

**BRIDGE COURSE- 2021-22**

30 days learning activities

Class: 9th Subject: Science

| <b>Desired learning outcomes</b>  | <b>Learning materials</b>  | <b>Advised Activities</b>  | <b>Instructions for the management of activities.</b>  |
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| 1. Understanding plant cell and animal cells, learning to draw and identifying unicellular and multicellular organisms. | 1.1. Understanding the cell and introducing different types of the cell. | <b>Day 1:</b> Let us see which objects we cannot see through our naked eyes.<br>1. Observing the cellular structure of membrane of onion cells with the help of a microscope.<br>2. Viewing charts of different types of the cells.<br>3. Remembering and discussing the basic component of the structure of the organism.<br>4. Observing the structure of the hive( Bees) if possible. | Let's allow students to observe the cellular structure of the membrane of onion cells with the help of microscope in the laboratory with guidance of teachers. |
|   | 1.2. Developing the skills to draw plant cell and animal cells.          | <b>Day 2:</b> Let's learn to draw what we see:<br>1. Guiding the skill of drawing plant cell and animal cells on a   | Let us motivate the students to develop skills by displaying the skill of drawing plant and animal cells on a blackboard.                                      |

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|  |  | blackboard.<br>2. Observe a picture of plant cells and animal cells and motivate students to write.  |   |
|  | 1.3. Understanding the examples of unicellular and multicellular organisms.          | <b>Day 3:</b><br>1. Viewing a chart of single-celled and multicellular organisms.<br>2. Discussion on unicellular and multicellular organisms.<br>3. Listing the names of unicellular and multicellular organisms.<br>4. Video viewing of unicellular organisms.<br>5. Identify and list multicellular organisms in the surrounding environment. | Let the students list the names of the organisms in the environment around them, let us realize that they are multicellular organisms, and let us demonstrate and understand unicellular organisms. |
| 2. To interpret microorganisms, identify and classify disease-causing and useful microorganisms. | 2.1. To understand microorganisms and to know the example of various microorganisms. | <b>Day-4:</b><br>1. Viewing a picture of microorganisms.<br>2. Watching various ready-made slides in the laboratory.<br>3. Watching videos of  | Let us understand the organisms that cannot be seen through our naked eyes by allowing the slides of organisms to be viewed in the laboratory and help to list them.                                |

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|  |  | microorganisms.<br>4. Listing the names of microorganisms.   |  |
| 2.2. Introduction of disease-causing microorganisms.                     | <b>Day- 5:</b><br>1. Introduction to disease-causing micro-organisms which are not visible to our naked eyes.<br>2. Viewing pictures of disease-causing microorganisms.<br>3. Watching videos about disease-causing microorganisms.<br>4. Making a list of disease-causing microorganisms and the diseases they cause.<br>5. List the names of various diseases and discuss the microorganisms responsible for them. | Let us list the names of various diseases and discuss the microorganisms responsible for them and motivate them to list their names and allow them to view their pictures. |  |
| 2.3. Introducing microorganisms that are useful to us in our daily life. | Day- 6: Introduction to useful micro-organisms which are not visible to our naked eyes.<br>1. Viewing pictures of useful micro-  | Let us discuss the useful microorganisms and their useful situations and make them to view in the drawings.  |  |

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|  |  | <p>organisms.</p> <ol style="list-style-type: none"> <li>2. Watching videos about useful micro-organisms.</li> <li>3. To discuss useful microorganisms and their useful situations.</li> </ol>  |  |
| <p>3. Analyzing the causes of environmental degradation, explaining water pollution and air pollution.</p> | <p>3.1. The causes of environmental degradation will be known.</p> | <p><b>Day- 7.</b></p> <ol style="list-style-type: none"> <li>1. Group discussion on the causes of environmental degradation.</li> <li>2. Viewing the pictures of situations responsible for environmental degradation.</li> <li>3. Writing a short essay on the causes of environmental degradation.</li> <li>4. Organizing speeches on the causes of environmental degradation.</li> </ol> | <p>Let us observe the pictures of situations that lead to environmental degradation and allow the group to discuss on the causes of environmental degradation.</p> |

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|  | <p>3.2. Water pollution is interpreting and analyze the causes and its effects.</p>  | <p><b>Day-8:</b></p> <ol style="list-style-type: none"> <li>1. Discussion on water pollution.</li> <li>2. Visiting a local water polluted place.</li> <li>3. Pictorial view of water pollution.</li> </ol> <p><b>Day -9:</b></p> <ol style="list-style-type: none"> <li>1. Discussion on the causes and effects of water pollution.</li> <li>2. List and present the causes and effects of water pollution in groups.</li> <li>3. Viewing pictures of the causes and effects of water pollution.</li> <li>4. Video viewing of causes and effects of water pollution.</li> </ol> | <p>Visit the local water polluted site near their school and observe the polluted water and help them understand water pollution.</p> <p>2. List the causes and effects of water pollution and motivate us to present it.</p> |
|  | <p>3.3. The meaning of air pollution, the causes and the consequences are known.</p> | <p><b>Day – 10:</b></p> <ol style="list-style-type: none"> <li>1. Discussion on air pollution.</li> <li>2. Visit an air pollution site if possible.</li> <li>3. Air pollution pictorial view.</li> </ol>  | <p>Let us have a proper discussion to understand air pollution by taking a direct look at the smoke emitted by vehicles on the road near the school and listing other reasons.</p>  |

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|  |  | <p><b>Day -11:</b></p> <ol style="list-style-type: none"> <li>1. Discussion on the cause and effects of air pollution.</li> <li>2. Listing and promoting the causes and effects of air pollution in groups.</li> <li>3. Viewing pictures of the cause and effects of air pollution.</li> <li>4. Video viewing of causes and effects of air pollution.</li> </ol>                       | <p>Let us divide the students into groups to discuss and motivate them to present the causes and effects of air pollution.</p>        |
| <p>4. Understanding the basic methods of crop production and its analysis.</p> | <p>4.1. Preparation of soil and sowing method.</p> | <p><b>Day-12:</b></p> <ol style="list-style-type: none"> <li>1. Listing the stages of soil preparation and sowing method.</li> <li>2. Displaying pictures and discussing the stages of soil preparation and sowing.</li> <li>3. If possible, meet the farmers and collect information.</li> <li>4. Giving books on agricultural practices available in the library to read.</li> </ol> | <p>Let us show pictures of the soil-preparation and sowing method and discuss with the students and guide them to list the steps.</p> |

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|  | <p>4.2. Collecting information on the use of manures and proper irrigation practices.</p> | <p><b>Day-13.</b></p> <ol style="list-style-type: none"> <li>1. Discussion on use of manures and proper irrigation system.</li> <li>2. Let us list the names of manures used for crops in the field.</li> <li>3. Observe and discuss the pictures of various irrigation systems.</li> <li>4. Speech competition on the effect of excessive use of fertilizers.</li> <li>5. Writing a short essay on 'Good Irrigation System in Agriculture'.</li> </ol> | <p>List the names of manures used by farmers for crops in the field. Let us guide them to discuss the quantity of use of those fertilizers.</p> <p>Let us list the irrigation practices used for crops in the field and discuss the best irrigation system in them.</p>                          |
|  | <p>4.3. Information on crop protection, harvesting and storage method.</p>                | <p><b>Day-14:</b></p> <ol style="list-style-type: none"> <li>1. Listing the precautionary measures adopted by farmers in protecting the crop.</li> <li>2. Discussing the method of harvesting and harvesting of crops.</li> <li>3. Viewing photos of new methods of crop protection, harvesting and storage.</li> </ol>   | <p>Ask students to collect information from farmers about pesticides used in crop protection in the field. Let us have appropriate discussions using the information collected.</p> <p>Let us form groups of students and allow them to discuss crop harvesting and crops collection method.</p> |

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| <p>5. identification and classification of elements, compounds, pure materials and impure substances.</p> | <p>5.1. Understanding the elements &amp; listing the names and symbols of the elements used in everyday life.</p>     | <p><b>Day-15.</b></p> <ol style="list-style-type: none"> <li>1. Understanding elements using periodic table of elements.</li> <li>2. Listing compounds from elements in the house.</li> <li>3. Listing out the most valuable elements of our lives and write their symbols.</li> </ol>   | <p>Ask students to list the compounds used in their home and help them identify the elements and motivate them to write atomic symbols.</p> |
|   | <p>5.2. Understanding the compound and listing the name and molecular formula of compounds used in everyday life.</p> | <p><b>Day-16.</b></p> <ol style="list-style-type: none"> <li>1. List the compounds used in daily life and name the elements in them.</li> <li>2. List the compounds used in daily life and write their molecular formula.</li> <li>3. Discussion on compounds and their uses.</li> </ol> | <p>Let us show water, sugar and salt and motivate them to identify the elements present in them and write their molecular formula.</p>      |

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|  | <p>5.3. Understanding and giving examples of pure substances &amp; impure substances.</p>                         | <p><b>Day-17.</b></p> <ol style="list-style-type: none"> <li>1. Listing the Elements and compound form of pure materials we use.</li> <li>2. Listing the impure substances of the mixture we use.</li> <li>3. Discussing pure substances &amp; impure substances.</li> </ol> | <p>Let us help in classifying the Pure substances and impure substances based on their chemical composition in the list of given materials.<br/>E.g. iron, water and water etc.</p>   |
|  |   | <p><b>Day-18.</b></p> <ol style="list-style-type: none"> <li>1. Make an album by listing pure &amp; impure substances.</li> <li>2. List the pure &amp; impure substances and list the basic components.</li> </ol>   | <p>List pure &amp; impure substances. Let's help make an album.</p>   |
| <p>6. Understanding the structure of atom and molecules.</p> | <p>6.1. To understand atom and to introduce the models of atomic structure. ( by using stick and ball models)</p> | <p><b>Day-19.</b></p> <ol style="list-style-type: none"> <li>1. Understanding atom using atomic model chart.</li> <li>2. Writing the structure of atoms of different elements on the blackboard.</li> <li>3. Writing atomic model on a drawing sheet.</li> </ol>             | <ul style="list-style-type: none"> <li>• Let us discuss the structure of the atom using atomic model chart and explain the method of creating a atomic model on the drawing sheet and give appropriate guidance to children to create.</li> </ul> |

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|  |  | 4. Watching atomic model videos.  |  |
|  | 6.2. Understanding the formation of molecules by giving examples like $O_2, H_2$ | <b>Day-20:</b> <ol style="list-style-type: none"> <li>1. Understanding the molecule using charts of the formation of molecules.</li> <li>2. Writing the molecular structure of various compounds on the blackboard.</li> <li>3. Listing the molecular formula of certain elements and compounds.</li> <li>4. Discussing the structure of certain elements and compounds.</li> </ol> | Using drawings, video, PPTs, interpreting the molecule, introduce the samples of molecular structure and give proper guidance to write the molecular formula of different compounds. |
| 7. Identification of metals and non-metals and explaining their physical properties. | 18. Introduction of metals and non-metals.                                       | <b>Day-21:</b> <ol style="list-style-type: none"> <li>1. Is it metal or non-metal?</li> <li>2. Observation activity of objects</li> <li>3. List collections.</li> </ol>   | Ask students to list the names of the items they use in their home and give them proper guidance to sort them metals and non-metals.   |

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|  | 19. Discussing the physical properties of metals. Eg: Malleability, ductile property etc. | <b>Day-22:</b><br>1. Group Activity: Let us examine and list the physical properties of metals.<br>2. Table Construction<br>3. Discussion of physical properties of metals. | Let us explain the property of the metals by asking the students to collect the wire and tin materials in their house, to pour thin copper wire and inform them on the heat propagation method, and to ring the bell to explain sonorous property in the school.<br>Let's allow students to watch video, pictorial or PPTs and engage in learning. |
|  | 20. List the physical properties of non-metals.   | <b>Day-23:</b><br>1. Group Activity: Listing the physical properties of metals.<br>2. Table construction<br>3. Discussion on the physical properties of non-metals.         | Explain the process of crushing graphite within the lead stick in the presence of students. Let us compare the absence of the property of the sonorous with metals with the beating.<br>Let's enable students to watch video, pictorial or PPTs.   |
| 8. Identify and explain the effects of force and | 21. Will recognize the effects of force and   | <b>Day-24.</b><br>1. Playing a game.  | Discuss with the students about the effects of force while playing catching  |

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| pressure   | pressure.<br>Ex: Force causes movement of bodies.                                  | 2. Viewing a video.<br>3. Image viewing<br>Day-25.<br>1. Experiments on the effect of pressure on materials.<br>2. Group discussion.<br>3. Viewing a video.<br>4. Image viewing | a ball or a football.<br>1. Conducting simple experiments like, reducing air from a syringe, filling air in a cycle tube, two palms pressed in the opposite direction on the blown balloon etc... and also discuss about the effect of pressure on them by allowing students to view related video, images, ppt. |
| 9. Knowing about the production of sound, need of material medium for its propagation, and effects of sound pollution. | 22. Understanding sound and the production of sound.                               | <b>Day-26.</b><br>1. By direct observation to show that Sound is a form of energy.<br>2. Produce sound and see.<br>3. Inspect whether sound has force?                          | Put small pieces of paper in front of the loud speaker producing sound, we observe the movement of paper pieces by which we can conclude sound is a form of energy. Notice how sound is produced while playing the game of hitting the balloons.   |
|  | 23. Describing an activity to show that "Sound needs material medium to propagate. | <b>Day-27.</b><br>1. What helps us to hear the sound?<br>2. Eye witness and discussion  | Discuss how students are able to hear the school bell rung.<br>Run Let's discuss the method of propagation of sound in a land  |

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|  |  |   | <p>phone.</p> <p>discuss about the propagation of sound by allowing students to view related video, images, ppt.</p>  |
|  | 24. Analyzing the effects of noise pollution                                 | <p><b>Day-28.</b></p> <ol style="list-style-type: none"> <li>1. Spot Visit and observation.</li> <li>2. Viewing a video.</li> <li>1. 3. Viewing an image or a ppt.</li> </ol> | <p>In hospital front and inside we notice a board written as “maintain silence “discuss what may be the reason. Discussing about the related video, images, ppt, let us facilitate students in learning process</p> |
| 10. Defining work, Laws of Conservation of energy. | 25. Understanding the concept work and also the Laws conservation of energy. | <p><b>Day-29.</b></p> <ol style="list-style-type: none"> <li>1. Experimental activities. Day</li> <li>2. Viewing a video.</li> <li>3. Discuss &amp; Analysis</li> </ol>       | <p>Taking few situations discuss about in which one form of energy is converted into another form like</p>  |
|  |  | <p><b>Day-30.</b></p> <ol style="list-style-type: none"> <li>1. Practical activity.</li> <li>2. viewing a video</li> <li>3. Solve and discuss activity.</li> </ol>            | <p>Lifting the book up, on a table, while riding a bicycle muscular energy is converted into which form of energy, similarly list out the situations in which energy is converted to other forms.</p>               |