and asexual reproduction, identifies the parts of reproductive organs, explains fertilization, metamorphosis, viviparous and oviparous animals, and zygote as well. | 1.Textual activities.  2.MCQs from Cloning technology.  a.www..saburchill.com/chapters/chap0031.html  b.[www.extramarks.com](http://www.extramarks.com)  c.www.wikipedia.org. | Content of MCQs/  Choice of options/  Relevancy  Level of Questions. |
| 10 | REACHING THE AGE OF  ADOLESCENCE | 5 | Learner discusses and appreciates adolescence, puberty, hormones, secondary sexual characters, and reproductive health. | 1.Possible textual activities.  2.Prepare a worksheet on balanced diet or list of food required at the age of adolescence or demerits of junk food.  a.[Www.adolescenthealth.com](http://Www.adolescenthealth.com)  b.[Www.teenshealth.org](http://Www.teenshealth.org)  c.[Www.teenshealth.org/teen/sexual](http://Www.teenshealth.org/teen/sexual) health. | Worksheet  Introduction  Relevancy  Presentation  Conclusion |
| 11 | PART – III Periodic Test  2 | CONSERVATION OF PLANTS AND ANIMALS | 4 | OCTOBER | 12 | Learner speaks about biodiversity, deforestation, consequences of deforestation, ecosystem, flora and fauna, endangered species, and endemic species. | 1.Textual activities.  2.Study a biodiversity of a park nearby and prepare a detailed report with photographs and sketches of flora and fauna.  3. Report on causes of deforestation, Biodiversity hot spots  a.[www.biodiversit](http://www.biodiversit)yhotspots.org  b.www.plantstrees.org/plant.htm | Presentation  Content  Methodology  Reference  Interpretation  Conclusion. |
| 12 | FRICTION | 3 | Learner appreciates the concept-friction is called necessary evil, makes efforts to apply the concepts, conducts simple textual experiments, | 1.Textual activities.  2.Friction is called a necessary evil . Justify with familiar life examples .a.<Http://particleadventure.org/particleadventure/>  b.http://physicsweb.org/resources/index.cffm/EducatioNal/Interactiveexperiments | Oral/ Role play and the required sequences for assessment. |
| 13 | SOUND | 5 | NOVEMBER | 16 | Enjoys the concepts-vibrating body produces sound, vibrations of vocal cords, discusses about loudness,  vacuum, hertz, amplitude, conducts simple investigations on noise pollution, harms of noise pollution and measures to limit noise pollution. | 1.Textual activities .  2.Prepare a report of famous Indian musicians and the instruments they play  3.Make a model of human ear with its parts.  a..[Www.physicsclassroom.com/mmedia/estatics/estaticTOC.html](http://Www.physicsclassroom.com/mmedia/estatics/estaticTOC.html)  b.www.worsleyschool.net/science/files/aboutsound/page.html | Presentation  Subjectivity  Knowledge  Application  Conclusion. |
| 14 | CHEMICAL EFFECTS OF  ELECTRIC CURRENT | 5 | Learner understands the concepts of chemical effects of electric current, differentiates insulators and conductors  Discusses  LED, electroplating. | 1.Textual activities.  2. Make an experimental setup to test the conduction of electricity through various fruits and vegetables and tabulate the results.  3.Set up an experimental mode to show that heating effect or magnetic effect .a.Electronics.howstuffworks.com/led.htm  b.http://www.ncert.nic.in/exemplar/labmanuals.html | Project/Experiments/Innovative projects with the required areas of assessment. |
| 15 | SOME NATURAL PHENOMENA | 4 | DECEMBER | 12 | Learner explains electric charges, facts about lightning, earthing, experiments charges by rubbing, electric spark, applies concepts day-to-day life. | 1.Textual activities  2. With low cost items how will you show like charges and unlike charges experimentally.  3.Make a model to show the structure of earth with parts  a..[Www.worsleyschool.net/files/static/electricity.html](http://Www.worsleyschool.net/files/static/electricity.html)  b.Science.howstuffworks.com/lightning.htm | Correct experimental setup  Performing the experiment  Observation  Result and Discussion. |
| 16 | LIGHT | 3 | Learner discusses sun and stars and appreciates the properties of light, draws and discusses laws of reflection, differentiates regular and irregular reflection, understands parts of eye, relates concepts in day-to-day life, knows about Braille system. | 1.Textual activities.  2.Make a pin hole camera /Kaleidoscope model  3.How will you verify the laws of reflection by using plane mirror.  4.Write a short note on Braille System.  a.www.glenbrook.k12.il.us/gbssci/phys/mmedia/optics/ifpm.html | Lab.participation Volunteering Home work along with required criteria. |
| 17 | PART – IV  Session Ending Examination (Cumulative) | STARS AND THE SOLAR SYSTEM | 8 | JANUARY | 14 | Enjoys the contributions of renowned inventors Arya Bhatt and Kepler, differentiates meteors and meteorites, appreciates different phases of moon, revolution of moon around the earth, discusses about artificial satellites. | 1.Textual activities  2.Prepare a report on the Renowned Inventors-Arya Bhat and Kepler.  3.Make an extensive study on IndianSatellites and their uses  a.[www.kidsastronomy.com](http://www.kidsastronomy.com)  b.[Www.grc.nasa.gov/www/k-12/airplane/newton.html](http://Www.grc.nasa.gov/www/k-12/airplane/newton.html)  c. Http://astronineplanets.org/bigeyes.html | Presentation  Relevancy  Informative  Neatness  Time frame |
| 18 | POLLUTION OF AIR AND  WATER | 8 | FEBRUARY | 16 | Learner classifies different types of pollution, pollutants, understands how air gets polluted, water get polluted, studies water, sewage treatment plants, discusses about global warming, greenhouse effect. | 1.Textual activities.  2.Write a brief report on -Ganga Action Plan.  3.Make a visit to a nearby water treatment plant and study how it works.  a. Lab manual in science for classes VI-VIII  http://www.ncert,nic.in/exemplar/labmanuals.html. b.https://diksha.gov.in/play/collection/do\_31322176404616806414043 | Field visit/Action report/  Proper feedback |
|  | Session Ending Examination |  | March |  |  |  |  |