DEVELOPMENT OF LIFE SKILLS EDUCATION MODULE

This chapter describes in detail the procedures adopted for development of LSEM for developing Life Skills and Environmental awareness among higher secondary school students.

5.1 Life Skills Education Module (LSEM)

The module is prepared for developing life skills and environmental awareness among higher secondary school students. It utilizes the self activity and creative energies of children to the fullest possible extent. By realizing the ever increasing concern over nature and natural resources the investigator considers environmental education a suitable subject for developing life skills. Moreover, environmental education makes pupils fully aware of the problems connected with their environment and motivates them to tackle these problems with a sense of responsibility and with the necessary skills. The module incorporates different pedagogic strategies such as concept mapping, brainstorming, cognitive apprenticeship, debate and role play for developing life skills and transacting the content of environmental education to the students.

The activity based, learner centered teaching, not only makes learning effective, joyful but also enhances achievement and promotes retention. Further, this module will develop a sense of dignity, self respect and self reliance among students and finally, they become enlightened citizens who will make the nation prosperous, happy and strong.

5.1.1 Rationale for selecting Environmental Education as content of LSEM

Environmental issues are of great threat in our life. Human desire for improving the quality of living and his ability to control and transform the natural environment has created a situation threatening his own existence. Growing urbanization, rapid climate change, loss of biodiversity, declining fisheries, pollution of air, water and land, ozone layer depletion, global warming have degraded the biosphere and accelerated environmental pollution.
There is a record rise in global warming, forest fires, vehicle pollution, vanishing of monsoon forests, soil erosion and reduction in food production. These global problems are posing serious challenges to humanity. The role of environmental education has assumed extraordinary importance and the strengthening and enhancing environmental protection has become an essential element for sustainable development in India.

A healthy environment is a critical component as that of life skills for the well-being of a society and the foundation for a sustainable and strong economy. Therefore, it can be concluded that environmental education and life skills are two “burning issues” which need urgent attention and careful handling to prevent the rising tide of environmental issues. Therefore the two crucial areas viz., life skills and environmental issues can be linked through education and once we develop life skills among students through environmental education, it will in turn help to protect the environment.

Further, the environmental education provides opportunities for learning creatively, using multiple sources, designing novel approaches and identifying real and potential impacts of various aspects of existing problems and potential solutions. The study by Rajalekshmi (2007) proves that environmental education is effective in stimulating creative thinking, reasoning and process skills. Ernst and Monroe (2006) confirms that environmental education programs can significantly raise students’ critical thinking skills. John (1990) revealed that opportunities for creative problem solving are abound in learning situations dealing with environment. Environmental education provides good opportunity for developing critical thinking skills and problem solving skills according to Howe (1989).

All these studies prove that environmental education has copious potential for developing life skills. It provides a favorable environment for developing life skills by giving direct experience to students and by providing a support to solve real life situations. Environmental education lays the foundation for building life skills. It employs interactive pedagogic strategies such as experiential learning,
project based learning, simulations, cognitive apprenticeship, concept mapping, role play, debate, games, cooperative learning, future’s wheel and brain storming to transact the curriculum. All these pedagogic strategies in turn help to enhance the life skills among students. When students learn through these strategies, they gain a better understanding of what they learn, retain it longer and take charge of their own learning. It means that they learn “how to learn” instead of “what to learn”, which is considered as supreme aim of education and also crucial for success in our data-driven, rapidly changing world. Environmental education makes use of outdoor settings like wetlands, school surroundings, rivers and ponds for transaction of the content. This direct experience can infuse a sense of richness and relevance into a traditional school curriculum. These hands-on experiences motivate students to learn, and they pay off in better test scores and better life skills.

Topics like ‘water pollution’ can be given to students for developing life skills. They are motivated to think critically about the issue and creatively devise number of solution for solving the problem. They are also develop communication skill and interpersonal relationship when interacting with other students and sharing their knowledge. Likewise, pollution of air, soil, ozone depletion, global warming and waste disposal are appropriate topics for developing different life skills. Students are asked to write slogans on environmental issues like deforestation or write poems /stories on water pollution. Otherwise they are asked to prepare posters on any environmental issues of their interest. When they write slogans, poems or stories, they develop the critical, creative thinking skill, empathy, self awareness, decision making skill, communication skill and it is a means to manage the stress.

5.2 Procedure for development of LSEM

The procedure for development of the life skills education module is described under the following headings;
5.2.1 Planning

5.2.2 Designing

5.2.3 Preparation of the draft LSEM

5.2.4 Tryout

5.2.5 Validation

5.2.1 Planning

Life skills education module is prepared by wide review of literatures on life skills education, environmental education and select interactive pedagogic strategies. The investigator extensively reviewed the biology text book developed by NCERT for higher secondary school students and selected the chapter Environmental Issues for developing the module. Investigator analysed the content and collected detailed information about the topic environmental issues from various sources like environmental education booklets published by NCERT, CEE etc, books, research reports, conferences and internet and from CDs developed by SIET on various environment related topics.

5.2.2 Designing

The designing stage of the LSEM consists of choosing the content and pedagogic strategies for the module. It was decided to include 10 sessions in the LSEM, the first being the ice breaking session – *come let’s be friends* is meant for creating a tension free environment in the classroom. The investigator studied carefully the curriculum, syllabus and text book for standard XII in Kerala for selection of suitable topic for instruction through life skills education module. Experts in life skills training and science teachers were consulted and selected the following areas from environmental education, based on NCERT syllabus, for the preparation of module.
5.2.2.1. Environmental topics

- Man and environment
- Air pollution
- Water pollution & water conservation
- Water scarcity
- Ozone depletion, global warming & greenhouse effect
- Deforestation & soil pollution
- Noise pollution
- Solid waste
- Radioactive pollution

5.2.2.2 Pedagogic Strategies selected for the LSEM

Investigator extensively reviewed various teaching-learning strategies and analysed its merits and feasibility in the classroom. Further the investigator consulted with experts about various learning strategies for developing life skills. Based on the experience gained through these programmes and the discussion with experts helped the investigator to select the pedagogic strategies. The other criteria for selecting a pedagogic strategy were - interactiveness: involve maximum pupil participation, feasibility, developing higher thinking skills, retain information, suitable for the content and also help to develop life skills and environmental awareness. Lastly, investigator analysed each strategy with its suitability to transact environmental education curriculum, feasibility in the classroom and potentiality to develop both life skills and environmental awareness.

The investigator selected six pedagogic strategies based on the criteria described above. They are given below.

- Cognitive apprenticeship
- Brain storming
• Role play
• Concept mapping
• Debate
• Future’s wheel

Investigator has selected the pedagogic strategies such as concept mapping, brainstorming, cognitive apprenticeship, role play, debate and future’s wheel for transacting the environmental education as well as developing life skills and environmental awareness among students. Investigator made sure that the topics were amenable for teaching with the select pedagogic strategies.

5.2.2.3 Pedagogic Strategies and Life Skills developed

a) Cognitive Apprenticeship

Cognitive apprenticeship consists of six methods of teaching- modeling, coaching, scaffolding, articulation, reflection and exploration and aimed at encouraging learner autonomy in carrying out expert problem-solving processes. In the modeling, coaching, and scaffolding students observe and then practice themselves to make them experts (self awareness, critical thinking, creative thinking). In articulation and reflection student explains their ideas to other student that what problem solving activities have occurred (communication skill, interpersonal relationship, stress management). This could be done through discussion, presentation, or the showing of learner-produced artifacts. In reflection, the student compare their problem solving strategies with experts (problem solving skill, critical thinking, decision making). In exploration stage students try out what they have learned in new situations (problem solving, decision making, critical and creative thinking). The life skills focussed mainly through cognitive apprenticeship were communicatin skill, interpersonal relationship, decision making, problem solving, critical thinking, empathy and self awareness.
**Cognitive Apprenticeship:** Communicating skill, interpersonal relationship, decision making, problem solving, critical thinking, empathy and self awareness.

**b) Brain Storming:**

Brain storm is the free, uninhabited generation of ideas about a particular topic or question in a given period of time. In brain storming, the students are given an environmental theme (for eg; reducing water scarcity in a village) and they are encouraged to freely express their ideas without hesitation. The evaluation of ideas occur at last. The students are benefited in this way. Students think creatively and list out the ideas (creative thinking). Greater acceptance is given to those ideas which were more and more creative. The students are encouraged to callout their ideas in a tension free environment (self awareness, empathy, communication skill). It enhances their self confidence. This activity can be done in groups also while in group activity the students work in group and they collectively decide ideas (interpersonal relationship). In the last phase, evaluation of ideas takes place. The students will think pros and cons, feasibility of each ideas and decide the best idea for solving the issue (critical thinking, decision making, problem solving). The most focussed skills developed through brain storming were self awareness, empathy and interpersonal relationship.

**Brain Storming:** Self awareness, empathy and interpersonal relationship

**c) Role Play**

Role play is an informal dramatization in which pupil acted out a suggested situation. It provides experience to handle a potential situation in real life, increasing empathy for others and insight in to ones’ own feelings. The students are given an environmentally related theme for role play. While executing a role play pupil develops the following life skills. Students think a suitable theme for role play (Creative thinking) and discuss within their groups about the feasibility of the play (communication skill, Interpersonal skill) at last
the finalise a theme and identify roles for the play (decision skill, problem solving skill). The students enact the play (interpersonal skills, communication skill, self awareness, empathy) finally they discusses the merits and demerits of the play (critical thinking skill, communication skill, stress management). The role play can develop all these skills in varying amount and the most focused skills developed were empathy, interpersonal relationship, self awareness, communication skill and stress management.

**Role Play:** Empathy, interpersonal relationship, self awareness, communication skill and stress management.

d) **Concept Mapping**

Concept mapping is a process of representing the conceptual structure of a subject/discipline in a two dimensional form. A concept map consists of circles or boxes that contain a concept and different concepts are connected with lines, describing how these concepts are related to each other.

The students are given an environmental theme to make a concept map (for eg; radiation pollution). The students think on this theme and list out its major and minor concepts (critical thinking, creative thinking, decision making, problem solving, communication skill). Then these concepts are placed in hierarchical order (critical thinking, decision making) and these concepts are linked with lines and the relation between two concepts are written on the lines (communication skill, self awareness, empathy, interpersonal relationship, stress management). The main focussed life skills developed through concept mapping were critical thinking, creative thinking and decision making.

**Concept mapping:** Critical thinking, creative thinking and decision making.

e) **Debate**

Debate is a pedagogic strategy for dealing with controversial issues in which the positive and negative aspects are argued for and against by the students. For the debate the students are given an environmental issue (for eg;
sand mining). The students are divided into two groups, one group talk in favour of the issue, other against that issue.

The debate helps the students in the following way. They think critically and creatively and list out many arguments (critical thinking, creative thinking). They analyse each argument and list out the relevant ones and their argument points (critical thinking, problem solving, decision making skill). They communicate their idea to other group in an appropriate way (communication skill, interpersonal relationship, empathy, self-awareness, stress management). They are not supposed to burst out even the opposite groups are critically oppose them. The skills emphasised through debate were decision making, problem solving, critical thinking, communication skill and stress management.

**Debate:** Decision making, problem solving, critical thinking, communication skill and stress management.

**f) Futures wheel**

Futures’ wheel is a graphical representation of the causes and the secondary and tertiary consequences of events. The event is placed in the middle of a piece of paper and then small spokes are drawn from the centre. The problem wheel rolls into future consequences which roll into other negative and undesirable situations. The students are given an environmental issue for making futures wheel (for eg: ozone depletion). Here, the students think critically about the issue and their causes (critical thinking, decision making, problem solving skill). They creatively think the future effects of problem (creative thinking, interpersonal relationship). Finally the students display their futures wheel and elaborate it to other students (communication skill, self-awareness, empathy). Future’s wheel mainly focussed the life skills such as critical thinking, creative thinking, problem solving and interpersonal relationship.
**Futures wheel**: Critical thinking, creative thinking, problem solving and interpersonal relationship.

The different pedagogic strategies, the life skills developed and the environmental contents are displayed in table 5.1

<table>
<thead>
<tr>
<th>Environmental Education</th>
<th>Pedagogic Strategies</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring Daily Activities</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Personal Hygiene and Environmental Cleanliness</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Family Food Expenditure</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Relationship between Environment and food</td>
<td>Concept mapping</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>Food chain construction</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Man and Nature</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Selecting balance ecosystem</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Fate of 'Neenu'</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Bhopal tragedy</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Air pollution-harmful effects</td>
<td>Concept mapping</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>Pollution Identification</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>River's story</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Pollution in Ganga River</td>
<td>Debate</td>
<td>Decision making, problem solving, critical thinking, communication skill and stress management.</td>
</tr>
<tr>
<td>Bio accumulation</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Water conservation</td>
<td>Cognitive Apprenticeship</td>
<td>Communication skill, interpersonal relationship, decision making, problem solving, critical thinking, empathy and self awareness.</td>
</tr>
<tr>
<td>Plachymada issue</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Life after 50 years</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Saving a village</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Animals facing a crisis</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Water Scarcity</td>
<td>Future's wheel</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Ozone Depletion, Global Warming &amp; Green House Effect</td>
<td>Ozone depletion</td>
<td>Role play</td>
</tr>
<tr>
<td>Causes and effects of ozone depletion</td>
<td>Future's wheel</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Global Warming</td>
<td>Cognitive Apprenticeship</td>
<td>Communication skill, interpersonal relationship, decision making, problem solving, critical thinking, empathy and self awareness.</td>
</tr>
<tr>
<td>Transitory Island</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Green house effect: a necessary evil</td>
<td>Future's wheel</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Mass destruction of forest and its consequences</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Sand Mining-Boon or Bane</td>
<td>Debate</td>
<td>Decision making, problem solving, critical thinking, communication skill and stress management.</td>
</tr>
<tr>
<td>Land is a valuable, but fast depleting resource</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Sources of noise pollution</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Effect of Noise Pollution on Health</td>
<td>Future's wheel</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>How Sound (Noise) is Related to Health</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Using Plastic Effectively</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Recycling can Save Environment</td>
<td>Concept mapping</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>An Incident in Manu’s Life</td>
<td>Role play</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Plastic: Uses and Advantages</td>
<td>Concept mapping</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>Municipality Dumping Waste to Fertile Land</td>
<td>Brain Storming</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>E-Waste Management</td>
<td>Concept mapping</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>A World with Peace</td>
<td>Future's wheel</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Radiation Fall Out and Health Hazards</td>
<td>Concept mapping</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>Radiation Pollution: Causes and Effects</td>
<td>Future's wheel</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Mobiles: Is it a Boon or Bane</td>
<td>Debate</td>
<td>Decision making, problem solving, critical thinking, communication skill and stress management.</td>
</tr>
</tbody>
</table>
5.2.3 Preparation of the draft LSEM

Investigator scrutinized the information collected from different sources and categorized to different topics. Details regarding the selected areas were collected and are divided into small meaningful units and subunits. For each subunit selected an appropriate pedagogic strategy for transacting the content assuring maximum pupil participation.

5.2.4 Tryout

Investigator pilot tested the module on a representative sample of higher secondary students in Malappuram district. During tryout investigator carefully noted the appropriateness of different activities, pupil participation, interaction between students and teachers and among students. Necessary revisions were done after tryout and final module was prepared.

5.2.5 Validation

In developing the Life Skills Education Module care was taken to ensure clarity regarding the different activities to be involved under each topic. The help of experts both in the field of life skills and environmental education was sought in this respect, and this added ensuring the face validity and content validity of the Life skills education module. The investigator attended various National and International conferences in environmental education and life skills and discussed with resource persons. Investigator has undergone various training programmes on Life skills and discussed with experts in life skills education helped to become enriched with knowledge about how to conduct life skills sessions and this enabled the researcher to refine the module.

Validity of the instructional materials prepared was decided from the assessment made by the experts in the field of life skills and environmental education, state resource person (SRGs), district resource person (DRGs)in biology, experts in curriculum committee, text book revision committee, research supervisor and trainers on life skills. The expert’s suggestions were taken care of and necessary modifications were done and revised the module for its final version.
LIFE SKILLS EDUCATION MODULE

JEENA.K.G
Research Scholar
Department of Applied Research
Gandhigram Rural Institute-Deemed University
Gandhigram, Tamil Nadu
• Come let’s be friends…
• Man and Environment
• Air Pollution
• Water Pollution and Water Conservation
• Water Scarcity
• Ozone Depletion, Global Warming & Green House Effect
• Deforestation & Soil Pollution
• Noise Pollution
• Solid Waste
• Radioactive Pollution
Session 1
Come let’s be friends

Objectives:
To familiarize students among themselves
To aware about pollution

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Learning strategies</th>
<th>Learning materials</th>
<th>Time</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Come, Let us be friends!!</td>
<td>Game</td>
<td>Cards</td>
<td>45 minutes</td>
<td>While involving the activity they use problem solving skill, Self awareness, decision making, communication skill and stress management</td>
</tr>
<tr>
<td>Activity 1</td>
<td>Pollution</td>
<td>Group activity</td>
<td>Chart marker</td>
<td>20 minutes</td>
<td>While assessing each statements Pupil develop critical thinking skill, problem solving skill, decision making skill. While describing the reason for selecting statements develop communication skill and interpersonal skill</td>
</tr>
</tbody>
</table>
Activity 1 – Come, Let us be friends!!

Step 1
Ask the students to arrange the seats in a semi circle manner. Distribute the playing cards to all students.

Step 2
Tell the students that the game is to know each other. They are asked to note the sign on the playing card (♠, ♣, ♥, ♦) and find their pair among them by matching the shape of the sign on the card. They are not allowed to speak during the time.

Step 3
Give 10 minutes to identify their pair. If they were identified their pair, they have given 5 minutes for introducing themselves to each other by mentioning name, place, family details, likes and dislikes, peculiarity of their character (mild or short tempered etc.), favourite food and favourite colour.

Step 4
Ask the pair to come forward and one should introduce their partner to the audience and vice versa.

Give sweets to the pair who come first and reinforce their initiative.

The introduction should be brief (3 minutes) and it should necessary details of the individual.

Activity 1

Group activity

Step 1
• Mark one place in the classroom as the Agree area, a second place as the Disagree area and a third place as the Undecided area.
• Read out the statements one after another
• Time is given to the participants to determine whether they agree, disagree or are undecided about the statements.

• Request the participants to move into the area which best reflects their beliefs about the statement.

Step 2

• Ask one or two participants in each area to explain why they agree disagree or are undecided.

Statements:

1. There is nothing wrong in spitting in public places.
2. Making a kitchen garden by students is mere waste of their study time.
3. Smoking is a symbol of courage and masculinity.
4. Adopting organic farming can enhance soil condition.
5. Children can torment the creatures around them since they are considered innocent.
6. Planting trees can reduce pollution.
7. There is nothing wrong in using plenty of water for our daily use, provided we have plenty of water sources.
8. Conservation and sustainable use of biological diversity is essential for the benefit of present and future generations.
9. If we are in a public places or office, we can use fan and light whether we are not needed it.
10. Each species in the eco system is vital to maintain a unique ecological status.
11. Burning of plastics are good than throw it away.
12. Twenty percentage of cancer cases reported is due to passive smoking.
13. Schools having Eco-clubs enhance the environmental awareness among pupil.
14. ‘Clean class award’ for those who keep the class room neat and tidy, helps to develop awareness about environmental hygiene among students.
15. Smokers can be given punishment for making the nonsmokers vulnerable to cancer.
Session 2
Man and Environment

Objectives:

To develop life skills among students
To get acquainted with relationship between man and environment

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Monitoring daily activities</td>
<td>Brain storming</td>
<td>Diary</td>
<td>45 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Importance of personal hygiene and environmental cleanliness</td>
<td>Role play</td>
<td>Chart, Flip chart, Marker</td>
<td>40 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity</td>
<td>How much money will be spending by your family for food</td>
<td>Brainstorming</td>
<td>Chart sketches</td>
<td>20 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------</td>
<td>---------------</td>
<td>----------------</td>
<td>-------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Activity 4</td>
<td>“Relationship between environment and food”</td>
<td>Concept mapping</td>
<td>Chart Markers sketches</td>
<td>20 minutes</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>Activity 5</td>
<td>Food chain construction</td>
<td>Brainstorming</td>
<td>Chart sketches</td>
<td>35 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 6</td>
<td>Man &amp; Nature</td>
<td>Role play</td>
<td>Chart sketches</td>
<td>40 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity 7</td>
<td>Selecting balanced ecosystem</td>
<td>Brainstorming</td>
<td>A4 size paper sketches</td>
<td>20 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
</tbody>
</table>
Activity 1

Brain Storming

Monitoring daily activities through diary.

Teacher arranges the class to U shape for brainstorming session, selects one student as recorder to note down the points on the board.

Teacher ask the students to analyse their daily activities and identify Environment Enriching Actions (EEAs), Environment Depleting Actions (EDAs) and Environment Neutral Actions (ENAs). The student who is selected as recorder writes EEA, EDA and ENAs in three separate column on the black board and through brain storming list down their daily activities under appropriate column.

Tell the students to analyze each activity and categorize whether their actions are beneficial or harmful to environment. They are asked to score each activity under Environment Enriching Actions (EEAs), Environment Depleting Actions (EDAs) and Environment Neutral Actions (ENAs) separately.

Scoring procedure is given to the students

Scoring:

EEAs = +5 marks

EDAs = -3 marks

ENAs = +1 marks

The students are encouraged to give scores for their activities and present in a systematic manner as shown below.

The students are motivated to do the activity for one week duration on their own and the format for recording the activity is given.
1. **Daily Activities**

<table>
<thead>
<tr>
<th>Days</th>
<th>EEA</th>
<th>EDA</th>
<th>ENA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>watering the plant</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Tuesday</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>throwing garbage</td>
<td></td>
<td></td>
<td>-3</td>
</tr>
<tr>
<td>Thursday</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>planting tree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>burning plastics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunday</td>
<td>cleaning the surrounding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Score</td>
<td>15</td>
<td>-6</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

1. **Weekly Activities**

<table>
<thead>
<tr>
<th>Days</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>5</td>
</tr>
<tr>
<td>Tuesday</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>-3</td>
</tr>
<tr>
<td>Thursday</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>5</td>
</tr>
<tr>
<td>Saturday</td>
<td>-3</td>
</tr>
<tr>
<td>Sunday</td>
<td>5</td>
</tr>
<tr>
<td>Grand Total</td>
<td>9</td>
</tr>
</tbody>
</table>

While monitoring daily activities they critically think the pro and cons of each activity and develop empathy, communication skill and interpersonal skill. This activity will help the students to create a habit for carefully weighing every action in terms of its possible impact on environment. Subsequently they become empathetic towards nature.
Activity 2

Role Play

Teacher divide the students into two groups and gives a theme to enact.

**Theme:** Importance of personal hygiene and environmental cleanliness

The objectives of the role-play are fixed.

- To inculcate the value of cleanliness in the life
- To know the role of environmental cleanliness for healthy living

**Design stage**

Students choose a situation from reality that highlights the theme. Teacher can give necessary help to students. Different roles for the role play are identified.

Select students and time is given to familiarize roles. Script is written by the students and plans the structure of the role play.

**Implementation stage**

In this stage, the students are given the chance to familiarize the roles and act out the play.

**One example is given below**

```
Back ground: Gopan is affected with high fever and he could not go to school. He was on leave for the past two weeks. So his teacher visits him with his students. The environment was not clean and the garbage are seen everywhere. They understood that this environment caused him the disease. So teacher and students conduct an awareness programme in this village to make them conscious of importance of environmental cleanliness and proper waste disposal
```
Evaluation

Students discuss the issues prominent in the role play, what did they have learned, skills they have developed and are asked to submit a report about the role play.

Activity 3
Brain Storming

Teacher arranges the class to U shape for easy discussion, selects one student as recorder to note down the points on the board.

Theme: How to reduce monthly expenses?

Teacher fixes a time limit for brainstorming and encourages the students to give their ideas. The recorder records and displays all the ideas exactly as they have been stated.

Duplication of ideas was eliminated.

Evaluation

Evaluation of ideas takes place at last and the best idea is selected for solving the issue.

Students are asked to construct a list of the products that can be cultivated in home.

Give suggestions for reducing the expenses. For example, most of the vegetables that we buy from the market can be cultivated in home. It will be a healthy practice to both health and environment.
Activity 4
Concept Mapping

Theme: Relationship between environment and food

Teacher arranges the student into five groups of five members each. Select one leader from each group. Students are given sufficient time to think over the theme. Teacher asked the students to construct good focus question relating to the given theme. Focus question clearly specifies the problem or issue to be resolved. For example: What are the raw materials used by the family for preparing different types of dishes. Students list out key concepts. It must include all the plant products, animal products and micro organisms if any. It also focus on the products which are home made and brought from markets. Point out the relationship exists among them. The students are encouraged to find out good linking words to be written on lines connected by different concepts and the concepts from different domains are connected by cross links. Construct preliminary map and revise it for clarity. This activity indirectly gives a picture of how human being is dependent on his environment for satisfying his basic need, hunger.

Concept map of “Relationship between environment and food”
Activity 5
Brain Storming

Topic: Food chain construction

Teacher ask the students to think what dishes they had eaten in a week and trace back to its photosynthetic source. Students are allowed to brain storm on this and make as much food chains from it.

Teacher ask the students to create food chains from the foods they have consumed in a week.

After construction of food chains food webs are made from them

Example: if they had eaten egg, trace it back to hen, grains, paddy

Paddy--- Paddy grain---- Hen ----- Egg----man

Activity 6
Role Play

Ask the students to form 3 groups of 10 members each and give a theme to enact.

Theme : Man and Nature

Objectives of particular role play are given below

➢ To inculcate the value of preserving environment
➢ To understand the inseparable nature of man and environment

Design stage

Students are asked to choose a situation from reality that high lights the theme. Teacher gives necessary help to students. Students selects the roles and time is given to familiarize roles. Script is written by the students and plans the structure of the role play

Implementation stage

In this stage, the students are given the chance to familiarize the roles and how to interact with others. The students act out the play. One example is given below. The students are free to select any other interesting theme to play. The role play can be positive, by showing the harmonious relationship between man and nature or it can be used to project the hazards due to man’s activity.
Evaluation

Students discuss the issues prominent in the role play, what did they have learned, skills they have developed and are asked to submit a report about the role play.

During the evaluation stage, students are encouraged to discuss the issues prominent in the role play, what the students have learned and the different skills acquired through role play. Students submit the report to the teacher.

Activity 7

Brain Storming

Topic: Selecting well balanced ecosystem

Teacher divides the students into four groups. Ask the students to select three well balanced food chains among the following.

Give all examples at a time. Students have to decide which are the balanced ecosystems and which are not.

Teacher ask the students from each group to explain why they discarded some food chain and what are the problems related to them.

Ecosystem:

1. grass → grass hopper → frog → snake
2. grass → frog → deer → lion
3. phytoplankton → zoo plankton → small fishes → frog
4. deer → lion → decomposers
5. decomposers → eagle → snake → frog → grass
6. fishes → duck → eagle
7. rat → snake → fox
Session 3
Air Pollution

Objectives:
To enhance life skills of students
To enable the students understand the causes and effects of air pollution

<table>
<thead>
<tr>
<th>Activity No</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Fate of ‘Neenu’</td>
<td>Role play</td>
<td>Chart, marker pen</td>
<td>20 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Harmful effects of air pollution</td>
<td>Concept mapping</td>
<td>Chart, marker,</td>
<td>45 minutes</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Bhopal tragedy</td>
<td>Role play</td>
<td>Flip chart</td>
<td>20 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity 4</td>
<td>Can you feel pollution</td>
<td>Brain storming</td>
<td>A4 size paper marker, chart</td>
<td>45 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
</tbody>
</table>
**Activity 1**

**Role Play**

Teacher divides the class into two groups and narrates a story of a small girl, Neenu whose father was a traffic police in a metropolitan city. He died due to lung cancer.

**Design stage**

Students are asked to enact the story highlighting the air pollution and its consequences on health. The role play conveys the message for reducing pollution.

Select students and time is given to familiarize roles. Script is written by the students together and plans the structure of the role play.

**Implementation stage**

In this stage, the students are given the chance to familiarize the roles and the students act out the play.

**Evaluation**

During the evaluation stage, students discuss the issues prominent in the role play, what was learned and the skills developed through role play. Students are asked to submit a report about the role play.

Through this role play pupil become empathetic towards Neenu and her father. They are conscious of environmental pollution that caused death of a Neenu’s beloved father.

**Activity 2**

**Concept Mapping**

**Theme**: Harmful effects of air pollution on vegetation and human beings.

Teacher selects the students into two groups and gives the theme for concept mapping.

**Theme**: Harmful effects of air pollution on vegetation and human beings.
Teacher gives the learning materials related to the theme to the students. Students are asked to go through the study material provided by the teacher and list out the concepts and graphically represent it in the form of graphs.

Students are asked to construct good focus question clearly specifying the problem or issue. For example: How air pollution affect vegetation and human being?

List out the key concepts. For example:

- Air pollution, air pollutants, SO2, HF, NO2, NH3, PAN.
- Harmful effects--- Plants
  - Reduces nitrogen fixation ability, Inhibits photosynthesis by injuring leaves, Slow down growth of plants, Affects transpiration rate due to dust deposition in stomata.
- Harmful effects---Animals
  - Causes irritation to eyes and throat, Respiratory illness, Cancer, Bronchitis, Respiratory disorder, Lung cancer, Asthma, Allergic infections

Students find out good linking words to form propositions shown by lines on the map. Concepts from different domains are connected by cross links.

Construct preliminary map and revise it for clarity.

**Activity 3**

**Role Play**

Teacher narrates the tragic incident, the Methyl Iso Cyanate (MIC) gas leak from the Union Carbide plant, Bhopal in 1984. It has been regarded as the worst industrial accident, related to air pollution. Around 2,00,000 Bhopal residents were affected by the leak of MIC gas. At least 50000 people have been seriously affected and many go blind. MIC is a toxic gas reacts quickly with water and causes the lungs to swell and eyes to develop cataract. Out of every three children born to women who were pregnant at the night of the disaster only one survived, with physical deformities viz congenital heart diseases, hole in arms and impaired eye sight.

**Design stage**

Students are asked to enact the issues in Bhopal tragedy and its various consequences.
Select students and time is given to familiarize roles. Script is written by the students and plans the structure of the role play

**Implementation stage**

In this stage, the students are given the chance to familiarize the roles and how to interact with others. And the students act out the play.

**Evaluation**

During the evaluation stage, students discuss the issues prominent in the role play, what was learned from it and the skills developed through role play. Students submit a report about the role play.

The role play makes the student to feel empathy for the people especially those innocent kids, who became a prey of physical deformities in their whole life before starting their life. This incident develops empathy in them at the same time an attitude to protect the coming generations from the hazards of pollution

**Activity 4**

**Brain Storming**

Teacher divides the students in to four groups. Give them chart paper and marker. They are asked to brainstorm the various types of pollution. The theme is given below

1. Can you feel pollution through the senses (touch, taste, smell, sight, hearing) What are the different types of pollution that you can identify through the senses?

The findings can be reported in tabular form as shown below.

<table>
<thead>
<tr>
<th>Touch</th>
<th>Taste</th>
<th>Smell</th>
<th>Sight</th>
<th>Hearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>-----</td>
<td>-----</td>
<td>solid waste</td>
<td>-----</td>
<td>Noise pollution</td>
</tr>
<tr>
<td>-----</td>
<td>-----</td>
<td>-------</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td></td>
</tr>
</tbody>
</table>
# Session 4

**Water Pollution & Water Conservation**

**Objectives:**

To inculcate life skills among students

To get awareness about water pollution and different water conservation strategies

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>River’s story</td>
<td>Role play</td>
<td>VIPP card, marker pen</td>
<td>20 min</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity 2</td>
<td>“Now, it is a sin to take a bath in Ganga river”</td>
<td>Debate</td>
<td>Chart, marker pen</td>
<td>20 min</td>
<td>Decision making, problem solving, critical thinking, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Bio accumulation/Biological magnification</td>
<td>Role play</td>
<td>Pipe, plants, rope</td>
<td>45 min</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity</td>
<td>Water conservation</td>
<td>Cognitive apprenticeship model</td>
<td>Album, colours, chart, marker pen, Photos News paper clippings</td>
<td>45 minutes for clarification. (extra time, say 1 week is given to students for preparing album)</td>
<td>Communication skill, interpersonal relationship, decision making, problem solving, critical thinking, empathy and self awareness.</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------</td>
<td>-------------------------------</td>
<td>---------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Activity 5</td>
<td>Plachyma da issue</td>
<td>Brain storm</td>
<td>Chart sketches marker</td>
<td>25 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 6</td>
<td>Life after 50 years</td>
<td>Role play</td>
<td>Chart marker</td>
<td>40 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
</tbody>
</table>

**Activity 1**

**Role Play**

Teacher gives an interesting theme to the students for the role play.

**Theme**

“When the river can speak--------------------------- what story it will tell to you.”

Teacher can give the name of any local river, familiar to all students.

For example: When the river “Nila” (Bharathapuzha) can speak ------------ what story it will tell to you.
Design Stage

Students envisage the situation and write the imaginary story as narrated by the river. Based on this story they can write a script and visualize it through a role play. Students identify different roles, write the script and plans the structure of the role play.

Implementation stage

In this stage, the students are given the chance to familiarize the roles and how to interact with others. The students act out the play.

Evaluation

Students discuss the issues prominent in the role play, what was learned from it and the skills developed through role play. Students are asked to submit a report about the role play.

Activity 2

Debate

Teacher divides the class into two groups and gives the theme to debate. Theme: “Now, it is a sin to take a bath in the Ganga, the holy river.” What do you think?

Step 2

Guide lines are given to the students.

Guide lines

- Ask the students to form two teams; one will be in favour of the theme and other against it.
- Students in the two group select their speakers for the debate.
- The teacher should chair the debate and take up a neutral position during the debate.
- The speaker should stand in front of the main group and present their views in turn, alternating between the teams.
When arguments have been presented from both sides, the chair person should sum up the points made by the students during the debate and add points that may not have been covered by the speakers.

At last questions are invited from the audience.

Activity 3

Role Play

Theme: Bio accumulation/ Biological magnification

The objectives of the role-play are fixed.

- To understand that man’s harmful activities leads to his own destruction

Design stage

Teacher assigns a topic to two groups of students. They have to enact the theme. Students choose a situation that highlights the theme. Teacher can give necessary help to students.

One example is given below.

The students are free to select any other interesting theme to play.

Title of play---- Man becomes a threat to man.

Background: A greedy man uses DDT indiscriminately in his field. His aim is to increase the yield and make more money. He was least bothered about the consequences of these non degradable substances in the environment. This DDT reaches the river due to surface run off and finally to the body of fish. During these process the concentration of DDT increases and at last it reaches the man in higher amount and it leads to the death of man.

Different roles are identified such as Greedy man, Plants, DDT (DDT accumulation can be shown by pairing of students and increasing their number according to the increasing level of DDT), Small fishes and Big fishes.

Select students and time is given to familiarize roles. Script is written by the students and plans the structure of the role play.
Implementation stage

In this stage, the students are given the chance to familiarize the roles and how to interact with others. And students act out the play.

Script

Greedy man: I want more yield. I will use more pesticides. Ha…Ha…Ha…

Plants: No, Don’t do that., it will kill all beneficial organisms, spoil rivers and soil. It is non degradable and accumulates in organisms and finally it will kill you…

Greedy man: NO…Never… I will get more and more yield and more money.
Greedy man uses DDT injudiciously.

During rain DDT reaches the river and enters the body of small fishes and then to the big fishes, at the same time its concentration increases at a fatal level. Finally, it reaches the body of man through the fish and causes death. Thus it can be concluded that man become a threat to himself. (DDT accumulation can be shown by increasing number of students and finally the group of students can squeeze the neck of man.)

Evaluation

Students can discuss the issues prominent in the role play, what was learned from it, the skills developed and submit a report about the role play.

This role play conveys the message that the harmful activity of man on environment ultimately leads to his own destruction

Activity 4

Cognitive Apprenticeship

Theme: Water Conservation

Step 1

Modeling

Teacher divides the class into two groups. One group is named as ‘winter group’ and the other as ‘summer group’. The theme water conservation is given to both groups. Winter group is encouraged to collect information about the water
conservation methods (rain harvesting, rain pits formation etc) in winter and Summer group should emphasis on water conservation methods in summer.

Teacher encourages students to list out the news related water crisis from the newspaper for the past one week. Teacher and students discuss the importance of water in life, how the water resources are polluted, the necessity of conserving water and the traditional practices to sustain water resources.

Teacher shows an album depicting the importance of water in life and how the sources are polluted by various means. Teacher asks the student to prepare an album related to theme of respective groups and exhibit in the classroom. Teacher gives the guide lines how to get information regarding water conservation. They are asked to collect as much photos, pictures and news regarding their theme and compile this into an album.

**Coaching**

Teacher give guide lines to the students for collecting news from papers and magazines. Teacher helps them to get the right information from websites. The students visit library and collect materials. Both the group itself form subgroups and complete different aspects of the assigned work. They can interview agricultural officers, and other experts. Information is gathered from farmers and experts in traditional water conserving methods. Teacher introduce journals and agricultural magazines like ‘Karshakasree’ in the class. Students visit agricultural university and have a discussion with experts about the problem.

Teacher gives necessary help in the form of suggestions, asks questions to maintain the interest of students. Teacher fades the support when the students are able to locate the right resources and information.

**Scaffolding**

Teacher gives necessary help to students or helps to complete that part of the task that could not yet manage by students. Teacher helps them to form groups
and encourage them to prepare interview schedules for agricultural officers, farmers and other experts. Teacher gives necessary help, feedback, and suggestions to the students while preparing interview schedule and questionnaires, collecting information and pictures and assemble it into an album and then gradually fade the support.

**Articulation**

Teacher encourages students to share how they collected information from primary and secondary sources, the difficulties encountered while collecting information, what are the problem solving strategies involved etc., and ask to exhibit their work in the class.

**Reflection**

Students compare the way they collected information from various sources, rare pictures and the catching news from newspaper and how they organized it. During this process they get a chance to revisit what they have done, what are the strategies they adopted and how to refine their own work into an attractive way. They reflect on their work and modifies it.

**Exploration**

In this stage, the students compile the album and make it more attractive by including more pictures and emphasizing the need and importance of conserving water. They can present it in a creative and comprehensive way. They can draw pictures and flow charts to convey their idea. They can use maps to show the places which is prone to the draught severely. They are encouraged to incorporate rare pictures and the traditional and modern methods of water conservation to make it into a comprehensive one.

(It is good when the presentation contain the different activities to conserve water and the suggestions and ideas of students to conserve water.)
Activity 5

Brain Storming

Teacher describes the incident in plachymada. The Coca-Cola factory injudiciously exploiting the water resources, polluting the environment and people suffer from extreme water scarcity. All the ground water resources are exploited and the effluents discharged from factory create pollution.

Teacher gives the theme to the students for brainstorm in the class.

Theme: How to save the village from the hazardous condition imposed by the coca-cola factory. Guide lines are given to the students

Guide lines

- Select group facilitator and recorder
- The students are given fixed time to think over or storm their brain (20 minutes)
- Record and display all the ideas exactly as they have been stated.
- Eliminate duplication of ideas.
- When time is up, evaluate each idea with some criteria, like whether it is feasible? Is it solve the problem?
- Select the best ideas

Activity 6

Role Play: Life after 50 years……

Teacher gives the students an imaginary situation, which may be a reality in the coming future. Students are asked to enact the situation.

Theme: You have enough money but there is no good water to drink and pure air to breathe. Enact the role play giving the message to sustain the water sources and to control air pollution.

The objectives of the role-play are fixed.

- To know the role of natural resources for peaceful living
- To create an awareness about the necessity to protect the natural resources from depletion

One example is given below. The students are free to select any other interesting theme to play.
**Different roles of play**

Shop keepers, customers, Farmer -

*Background:* A market, in which people are busy in selling things. There are three shops, in which one shop is selling drinking water; other shop sells water for general purpose. Another shop sells oxygen to people.

One thirsty man gives a 500/- rupees to the shop keeper for a bottle of drinking water. The shop keeper stares at him and sprinkles some water on his face and says that 500/- costs this much water and shows him a price list. One bottle drinking water costs Rs 5000/- and one glass water Rs 1500/-. He agrees and gave Rs 1500/- and bought one glass of water and drank it within no time.

There is a long queue in the Oxygen selling shop where and people struggles for getting oxygen cylinders. All people wear masks for protecting themselves from poisonous gases. Everywhere is robbery and people’s life became a fuzz. People became robbers in order to get the basic factors of life. Finally a poor farmer from a village, far from the town, gives trees to everyone. They plant trees every nook and corner where they get mud. Then conditions became far better. The trees work as scrubbers, absorb the toxic gases and release oxygen to the atmosphere. The poisonous gases in the atmosphere get reduced and started raining in the city. Gradually the atmosphere of the town changed and it became a better place to live in.

**Design stage**

Students choose a situation that high lights the theme. Teacher can give necessary help to students. Different roles are identified such as Shop keepers, customers, Farmer etc. Select students and time is given to familiarize roles. Script is written and plans the structure of the role play.

**Implementation stage**

In this stage, the students are given the chance to familiarize the roles and how to interact with others. The students act out the play.

**Evaluation**

Students discuss the issues prominent in the role play, the skills developed through role play. Students are asked to submit a report about the role play.
Session 5
Water Scarcity

Objectives

To promote life skills among students
To find out the causes and effects of water scarcity

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Saving a village</td>
<td>Brainstorming</td>
<td>Colour charts, Markers, Flip chart</td>
<td>45 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Animals facing a crisis</td>
<td>Role play</td>
<td>Sketches, Colour markers, chart</td>
<td>25 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management</td>
</tr>
<tr>
<td>Activity 3</td>
<td>water scarcity</td>
<td>Future’s wheel</td>
<td>Chart, Marker</td>
<td>20 minutes</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
</tbody>
</table>
Activity 1

Brain Storming

Story of a village

Teacher narrates a story about the village. There is a small village and water scarcity is the major problem of this village. Rainy season is of very short duration. Hence agricultural yield was also less. In the mean time, the village is under the firm grip of famine.

Teacher asks the students to brain storm the issue on the following questions

- How to save the village from water scarcity?
- What are the ways to convert it in to a prosperous land?
- What are the long term and short term action to be taken for achieving the goal?

Select group facilitator and recorder. Fix a time limit (25 minutes)

Record and display all the ideas exactly as they have been stated. Eliminate duplication of ideas. When time is up, evaluate each idea with some criteria, like whether the idea can be useful in solving the problem?, is it cost effective?, is it feasible? etc Select the best ideas. Scores can be given to the best ideas and the idea, which get the highest score can solve problem effectively

Activity 2

Role Play

Teacher shows a picture of a forest in which different animals are in a crisis. Teacher asks them to observe picture carefully and imagine what was going on in the minds of animals. The students can make an imaginary story and enact according to their creative thinking. They can also give a good catchy caption for the role play.

Design stage

Select students and time is given to familiarize roles. Script is written by the students and plans the structure of the role play
Implementation stage

In this stage, the students are given the chance to familiarize the roles, how to interact with others and the students act out the play.

Evaluation

Students can discuss the issues prominent in the role play, what was learned from it and the skills developed through role play. Students submit a report about the role play.

Activity 3

Future’s Wheel

Water scarcity

Teacher makes them five groups and gives guidelines for creating future’s wheel.

Guide lines

- Pupils have a central problem, water scarcity, having identifiable causes which consequently roll out into future effects.
- Discuss in groups on the root causes of the water scarcity and steadily identify more causes that lead into the problem.
- Students map out the effects that emanate from the water scarcity.
- Students draw arrows to show the relationship (arrows towards the central problem gives the causes and from the problem is the future effects)

  Teacher discusses the future’s wheel with the whole class after they complete the work.

The future’s wheel diagram has strong visual impact and can enhance understanding of concepts related to water scarcity and provides clear picture of complex nature of the problem.
Session 6

Ozone Depletion, Global Warming & Green House Effect

Objectives:

To equip the students with necessary life skills

To enable the students aware of harmful effects of ozone depletion

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Ozone depletion</td>
<td>Role play</td>
<td>Colour chart marker</td>
<td>45 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Causes and effects of Ozone depletion</td>
<td>Future’s wheel</td>
<td>Chart marker</td>
<td>45 minutes</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Global warming</td>
<td>Cognitive apprenticeship</td>
<td>Power point</td>
<td>45 minutes for discussing the theme. (extra)</td>
<td>Communication skill, interpersonal relationship, decision making, problem solving,</td>
</tr>
<tr>
<td>Activity</td>
<td>Transitory Island</td>
<td>Role play</td>
<td>Duppatta Chart, marker</td>
<td>45 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>----------</td>
<td>------------------</td>
<td>-----------</td>
<td>------------------------</td>
<td>------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Activity 4</td>
<td>Green house effect a necessary evil</td>
<td>Future’s wheel</td>
<td>A4 size paper Chart sketches</td>
<td>20 minutes</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
</tbody>
</table>

**Activity 1**

**Role Play**

The objectives of the role-play are fixed.

- To know the causes and effects of anthropogenic ozone depletion
- To create an awareness about the importance of natural resources

Teacher divides the class into two groups and gives a theme to role play.

**Theme**: ozone depletion

**Design stage**

Students choose a situation from reality that highlights the theme. Teacher can give necessary help to students. Different roles are identified such as Sun, Ultra violet rays, Earth, Ozone layer and General public.
Select students and time is given to familiarize roles. Script is written and plans the structure of the role play.

**Implementation stage**

In this stage, the students are given the chance of familiarizing the roles and to interact with others. The students act out the play. The students are free to select any other interesting theme to play. One example is given below

**Background**: Ultra violet rays want to destroy earth, but ozone layer prevents it and saves earth. In the mean time, people in the village engage in different hazardous activities. One man burns plastics, some use aerosols etc.

All these activities produce gases which are harmful to ozone layer and adversely affect it by making holes on it. Next time the UV rays come to destroy earth and people. At this moment, the ozone layer can not prevent it and UV rays reaches earth and kills people.

**Script**

**UV rays**: I want to destroy the earth. I want to kill all organisms

**Ozone**: No don’t do that. It’s a beautiful place I won’t allow you to enter there.

(Ozone layer prevents the UV rays and saves earth.)

In the mean time, Due to harmful activities of man ozone layer become weak.

**Man**: I will burn the plastics

**Another person**: I will use these aerosols.

All these produce gases toxic to ozone layer.

**Ozone layer**: Oh.God… I can’t bear these gases. It will destroy me…Help me ….

**UV rays**: Ha…Ha… This is the right time to destroy the earth. I want to kill the people.

At this time ozone layer become helpless and UV rays reach earth and kills the people.
Evaluation

Students discuss the issues prominent in the role play, what was learned from it and the skills developed through role play. Students submit a report about the role play.

Activity 2
Future’s Wheel

Theme: Effect of Ozone depletion

Teacher makes them in to groups and gives the guide lines for creating future’s wheel

Guide lines

- Students are given the central problem, Ozone depletion, having identifiable causes which consequently roll out in to future effects.
- Brain storm in either groups or as a class on the root causes of the ozone depletion and steadily identify more causes that lead in to the problem.
- Pupil should map out the effects that emanate from the ozone depletion.
- Pupil should draw arrows to show the relationship (arrows towards the central problem gives the causes and from the problem is the future effects)

Teacher discusses the future’s wheel with the whole class after they complete the work.

The future’s wheel diagram has strong visual impact and can enhance understanding of concepts related to ozone depletion and provides clear picture of complex nature of the problem.
Example: Ozone depletion

Activity 3
Cognitive Apprenticeship
Theme: Global warming
Modeling

Teacher divides the class into groups and discusses about the causes and effects of global warming. She encourages them to make a presentation about global warming. She gives the guidelines and qualities of a good presentation. (e.g., good presentation should have logical organization of content, apt pictures, good coverage of the problem and real life examples).
Teacher shows a power point presentation about global warming. Teacher describes and demonstrates the steps involved in the preparation of power point presentation slides. Teacher explains how to get the necessary information regarding global warming and how to insert pictures and organize the content. She gives guidelines to collect information and to prepare slides. She gives important books, and magazines related to environmental education and the names of authentic websites. She helps them by giving the address of different institutions that emphasize on environmental issues.

**Coaching and Scaffolding**

Teacher helps the students in locating the resources. She checks the websites and the information they have collected for its authenticity. Teacher encourages the students for preparing slides and observes how they prepare slides, organize the information and insert pictures in slides. Teacher extends help whenever necessary and then fades the support when pupil are able to do their own.

**Articulation**

Teacher encourages the student to explain the steps taken for preparing power point presentation. Students present their work and discusses the method they adopted for collecting and organizing information, preparation of slides, and shares the problem solving strategies involved.

**Reflection**

Students compare their presentation with others and with that of teachers and reflect on it. They understand the short comings, rectify and refine it wherever necessary and make their presentation better one by inserting pictures and including necessary information.
Exploration

In this stage, they prepare a final presentation by including all the details and insights they have got in various stages. They can include animation, hyperlink, pictures, rare photos, maps for making it an effective one.

The presentation should be made creative by starting with an incident caused by global warming or explain about the future consequences due to global warming. They can focus on the themes of cover stories in magazines about global warming or they can take future consequences that might happen after 10 or 15 years, like submerging of the low lying areas, islands etc., their stories focusing on the uncertainty of life of people in these areas. (Example: They can mention about the island ‘TUVALU’. The size of the island is decreasing due to rise in the sea level and scientists predicted that the island will be submerged under water within a maximum of fifteen years). Pupils are encouraged to collect such incidents that will catch the attention of others.

Activity 4

Role Play

Teacher divides the students into two groups. They are given a theme to enact.

Theme: Transitory Island

The objectives of the role-play are fixed.

- To know the causes and effects of global warming

To create an awareness of human activities that cause imbalance in nature

Design stage

Students choose a situation that highlights the theme. Teacher can give necessary help to students. Different roles are selected (such as Citizens in island, Temperature, Glaciers and sea). Select students and time is given to familiarize roles. Script is written by the students and plans the structure of the role play.
**Implementation stage**

In this stage, students are given time to think over the theme, what are the different roles, who will play the roles etc. They are given chance to familiarize the roles and how to interact with others and the students act out the play. One example is given below. The students are free to take any other interesting situation according to their creativity.

**Role play ---- Transitory island**

**Background**: A beautiful island, where people live happily. All are environment friendly. But some people are doing harmful activities that cause imbalance in nature. Due to their activities green house gases are produced (CO2, Methane, CFCs, NO). These gases trap temperature and warm the earth. The increase in temperature causes glaciers to melt and rises the sea level causing flood. Finally, it submerges the island and other low lying lands.

**Evaluation**

Students discuss the issues prominent in the role play, what was learned from it and the skills developed through role play. Students submit a report about the role play.

**Activity 5**

**Future’s Wheel**

Teacher divides the students into three groups and give each group a topic to discuss.

“Green house effect is a necessary evil.”

They are asked to list out the causes and effects of the problem and present it in the form of graphs.

Guidelines are given to the students

**Guidelines**

- Students have the problem green house effect in hand and trace out the causes which consequently roll out in to future effects.
• The pupils discuss in either groups or as a class on the root causes of the green house effect and steadily identify more causes that lead in to the problem.

• Students map out the effects that emanate from the green house effect. They can represent it in the form of primary effects, secondary and tertiary effects.

• Students draw arrows to show the relationship (arrows towards the central problem gives the causes and from the problem is the future effects)

  Teacher discusses the future’s wheel with the whole class after they complete the work.

  The future’s wheel diagram has strong visual impact and can enhance understanding of concepts related to radiation pollution and provides clear picture of complex nature of the problem.

  They are asked to examine this statement and list out what happens when there is no green house effect.

  During consolidation, teacher can conclude that, to an extent green house effect is necessary for the well being of all organisms. Without this phenomenon, the earth becomes a planet without life.
Objectives

To develop life skills

To raise concern about the harmful effects of deforestation & soil pollution

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Mass destruction of forests and its consequences</td>
<td>Role play</td>
<td>Marker Paper Picture (tree)</td>
<td>45 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Sand mining – a boon or bane</td>
<td>Debate</td>
<td>Chart, marker</td>
<td>45 minutes</td>
<td>Decision making, problem solving, critical thinking, communication skill and stress management.</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Land is a valuable, but fast depleting resource</td>
<td>Role play</td>
<td>Chartmaker</td>
<td>45 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management.</td>
</tr>
</tbody>
</table>
Activity 1
Role Play

Teacher organizes the students to three groups and gives a theme to enact

**Theme**: Mass destruction of forests and its consequences

The objectives of the role-play are fixed.

- To create an awareness of human activities that cause imbalance in nature.
- To know the importance of trees in maintaining the balance of nature

**Design stage**

Students choose a situation from reality that highlights the theme. Teacher gives necessary help to students. Different roles are identified such as JCB driver, Industrial magnets and People in the village. Select students and time is given to familiarize roles. Script is written by the students and plans the structure of the role play

**Implementation stage**

In this stage, the students are given the chance to familiarize the roles and how to interact with others. The students act out the play.

One example is given below. The students are free to select any other interesting theme to play.

Role play ---- Mass destruction of forests and its consequences

**Background**: A beautiful place having numerous trees. The industrial magnets from the metropolitan city wants to carry out their big project in this place. They cut down all the trees and made big multistoried buildings and convert it into a concrete forest. It caused imbalances in nature like, Water scarcity, famine, low agricultural production, want of fresh air and water etc. At last the village perishes due to injudicious exploitation of natural resources.
Evaluation

Students discuss the issues prominent in the role play, what was learned from it and the skills developed through role play. Students submit a report about the role play.

Activity 2

Debate

Teacher divides the class into two groups and gives the theme to debate

**Theme**: “Sand mining is a Boon or Bane?”

Guide lines are given to the students

**Guide lines**

- Ask the students to form two teams; one will be in favour of the theme and other against it.
- Students in the two group select their speakers for the debate.
- The teacher should chair the debate and take up a neutral position during the debate.
- The speaker should stand in front of the main group and present their views in turn, alternating between the teams
- When arguments have been presented from both sides, the chair person should sum up the points made by the students during the debate and add points that may not have been covered by the speakers.
- At last questions are invited from the audience.

Activity 3

Role Play

Teacher organizes the students into three groups and gives a topic to them.

**Topic**: “Land is a valuable, but fast depleting resource.”

Objectives of particular role play are given below

- To inculcate the value of preserving environment
- To understand the inseparable nature of man and environment
**Design stage**

Students are asked to choose a situation from reality that highlights the theme. Teacher can give necessary help to students. Students are selected and time is given to familiarize roles. Script is written by the students and plans the structure of the role play.

**Implementation stage**

In this stage, the students are given the chance to familiarize the roles and how to interact with others. And the students act out the play. The students are free to select any other interesting theme to play.

**Evaluation**

Students discuss the issues prominent in the role play, what was learned from it and the skills developed through role play. They submit a report about the role play.
Session 8  
Noise pollution

Objectives
To instill life skills among students
To get acquainted with the harmful effects of noise pollution

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Sources of noise pollution</td>
<td>Brain storm</td>
<td>Chart, marker pen Tree chart</td>
<td>45 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Effect of noise pollution on health</td>
<td>Future’s wheel</td>
<td>A4 size paper marker</td>
<td>20 minutes</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 3</td>
<td>How sound(noise) is related to health</td>
<td>Brain storm</td>
<td>A4 size paper marker</td>
<td>25 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
</tbody>
</table>
Activity 1

Brain Storming

Teacher gives a theme for brain storming

Theme: Sources of noise pollution in your school environment.

Teacher selects group facilitator and recorder and fixes a time limit (25 minutes)

- Record and display all the ideas exactly as they have been stated.
- Eliminate duplication of ideas.
- When time is up, evaluate each idea.
- Select the best ideas

Scores can be given to the best ideas, and the idea, which gets the highest score, can solve the problem effectively.

Activity 2

Future’s Wheel

Teacher divides the class into two groups and gives the theme to discuss.

Theme: Noise pollution and Health

- Pupils have a central problem, noise pollution, having identifiable causes which consequently roll out into future effects.
- Discuss in groups on the root causes of the noise pollution and steadily identify more causes that lead into the problem.
- Students map out the effects that emanate from the noise pollution.
- Students draw arrows to show the relationship (arrows towards the central problem give the causes and from the problem is the future effects).

Activity 3

Brain Storming

Teacher arranges the students into four groups and gives a theme to brainstorm

Theme: How sound (noise) is related to stress.

Teacher selects group facilitator and recorder and fixes a time limit for brainstorm.
1. Ensure that no one criticizes or evaluates ideas during the session.
2. Encourage an enthusiastic, uncritical attitude among members of the group.
   Stimulate participants to give their ideas.
3. Encourage people to develop other people's ideas, or to use other ideas to
   create new ones.
4. Record and display all the ideas exactly as they have been stated.
5. Eliminate duplication of ideas.
6. When time is up, evaluate each idea.

   During consolidation, teacher can focus the relationship between sound and
stress. It may happen to be a source of stress and also a remedy for it. When the
sound become unbearable, it affects normal functioning of body, increases blood
pressure, heart beat etc and become a source of stress. Whereas when we listen to
a music, it helps to reduce the stress. Teacher can point out the music therapy or
any other interesting incidents to highlight it.
# Session 9
## Solid Waste

### Objectives
- To enhance life skills
- To understand the different ways of solid waste management

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Using plastic effectively</td>
<td>Brainstorming</td>
<td>Chart, marker pen</td>
<td>20 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Recycling can save environment</td>
<td>Concept mapping</td>
<td>A4 size paper Chart sketches</td>
<td>20 minutes</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>Activity 3</td>
<td>An incident in Manu’s life</td>
<td>Role play</td>
<td>Chart marker</td>
<td>30 minutes</td>
<td>Empathy, interpersonal relationship, self awareness, communication skill and stress management</td>
</tr>
<tr>
<td>Activity</td>
<td>Plastic: uses &amp; disadvantages</td>
<td>Concept mapping</td>
<td>Chart, sketches</td>
<td>45 minutes</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Activity</td>
<td>Municipality dumping waste to fertile land</td>
<td>Brain storming</td>
<td>A4 size paper pen</td>
<td>25 minutes</td>
<td>Self awareness, empathy, communication skill, problem solving skill and interpersonal relationships</td>
</tr>
<tr>
<td>Activity</td>
<td>e-waste management</td>
<td>Concept mapping</td>
<td></td>
<td></td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
</tbody>
</table>

**Activity 1**

**Brain Storming**

Teacher arranges the students to facilitate brainstorm session.

**Theme:** Using plastic effectively

- Teacher defines the problem or issue as a creative challenge (teacher encourages the students to think about the consequences of plastics and ask a remedy for the accumulating plastic waste. One remedy is to use the plastics effectively and save environment).
- Teacher selects group facilitator and recorder
- The students are given fixed time to think over the theme (20 minutes).
- Teacher encourages the students to give their ideas. This can be done in a structured manner where each student is asked to contribute ideas or alternately students can freely callout their ideas.
- Record and display all the ideas exactly as they have been stated.
Eliminate duplication of ideas.

At last, evaluation of ideas takes place, for example, whether it is feasible? Is it harm the environment? Whether cost effective? etc.

Select the best ideas

One example is given here

**Theme** : How can tires be used beneficially

- It can be used as flower pot
- As dividers in the road.

Plastics: How can plastics are used beneficially

- It can be used for making rope.
- As raw material for road tarring/construction
- This activity stimulates students to reuse plastics and make them conscious that recycling and reuse minimize pollution.

**Activity 2**

**Concept Mapping**

Teacher gives a topic to students. They have to critically analyze the statement and prepare concept map based on the given theme by collecting materials from books, magazines, newspaper etc.

**Topic:** Recycling can save environment

**Steps**

- Teacher arranges the student into five groups of five members each. Select one leader from each group. Students are given sufficient time to think over the theme.
- Ask to construct good focus question relating to the study material. Focus question clearly specifies the problem or issue, the concept map should have to resolve.
- List out key concepts.
- Select most important/inclusive concepts among them.
The most inclusive/super ordinate concepts are placed at the top. The most general concepts are listed next, until all concepts in the lesson are rank ordered.

Find out good linking words to form propositions shown by lines on the map.

Concepts from different domains are connected by cross links.

Construct preliminary map and revise it for clarity.

<table>
<thead>
<tr>
<th>Recycled paper saves 60% energy Vs virgin paper.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycled paper generates 95% less air pollution, each ton saves 60lbs of air pollution</td>
</tr>
<tr>
<td>Recycling of each ton of paper saves 17 trees and 7000 gallons of water.</td>
</tr>
</tbody>
</table>

Activity 3
Role Play

Teacher gives a real life situation to the students

Manu is living in a city. He is environment friendly and live in accordance with the environment. One day he saw a foul smelling garbage in front of the house. The same is repeated in the other day also. What will be his reaction at that time?

The students are asked analyse and enact how Manu will react to the situation.

Does this incident shows Manu is eco friendly?

Activity 4

Concept Mapping

Teacher selects the students into five groups and gives the theme for concept mapping.

Theme: Plastics
Students are given sufficient time to think over the theme. Students are asked to go through the study material provided by the teacher and list out the most inclusive and general concepts and graphically represent it in the form of graphs.

Teacher gives the guide lines.

Guide lines

- Arrange the student into five groups. Select one leader from each group.
- Ask to construct good focus question relating to the theme plastics. Focus question clearly specifies the problem or issue, the concept map should have to resolve. For example: How plastics are related to our life?
- List out key concepts.
- Select most important/inclusive concepts among them.
- The most inclusive/super ordinate concepts are placed at the top. The most general concepts are listed next, until all concepts in the lesson are rank ordered. The concepts should include uses of plastics, disadvantages and our daily use of it. Give more concentration to our daily use of plastics. Prepare a big list of this and think how we can avoid plastics

For example we can use jute bags to carry vegetables instead of plastic bag.

- Find out good linking words to form propositions shown by lines on the map.
- Concepts from different domains are connected by cross links.
- Construct preliminary map and revise it
Activity 5

Brain Storming

- Teacher divides the class into three groups and gives the theme for brainstorming. The students are asked to analyse the situation
- Theme: How waste management can be done effectively?
- Teacher asks the student to brainstorm on “How waste management can be done effectively?

Teacher gives guide lines to the students
- Select group facilitator and recorder
- Fix a time limit
- Ensure that no one criticizes or evaluates ideas during the session.
- Encourage an enthusiastic, uncritical attitude among members of the group.
- Encourage people to develop other people's ideas, or to use other ideas to create new ones.
• Record and display all the ideas exactly as they have been stated.
• Eliminate duplication of ideas. When time is up, evaluate each idea with some criteria, like whether the idea can be useful in solving the problem, is it cost effective etc.,
• Select the best ideas. Scores can be given to the best ideas and the idea, which get the highest score can solve problem effectively

**Activity 6**  
**Concept Mapping**

**Topic**: e-waste management.

Teacher selects the students into five groups and gives the theme for concept mapping.

**Topic**: e-waste management

Students are given sufficient time to think over the theme. Students are asked to go through the study material provided by the teacher and list out the most inclusive and general concepts and graphically represent it in the form of graphs.

Teacher gives the guidelines.

**Guide lines**

- Arrange the student into five groups. Select one leader from each group.
- Ask to construct good focus question relating to the theme plastics. Focus question clearly specifies the problem or issue, the concept map should have to resolve.
- List out key concepts.
- Select most important/inclusive concepts among them.
- The most inclusive/super ordinate concepts are placed at the top. The most general concepts are listed next, until all concepts in the lesson are rank ordered. Find out good linking words to form propositions shown
## Objectives

To endorse life skills

To understand the harmful effects of radioactive pollution

<table>
<thead>
<tr>
<th>Activity no</th>
<th>Topic</th>
<th>Pedagogic strategies used</th>
<th>Learning materials</th>
<th>Time</th>
<th>Life skills developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>A world with peace</td>
<td>Future’s wheel</td>
<td>Flip chart</td>
<td>45 minutes</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Radiation Pollution: Causes and Effects</td>
<td>Futures wheel</td>
<td>Charts Markers</td>
<td>45 minutes</td>
<td>Critical thinking, creative thinking, problem solving and interpersonal relationship</td>
</tr>
<tr>
<td>Activity 3</td>
<td>Radiation fall out and health hazards</td>
<td>Concept mapping</td>
<td>Chart sketches</td>
<td>45 minutes</td>
<td>Critical thinking, creative thinking, problem solving and decision making</td>
</tr>
<tr>
<td>Activity 4</td>
<td>Mobiles : Is it a boon or bane</td>
<td>Debate</td>
<td>Chart sketches</td>
<td>45 minutes</td>
<td>Decision making, problem solving, critical thinking, communication skill and stress management</td>
</tr>
</tbody>
</table>

168
Activity 1

Future’s Wheel

Teacher narrates the incident of nuclear bomb attack on Hiroshima and Nagasaki. Teacher describes the tragedy and its consequences on people and environment. No one can determine the destruction caused by the bombs. According to most estimates, the immediate effects of the blast of the bombing of Hiroshima killed approximately 70,000 people. Estimates of total deaths by the end of 1945 from burns, radiation and related disease, the effects of which were aggravated by lack of medical resources, range from 90,000 to 140,000. Some estimates state up to 200,000 had died by 1950, due to cancer and other long-term effects. From 1950 to 1990, roughly 9% of the cancer and leukemia deaths among bomb survivors were due to radiation from the bombs.

Teacher divides the students into three groups and give each group a topic to discuss.

**Topic**: Atomic Bombing and its effect

They are asked to list out the causes and effects of the problem and present it in the form of graphs.

Guidelines are given to the students

- Pupil has a central problem in hand and consequently roll out in to future effects.
- Pupil should map out the effects that emanate from the atomic bomb blast. They can represent it in the form of primary effects, secondary and tertiary effects.

Teacher discusses the future’s wheel with the whole class after they complete the work.

The primary, secondary and tertiary effects on Man and nature develop empathy in them.
Activity: 2

Concept Mapping

Teacher arranges the students to four groups and gives the theme for concept mapping

**Theme**: Radiation fall out and health hazards

Guidelines are given to the students

- Teacher arranges the student into four groups of five members each. Select one leader from each group. Students are given sufficient time to think over the theme.
- Ask to construct good focus question relating to the study material. Focus question clearly specifies the problem or issue, the concept map should have to resolve. For example: In what way the radiation fall out in the atmosphere affects human being
- List out key concepts.
- Select most important/inclusive concepts among them.
- The most inclusive/super ordinate concepts are placed at the top. The most general concepts are listed next, until all concepts in the lesson are rank ordered.
- Find out good linking words to form propositions shown by lines on the map.
- Concepts from different domains are connected by cross links.
- Construct preliminary map and revise it for clarity.

   Concept map of Radiation fallout and health hazards
Activity 3

Debate

Teacher divides the class into two groups and gives the theme to debate

**Theme**: Mobiles: Is it a boon or bane

Guide lines are given to the students

- Ask the students to form two teams, one group will be in favour of mobile phone/cell phone and other group against it.
- Students in their group select their speakers
• The teacher should chair the debate and take up a neutral position during the debate.

• The speaker should stand in front of the main group and present their views in turn, alternating between the teams.

When arguments have been presented from both sides, the chair person should sum up the ideas made by the students and incorporate the points that may not have been covered by the speakers. Teacher can shed light on the health hazards of mobile phone Viz., brain cell damage, brain tumor, ear tumor, genetic defect, and sleeplessness, stress, high blood pressure etc and ways to reduce its uses. (because now a days mobile phones are used for communication, listening music, accessing internet and it became a symbol of social status).

The debate should disclose the health risks due to the rapidly increasing mobile towers, and the fact that it is better to live 5km away from the tower and also suggestions like to share the towers by companies instead of using individual tower.

Activity 4

Future’s Wheel

Teacher divides the students into three groups and give each group a topic to discuss.

They are asked to list out the causes and effects of the problem and present it in the form of graphs.

Theme: Radiation Pollution: Causes and Effects

Guidelines are given to the students

• Pupil has a central problem in hand for example-radiation pollution, having identifiable causes which consequently roll out in to future effects.

• The pupils brain storm in either groups or as a class on the root causes of the radiation pollution and steadily identify more causes that lead in to the problem.

• Pupil should map out the effects that emanate from the radiation pollution. They can represent it in the form of primary effects, secondary and tertiary effects.
• Pupil should draw arrows to show the relationship (arrows towards the central problem gives the causes and from the problem is the future effects)

**Step 4**

Teacher discusses the future’s wheel with the whole class after they complete the work.

The future’s wheel diagram has strong visual impact and can enhance understanding of concepts related to radiation pollution and provides clear picture of complex nature of the problem.