

**VOCATIONAL HIGHER SECONDARY  
FIRST YEAR**

**GENERAL FOUNDATION COURSE**  
**Teachers' SourceBook**



**Government of Kerala  
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**State Council of Educational Research & Training (SCERT)**

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## **Preface**

*Dear Teachers,*

*Activity based and learner centered pedagogy is being introduced in the Vocational Higher Secondary Classes. It becomes imperative to make significant changes in the learning process as well as in the evaluation system for its successful implementation.*

*As far as the discipline General Foundation Course is concerned, its methodology of learning is generally activity based. This unique feature of the subject itself will enthuse the teachers to pass through different activities for the transaction of the concepts.*

*This sourcebook has been designed in such a way to help the teachers to convey the concepts through different but relevant processes.*

*For the preparation of the sourcebook the SCERT Kerala has drawn expertise from the field of education and from the Vocational Higher Secondary teachers. While going through the contents the teacher can understand that this book provides proper guidance and opportunities for planning the activities needed for the transaction of the curriculum.*

*May I hope that our concerted efforts will make an upsurge in the field of education.*

*With regards,*

*Thiruvananthapuram  
25.11.2005*

**Dr E. Valsala Kumar**  
**Director**  
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# APPROACH

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## **Introduction**

The ultimate aim of education is human refinement. Education should enable the learner to formulate a positive outlook towards life and to accept a stand which suits the well being of the society and the individual as well.

The attitude and potential to ‘to work’ has determined the destiny, progress and cultural development of the human race. As we all are aware, the objective of education to form a society and individuals having a positive work culture. The educational process expected in and outside our formal schools should concentrate upon inculcating concepts, abilities, attitudes and values in tune with these ‘work culture.’ Hence vocationalised education cannot be isolated from the main stream of education. In another sense, every educational process should be vocationalised. However, due to our inability to utilise the resources wisely, scarcity of job opportunities is a severe issue of the present society. For overcoming this deep crisis, emergent techniques have to be sorted out and appropriate researches have to be seriously carried out. It is in the sense that the content and methodology of vocational Higher Secondary Education have to be approached.

The Vocational Higher Secondary course was envisaged as a part of the National Policy on Education with the noble idea of securing a job along with education. The relevance of Vocational education is very great in this age of un employment. This education system, which ensures a job along with higher education, stands aloof from other systems of education.

A learning environment which ensures vocational aptitude, vocational training, basic life skills, competencies related to different subjects, appropriate values and attitudes and existential readiness has to be provided here.

The curriculum should be one which recognises the specific personality of the learner and should develop it in a desirable way. It should provide opportunity to imbibe novel ideas to follow a critical approach and for learning through experiences.

The competency to transform one's own resources for the betterment of the society and the individual is to be ensured in each individual. Training in the sense of equality, democratic sense, environmental consciousness and devotion to the constitution is an inseparable factor of the curriculum.

The need of a systematic curriculum is prevailing in vocational subjects. A scientifically structured curriculum incorporating the unique features peculiarity of Kerala ensuring the possibility of higher education and utilising the national and international possibilities of employment is required.

The new curriculum should be capable of assimilating the life skills, scientific temper, attitude of co-existence, leadership qualities and mental health to face the challenges of life. It should be capable of strengthening the competencies imbibed by the learners up to the tenth class.

A curriculum for selecting vocational areas according to the aptitude of the students, learning it in depth, acquire general awareness in the basic areas and to secure jobs has become the social need of the day. A learner centred, process oriented, need based vocational curriculum is envisaged.

### **What is learning?**

- Learning is construction of knowledge and so it is a live and continuous mental process.
- Learning is a process of advancement through adding and correcting in the light of comparing the new issue with the previously learned concepts.
- Learning takes place as a part of the effort to solve problems.
- Learning takes place by assimilating bits of knowledge into one's own cognitive structure.
- Learning is not a linear process. It is a spiral process growing deeper and wider.
- Learning is an intellectual process rather than the mere memorisation of facts. Learning is a conglomeration of a variety of activities like problem analysis, elucidation, critical thinking, rational thinking, finding out co-relations, prediction, arriving at conclusions, applications, grouping for other possibilities and extracting the crux. When opportunities are provided for intellectual processes learning will become effective and intellectual ability will get strengthened.

### **Theoretical foundations of learning**

Education is the best device that can be adopted for creation of a new society. It should be democratic in content and process and should acknowledge the rights of the learner. It should also provide opportunity for better citizenship training. The concept of equality at all areas should get recognition in theory and practice.

There should be a conscious programme of action to develop nationality, humanness and love and against the encroachment of the sectarianism of caste and religion.

The learner should be able to take firm steps and deferred against the social crisis like privatisation, liberalisation, globalisation etc and against all kinds of dominations.

They should develop a discrimination to use the acquired learning as a liberative weapon.

They should be able to view education and life with the perspective of social well being.

They should get opportunity to recognise that co-operation is better than competition and that co-operation is the key to social life and culture.

A basic awareness of all the subjects needed for life essential for all students.

The remnants of perspectives formed in us during the colonial period still influence our educational philosophy. The solution to the present day perplexities of the society which approaches education on the basis of competitions and marketisation is only a comprehensive view of life.

It is high time that education was recognised on the basis of the philosophy of human education. The human approach to education has to reflect in its content, learning process and outlook. The perspective of 'learning to be ' and learning to live together as expressed by the UNESCO and the concepts of existentialist intelligence interpersonal and interpersonal intelligence.

The basis of new approaches on curriculum, teaching- learning process are derived from the developments place in the east and west of the world.

When we begin to see the learner at the centre of the learning process, the teaching process has to be changed timely. It is the result of the rapid growth and development of Science and Technology and Pedagogy. If we want to undergo the changing process, we have to imbibe the modern hypothesis regarding learner, they have;

- Great curiosity
- Good imagination
- Numerous other qualities and interests
- Independent individuality
- Interest in free thinking and working in a fearless atmosphere.
- Have interest in enquiring and questioning.
- Ability to reach conclusions after logical thinking.
- ability for manifest and establish freely the conclusions arrived at.
- Interest for recognition in the society.
- Determination to face the interference of society and make components which is a part of social life.
-

When we consider the learning system, the domains to be stressed in education according to the modern development becomes relevant.

The *knowledge* domain consists of

- Facts
- Ideas
- Laws
- The temporary conclusions and principles used presently by scientists.

The learning is a process. The continuous procedures we undergo to reach a particular goal is process. The skills which are parts of the process to analyses the collected ideas and proofs and come to a conclusion is called *process skills*. Some important *process skills* are,

**the skills;**

- To observe
- To collect data and record
- To classify
- To measure and prepare charts
- To experiment
- To predict
- To recognise and control the variables
- To raise questions
- To generalise
- To form a hypothesis and check.
- To conclude
- To communicate
- To predict and infer
- To use tools.
- 

***Observation** is the process of acquiring knowledge through the senses. It is purely objective oriented. Learning experiences which provide the opportunity to use all the senses may be used.*

*The process of grouping is known as **classifying**. Starting from simple groupings of data, it can extend to the level of classification into minute sub-groups.*

In addition to this, consider the skills related to *creative domain* also, they are skills:

- To visualize
- To connect facts and ideas in new ways
- To find out new and uncommon uses of objects
- To fantasize
- To dream
- To develop creative isolated thoughts
- 

**Creativity** is an essential component of process and activities. The element of creativity is involved in finding out problems, formation of hypothesis, finding 'solutions' to problems etc. Through activity oriented learning experiences, opportunities to express creativity can be created.

Again, the following factors consisting in the *Attitudinal domain* are also important as;

- Self confidence
- Love for scientific knowledge
- Attitude to know and value history
- Respect human emotions
- Decide with reasonable present problems
- Take logical decisions regarding personal values

**'Hypothesis'** is a temporary conclusion drawn using insight. Based on knowledge and experiences relating to the problems the causes and solutions can be guessed.

As regards the *application domain* the important factors are the ability to:

- observe in daily life examples of ideas acquired.
- take the help of scientific process to solve the problems of daily life.
- choose a scientific life style
- connect the ideas acquired with other subjects.
- integrate the subjects with other subjects.

Some basic stands have to be taken on the new scientific knowledge about intelligence learning and teaching. When such basic concepts are accepted changes are required in the following factors.

- The vision, approach, structure and content of the curriculum.
- The vision, approach, structure and content of the textbooks.
- Role of the teacher and the learner.
- Learner atmosphere, learning materials and learning techniques.

Some scientific perspectives accepted by modern world in educational psychology are given below.

### **Constructivism**

This approach puts forward the concept that the learner constructs knowledge. New knowledge is constructed when ideas are examined and practiced in new situations relating them with the previously acquired knowledge and experience. That is assimilated into the cognitive structure of one's knowledge. This method which gives priority to critical thinking and problem solving provides opportunity for self motivated learning.

### **Social Constructivism**

Social constructivism is a sub section of constructivism. Knowledge is formed, spread and imbibed and it becomes relevant in a social environment. Interactive learning, group learning, co-operative participatory learning, all these are concepts put forward by social constructivism.

The main propounders of constructivism are piaget, vygotsky and Bruner.

Discovery learning and interactive learning have prime importance. Learning takes place as a part of the attempt for problem solving. The activities of a learner who confronts cognitive disequilibrium in a learning situation when he tries to overcome it leads to the renewal of cognitive structure. It is through this process construction of new knowledge and the assimilation of them that learning takes place. Observation and enquiry are unavoidable factors. The learner advances towards new areas of acquisition of knowledge where he tries to compare his new findings with the existing conceptions.

Learning is a live mental process. Rather than the ability for memorisation of facts cognitive process has to be given emphasis. The process of problem analysis, elucidation, critical thinking, rational thinking, finding out co-relation, prediction, hypothesis formation, application, probing for other possibilities, extracting the crux and other processes are of critical importance in learning.

Constructivism gives greater predominance to co-operative learning. Social and cultural factors influence learning. Sharing of knowledge and experience among learners, collective enquiry, assessment and improvement, group activity and collaborative learning, by sharing responsibilities with the objective of public activity, provide opportunity for effective learning.

In learning internal motivation is more important than external motivation. The learner should have interest and initiative in learning. Learning situation should be capable of forming a sense of ownership in of the learner regarding the learning process.

Learning is not a linear process. It progresses in a spiralled way advancing deeper and wider.

### **Learner-his nature and features**

The learners in standard XI has undergone a learner centered and process oriented learning experience up to X standard. He is adequately competent to select vocational subjects according to his aptitude and interest and to acquire higher education and profession as he wishes. The aspirations about future life is framed in this particular age foreseeing national and international job oppurtunities. Some of the peculiarities of the learner at this stage are:

- Physical, intellectual an emotional planes are intensive changes during this age and their reflections can be observed.
- Ability to enquire, discover and establish cause-effect relationship between phenomena.
- Readiness to undertake challenges.
- Capacity to shoulder leadership roles.
- Attempt to interprest oneself.
- Susceptibility to different presseures.
- Doubts, anxities and eagerness about sex.
- Longing for social recognition.

### **Needs of the learner**

- To make acquaintance with a job through vocational education.
- To acquire more knowledge in the concerned area through higher education.
- To recognise and encourage the peculiar personality of the later adolescent period.
- To enable him to defend against the unfavourable circumstances without any help

### **Role of the Learner**

- Active participant in the learning process.
- Acts as a researcher
- Sharer of information
- Sharer of responsibilities
- Collects information
- Takes leadership
- Involves in group work

- Acts as a co- participant
- Observes his environment
- Experiments and realises
- Makes interpretations and draws inferences.
- 

### **Role of the Teacher**

The teacher should;

- consider the ‘Stress and strain’ of the teenagers
- understand the socio- economic and cultural background of the students.
- promote and motivate the students to construct knowledge.
- arrange proper situations to interact in and outside of the classroom.
- guide the students by explanations, demonstrations etc.
- promote opportunity for co-operative learning and collaborative learning.
- facilitate interpersonal and intra-personal interactions.
- act as a democratic leader.
- act as a problem solver
- effectively guide the students for the selection and conduct of various continuous evaluation elements.
- continuously evaluate the progress of the learners.
- gives scaffolding/support wherever necessary.
- motivate for learning
- promote divergent thinking.
- act as a democratic group leader.
- act as a co-learner
- gives variety of learning experiences.
- be a constant student
- facilitate for reference/data collection
- have a clear understanding about the age, needs, peculiarities, abilities, nature, aptitude etc. of the learner.
- have the ability to motivate the learner in order to acquire and enrich their knowledge.
- be a guide to the learner in developing insights and creating responses on current affairs.
- be capable to lead the learner into a variety of learning methods and process based on curricular objectives.

- be a link between school and community.
- be a good organiser, guide, friend, philosopher and co-learner.
- have an inter disciplinary approach in learning activities.
- be able to guide the learner in his/her career prospects based on his interest aptitude and ability.
- be impartial and democratic.
- provide ample experiences to attain the basic values and objectives of the curriculum.
- 

## **New Concepts of Learning**

### **1. Discovery Learning-**

The teacher has to create a motivating atmosphere for the learner to discover concepts and facts, instead of listening always. Creating occasion to progress towards discovery is preferred. Instead of telling everything before and compelling to initiate the models, situations are to be created to help the children act models as themselves.

### **2. Learning by discussion**

That discussion leads to learning is Burner's theory. Here discussion is not opposing each other. It is a sharing on the plane of ideas. New ideas are arrived at by seeking explanations, by mutual giving and taking of ideas and by problem solving.

### **3. Problem solving and learning**

Only when the learner feels that some thing is a problem to be solved that he takes the responsibility of learning it. It is an inborn tendency to act to solve a problem that causes cognitive disequilibrium in a particular area. It is also needed to have confidence that one is capable of doing it. The problems are to be presented in consideration of the ability and level of attainment of the learner.

### **4. Collaborative learning**

This is the learning in which the responsibilities are distributed among the members of the group keeping common learning objectives. The common responsibility of the group will be successful only if each member discharges his duties. All the members will reach a stage of sharing the result of learning, equally through the activity with mutual understanding. The teachers who arrange collaborative learning will have to make clear the responsibilities to be discharged. This is possible through the discussion with the learners. Collaborative learning will help to avoid the situations of one person working for the whole group.

## **5. Co-operative learning**

This is the learning in which the learners help one another. Those who have more knowledge, experience and competency, will help others. By this exchange of resources the learners develop a plane of social system in learning also. As there are no high ups and low ones according to status among the learners they can ask the fellow students doubts and for helps without any hesitation or in hesitation Care should be taken not to lead this seeking of help to mechanical copying. It should be on the basis of actual needs. So even while encouraging this exchange of ideas among the members of the group cautions acceptance is to be observed as a convention. There should be an understanding that satisfactory responses should come from each member and that the achievement of the group will be assessed on the basis of the achievement of all the members

## **6 Zone of Proximal Development**

Vygotsky observes that these is a stage of achievement where a learner can reach by himself and another higher zone where he can reach with the help of his teachers and peers and elders. Even though some can fulfil the learning activity by themselves there is the possibility of a higher excellence. If appropriate help is forth covering every learner can better himself.

## **7 Scaffolding**

It is natural that the learner may not be able to complete his work if he does not get support at the proper time. The learner may require the help of the teacher in several learning activities. Here helping means to make the learner complete the activity taking responsibility by himself. The teacher has to keep in mind the objective of enabling the learner to take the responsibility and to make it successful.

## **8 Learning: a live mental process**

Learning is a cognitive process, only a teacher who has an awareness as to what the cognitive process is alone can arrange learning situations to the learner to involve in it. Learning can be made effectively and intellectual sharpness can be improved by giving opportunity for the cognitive processes like reminding, recognising compromising , co- relating, comparing, guessing, summarising and so on. How is cognitive process considered in language learning? Take guessing and prediction for example.

- Guessing the meaning from the context.
- Guessing the content from the heading.
- Predicting the end of the story.
- Guessing the incident, story from the picture.

- Guessing the facts from indications.
- and other such activities can be given the following activities can be given for the cognitive process of summarisation.
- Preparation of blue print.
- Preparation of list.
- Preparation of flow chart.
- Epitomising in one word.
- Giving titles and so on.
- Symbols, performance of characters indications, lines of a poem, tables, pictures, concepts, actions, body language and such things can be given for interpretation. Process based language given for interpretation. Process based language learning has to give prime importance to the cognitive process.

## **9 Internal motivation**

Internal motivation is given more importance than external motivation. The teacher has to arouse the internal motivation of the learner, A person internally motivated like this alone can immerse in learning and own its responsibility. How motivating is each of the activities is to be assessed.

## **10 Multiple intelligence**

The Theory of Multiple Intelligence put forward by Howard Gardener has created a turning point in the field of education. The National curriculum document has recommended that the curriculum is to be designed taking into consideration of this theory.

Main factors of the intellect :

### **1. Verbal/linguistic Intelligence -**

Ability to read and write, making linguistic creations , ability to lecture competence effective a communication , all these come under this . This can be developed by engaging in language games and by teaching others.

### **2. Logical /mathematical Intelligence**

Thinking rationally with causes and effect relation and finding out patterns and relations come under this area, finding out relations and explaining things sequential and arithmetical calculations are capable of developing this area of intelligence.

### **3. Visual /spatial Intelligence**

In those who are able to visualise models and bringing what is in the imagination into visual form

and in philosophers, designers and sculptors this area of intelligence is developed. The activities like modelling using clay and pulp, making of art equipments, sculpture, and giving illustrations to stories can help the development of this ability.

#### **4 Bodily Kinaesthetic Intelligence**

The activities using body language come under this. This area of intelligence is more developed in dancers and actors who are able to express ideas through body movements and in experts in sports, gymnastics etc.

#### **5 Musical Intelligence**

This is an area of intelligence which is highly developed in those who are able to recognise the different elements of music in musicians and in those who can hear and enjoy songs. Playing musical instruments, initiating the songs of musicians, listening silently to the rhythms and activities like this are capable of developing this area of intelligence.

#### **6 Interpersonal Intelligence**

Those in whom this area of intelligence is developed show qualities of leadership and behave with others in a noble manner. They are capable of understanding the thought of others and carrying on activities like discussion successfully.

#### **7 Intrapersonal Intelligence**

This is the ability to understand oneself. These people can recognise their own abilities and disabilities. Writing diaries truthfully and in an analysing way and assessing the ideas and activities of others will help developing this areas of intelligence

#### **8 Naturalistic Intelligence**

A great interest in the flora and fauna of the nature, love towards fellow beings interest in spiritual and natural factors will be capable of developing this area.

#### **9. Existential Intelligence**

The ability to see and distinguish our own existence as a part of the universe, ability to distinguish the meaning and meaninglessness of life, the ability to realise the ultimate nature of mental and physical existences, all these are the peculiarities of this faculty of intelligence.

#### **Emotional Intelligence**

The concept of emotional intelligence put forward by **Daniel Golman** was used in framing the new curriculum. The fact that one's **Emotional Quotient (E.Q)** is the greatest factor affecting success in life is now widely accepted. The teacher who aims to focus on improving the emotional intelligence of students need to concentrate on the following.

***i) Ability to take decisions***

Rather than imposing decision on students while planning and executing activities, the students may be allowed to take part in the decision making process. Taking decisions through open discussion in the class, inviting students suggestions on common problems etc. are habits to be cultivated.

***ii) Ability to reach consensus***

- When different opinions, ideas and positions arise the students may be given the responsibility to reach a consensus.
- Imagining what would be the course of action in some situations, allowing to intervene in a healthy way in problems between individuals.

***iii) Problem solving***

- Developing the idea that there is reason and solution to any problem.
- Training in finding reasons for problems.
- Suggesting solutions through individual or group efforts.
- Discussing social problems.
- Analysing the shortcomings in methods to solve problems.

Whether plastic can be banned within school premises can be given as a problem. Group discussion will provide reasons and solutions. Problems which can influence classroom learning and for which the learner can actively contribute solutions need to be posed.

- Self criticism, evaluation
- Ability to face problem-situation in life
- Thinking what one would do if placed in the situation of others, how one would respond to certain experiences of others - All these foster the growth of emotional intelligence.

***iv) Life skills***

Life skills need to be given a prominent place in education. W.H.O. has listed ten skills required for success in life.

- Self awareness
- Empathy
- Inter personal relations
- Communication
- Critical thinking
- Creative thinking

- Decision making
- Problem solving
- Copying with emotion
- Copying with stress

The new curriculum addresses these areas.

Knowing the characteristics of the learner, role of the teacher and how to use the teachers handbook help the teacher to plan and effectively implement learning activities.

In the vocational Education Programme at the higher secondary stage (+2 level), the environmental Education forms an integral component of the General Foundation course (GFC). The GFC curriculum is a compulsory component for all vocational courses.

As per the national curriculum frame work for school Education (NCERT, 2000), the GFC curriculum consists of Environmental Education and Rural Development for the first year VHSE students. It covers the areas of studies relating to environment, environmental issues and environmental action etc. It also deals with the Rural Development programmes and nodal agencies through which these programmes are implemented.

The goal and objectives of Environmental Education:-

1. To create awareness about the environment among the learners
2. To create interest among the learners about environmental protection and its management.
3. To help understand the concept of sustainable development.
4. To help understand the relationship between environment and development
5. To correct the effects of various global environmental concerns.
6. To help understand various potential of rural development programmes and agencies.
7. To initiate appropriate action to protect and improve the environment.
8. To imbibe values to live in harmony with nature and empathy for all life form and
9. To integrate issues of sustainability in to a range of consumption and livelihood patterns.

# LEARNING STRATEGIES

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## Learning Strategies:-

The approach to learning strategy depends on the basic concepts that the student builds knowledge based on his/her experiences of activities such as Debate, Group Discussions, Brain storming sessions, role playing, skills, mock press, mock parliament, seminar, project, field visit, map based exercises, OHP, LCD projector, Assignments etc.,. The learning strategy selected for each topic should suit the age group and the mental capacity of the learner.

The following are a few transaction strategies through which the learners can construct knowledge to attain various curriculum objectives.

## Project

The project is a self-learning strategy which can exert great influence on the overall development of the learner. While transacting the curriculum, the teacher can pose some problems before the learners, eg. increase in vehicles causes air pollution and sound pollution: is it true? The students may be divided into groups and assigned different aspects of the problem. Each group works independently. Specific aspects of the problem such as data collection, classification, analysis, report preparation and presentation are to be undertaken by each of the members. Even though the work is divided among the members, it must be ensured that the execution of each and every activity is done with the active participation of all. After analysing the data collected from different sources, the learners arrive at conclusions that can help to solve the problem. Thereby, the learner learns the topic through his/her own activity. The other advantage of this learning activity is that it helps the learner to handle any problem scientifically. It helps the development of scientific thinking and thereby builds up the student's aptitude for the subject.

## Stages of a project

1. **Selection of Topic:** The project selected should be related to the curriculum and it should not be a project for the namesake. The topic or problem should arise from the curriculum related discussions in the classroom. The aim of the project should be defined simply and clearly.

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## 2. **Planning of the Project:**

(a) **Hypothesising :** Hypothesising means making assumptions based on the available primary information.

(b) **Methods and Techniques :** The methods and techniques should be based on the aim and hypotheses of the project. The nature of the project, suitability of the tools, and the method of learning should be related to each other.

## 3. **Collection and Tabulation of Data:** The data may be primary/ secondary or both. Either census or sampling method can be used based on the objective of the project. Suitable questionnaires are to be prepared for the collection of primary data.

The collected data is to be classified and tabulated so as to make it easily understandable.

## 4. **Analysis of data and formulation of conclusion:** By analysing the data, the reliability of the hypotheses can be examined. Preparation of graphs, diagrams and maps will positively help the analysis. The similarities, relations and differences gathered from the analysed information would tell whether the hypotheses should be accepted or rejected.

## 5. **Preparation of Report:** The cover page should have the title of the project, the period of study, name(s) of investigator/group, and the address of the school.

The report should be structured in the following order:

1. Title
2. Preface
3. Hypotheses and aim
4. Methodology
5. Sources of data
6. Analysis and conclusion
7. Suggestions (if any)
8. References
9. Appendices (questionnaire, observation schedule, check list etc.)

## 6. **Presentation of the project :** When the project is presented, the learner is being evaluated and accepted. It is through this presentation that the ideas are shared with others in the class and in the society.

The project method promotes scientific self-learning and makes him capable of solving the problems arising in real life situations.

Projects which are related to the curriculum should be attempted for the transaction of the concepts. Insist on the learners to prepare and submit the report. The teacher should evaluate

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the process of the project and the report based on the indicators.

## **Seminar**

Reporting is an integral part of scientific learning. Seminar is a learning strategy for socially significant and relevant contemporary topics related to the curriculum. Here information collected on the particular topic is interpreted and presented before others. It provides opportunities for secondary data collection and helps the learners in developing communication skills. It also helps in personality development and generates an aptitude for the subject.

### **Composition of Seminar**

- The teacher introduces a subject or topic and sub topics will be assigned to groups. Planning for the seminar should be done collectively by the teacher and the learners.
- Discussions on the topic are to be done within the groups.
- Clear information regarding the topic is to be collected from various sources, mostly secondary. The teacher can suggest or provide available sources.
- Active participation of the members of the group should be ensured at the preparation stage.
- The report is to be examined and corrected by the teacher before presentation.
- One of the members will present it before the class.
- The group must be capable of clearing the doubts of the class.
- Consolidation is to be done by the teacher.
- After the presentation and discussion, each student should prepare and keep for himself a seminar report.

*Example : Conduct a seminar on non conventional energy sources in India.*

The learners can collect information from reference books and periodicals. Some social welfare governmental and non governmental agencies are working in the field of promoting nonconventional energy sources. The learners can approach these institutions also for gathering information. Thereby they can become aware of the scope, difficulties and availabilities of non conventional energy sources in India.

## **Assignments**

Assignments are learning strategies undertaken as a continuation of classroom activities to realise the curriculum objectives. They should be completed in a time-bound manner. They help to lead the learner to higher levels of learning.

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Assignments can be for constructing models, drawings, or for writing notes on various topics.

Preliminary discussion and planning should be done in the classroom. Clear instructions on the sources of information should be given in the class.

The teachers may provide such sources if necessary.

The teacher should give necessary directions to the students for preparing the assignments.

Examples :

1. *Prepare wall maps showing the classification of land in India using different colours.*
2. *Prepare a note on global warming.*

## **Collection**

Collection is a continuous learning activity which ensures student participation and involvement. The collection of materials provides an avenue to direct experience and it is also an effective learning aid. The student develops a positive attitude towards the preservation of items he/she has collected.

## **Model Presentation**

Models are self-explanatory. They provide the visual representation of micro features which are otherwise difficult to perceive. Models can be two dimensional or three dimensional. They can be working models or still models. Carefully prepared three dimensional models of the various physical features provide a clear visual impression on the students' mind. The preparation of models provide enough opportunities for the active involvement of students in group work, thus ensuring 'learning by doing'.

## **Group Discussion**

Discussion as an instructional/learning strategy, is very useful as it ensures the active participation of the learner in every stage of the learning process. It provides the learners opportunities to gather information and to construct knowledge. The development of the skill for the communication and presentation is the added advantage of this strategy. In order to make learning effective through this process the role of the teacher also has to change. He has to become a facilitator, moderator, guide and a democratic leader. The teacher should help the learners to locate various sources from which they can gather the necessary information for discussion and guide them to present the ideas sequentially to achieve the clarity of concepts as envisaged in the curriculum. The teacher should ensure that all the learners are getting enough opportunities in presenting their views.

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The discussion process may be summarised as follows:

**1. Discussion points**

The teacher may provide the key ideas about which the data are to be collected. Such an attempt ensures that the learners do not skip the essential aspects to be obtained through discussion. The information for discussion may be collected group wise or individually.

**2. Fixing time for discussion**

Deciding a tentative time is very important. The learners should get sufficient time to prepare for discussion.

**3. The process of discussion**

After a brief introduction the teacher can ask each group to present the details gathered and each of the discussion points. Here the role of the teacher should be that of a moderator, who controls, supplements and consolidate the ideas and concepts evolved through the discussion. The teacher must ensure that the whole process proceeds in a democratic manner.

**4. Discussion Dairy**

The learners must maintain a discussion diary, in which they can note down the points discussed. They should also note the consolidations of the topic made by the teacher. The discussion diary will be a self explanatory document which helps the learners for further reference.

## **Mock parliament**

In order to transact this point a mock parliament of the learners can be conducted. Learners can discuss a mock legislative bill entitled forest protection (Prevention of infiltration, deforestation and illegal activities etc.). Bill 2005. Discussion of various matters mentioned in this Bill enables the learners to understand the threats to the existence of forest.

Procedure of conducting mock parliament:

A learner who has leadership quality and who is impartial should be selected as Speaker. He presides and controls the discussion of the parliament. A student who has good communication skill should be selected as the presenter of the Bill.

All other learners constitute the members of the parliament.

The mock parliament is conducted on a planned date and time.

While the presenter presents the Bill in the mock parliament, the other members can disclose their views for and against each section of the Bill.

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The learner members have every discretionary right to determine appropriate punishments to each offence according to its gravity after a thorough discussion in the mock parliament.

The learner members have every right to assent or dissent the Bill in the floor of the mock parliament.

### **Role play :-**

After a short discussion about the topic by the teachers, the learners are directed to perform a role play.

### **Planning the role play**

Select some students and assign roles to them as :- (a) Teacher (b) Student (c) Scientist (d) Administrator (e) industrialist (f) Environmentalist (g) Social worker etc.. The teacher assigns and explains the role to each student and direct them to act their roles. The expected outcome is role play report.

**Debate:** Debate is an important method of learning science, social constructivism theories. Consider debate as an ideal method of learning. After presentation of a topic, arguments in for and against are put forward and a detailed analysis of facts is done by both sides in the debate.

### **Planning :-**

#### Stage I

Introducing presentation of the topic.

Grouping of students

Group Discussions

Collection of Information within the group

Assignment of responsibilities

Fixing date and time of debate

#### Stage II

Setting arguments

Introducing remarks

Presentation of arguments from two sides

Discussion

Consolidation

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The teacher acts as a moderator, whose main responsibility is consolidation. It must be unbiased, analytical and efficient as the role of a judge in deciding the merits of a legal point.

Stage III

Preparing report on the debate

Entering the details of the debate in the science diary.

**Field Visit:-**

This is a method of study which links learning activities with school surroundings. It has with definite aims. If needed, the services of local experts and parents may be sought. Proper planning is essential for the success of field visit as in the case of any other learning activity. As part of project activities, field visit may have to be carried out. The report of field visit is to be maintained in the field diary.

# CURRICULUM OBJECTIVES

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## Chapter - I

### Introduction to Environment

#### Unit (1)

1. To develop an awareness of the concept of environment and different terminologies through reading materials, narration of stories, Group discussions, CD ROM, pictures, graphs and present in the form of report.
2. To understand the need for maintaining balance of nature through collection of materials and exhibit in the form of chart.
3. To develop an understanding of the relationship between man and environment through case study, discussion and present it in the seminar..

## Chapter - II

### Environmental Resources

1. To develop an idea about the environmental resources and their classifications, importance, rate of exploitation and its impact through setting of questions, Group discussions Debate and to present in the form of report.

## Chapter - III

### Population explosion

1. To make an awareness of population growth through collection of data, reading materials and to present it in seminar.
2. To develop an idea on the impact of population explosion through reading materials, discussion and to present it by way of seminar.
3. To make awareness on the control of population growth through debate, role play and to prepare reports.

## **Chapter - IV**

### **The Impact of Industrialisation on Environment**

1. To make awareness about the impact of industrialisation on environment through reading materials, CD ROM, Field visit and to present it in report.

## **Chapter - V**

### **The Effect of modern agriculture on environment**

1. To gather information about the impact of modern agriculture on environment through survey, experimentation, agricultural farm visit and present it as assignment.

## **Chapter - VI**

### **Land use and Land use profile in India**

1. To gather information about the land use, its specifications through graphs, charts, reading materials, news paper clippings, journals, CD ROM, internet and to present it in report
2. To collect information about the classification of land through internet , maps and make a diagrammatic and chart wise presentation.

## **Chapter - VII**

### **Environmental Pollution**

1. To have a clear understanding about environmental pollution, effects and control measures through reading materials, reference books CD roms internet, Industry visit, observation and present it in a seminar.

## **Chapter - VIII**

### **Hazardous Industrial products**

1. To make general idea about hazardous industrial products and their evil effects through field visits Discussion and present it in report.

## **Chapter - IX**

### **The Degrading Properties of Pollutants**

1. To acquire knowledge about various degrading properties of pollutants through discussions, case studies, reading materials and present it in report.
2. To acquire knowledge related to biological magnification through case studies, reading materials news a paper clippings etc. and present it in report.

## **Chapter - X**

### **Typical Environmental Problems**

1. To gain the knowledge about typical environmental problems through discussion, filmshow, collection of posters, exhibition, case studies, visit to an affected area and consolidate them through Quiz programmes.

## **Chapter - XI**

### **Occupational Safety**

1. To understand the safety measures in various work places through readings materials, role play, industrial visit and present them in report.

## **Chapter - XII**

### **Occupational Hazards**

1. To understand the various occupational diseases and precaution through reading materials, charts, group discussion and present assignment.

## **Chapter - XIII**

### **Environmental Action**

1. To develop an awareness about need for environmental protection and its management through group discussion, internet, CD ROM, and present it in report.

2. To understand the need for conservation of Bio- diversity, concept of sustainable development and different environmental protection laws & movement through reference books, reading materials, CD ROMs, clippings and lecture to make an assignment.

## **Chapter - XIV**

### **Misuse of Medical Technology**

1. To make an awareness about the misuse of drugs through learning materials, interaction with doctors, group discussion, film sides and present it in report.

## **Chapter - XV**

### **The Economic backwardness of India**

1. To understand the probable reasons for economic backwardness of Indian economy through discussions and present it in report.

## **Chapter - XVI**

### **Measures to increase agricultural productivity**

1. To create awareness about the importance of agriculture and measures to increase agricultural productivity through discussion, farm visit, observation and present it by way of report.

## **Chapter - XVII**

### **Afforestation and Social Forestry**

1. To understand the various afforestation programmes and social forestry through reading materials, group discussion and nature study camps, observation of Vanamahotsava and present it in album and a report.

## **Chapter - XVIII**

### **Rural Waste recycling & Management**

1. To develop the habit of scientific management of waste through exercise in home by segregating the waste into degradable and non degradable.

## **Chapter - XIX**

### **The Agencies responsible for rural development**

1. To understand the various agencies for rural development, through collection of data from Block development office and other agencies and make an assignment.

## **Chapter - XX**

### **Development of Rural industries**

1. To create an awareness about the role of rural industries through reading materials, group discussion and present report.

## **Chapter - XXI**

### **Provision for Basic Health Services**

1. To understand the basic agencies for health service and health care programmes and STDs through interaction with community health workers, field visit to health centres and to present a report.

# PLANNING

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The transaction of general foundation course curriculum in Vocational Higher Secondary classes has to be made through different, but relevant activities. The teacher should plan those activities which are suitable for the learners to develop the different concepts, skills and elements of multiple intelligence in them. Such activities can be made within or outside the class room. For the effective, timely and systematic transaction of the curriculum the activities have to be planned well in advance. This will help the teacher to guide the learners to prepare for the activities and to evaluate the process at different stages.

It is necessary that the teacher should prepare an annual plan, unit plan and daily plan for the effective transaction of the curriculum.

## **Annual Plan**

An annual plan has to be prepared in order to foresee picture of the whole activities to be conducted in the class in an academic year. The annual plan is to be prepared by the teacher after examining the curriculum objectives, text book, source book and other learning materials. While preparing annual plan the teacher may consider the facilities available in the school, the possibilities of field visits, interviews, seminars, projects, collections, discussions, lab work etc. which form part of the activities of the lessons. Activities are to be arranged by utilising the local resources available. For systematic and effective transaction of the curriculum, the annual plan is an important instrument. With the help of the annual plan, the teacher can transact the curriculum systematically within the stipulated time.

| <b>Term</b> | <b>Month</b> | <b>Chapter</b> | <b>Name of Chapters</b>                          | <b>Period (hour)</b> | <b>Total</b> |
|-------------|--------------|----------------|--|----------------------|--------------|
| <b>I</b>    | June         | 1              | Introductio to environment                       | 4                    | 8            |
|             |              | 2              | Environmental Resources                          | 4                    |              |
|             | July         | 2              | Environmental Resources (cont...)                | 6                    | 8            |
|             |              | 3              | Population Explosion                             | 2                    |              |
|             | August       | 3              | Population Explosion (cont...)                   | 2                    |              |
|             | September    | 4              | Impact of Industrialisation on Environment       | 4                    | 8            |
|             |              | 5              | Effects of modern agriculture on Environment     | 2                    |              |
|             |              | 5              | Effects of modern Agriculture on Environment     | 1                    |              |
|             |              | 6              | Land use & Land use profile                      | 3                    |              |
|             |              | 7              | Environmental pollution                          | 4                    |              |
|             | October      | 8              | Hazardous industrial products                    | 2                    | 8            |
|             |              | 9              | Biodegradable and degradable pollutants          | 2                    |              |
|             |              | 10             | Typical Environmental problems                   | 4                    |              |
|             |              | 11             | Occupational safety                              | 2                    |              |
| <b>II</b>   | November     | 12             | Occupational Hazards                             | 2                    | 8            |
|             |              | 13             | Environmental action                             | 4                    |              |
|             |              | 13             | Environmental action                             | 6                    |              |
|             | December     | 14             | Misuse of medical technology                     | 2                    | 8            |
|             |              | 15             | Economics backwardness of India and Poverty trap | 4                    | 8            |
| <b>III</b>  | January      | 16             | Measures to increase agricultural Productivity   | 4                    |              |
|             | February     | 17             | Afforestation and social farm porestry           | 4                    | 12           |
|             |              | 18             | Rural waste Recycling                            | 4                    |              |
|             |              | 19             | Agencies for rural development                   | 4                    |              |
|             | March        | 20             | Development of Rural industries                  | 2                    | 4            |
|             |              | 21             | Provision for basic health services              | 2                    |              |

## DAILY PLAN

**Class** : XI VHSE  
**Subject** : General Foundation Course  
**Unit** : Introduction to Environment

### Curricular Objectives :

To develop an awareness about the concept of environment and different terminology through reading materials, narration of stories Group discussions, CD-ROM, Pictures, Graphs and Present in the form of a report.

### *Process / Activity*

➤ To invite the attention of the learners , the teacher narrates a story connected with a recent environmental disaster and shows some pictures and graphs. On the basis of the story the students are grouped in to 5 for group discussion. The teacher leads the discussion by giving the following points.

1. Importance of Environment
2. Reasons for Environmental disaster.

### *Evaluation*

➤ Two groups activity responded about the importance of environment. Parvathi, Ebik, Amith, Sharon, Viswajith and Aiswarya discussed the reasons for environmental disaster by narrating a story in their home town. Some of the studens could not do well in the discussion. Any how they could realise the fact that Environment should be protected “The performance of Parvathi, Ebik, Amit, Sharon, Viswajith and Aiswarya was outstanding.

# EVALUATION

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The needs of the society determine the nature of education. Our educational system is undergoing rapid changes. As a part of this, new methods and scientific techniques are brought into practice. The system provides more importance to the learner- centered activities. Evaluation has to play a significant role in making the learning process more effective by providing diverse experience to the students, keeping in view the skills to be attained continuously by them. This calls for a major shift in the evaluation process.

Evaluation is a systematic process of collecting, analysing and interpreting evidences of students' progress and achievement both in cognitive and non cognitive areas of learning for the purpose of taking a variety of decisions.

## **Evaluation is a Continuous Process**

Learning is a continuous process and evaluation should be an integral part of this process. Students acquire various skills through a variety of learning experiences organised by the teachers. Teacher must take steps to enable the students to participate in the learning process, to make it a memorable experience. Evaluation through diverse experience ensures an all round development of the students and helps the teacher to make an assessment of his activities.

## **Evaluation should be Comprehensive**

To make it comprehensive, scholastic, co- scholastic and personal qualities of the students should be evaluated. Learning is an active mental process. Emphasis should be given to the evaluation of process skills as well as the product.

## **Components of Evaluation**

### **1. Terminal Evaluation (T.E)**

Terminal Evaluation should be in written form. The intention of the test must not be confined to memory test alone. It is an important tool for evaluating the facts, concepts, ideas gained by the learner. While preparing questions for the terminal evaluation, more emphasis should be given to the level of application, analysis, synthesis and evaluation than knowledge and

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understanding. The question should be framed in such a way that the students are able to apply their various mental processes such as .

- Retrieves/recollects/retells information
- Readily makes connections to new information based on past experiences and formulates initial ideas/concepts.
- Detects similarities and differences.
- Classifies/categorises/organises information appropriately.
- Translates/transfers knowledge or understanding and applies them in a new situations.
- Establishes cause-effect relationships.
- Makes connection/relates prior knowledge to new information/applies reasoning and draw inferences.
- Communicates knowledge/understanding through different media.
- Imagines/fantasises/designs /predicts based on received information.
- Judges/appraises/evaluates the merits or demerits of an idea/develops own solutions to a problem.

## **2. Continuous Evaluation (C.E)**

Traditionally, we were following only single evaluation tool which measures the intellectual capacity of the learner. To eliminate the limitations of this method we have to evaluate the multi- dimensional competencies of the learner. With regard to the practicability and nature of subject, the following tools are advised for continuous Evaluation.

1. Seminar
2. Assignment
3. Class Test
4. Projects
5. Collections

For recording the continuous evaluation class test (CT) is made compulsory along with any two of the above said tools.

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## How to Evaluate ?

### 1. Seminar

| Sl. No | Stages                  | Points to be noted in stages  | Score   |
|--------|-------------------------|---|---------|
| 1      | Planning and Organising | Topic, how to collect data, aids for presentation                       | 4/3/2/1 |
| 2      | Data Collection         | Literature review, relevance, Sources                                   | 4/3/2/1 |
| 3      | Content                 | structure, content depth  | 4/3/2/1 |
| 4      | Preparation of paper    | Arrangement of ideas, clarity , analysis, interpretation and evaluation | 4/3/2/1 |
| 5      | Presentation of paper   | Communication, participation and discussion, reporting seminar report   | 4/3/2/1 |

### 2. Assignment

| Sl. No | Stages                           | Points to be noted in stages            | Score   |
|--------|----------------------------------|---|---------|
| 1      | Understanding about the content  | Knowledge about the content             | 4/3/2/1 |
| 2      | Comprehensiveness of the content | Content coverage                        | 4/3/2/1 |
| 3      | Ability to present               | Structure, clarity language, creativity | 4/3/2/1 |
| 4      | Conclusion                       | Observation and findings                | 4/3/2/1 |
| 5      | Timelines                        | Time bound completion                   | 4/3/2/1 |

### 3. Class Test

The best out of two scores given for first and second terminal evaluation for each student should be recorded for class test. Unit test must be conducted after the completion of each unit for diagnostic purposes and its average should be recorded in the evaluation report of the concerned term.

#### 4. Project

| Sl. No | Stages                      | Points to be noted in stages   | Score   |
|--------|-----------------------------|--|---------|
| 1      | Planning                    | Relevance of the study, identification of problem, selection of appropriate tools for data collection and analysis     | 4/3/2/1 |
| 2      | Data Collection             | Adequacy, relevance and reliability of the data(literature review, field visit, Interview, observation and discussion) | 4/3/2/1 |
| 3      | Analysis and interpretation | Systematic arrangement of the data-analysis of the collected data and interpret, conclusions.                          | 4/3/2/1 |
| 4      | Presentation of report      | Presentation of the report in logical and sequential order, authenticity of report, correlation with project diary     | 4/3/2/1 |
| 5      | Timeliness                  | Time bound completion  | 4/3/2/1 |

#### 5. Collections

| Sl. No | Stages                                  | Points to be noted in stages                      | Score   |
|--------|---|---|---------|
| 1      | Collection of documents/ data/specimens | Related to the suggested area                     | 4/3/2/1 |
| 2      | Systematic Arrangement                  | Arrangement in accordance with procedure/concepts | 4/3/2/1 |
| 3      | Description of material                 | Its use, relevance etc.                           | 4/3/2/1 |
| 4      | Reporting                               | Output  | 4/3/2/1 |
| 5      | Timeliness                              | Time bound completion                             | 4/3/2/1 |

#### Distribution of Total Scores (100% )

The ratio fixed for management is 80:20. ie, The maximum scores fixed for T.E is 80 and CE is 20; the minimum scores to be obtained for TE is 30% ( 24 score) and for CE + TE is 30% ( 30 score). No minimum score is fixed for CE.

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## Distribution of CE elements

All CE elements should be evaluated for diagnostic purposes. For recording the scores of CE elements, one work of each should be taken into consideration.

## Grading

Continuous evaluation is essential for activity based learning process. But the skills achieved by the students cannot be completely measured in terms of Marking system. Marking system proved unscientific in evaluating the growth and development of individual students both in cognitive and non- cognitive areas. Classification of students in terms of marks were both unjust and indefensive. It also creates mental stress and strain among the students. To overcome this limitation, a popular mode of evaluating students' performance known as grading system has been evolved. It is quite extensively used all over the world. At the Higher Secondary stage, it is desirable to use a 9 point scale absolute grading to co- ordinate and record the evaluation. After giving the score, they are changed into percentages and appropriate letter grades are awarded corresponding to each percentage. This system is termed as absolute grading.

The score percentage and corresponding letter grade is given below

## How to record Evaluation Results?

We have already discussed about the evaluation tools and their indicators. Using the indicators we have to record the scores on a prescribed format.

Inorder to record evaluation results, first- CE elements are to be evaluated. Each CE elements is given a score of 20 marks. Therefore the maximum scoring of CE elements will be 60 score,being three CE's are to be evaluated. Finally the total score must be reduced to 20 marks, for which a consolidated statement is necessary. Followed by this a final consolidated statement is prepared for incorporating the scores of TE and CE

| Score in percentage | Grade |
|---------------------|-------|
| 90 – 100            | A +   |
| 80 - 89             | A     |
| 70 – 79             | B +   |
| 60 – 69             | B     |
| 50 – 59             | C+    |
| 40 – 49             | C     |
| 30 – 39             | D+    |
| 20 – 29             | D     |
| Below 20            | E     |

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**Consolidated Statement of C.E**

**Stream: Commerce**

**Std : VHSE I**

**Subject: G. F. C**

| <b>Sl. No</b> | <b>Name<br/>of the students<br/>20</b> | <b>Assignment<br/>20</b> | <b>Project<br/>20</b> | <b>Class<br/>Test<br/>60</b> | <b>Total<br/>Score<br/>to 20</b> | <b>Score<br/>reduced</b><br><br><small>Score<br/>obtained <math>\times \frac{20}{60}</math></small> |
|---------------|--|--------------------------|-----------------------|------------------------------|----------------------------------|---|
| 1.            | A                                      | 18                       | 16                    | 18                           | 52                               |   |
| 2.            | B                                      | 15                       | 18                    | 14                           | 47                               |   |
| 3.            | C                                      | 10                       | 8                     | 10                           | 28                               |   |
| 4             | D                                      | 17                       | 12                    | 16                           | 45                               |   |

**Consolidated Statement of T.E and C. E**

**Stream: Commerce**

**Std : VHSE I**

**Subject: G. F. C**

| <b>Sl. No</b> | <b>Name<br/>of the<br/>students</b> | <b>T.E<br/>80</b> | <b>C.E<br/>20</b> | <b>Total Score<br/>100</b> | <b>Grade</b> |
|---------------|-------------------------------------|-------------------|-------------------|----------------------------|--------------|
| 1.            | A                                   | 70                |                   |                            |              |
| 2             | B                                   | 50                |                   |                            |              |
| 3             | C                                   | 45                |                   |                            |              |
| 4             | D                                   | 73                |                   |                            |              |

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## Part - II

**Unit 1 : Introduction to Environment**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>  | <b>Learning Materials</b>                                   | <b>Skills</b>                                | <b>Expected products</b>                                | <b>Evaluation</b>                                       | <b>Time</b> |
|--|--|--|---|--|---|---|-------------|
|  | To develop an awareness of the concept of environment and different terminology through reading materials, narration of stories, group discussion CD ROM, pictures and graph | Discussion   | Chart<br>Graphs<br>Reading materials<br>C.D. -ROMs          | Communication<br>Presentation                | Discussion diary  | Participation<br>Communication<br>Leadership<br>Report. | 1 hr        |
|  | To understand the need for maintaining the balance of nature through collection of materials   | Collections<br>Preparation of charts<br>Lecture method             | Photographs<br>Reading materials<br>Chart<br>Wall magazines | Observation<br>Collection<br>Drawing         | Report<br>Album<br>Notes                                | Presentation<br>Contents                                | 1 hr        |
|  | To develop an understanding about the relationship between man and environment through case study and discussion.  | Discussion<br>Seminar<br>Case study<br>Collections<br>Role playing | Reading materials   | Observation<br>Communication<br>Presentation | Seminar<br>Report<br>Album<br>Discussion diary<br>Notes | Presentation<br>Content<br>Communication<br>Leadership  | 2 hrs       |

## UNIT - I

# INTRODUCTION TO ENVIRONMENT

### Introduction

The study of the environment deals with relation and interaction of living and non living components. Many of the environmental issues emerge from the lack of understanding of this complex functioning of the environment. In the present age, many terms related with environment are in use. This chapter gives an insight in to different terminology connected with the environment.

### CURRICULUM OBJECTIVES

- To develop an awareness of the concept of environment and different terminology through reading materials, narration of stories, Group discussions, CD ROM, pictures, graphs and to present in the form of report.
- To help understand the need for maintaining balance of nature through collection of materials and exhibit in the form of chart.
- To develop an understanding of the relationship between man and environment through case study, discussion and to present it in the seminar..

### Syllabus: –

- Different environment terminologies, Biogeochemical cycles (material cycle), Balance of nature, Ecological backlashes.

### To the chapter:

- This chapter explains the diverse factual knowledge to interpret the environment in relation with man. For convenience, this chapter can be grouped into three domains, namely.

Concept of environment

Environmental Terminology

Balance of nature.

Each domain is designed to achieve the following objectives.

Awareness about the environment

Balance of nature

Relationship between man and environment

## **1. Concept of Environment**

The presentation starts with showing picture of an ecosystem ( eg. forest, village life including farm land) with explanation and asking the students to observe it. Based on the observation by the learners, the teacher can supplement information about interaction and relationship of various components of the ecosystem.

Then the learners are divided into five or six groups for discussion.

### **Discussion Points**

1. Concept of Environment
2. Significance of environment
3. Their interrelationship

At the end of the discussion, the teacher should consolidate the points and ask the learners to incorporate the same in their discussion diary.

## **2. Environment Terminology:**

On the basis of the previous day's discussion, we arrive at the different terminology related with environment (list out the terminology like ecology, ecosystem, biosphere, food chain etc.) Elaborate the meaning and concept of each term. Thus arrive at a suitable definition for each term through interaction. The expected outcome is interaction note.

## **3. Balance of nature**

After a short discussion on the topic by the teacher, the learners are directed to perform a role play.

Planning the role play : Eg: Pond as an ecosystem.

Select 7 students and assigned roles to them as 1 water, 2. Rocks, 3.Fish, 4. Frog, 5. Plants (aquatic), 6. Snake and 7. Air.

The teacher assigns and explain the role to each student and direct them to act their roles.

Report on role play is the expected outcome.

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8. Web - [www.teriin.org/olympiad](http://www.teriin.org/olympiad)
9. Encyclopedia Britannica
10. Encyclopedia Encarta.

**Unit 2 : Environmental Resources**

|  | <b>Curriculum Objectives</b>  | <b>Strategies</b>    | <b>Learning Materials</b>                | <b>Skills</b>               | <b>Expected products</b>   | <b>Evaluation</b>              | <b>Time</b> |
|--|---|----------------------|--|-----------------------------|----------------------------|--------------------------------|-------------|
|  | To develop an idea about environmental resources: their classification, importance - rate of exploitation and its impact through setting of questions, group discussion and debate. | Discussion<br>Debate | Pre- test<br>Graphs<br>Reading materials | Observation<br>Presentation | Report<br>Discussion diary | Participation<br>Communication | 10 hrs      |
|  |   |                      |  |                             |                            |                                |             |

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## UNIT - II

# ENVIRONMENTAL RESOURCES

### Introduction

Environmental resources are the raw-resources, which has some utility for meeting the diverse needs of human beings. This chapter explains the various types of resources, its potential, over exploitation and its impacts.

### CURRICULUM OBJECTIVES

- To develop an idea about the environmental resources and their classifications, importance, rate of exploitation and its impact through setting of questions, Group discussions, Debate and present in the form of report.

### Syllabus: –

- Environmental Resources (energy, air, water, soil, minerals, plants, animals) Carrying capacity, effects of exploitation.

### To the chapter:

This chapter is designed to reckon the attention of learner about the various environmental resources available in the nature. The concept dealt within this chapter can be conveyed by using different strategies. Some of them are detailed below and the teacher can utilize those strategies to make the class activity oriented.

- To develop an idea about the environmental resources, classification of resources, importance, present position, over exploitation and its impacts.

The teacher can begin the class by asking questions based on the students previous knowledge.

List out the environmental resources which are familiar to you.

How can you classify these resources?

On the basis of such questions, the teacher may divide the class into four or five groups, for discussion.

## ***Points for discussion***

Source of environmental resources

Types of Environmental Resources on the basis of Exhaustion.

Significance of Environmental Resources

Conservation of Environmental Resources

The discussion can be held on the basis of the information collected. The teacher, as a moderator, can guide the class for proper interaction. Opportunities should be made to ask questions among the group. The teacher should supplement additional knowledge wherever necessary, and at the end of the discussions the teacher should consolidate the points and ask them to incorporate this in their discussion diary.

## **Reference:-**

1. A text book on Environment and Development for +2 vocational students.
2. Environmental Education and Rural Development - A textbook for VHSE
3. Environmental Economics - C.B. Memoria & Saxena
4. Guide to Green Citizenship:-  
A practical work book on Environmental education for +2 vocational students-  
Centre for Environment Education. PSSCIVE.
5. The Hindu Survey of the Environment 2004
6. Web - [www.teriin.org/olympiad](http://www.teriin.org/olympiad)
7. Internet site.

### Unit 3 : Population Explosion

|  | <b>Curriculum Objectives</b>  | <b>Strategies</b>                        | <b>Learning Materials</b>                                  | <b>Skills</b>                                    | <b>Expected products</b>      | <b>Evaluation</b>  | <b>Time</b> |
|--|---|--|--|--|-------------------------------|--|-------------|
|  | To make an awareness about population growth through collection of data and reading materials                           | Discussion<br>Data collection<br>Seminar | Magazines<br>Reading materials<br>Graphs<br>Census reports | Observation<br>Collection<br>Communication       | Report<br>Discussion<br>diary | Participation<br>Communication<br>Content<br>Presentation                | 2 hrs       |
|  | To develop an idea about the impact of population explosion through reading materials and present it through a seminar. | Seminar                                  | Reference books<br>Reading Materials                       | Observation<br>Communication<br>Note preparation | Seminar<br>Report             | Group work<br>Presentation<br>discussion<br>seminar<br>report<br>content | 1 hr        |
|  | To make awareness on control of population growth through debate and role play  | Debate, Role playing                     | Reading materials  | Presentation<br>Acting<br>Communication          | Report                        | Participation<br>Communication<br>Leadership                             | 1 hr        |

# UNIT - III

## POPULATION EXPLOSION

### Introduction

In the ultimate analysis, the solution of environmental problems lies in controlling population growth. With continuing population growth, it will be impossible to provide adequate food, pure water, fuel and shelter for the world's new generation. The goal of population control at present is zero population growth. This chapter enables the students to know the effect of population growth and its impact on socio - economic life and environment.

### CURRICULUM OBJECTIVES

- To make an awareness on population growth through collection of data, reading materials and present it in seminar.
- To develop an idea on the impact of population explosion through reading materials, discussion and present it by way of seminar.
- To make awareness on the control of population growth through debate, role play and to prepare reports.

### Syllabus: –

- Population - meaning & definition - Population Vs Density of population - Factors affecting the growth and Density of population- Impact of population explosion control of population growth - relevance of Family planning.

### To the chapter:

- This chapter provides the basic idea on the severity of population explosion and their control measures. For the effective transaction of the idea, the chapter can be divided in to four sub units.
1. Meaning & Definition of population
  2. Factors affecting the growth and density of population
  3. Impact of population explosion

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4. Control of population growth.

The teacher can use seminar as a strategy to transact this area. The students are grouped into three and each group is given with the task to collect information /data. The first Group is given with the task of collecting information/data about meaning and definition of population Growth. The second group is given with the task of collecting data related with factors affecting growth and density of population. The third Group is given with the task of collecting data/information about impact of population explosion. The students are provided with sufficient time to collect data/information. After collecting data/information, each group is given with a chance to present the information they collected. The students can ask questions to clarify their doubts. Finally the teacher should consolidate the points.

### Reference

1. Textbook XI NCERT.
2. Textbook for VHSE.
3. Textbook for Environmental Economics.
4. Journal on Economic Review.
5. Journal on facts for you.
6. “The third world” Sunday std. N. Delhi - M.S. Kanthe.
7. Society for Rural Industrialisation - Dr. A.K. Basu.

#### Unit 4 : Impact of Industrialisation on Environment

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>                  | <b>Learning Materials</b> | <b>Skills</b>                                | <b>Expected products</b>   | <b>Evaluation</b>   | <b>Time</b> |
|--|--|------------------------------------|---------------------------|--|----------------------------|---|-------------|
|  | To make aware the impact of industrialisation on environment through reading materials , CD-ROM and field visit. | Field trip<br>Assignment<br>debate | Reading<br>Materials      | Presentation<br>Observation<br>Communication | Assignment<br>Field Report | Content<br>Presentation<br>Participation<br>Observation<br>Report<br>Planning | 4 hrs       |
|  |  |                                    |                           |  |                            |   |             |

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## UNIT - IV

# THE IMPACT OF INDUSTRIALISATION ON ENVIRONMENT

### Introduction

It is believed that industrialisation plays an important role in the growth and development of a nation. To understand the role of industries we can compare growth of industries and the growth of human civilization. Right from the industrial revolution man began to tame the nature and modify it for his own requirements. Such industrial progress resulted in the economic growth and improvement of living condition. Despite the changes/ improvements in their life styles of individuals it resulted in the fast depletion of natural resources and a series of socio-economic and environmental problems.

The chapter entitled the “ The impact of industrialisation on environment” explains a general idea on how the industrialization brought about environmental degradation.

### Curriculum Objectives

- To make aware the impact of industrialisation on environment through reading materials, CD ROM, Field visit and present it in report.

### Syllabus: –

- Industrialisation - Industrial revolution - Impact of industrialisation and environmental degradation.

### To the chapter:

- This chapter is designed to provide the learners a basic vision on the serious impacts of industrialisation on environment. It can be conveniently transacted by dividing it in to three parts.
  1. Role of industries
  2. Serious effects created by massive industrialisation.
  3. Impact of industrialisation.
  4. To achieve the above objectives a field visit can be arranged to the nearby industrial area.

## Planning the field visit

The teacher can fix the location & date of visit. In this case it is advisable to select the nearby industrial area where serious environmental problems persist.

The learners must maintain observation diary and should record the information like area and industry visited, effect of pollution, if any. Moreover they can make their interpretations on how the industrialisation affect the surroundings.

### Structure of the report

The Field visit report must contain the following heads.

- a. The title
- b. Area/industry
- c. Location
- d. Date of visit
- e. Group members
- f. Name of accompanying staff
- g. Name of school
- h. Introduction - Contains the need for the study & its preparatory
- i. Methodology - Strategies adopted for the execution of field visit
- j. Report briefly explaining the observation of the learner, with relevant photos, maps etc.
- k. Conclusion - Through this strategy how will the learner understand the impact of industrialisation on environment by comparing the merits & demerits.

## Reference

1. Training manual on joint industrial safety council
2. Textbook for VHSE XI NCERT
3. Textbook for Environmental concern of India, NGC, Delhi.

**Unit 5 : Effects of modern agriculture on Environment**

|  | <b>Curriculum Objectives</b>  | <b>Strategies</b>                                      | <b>Learning Materials</b>                                      | <b>Skills</b>   | <b>Expected products</b>                    | <b>Evaluation</b>    | <b>Time</b> |
|--|---|--|--|---|---|----------------------|-------------|
|  | To gather information about the impact of modern agriculture on environment through survey and experimentation study. | Survey<br>Data collection<br>Field visit<br>Assignment | Reading Materials<br>Information from farmers<br>Questionnaire | Questionnaire Preparation<br>Observation<br>Communication<br>Presentation | Survey Report<br>Assignment<br>Field Report | Content Presentation | 3 hrs       |
|  |   |  |  |   |   |                      |             |

# UNIT - V

## THE EFFECT OF MODERN AGRICULTURE ON ENVIRONMENT

### Introduction

Modern agriculture points upon high yielding seeds, fertilizers, pesticides, and irrigation. Agricultural operations in the affluent countries are highly mechanized, capital intensive, and labour-saving. In developing countries the agriculture is labour-intensive. High yielding varieties demand the use of high doses of chemical fertilizers, pesticides, and irrigation which give rise to several environmental problems. This chapter is aimed to gather information about impact of modern agriculture on environment.

### Curriculum Objectives

- To gather information about the impact of modern agriculture on environment through survey, experimentation, agricultural farm visit and present it as assignment.

### Syllabus: –

- Agriculture - Importance - Traditional agriculture Vs Modern agriculture - Effect of modern agriculture on environment.

### To the chapter:

- This chapter aims to gather information regarding the impact of modern agriculture on environment. For convenience of transaction this chapter can be divided into 3 sub units.
  1. Importance of agriculture
  2. Traditional agriculture & Modern agriculture
  3. Effect of modern agriculture on environment.

The teacher can introduce this lesson through a brief explanation about the agriculture and ask the students about the importance of agriculture. To compare the modern Traditional agriculture and the impact of modern agriculture on environment, the teacher can arrange a survey. The survey should include interview with farmers above 65 years of age in their villages. For this purpose a questionnaire should be prepared with the following details.

- 
1. Name of farmer
  2. Address
  3. Type of the traditional agricultural practices carried out by farmer in that area- (Eg. Type of seeds used, method of cultivation, crops etc.)
  4. Type of modern agricultural practices carried out by farmers.

The teacher can instruct each students to collect data from at least two farmers.

### **Assignment Report**

After the survey the teacher can ask the students to prepare an assignment about the agriculture and their importance. Comparative picture about traditional and modern agricultural practices, their merits and demerits and the effect of modern agriculture on environment.

### **Reference:**

1. Survey of agriculture, The Hindu 2005
2. Watter H. Paweley, possibilities of increasing world food production, FAO Rome 1967.
3. C.B. Memoria - Agriculture Economics.

**Unit 6 : Landuse and Landuse Profile in India**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>   | <b>Learning Materials</b>  | <b>Skills</b>  | <b>Expected products</b> | <b>Evaluation</b>       | <b>Time</b> |
|--|--|---|--|--|--------------------------|-------------------------|-------------|
|  | To gather information about the landuse and its specification through graphs, charts reading materials news paper clippings journals C.D. ROM and internet | Graph<br>Chart<br>Preparation<br>Map making<br>Discussion | Reading<br>Materials<br>News paper<br>Clipping<br>CD-ROM<br>Internet | Drawing<br>Observation<br>Presentation<br>Analytical skill | Diagrams<br>Report       | Content<br>Presentation | 2 hrs       |
|  | To collect information about the classification of land through internet, maps and reading materials   | Chart<br>Preparation<br>Map making                        | Chart<br>Map   | Drawing<br>Observation                                     | Map<br>Chart             | Presentation<br>Content | 1 hr        |

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## UNIT - VI

# LANDUSE AND LANDUSE PROFILE IN INDIA

### Introduction

India is the seventh largest country in the world. Effective land utilization is necessary for the economic development of India. This chapter provides basic information about the nature, types and use of land and land use planning in India.

### Curriculum Objectives

- To gather information about the land use its specifications through graphs, charts, reading materials, news paper clippings, journals, CD ROM, internet and present it in report
- . To collect information about the classification of land through internet , maps and make a diagrammatic and chart wise presentation.

### Syllabus: –

- Land use, classifications and landuse profile in India.

### To the chapter:

- The chapter is designed to provide basic concepts of land use - land capability classification, urban land use planning, population pressure and land use. Out of the total land in India only less than 50% is used for agricultural purpose. It is not advisable in India to leave any part of its land unproductive and waste, because India is the second most thickly populated nation in the world. Therefore planning must be there in utilising land. The concept that dealt with this chapter can be conveyed by using different strategies.

For convenience the chapter can be divided in to two parts.

### 1. Land use planning

To understand and plan landuse.

The teacher can go through the general uses of land viz, agriculture, horticulture, housing, laying of roads, railway lines, industries, mining of mineral resources, a

container for holding water, for fodder, cattle grazing, forest wealth for timber, fuel etc.

Total land area of India.

The teacher can start the lesson by exhibiting the maps and diagrams of land utilization and ask questions about the above topics.

What are the purpose for which land in the locality is used?

How does the population pressure affect the various uses of land?

For clarity of concepts, a discussion can be planned.

The teacher can ask the learners to note down the discussion points on which the data are to be collected.

### **Discussion Points**

Land use planning

Judicious use of land

Population increase and improper use of land.

After grouping the learners in to 5 or 6 groups for the purpose of data collection, the teacher should provide reference books.

### **Reference**

1. Guide to green citizenship, NCERT.
2. Environmental concern of India, NGC, Government of India.
3. Text book on General Foundation course Dr. K.N.P. Kurup.
4. Environmental Education and Rural Development, K.P. Ashik, National publishers, Kozhikode.

The teacher can allow learners to take one week's time for data collection. Let the learners come prepared to discuss the topic on the appointed day. The teacher should ensure the active participation of all the learners. At the end of the discussion, the teacher should consolidate the points and ask the learners to incorporate the same in their discussion diary. At the end of the discussion the learner will be able to recognize the need for land use planning.

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## II Classification of Land

To understand the classification of land.

Prepare charts/ maps showing the types of land and their percentage using different colours. This may be assigned as group work. The final product should be displayed in the class room and library.

### OR

By showing audio visual pictures/ animation from CD ROMs, internet, etc about the classification of land. Some questions about the classification of land may be asked on the basis of the previous knowledge of the learner.

- What do you mean by cultivable/ cultivated land etc,
- What do you mean by range lands.

The teacher may consolidate the facts that are given by the learner and ask the learners to incorporate the same in the discussion diary.

### Consolidation Points

Classes of land

Methods of converting waste land in to cultivable or commercial land.

### Reference

1. Textbook of XI class NCERT
2. Textbook of VHSE
3. Guide to Green citizenship.

**Unit 7 : Environmental Pollution**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>      | <b>Learning Materials</b>               | <b>Skills</b>   | <b>Expected products</b> | <b>Evaluation</b>  | <b>Time</b> |
|--|--|------------------------|---|---|--------------------------|--|-------------|
|  | To creation understanding about environmental pollution, effects and control measures through reading materials, reference books, CD-ROMs, internet and observation. | Field Visit<br>Seminar | Reading Materials<br>CD-ROM<br>Internet | Presentation<br>Communication<br>Observation<br>Reading | Seminar<br>Report        | Group work<br>Presentation<br>Participation<br>Leadership<br>Communication | 4 hrs       |
|  |  |                        |   |   |                          |  |             |

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## UNIT - VII

# ENVIRONMENTAL POLLUTION

### Introduction

Pollution is an undesirable change in the physical, chemical/ biological characteristics of air, land and water that may harmfully affect the life of man and other organisms. This chapter enables the student to know the general effects, causes and control measures of pollution - air pollution, water pollution, noise pollution and radio active pollution.

### Curriculum Objectives

- To have a clear understanding about environmental pollution, effects and control measures through reading materials, reference books CD, Roms, internet, Industry visit, observation and present it in a seminar.

### Syllabus: –

- Environmental pollution of air, water and soil and its effects on the living world.

### To the chapter:

- This chapter is designed to provide the learners, a basic knowledge of environmental pollution, its impacts and control measures.

The teacher can begin the chapter by asking some general questions relating to Environmental pollution, its cause, effect etc.

What do you mean by environmental pollution?

Have you ever experienced any environmental pollution in your nearby area?

If yes, where?

Can you demarcate the difference between environmental pollutant and environmental pollution.

It leads to a discussion.

For this purpose, the teacher divide the students into five groups, each group should be assigned separate task such as air, soil, water, noise and radio active pollution.

## **Discussion Point**

Types of pollution?

Causes and effect?

Control measures?

At the end of the discussion the group leaders should present their discussion points in the seminar. The teacher can act as a moderator. The teacher should see that all the learners should record discussion points in the discussion diary. The teacher should supplement some additional information to the learners to attain the above objective.

The teacher may develop concept of environmental pollution, its effects etc. through a field study.

## **Field Trip**

The details of the field trip is already mentioned in the previous chapter.

**Unit 8 : Environmental Pollution**

|  | <b>Curriculum Objectives</b>  | <b>Strategies</b>         | <b>Learning Materials</b>           | <b>Skills</b>  | <b>Expected products</b>         | <b>Evaluation</b>                                    | <b>Time</b> |
|--|---|---------------------------|-------------------------------------|--|----------------------------------|--|-------------|
|  | To make general idea about hazardous industrial products and their effects through field visit and discussion | Field Visit<br>Discussion | Reading Books<br>CD-ROM<br>Internet | Communication<br>Observation<br>Participation<br>Analysing | Field Report<br>Discussion diary | Planning<br>Presentation<br>Participation<br>content | 2 hrs       |
|  |   |                           |                                     |  |                                  |  |             |

# UNIT - VIII

## THE HAZARDOUS INDUSTRIAL PRODUCTS

### Introduction

Materials which are harmful to man and environment are called as Hazardous Materials. We manufacture thousands of industrial products to meet our demands. But many of them are dangerous to our environment. This chapter aims to provide information relating to toxic metals and metallic components and their hazardous effects and also the preventive and protective measures.

### Curriculum Objectives

- To make general idea about hazardous industrial products and their evil effects through field visits and discussion and present it in report.

### Syllabus: –

- Hazardous industrial and agricultural products - safety and health risks connected with their use. - Impact on Environment when used.

### To the chapter:

This chapter is designed to provide the learners a basic knowledge about the hazardous materials produced and its consequences. For convenience of transaction this chapter can be divided in to two sub units.

- Safety and health risks connected with use of hazardous products.
- Impact of environment

The teacher can introduce this lesson through a general discussion about the problems created by the hazardous materials produced in the nearby agricultural and Industrial area. The teacher can interact with the learners by asking a few questions such as:

Do you know any kind of hazardous problems faced in the nearby area?

What are the products manufactured by that industry which are hazardous in nature?

Can you say any remedial measures in this regard?

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The teacher initiates the discussion by showing paper cutting, pictures etc.

### **Discussion Points**

- Toxic metals and Metallic compounds and their hazardous effects.
- Hazardous chemicals synthesized by man.

The teacher can also provide certain reference materials for gathering more information. The major concepts achieved must be recorded in detail in the discussion diary. The contents in the discussion diary may be taken for evaluation purpose.

### **Reference**

1. General Foundation Course - A text book for I VHSE.
2. Education and the Challenge of Environmental Problems, UNESCO, Paris, 10 August 1977.
3. The greatest Disasters of the 20th Century, Tiger Books International, London, 1980.
4. Environment and Development/ PSS Central Institute of Vocational Education (NCERT)

**Unit 9 : Degrading Properties of Pollutants**

|  | <b>Curriculum Objectives</b>  | <b>Strategies</b>        | <b>Learning Materials</b>           | <b>Skills</b>                              | <b>Expected products</b>      | <b>Evaluation</b>       | <b>Time</b> |
|--|---|--------------------------|-------------------------------------|--|-------------------------------|-------------------------|-------------|
|  | To acquire knowledge about various types of pollutants through discussion, case study and reading materials | Case study<br>Discussion | Reading Books<br>CD-ROM<br>Internet | Communication<br>Presentation<br>Analysing | Report<br>Discussion<br>diary | Content<br>Presentation | 2 hrs       |
|  |   |                          |                                     |  |                               |                         |             |

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## UNIT - IX

# THE DEGRADING PROPERTIES OF POLLUTANTS

### Introduction

The substances that can cause pollution are called pollutants. This chapter is aimed at providing information about the categories of pollutants and cycles of toxic elements.

### Curriculum Objectives

- To acquire knowledge about various degrading properties of pollutants through discussions, case studies, reading materials and present it in report.
- To acquire knowledge related to biological magnification through case studies, reading materials, newspaper clippings etc. and present it in report.

### Syllabus: –

- Properties of pollutants (Biodegradable and Non - degradable)

### To the chapter:

This chapter explains, degrading properties of pollutants and its types.

- To understand degradable properties of pollutants and the problems of pollution abatement.

The teacher initiates the discussion by asking questions.

1. Define pollutant?
2. What are the different types of pollutants?

Discussion Points:-

- a. Bio degradable pollutants - problems
- b. Non degradable pollutants - problems

To gather more information, the teacher can provide the following references.

1. NCERT Textbook

2. GFC textbooks

3. CD-ROM

The teacher should see that the learner goes through all the topics meant for discussion and supplement information whenever necessary. The teacher should consolidate the concepts and instruct the learner to incorporate this in the discussion diary.

➤ To Understand cycles of toxic elements

The teacher can begin this topic with an OHP presentation / slide show depicting how toxic elements cycle through biological system and how it concentrates along the food chain. He can interact with the learners by asking few questions such as

What are the different types of toxic elements that may enter into the biological system?

How do these toxic elements enter into the biological system?

Inorder to get a clear-cut idea about biological magnification, the teacher can adopt discussion as a strategy. For this, divide the students into four/ five groups and provide them with the following discussion point.

How do the various kinds of non- degradable elements enter into the food chain.

The teacher consolidates the discussion by providing sufficient information.

### **Assignment :**

Prepare a chart showing how the toxic elements enter in to the food chain.

**Unit 10 : Typical Environmental Problems**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>                               | <b>Learning Materials</b>          | <b>Skills</b>  | <b>Expected products</b> | <b>Evaluation</b>                                | <b>Time</b> |
|--|--|---|------------------------------------|--|--------------------------|--|-------------|
|  | To gain the knowledge about typical environmental problems through film show, Posters, exhibition and case studies | Case study<br>Discussion<br>Quiz<br>Field Visit | Film show<br>Posters<br>Exhibition | Communication<br>Analysing<br>Observation<br>Reading | Album<br>Field Report    | Content<br>Observation<br>Participation<br>Score | 4 hrs       |

## UNIT - X

# TYPICAL ENVIRONMENTAL PROBLEMS

### Introduction

The most crucial problem facing the present world is the environmental problem. The Environmental problems are due to undesirable changes in the physical , chemical and biological surroundings of the environment. Most of the environmental problems are man made by the over exploitation of natural resources. This chapter explains briefly the various typical environmental problems like; deforestation - desertification - landslides; silting and drying of water resources - pollution of lakes and water ways , toxic substances.

### Curriculum Objectives

- To gain the knowledge about typical environmental problems through discussion, filmshow, collection of posters, exhibition, case studies, visit to an affected area and consolidate them through Quiz programmes.

### Syllabus: –

- Typical Environmental Problems - Deforestation - Desertification - Landslides- Silting and drying of water resources - Pollutions of lakes and waterways.- Toxic substances.

### To the chapter:

This chapter deals with various environmental problems and its consequences. The unit is aimed at providing the learners about the causes, effects and control measures of typical environmental problems.

The teacher can begin the lesson by asking questions like.

- Define environment
- What are environmental problems ?
- What are the factors responsible for the environmental problems?

The teacher can draw the attention of the learners about to topic by showing articles on environmental problems in any of the magazines/ journals/ newspapers

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He /she can provide few discussion points and ask the learners to come prepared for the discussion.

### **Discussion Points:-**

- Deforestation - Desertification - Landslide.
- Silting and Drying of water resources.
- Pollution of Lakes and Water ways.
- Typical Environmental problems of Kerala.

The teacher may suggest the following materials for reference.

1. GFC Text books
2. A guide to green citizen ship

The teacher as a moderator, should enable all the learners to take part in the discussion and see that all of them note the evolving concepts down in the discussion diary.

At the end of the discussion the learners will be able to recognise the various factors responsible for environmental problems.

### **Quiz**

The learner can be instructed to conduct a quiz between two groups on the basis of discussion. The group which asks the question should give the correct answers if there is no response from the other group. The teacher should interfere whenever necessary.

The learner can be asked to note the answer derived from the quiz in their discussion diary.

The teacher can also conduct a field study in the nearby area, which suffers typical environmental problems, to materialise their knowledge acquired through discussion and quiz programme.

### **Planning the field visit**

Setting the objective is the most important activity . Our objective is to make the learners understand the environmental problems, deforestation, desertification etc and its consequences.

The next step is the selection of location for the field visit and fixing a date. If possible it is always good to select a nearby area having some environmental problems.

The learner must maintain observation dairies in which they have to record the information they collect.

The teacher can explain the concepts of environmental problems then and there, and a brief consolidation can be done in the class room. Participation of all learners in the field visit is to be ensured. And the field observation diary is a must for the field work.

At the end of the field visit, a report of the visit is to be obtained from the learners.

Content of the report can be taken for evaluation.

## **Reference**

1. Environmental Education and Rural Development Prof. V.V. Antony
2. Environment and Development  
Pandit Sunderlal Sharma. Central Institute of Vocational Education (NCERT).
3. General Foundation Citizenship.  
A practical workbook of Environmental.  
Education for +2 vocational students.  
PSS central Institute of Vocational Education.

**Unit 11 : Occupational Safety**

|  | <b>Curriculum Objectives</b>  | <b>Strategies</b>        | <b>Learning Materials</b> | <b>Skills</b>   | <b>Expected products</b>            | <b>Evaluation</b>   | <b>Time</b> |
|--|---|--------------------------|---------------------------|---|-------------------------------------|---|-------------|
|  | To understand the safety measures in various occupations through reading materials, skit, role play and industrial visit. | Role play<br>Field Visit | Reading materials         | Participation<br>Presentation<br>Communication<br>Observation | Field Report<br>Discussion<br>Diary | Observation<br>Participation<br>Communication<br>Planning<br>Report | 4 hrs       |
|  |   |                          |                           |   |                                     |   |             |

# UNIT - XI

## OCCUPATIONAL SAFETY

### Introduction

The proverbial saying prevention is better than cure is relevant in dealing with occupational hazards. The industrial hazards occur mainly due to lack of precautions or knowledge while handling equipments. Indeed most of the hazards can be avoided provided one has the knowledge and will to be careful. This chapter is aimed at providing information about general measures for occupational safety in industrial and other organizations.

### Curriculum Objectives

- To understand the safety measures in various work place through readings materials, role play, industrial visit and present in report.

### Syllabus: –

- Fire safety - safe handling of equipments and materials safety precautions in lab / workshops / worksite - first aid. Safety management.

### To the chapter:

This chapter is designed to provide the learners with general precautionary measures to be adopted in work place for occupational safety.

The teacher can introduce the topic by pointing out the importance of safety measures in occupational places with the help of reading materials. After this the teacher can divide the learners into groups for discussion.

### Discussion Points

- Fire safety measures
- Safe handling of equipments and materials
- Safe precaution in labs/ workshops
- First aid- safety management for electric shock.

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In the class room the teacher should lead the discussion ensuring active participation of all groups. The required information arising from the discussion is to be consolidated by the teacher and on the basis of it, each one should be instructed to prepare the discussion diary. The teacher can guide the students to conduct a role play.

An industrial visit can also be arranged done to understand safety measures implemented by Industrial units.

**Unit 12 : Occupational Hazards**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>          | <b>Learning Materials</b> | <b>Skills</b>                       | <b>Expected products</b>                             | <b>Evaluation</b>               | <b>Time</b> |
|--|--|----------------------------|---------------------------|-------------------------------------|--|---------------------------------|-------------|
|  | To understand various occupational diseases and prevention through reading materials charts etc. | Chart making<br>Discussion | Reading materials         | Chart making<br>Group working skill | Report<br>Chart<br>Discussion<br>Diary<br>Assignment | Content presentation<br>Content | 2 hrs       |
|  |  |                            |                           |                                     |  |                                 |             |

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## UNIT - XII

# OCCUPATIONAL HAZARDS

### **Introduction**

Workers or technical experts in industries which use or produce dangerous materials may become ill as a result of their occupations. Such diseases are called occupational disease. Other unusual working conditions such as intense light, excessive noise may also bring occupational disorders or hazards. This chapter explains various kinds of occupational hazards such as respiratory diseases and skin diseases; their causes, effects and control measures.

### **Curriculum Objectives**

- To understand the various occupational diseases and precaution through reading materials, charts, group discussion and present assignment.

### **Syllabus: –**

- Occupational Hazards
- Occupational risk - equipments related
- risks - process related risk - product related risk.

### **To the chapter:**

This chapter is designed to provide the learners with basic knowledge relating to occupational hazards its causes, effects and control measures. The teacher can begin the lesson by drawing the attention of the learners to the relevant articles on occupational hazards in any magazine/ journal news paper etc.

The teacher can interact with the learners by asking a few questions such as

- What are occupational hazards?
- What are different types of occupational hazards?

For clarity of the above subject, a discussion can be planned.

## **Discussion Points**

- Meaning of occupational hazards.
- Various types of occupational hazards.
- Causes and effects of occupational hazards.

The learners can be divided in to 4 to 5 groups and may be asked to gather information on the above discussion points. During the discussion the role of the teacher is that of a moderator, actively engaged in controlling the discussions and supplementing it with additional information wherever necessary .The teacher should see that all the learners have noted the evolved ideas in their discussion diary. This will be one of the documents for evaluating the learners. The learners will be able to recognise the various types of occupational hazards and their causes.

On the basis of the above discussion the teacher can give an assignment to the learners.

**Unit 13 : Environmental Action**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>  | <b>Learning Materials</b>                             | <b>Skills</b>                                  | <b>Expected products</b>   | <b>Evaluation</b>   | <b>Time</b> |
|--|--|--|---|--|--|---|-------------|
|  | To develop an awareness about environmental protection and management through group discussion, internet reading materials and CD ROM.                                       | Group Discussion   | Internet<br>Reading materials<br>CD ROM               | Participation<br>Presentation<br>Communication | Discussion<br>Diary  | Participation<br>Communication<br>Leadership                            | 6 hrs       |
|  | To understand the need for conservation of biodiversity, concept of sustainable development, environmental protection laws through books reading materials, CD Clipping etc. | Group Discussion<br>Lecture<br>Assignment<br>Role playing<br>Mock parliament<br>Mock press<br>Mock court | Reading materials<br>CD ROM<br>News paper<br>Clipping | Reading<br>Presentation<br>Communication       | Assignment<br>Discussion<br>Diary<br>Mock<br>Parliament<br>Notes | Participation<br>Communication<br>Leadership<br>Content<br>Presentation |             |

# UNIT - XIII

## ENVIRONMENTAL ACTION

### Introduction

Environmental action calls for a strategy to reconcile the necessity of meeting the basic human needs with the preservation of the environmental resources. There is also the need to maintain the biosphere, the essential ecological processes and life support systems and the genetic diversity. The need for sustainable development stems from the concern for environment. The growth of all countries in future is, therefore likely to be endangered if the limited resources are completely exhausted.

### Curriculum Objectives

- To develop an awareness about need for environmental protection and its management through group discussion, internet, CD ROM, and present it in report.
- To understand the need for conservation of Bio- diversity, concept of sustainable development and different environmental protection laws & management through reference books, reading materials, CD ROMs, clippings and lecture to make an assignment.

### Syllabus: –

Environmental protection and conservation of resources - pollution control - environmental pollution laws and regulations - waste disposal- desirable nutrition and sanitation practices - recuperation - recycling and substitution - community action for ecological restoration, social and agro forestry - economic use of resources - living in harmony with nature, the environmental ethics.

### To the chapter:

This chapter deals with environmental action that includes environmental protection and management. The learners have already acquired the basics of Environmental Protection and Management Practices. Keeping their previous knowledge as the base, the teacher can generate interest in the learners to gather more information about the topic. In order to achieve the objectives mentioned above, the topic can be divided as follows.

- 
- Environmental protection and Management
  - Sustainable Development and Bio-diversity
  - Environmental protection laws and managements
  - International Action for Conservation.

### **1. Environmental protection and management:**

This topic can be transacted through group discussion. For that the teacher displays a picture of an industrial unit having the problems of air/ water /sound or soil pollution and asks the following questions such as:

- Do you know any industrial unit polluting environment?
- How does the industry pollute the environment ?
- What are the effects of industrial pollution?
- What is the necessity of protecting environment from industrial pollution ?

Teacher consolidates the facts that are elicited.

In order to get a clearcut idea and first hand information on the environmental protection and management practices, through discussion, the teacher can recall the previous knowledge of the learner about discussion points. Teacher should see that all the learners have noted down these aspects in their discussion diary. The teacher can give an assignment as a follow-up activity.

### **2. Sustainable Development and Bio-diversity:-**

By showing paper cuttings/ relevant content of the CD-ROM, the teacher can introduce the topic. Subsequently the following areas should be explained by the teacher using the lecture method.

Conservation of Bio diversity

Loss of Bio - diversity

Sustainable Development

Preparation of notes is the expected outcome / product from this session.

### **3. Environmental Protection laws and movements:-**

Under this section, the teacher can transact with the class by using lecture method. After the lecture class, the teachers can ask questions about the topic, clarify their doubts and add more information if needed. The expected product is notes.

#### **4. International Action for conservation**

To know about various international agencies, conferences, conventions etc relating to conservation of nature.

The teacher can begin the class by asking some questions to assess previous knowledge of the learner about international agencies and movements for the conservation of the nature.

1. Do you know Montreal Protocol
2. Have you heard of Earth Summit

The teacher can give a brief description about various international agencies like UNEP, IUCN etc. and ask the learners to collect data about various international agencies, conferences and conventions for nature conservation from reading materials. The product is the descriptive note.

OR

To provide information about the necessity of the existence and conservation of the forest.

In order to transact this point a mock parliament of the learners can be conducted. They can discuss a mock legislative bill entitled Forest Protection (Prevention of infiltration, deforestation and illegal activities etc.) Bill, 2005. Discussion of various matters mentioned in this bill enables the learners to understand the threats to the existence of forest and their gravity.

Procedure of conducting mock parliament

A learner who is having leadership quality and is impartial should be selected as speaker. He presides and controls the parliament.

A learner having good communication skill should be selected as the presenter of the Bill.

All other learners constitute the members of the parliament.

The mock parliament is conducted on a pre-determined date and time.

While the presenter presents the Bill in the mock parliament the learner members can disclose their views against and in favour of each section of the Bill.

The learner members have every - discretionary right to determine appropriate punishment to each offence according to their gravity after a thorough discussion in the mock parliament.

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The learner members have every right to assent or dissent the Bill in the mock parliament.

The expected outcome / product is mock parliament notes.

## Reference

1. Environment and Development - A textbook for +2 vocational. Students.
2. Environmental Education and Rural Development - Textbook for VHSE
3. Economics and other Legislation - S.S. Gulshan and G.K. Kapoor, Sultan Chand & Sons.
5. Guide to green citizenship.

A practical workbook on environmental Education for +2 vocational students CEE, PSSCIVE.

6. The Hindu survey of the Environment , 2004
7. C.D. ROMS
8. Internet site

*Web : - [www.teriin.org/olypiad](http://www.teriin.org/olypiad).*

## Specimen

Forest protection (Prevention of Infiltration, Deforestation, Illegal Activities, etc.) Bill, 2005.

1. Title/ Name : This Bill shall be called Forest Protection (prevention of Infiltrations, Deforestation, Illegal activities, etc.) Bill
2. Scope: (.....)
3. Date of commencement (.....)
4. Definitions
  - a. Forest protection officers (.....)
  - b. Forest area coming under this bill (.....)
  - c. Prosecuting officer (.....)
  - d. Courts having jurisdiction (.....)
5. Offences punishable:
  - 5.1 Infiltrations - unauthorised presence in the forest belt area.

- 5.2 Deforestation - felling and removal of trees from the forest belt.
  - 5.3 Unauthorised activities - Illegal business, illegal production of goods etc.
  - 5.4 Collection and taking medicinal and other plants from the forest
  - 5.5 Poaching and hunting any species of animals within the forest belt.
  - 5.6 Leaving plastic products (wrappers, bottles etc)
  - 5.7 Cutting roads through the forest area.
  - 5.8 Catching fish with the help of explosives or otherwise.
  - 5.9 Creating noise pollution (operating sound systems, exploding crackers, etc.) within the forest area or within the area of 5km from border of forest range.
  - 5.10 Cultivating within and collecting ganja from the forest belt.
  - 5.11 Any punishable activity not mentioned above
6. Prosecuting officer: Any person committed the above said offences shall be taken into custody by the prosecuting officer and produced before the forest officials within 24 hours.

Note:

The space left blank with section 2,3, and 4 shall be filled by the learners with proper entries.

Section 2 scope (Names of states and union territories in which Bill/Act shall be applicable)

Section 3 Date of commencement (The date in which the Bill / Act is discussed and passed.)

This shall be filled with the names of tribal class or ruralites

The names of the areas of forest in which the Bill is in force.

4c. Prosecuting officer- the designation of the officer who investigate and present offenders For. eg, forest officers, police etc.

4d. Courts having jurisdiction - the courts in which the offenders are produced and tried for eg, magistrate court, session courts.

5.5 Offences punishable

5.1 to 5.11. The punishment for the offences can be discussed and fixed by the mock parliament. The punishments are varying in accordance with the gravity of the offences. Complete the above sections of offences with the punishments decided by the mock parliament.

**Unit 14 : Misuse of medical technology**

|  | <b>Curriculum Objectives</b>  | <b>Strategies</b>         | <b>Learning Materials</b>       | <b>Skills</b>   | <b>Expected products</b> | <b>Evaluation</b>   | <b>Time</b> |
|--|---|---------------------------|---------------------------------|---|--------------------------|---|-------------|
|  | To make an awareness about the misuse of drugs through interaction with doctors, reading materials and conduct of discussion. | Interaction<br>Discussion | Reference Book<br>Questionnaire | Questionnaire<br>Preparation<br>Presentation<br>Analysis. | Report                   | Planning<br>Data<br>Collection<br>Participation<br>Report | 2 hrs       |
|  |   |                           |                                 |   |                          |   |             |

## UNIT - XIV

# MISUSE OF MEDICAL TECHNOLOGY : THE DRUG MENACE

### Introduction

Certain drugs used in medicine are habit forming. Taking drugs for non medical purpose has become much more common. Dependence of body on drugs due to habitual or prolonged use is known as drug addiction. The misuse of drugs have become a grave social and medical problem.

### Curriculum Objectives

- To make an awareness about the mis-use of drugs through learning materials, interaction with doctors, group discussion, film slides and present it in report.

### Syllabus: –

Misuse of Medical technology

Drug menace

### To the chapter:

This chapter is designed to provide the learner with information about various drugs commonly misused and its consequences. The above mentioned topic can be conveyed with the help of reading materials, articles, showing specimen from medical store etc.

After the introduction of the chapter the teacher can ask a few question like

What is drug addiction?

What are the different types of drug which are misused?

The teacher should arouse the curiosity of the learners to learn more about drugs misused and may ask them to collect data/ information on the following discussion points.

### Discussion Points

Drug use and abuse

Drugs addiction

Names of drugs misused

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Its harmful effects.

Teacher can also provide certain sources from where the details can be collected. The teacher leads the discussion based on the points suggested above and motivates the learners to participate in the discussion. At the end of the discussion, the teacher consolidates all discussion points and asks the learners to note down the points in the discussion diary.

**Unit 15 : Economic backwardness of India**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b> | <b>Learning Materials</b>            | <b>Skills</b>                              | <b>Expected products</b> | <b>Evaluation</b>   | <b>Time</b> |
|--|--|-------------------|--------------------------------------|--|--------------------------|---|-------------|
|  | To understand the probable reasons for economic backwardness of India, through discussion. | Discussion        | Reading Books<br>Internet<br>CD -ROM | Communication<br>Presentation<br>Analysis. | Discussion<br>Diary      | Content<br>Participation<br>Communication<br>Leadership<br>Presentation | 4 hrs       |
|  |  |                   |                                      |  |                          |   |             |

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## UNIT - XV

# THE REASONS FOR THE ECONOMIC BACKWARDNESS OF INDIA

### Introduction

India achieved considerable progress in science and technology. But still India is remaining as an economically backward nation. This chapter explains the economic development made by countries, the criteria of economic development and the reasons for the economic backwardness of India.

### Curriculum Objectives

- To understand the probable reasons for the economic backwardness of Indian economy through discussions and present it in report.

### Syllabus: –

The Causes of economic backwardness ‘The Poverty trap’

### To the chapter:

The chapter is designed to provide the learner with the basic reasons for the economic backwardness of India. The above mentioned aspects can be conveyed through adopting discussion as a strategy.

To teacher can begin the class by asking questions for testing previous knowledge.

1. Ask the students to classify countries on the basis of economic development.
2. What are the reasons for economic backwardness of India?

For conveying this information the teacher can adopt discussion as a strategy. The teacher can divide the class into four or five groups and provide the following discussion points for collecting data.

Reasons for Economic backwardness of India

1. Economic factors
2. Political factors
3. Social and institutional factors.

To gather information , the teacher can provide the following references.

1. NCERT TEXTBOOK
2. CD ROM etc
3. GFC Textbook

The discussion can be held on the basis of information collected. The teacher, as a moderator, can guide the class for proper interaction. Opportunities should be created to ask questions among the group. The teacher should supplement additional knowledge wherever necessary and at the end of the discussion consolidates the points and ask them to incorporate this in their discussion diary and present it in the form of a chart.

The teacher can give the following assignments

- a. Write an assignment on the reasons of poverty trap in India?
- b Write an assignment on the solutions of poverty trap in India.

**Unit 16 : Measures to increase Agricultureal Productivity**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b> | <b>Learning Materials</b> | <b>Skills</b>                                | <b>Expected products</b> | <b>Evaluation</b>                                  | <b>Time</b> |
|--|--|-------------------|---------------------------|--|--------------------------|--|-------------|
|  | To make awareness about the importance of agriculture and measures to increase agricultural productivity through field visit and observation | Field visit       | Reading Materials         | Observation<br>Communication<br>Presentation | Field Report             | Planning<br>Participation<br>Observation<br>Report | 4 hrs       |
|  |  |                   |                           |  |                          |  |             |

## UNIT - XVI

# THE MEASURES TO INCREASE AGRICULTURAL PRODUCTIVITY

### Introduction

The climate of India is marked by a five rhythm of weather and season. Indian agriculture is dependent on monsoon. As an agriculture based country the productivity of Agriculture in India is not yet reached at the desired level. The purpose of this chapter is to indicate the proper measures to increase our Agricultural productivity by Improving the inputs.

### Curriculum Objectives

- To make awareness about the importance of agriculture and measures to increase agricultural productivity through discussion, farm visit, observation and present it by way of report.

### Syllabus: –

Measures to increase agricultural productivity by improving the inputs.

### To the chapter:

This chapter is designed to provide the learner with the basic concepts about the various measures to increase agricultural productivity. For convenience of transaction, this chapters can be classified in to three units.

- Significance of agriculture in the India Economy.
- Measures to increase agricultural productivity.
- New Agricultural strategy.

The teacher can begin the chapter by asking some general questions

What kind of climate is seen in India?

Is it favorable to Agriculture?

Which are the states producing main food grains?

Are they using any kinds of advanced technologies

By recalling the previous knowledge teacher can initiate a discussion.

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## Discussion Points

Importance of Agriculture in the Indian Economy.

Is Indian Agriculture backward or not?

To develop an idea on the measures to increase agricultural productivity and new agricultural strategy, the teacher can provide a brief explanation. A field visit can also be arranged.

Field visit

After the discussion teacher can take initiative for a field visit. The teacher can ask the learners to observe the following points during the visit.

Kinds of High yielding variety seeds use.

Periods for the production.

Cost of the production

Quantity of the product produced.

Quality of the output obtained

The teacher can ask the students to visit two different farms where in one farm traditional agricultural practices are being done and in another farm modern agricultural practices are being done in order to make a comparative study. The learners can prepare a comparative study report. After the field visit the teacher can also supplement additional information if necessary and ask the students to note their findings in the diary. This will enable the students to understand the importance of modern agricultural practices.

The teacher can initiate an interaction with agriculture office & progressive farmer in that panchayath.

Reference

1. Environmental Education and Rural Development - Prof. V.V. Antony.
2. Environmental concerns of India - An Introduction National Green Corps by CPR. Environmental Educational Centre Chennai.
3. Guide to Green Citizenship - A practical workbook of Environmental Education for +2 Vocational students. PSS Central Institute of Vocational Education.
4. Indian agriculture - C.B Memoria
5. Hand book on agriculture ICAR.

**Unit 17 : Afforestation and social forestry**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>                       | <b>Learning Materials</b>                      | <b>Skills</b>                        | <b>Expected products</b>      | <b>Evaluation</b>  | <b>Time</b>  |
|--|--|---|--|--------------------------------------|-------------------------------|--|--------------|
|  | <p>To understand various afforestation programmes through reading materials group discussion and nature study camp</p> | <p>Field visit<br/>Group discussion</p> | <p>Reading Materials<br/>Photo Collection.</p> | <p>Observation<br/>Participation</p> | <p>Field Report<br/>Album</p> | <p>Planning<br/>Participation<br/>Observation<br/>Report<br/>Album</p> | <p>2 hrs</p> |
|  |  |   |  |                                      |                               |  |              |

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## UNIT - XVII

# AFFORESTATION AND SOCIAL FORESTRY

### Introduction

Now a days deforestation is one of the crucial, environmental problems. Forests are ironically called as the green gold of nature. It has economical, ecological, aesthetic and recreational values. To maintain the ecological balance of nature 1/3 of the land must be covered by the forests. Unfortunately India has only 20% of land covered by forest. This is inadequate for our survival. This chapter aims to provide awareness about the various afforestation programmes including social agro and farm forestry.

### Curriculum Objectives

- To understand the various afforestation programmes and social forestry through reading materials, group discussion and nature study camps, observation of Vanamahotsava and present it in album and a report.

### Syllabus: –

Afforestation - social and agro forestry (environmental, social and economic enhancement)

### To the chapter:

This chapter is designed to make awareness the learners about the causes and impacts of deforestation and benefits of the forests. This chapter also encourages the learners to indulge in afforestation activities.

The teacher can begin with an OHP presentation/slide show/ a brief presentation about afforestation and its importance.

The teacher can also arrange a nature study camp in any wild life centre or can visit any of the forest area. During the camp the learner can be asked to collect maximum information (photos, leaf lets from the forest office, etc)

After the nature study camp the teacher can provide some reading materials and ask them to prepare a detailed field report.

An album can also be prepared.

The teacher can adopt alternative strategies also to transact this lesson.

Environment and development: Traditions, concerns and efforts in india. National Report to UNCED, 1992

Ministry of Environment and Forest, Government of India. Annual Report 1993-94  
New Delhi

Ministry of Environment and Forest, Government of India. The state of forest Report, 1991 New Delhi.

**Unit 18 : Rural waste recycling and Management**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b>                 | <b>Learning Materials</b>               | <b>Skills</b> | <b>Expected products</b> | <b>Evaluation</b>                                   | <b>Time</b> |
|--|--|-----------------------------------|---|---------------|--------------------------|---|-------------|
|  | To develop the habit of scientific waste management through exercise in houses by segregating waste. | Experiment<br>Exercise<br>Project | Reading Materials<br>Internet<br>CD-ROM | Observation   | Project Report           | Data collection<br>Analysis<br>Content Presentation | 4hrs        |
|  |  |                                   |   |               |                          |   |             |

# UNIT - XVIII

## RURAL WASTE RECYCLING AND MANAGEMENT

### Introduction

The present human population of India is around 1.04 billion and that of the world is around 6.2 billion. Due to the increase in population, scientific disposal of waste has become a pressing problem. These waste materials are disposed of indiscriminately. As a consequence, the land area used for waste disposal is increasing and the air and water have become more polluted. Therefore waste could be scientifically recycled into compost, biogas etc. This chapter explains the various methods of recycling of waste and other considerable importance in rural economy.

### Curriculum Objectives

- To develop the habit of scientific management of waste through exercise in home by segregating the waste into degradable and non degradable.

### Syllabus: –

Rural waste recycling, biogas plant, compost making

### To the chapter:

This chapter is entitled the various methods of recycling of waste and their importance.

The teacher begins the session by asking following questions.

1. What are the wastes generated from your home?
2. How do you dispose of these wastes.
3. What is the difference between degradable and nondegradable waste.
4. Do you separate the waste into degradable and non - degradable.
5. What is the importance of waste management?
6. How to manage the waste.

Then the teacher explains the differences between degradable and non degradable waste and their importance. Teacher also explains the importance and methods of waste management.

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The teacher asks the students to make two pits near by their house and dump the degradable and non degradable waste separately in to the pits. Instruct how to convert the waste into compost.

Steps in compost making.

1. Collect all the degradable waste.
2. Separate it into dry waste& Green waste
3. Make a pit of reasonable size.
4. Collect some cowdung.
5. Mix it with water and make it in to slurry
6. Pour some slurry to the pit and place dry waste soil and pour some slurry.
7. Cover it with soil and pour some slurry
8. Place some green waste
9. Again pour some slurry make layer by layer and cover the pit.

Then the teacher can instruct the students to bring in to practice in their home for making compost.

The teacher can also suggest the students to prepare a report based an their above experiment

Recycling of Rural waste (Project work)

In order to get a clearcut idea and first hand information on the various methods of recycling, the teacher can propose the steps of projects which are discussed below.

action project

Eg. Projects on vermicompost

- a. Topic selection
- b. Methods & Materials used
- c. Procedures adopted (steps involved in composting)
- d. Observations
- e Result
- f. Interpretation.

(For this purpose the teacher ask the students to contact agricultueal office or practicing farmer to get technical support.)

## Project Reporting Stage

- a. Title of the project
- b. Introduction of the project
- c. Objectives.
- d. Methodology
- e. Study Result
- f. Introduction
- g. Conclusion
- h. Suggestions
- i. Reference

## **Appendix**

### 3. Project Presentation

The project should be presented by the leader of each group and the presented matter should be discussed. After the discussion, proper modification should be made and final project report is to be submitted for the evaluation. At the time of preparing the project it may be presented in simple language within the stipulated time. Condition suggestion etc should be clearly mentioned.

## **Reference**

1. NCERT Textbook XI
2. Textbook of GFC , VHSE, XI
3. Survey of Environment

**Unit 19 : Agencies responsible for rural Development**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b> | <b>Learning Materials</b>             | <b>Skills</b>                | <b>Expected products</b> | <b>Evaluation</b>   | <b>Time</b> |
|--|--|-------------------|---------------------------------------|------------------------------|--------------------------|---|-------------|
|  | To understand various agencies for rural development through data collection | Field Visit       | Reference Books<br>Internet<br>CD-ROM | Observation<br>Communication | Field Report             | Planning<br>Observation<br>Content<br>Participation<br>Presentation | 4hrs        |
|  |  |                   |                                       |                              |                          |   |             |

## UNIT - XIX

# THE AGENCIES RESPONSIBLE FOR RURAL DEVELOPMENT

### Introduction

India lives in villages. About 70% of the population are in villages. By realising this fact, Government of India launched various developmental programmes to uplift the ruralities from poverty to prosperity. This chapter is intended to discuss the various programmes launched by the central and state Governments.

### Curriculum Objectives

- To understand the various agencies for rural development through collection of data from Block development office and other agencies and make an assignment.

### Syllabus: –

Activization of agencies responsible for rural development

(Integrated Rural Development programme, Small Farmers Development Agency, Marginal Farmer Development Agency, etc.)

### To the chapter:

This chapter is designed to explain the various agencies responsible for rural development and their functions. These agencies implement programmes for poverty alleviation, self employment, industrial development etc.

To understand the rural development agencies and various rural development programmes.

The teacher can begin the class by asking some questions to assess the previous knowledge of the learners about backwardness of rural areas.

What are the occupation or source of income of ruralities?

What institutions are there in the areas?

What types of infrastructural facilities are available in the rural areas?

---

The teacher can give a brief description about the rural development agencies and ask the learners to collect data about various rural development programmes from the relevant government offices of the locality or from any social welfare institution or from reading materials.

The teacher can adopt alternative strategies to transact this lesson, through an assignment

Rural Development, National Productivity council New Delhi

NCERT, class XI Text book

**Unit 20 : Development of Rural Industries**

|  | <b>Curriculum Objectives</b>   | <b>Strategies</b> | <b>Learning Materials</b>           | <b>Skills</b>                | <b>Expected products</b> | <b>Evaluation</b>                              | <b>Time</b> |
|--|--|-------------------|-------------------------------------|------------------------------|--------------------------|--|-------------|
|  | To create awareness about the role of rural industries through reading materials and group discussion. | Group Discussion  | Reading books<br>Internet<br>CD-ROM | Observation<br>Communication | Discussion<br>Diary      | Participation<br>Communication<br>Presentation | 2 hrs       |
|  |  |                   |                                     |                              |                          |  |             |

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## UNIT - XX

# DEVELOPMENT OF RURAL INDUSTRIES

### Introduction

Rural industries occupy an important position in our economy. This chapter gives clear cut idea about advantages of rural industries, its problems and measures for development.

### Curriculum Objectives

- To create an awareness about the role of rural industries through reading materials, group discussion and present report.

### Syllabus: –

Innovation and development of rural industries

### To the chapter:

This chapter gives an idea about advantages of rural industries, problems faced by rural industries and measures for the development of rural industries in our country.

1. To have an idea about advantages of rural industries, problems faced by rural industries and measures for the development of rural industries.

The lesson can be presented by showing Charts / pictures/ slide show/OHP presentation about the progress made by Japan and China in the field of small scale industries and the role of small scale industries in their economic development. The teacher may ask questions like

1. What are the advantages of rural industries?
2. What are the problems of rural industries?
3. What are the measures for the development of rural industries?

The teacher can contact the Industries Extension officer in the concerned block and avail his technical expertise on the rural industries and its prospects.

To get a clear idea about the concept, discussion can be adopted as a strategy. Group the learners, guide them with discussion points and provide suitable reference materials

## **Discussion points**

1. Advantages of rural industries
2. Problems faced by rural industries
3. Measures for the development of rural industries

The teacher should see that the learners go through all the topics meant for discussion. The role of the teacher is that of a moderator who is actively engaged in controlling the discussion and supplementing information wherever necessary. The teacher should instruct the learners to incorporate them in the discussion diary.

The teacher can also arrange a visit to the mini industrial estate.

**Unit 21 : Provision for basic health Services**

|  | <b>Curriculum Objectives</b>  | <b>Strategies</b> | <b>Learning Materials</b>           | <b>Skills</b>                | <b>Expected products</b> | <b>Evaluation</b>                   | <b>Time</b> |
|--|---|-------------------|-------------------------------------|------------------------------|--------------------------|-------------------------------------|-------------|
|  | To understand basic health services through interaction with community health workers and to visit to health centres. | Field Visit       | Reading books<br>Internet<br>CD-ROM | Observation<br>Communication | Field Report             | Report<br>Planning<br>Participation | 2 hrs       |
|  |   |                   |                                     |                              |                          |                                     |             |

## UNIT - XXI

# PROVISION FOR BASIC HEALTH SERVICE FOR THE COMMUNITY

### Introduction

A healthy population is the most important resource of a nation. Every one likes to have long and healthy life. An important objective of government health policy is to provide long and healthy life to the people. This chapter enables the students to know the various provisions for the basic health services for the community.

### Curriculum Objectives

- To understand the basic agencies for health service and health care programmes and STDs through interaction with community health workers, field visit to health centres and present a report.

### Syllabus: –

Provision of basic health service for the community, provision of medical camp, improvement of environmental sanitation, control of communicable diseases, mother and child health care, school health services.

### To the chapter:

This chapter is designed to provide information related to basic health services for the community in India and also information related to communicable diseases, environmental sanitation, mother and child health care. This chapter can be effectively conveyed by dividing the content and applying suitable strategies as follows.

1. Interaction with community health workers
2. Field visit (Steps for field visit are already given in the previous chapter.)

Before the field visit the teacher should direct the students to gather information relating to communicable diseases, mother and child health care and school health services.

After the field visit the teacher can take initiative for lecture with the support of public health department. For this purpose it will be useful to invite the community health workers including doctors for the talk.

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Finally, the teacher can instruct the learners to prepare notes by consolidating the information from the field study, and lecture of the expert.

### **Reference**

1. Environmental Educations & Rural Development K.P. Ashik National publications, Calicut
2. Environmental concern of India NGC, Ministry of environment, Delhi
3. Guide to Green Citizenship NCERT, Delhi.

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## Part - III

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## SAMPLE QUESTIONS

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### Unit -I Introduction to Environment

1. Man is only a component of the biosphere, not the master of environment - Comment.
2. Environmental modification is not at the cost of environment
3. Find match for the following

|             |                     |
|-------------|---------------------|
| Terminology | meaning of the term |
| Ecosystem   | .....               |
| Ecology     | .....               |
| Food chain  | .....               |
| Autotrop    | .....               |
| Biosphere   | .....               |

4. Thoughtless intervention in the environment will upset the balance of nature - substantiate.

### Unit II Environmental Resources

1. Rearrange column B and C to match column A

| A             | B                  | C         |
|---------------|--------------------|-----------|
| Tidel power   | methane            | Mannuthy  |
| Hydel power   | photo voltaic cell | Kalpakkam |
| Nuclear power | gravitational flow | Idukki    |
| Biogas        | Uranium 235        | Kutch     |
| Solar power   | wind mill          | Delhi     |

2. Differentiate between conventional and Non conventional energy with examples.
3. Once fossil fuels are exhausted, what will be the next alternative?



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**Unit VI Land and Land use profile in India**

1. Locate the incorrect match from following.

| <b>Types of Land</b> | <b>Typical use</b> |
|----------------------|--------------------|
| Barren land          | Cultivation        |
| Pastures             | Fodder crops       |
| Fallow land          | Trees or Bushes    |

2. Land can be classified in to different categories depending up on its use. Elucidate.
3. An area of 2 acres of waste land is available near corporation/ cosmopolitan city. How best can it be utilized with out effecting the environment?

**Unit VII Environmental Pollution**

1. Now a days air pollution is a global concern - substantiate
2. Nothing is free from pollution: air, water, soil. Comment.
3. List out the causes, effects and control measures of the following

| <b>Types of pollution</b> | <b>Causes</b> | <b>Effects</b> | <b>Control measures</b> |
|---------------------------|---------------|----------------|-------------------------|
| Air pollution             |               |                |                         |
| Soil pollution            |               |                |                         |
| Water pollution           |               |                |                         |
| Noise pollution           |               |                |                         |
| Radio active pollution    |               |                |                         |

4. Comment the following:
  1. Smog
  2. Acid rain
  3. Green House effect
  4. Ozone depletion

**Unit VIII Hazardous Industrial Products**

1. Find out and write the correct term for each of the following, based on the diseases consequent on the use of Hazardous Materials.

1. Mercury - .....
2. Asbestos - .....
3. Fluoride - .....
4. Cadmium - .....

2. Complete the table with suitable entries.

| Sl. No. | Toxic Metals & Metallic Compound | Sources of Poisoning                        | Consequences of Use of such Materials     |
|---------|----------------------------------|---|---|
| 1.      | Lead                             | -   | Kidney Infections                         |
| 2.      | Mercury                          | -   |   |
| 3.      | Cadmium                          | -   | -   |
| 4.      | Chromium                         | -   | Destroy fish fauna and Fertility of soil. |
| 5.      | Arsenic                          | -   | -   |
| 6.      | Nickel                           | Using stainless steel Utensils for cooking. | -   |
| 7.      | Zinc Cyanide                     | -   | -   |

3. Your neighbor suffering from kidney infection, is admitted in a Hospital. His doctor diagnosed that it is due to lead poisoning. Can you trace out the sources of his lead poisoning?

### Unit IX Degradable properties of pollutants

| Degradable | Non degradable | Pollutants   |
|------------|----------------|--|
|            |                | Aluminium cans<br>Plastic<br>Mercury<br>DDT<br>Sewages<br>Nitrates<br>Phosphates |

Sort out the above pollutants in to degradable and non - degradable.

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2. An industry in your locality uses coal for power generation. The height of the chimney is only 6 meters. Therefore, the air becomes polluted. What suggestion can you give to the Industrial unit.

**Unit IX Environmental Action**

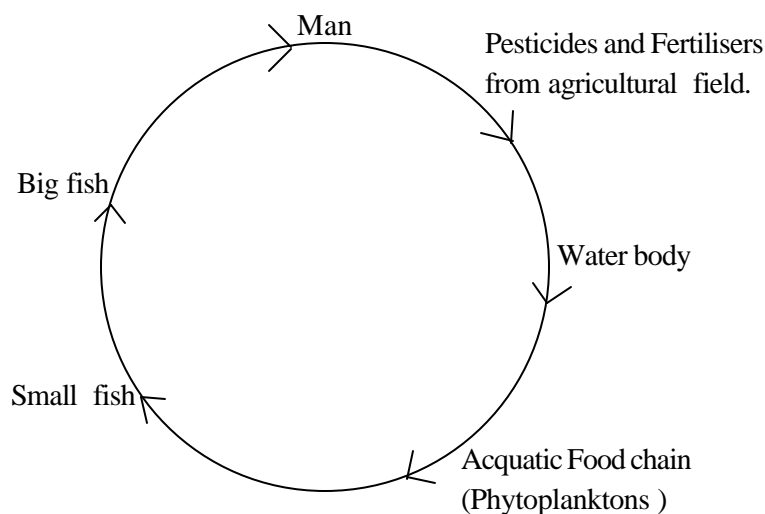
1. Complete the following table based on the indicators provided.

| Over exploitation of Environmental Resources and destruction of Ecosystem | Effects         | Ultimate Result                      |
|---|-----------------|--------------------------------------|
| <b>I</b>  |                 |                                      |
| 1. Smoke  |                 |                                      |
| 2. Chemical waste   |                 |                                      |
| 3. Other Effluents  | Air pollution   | -                                    |
| <b>II</b>   |                 |                                      |
| 1. Untreated industrial disposal  | -               | Heart and kidney disease             |
| 2. Sewage water   |                 |                                      |
| 3. Run off fertilizer from soil   |                 | Breathing problem<br>Health Hazards. |
| <b>III</b>  |                 |                                      |
|   | Sound pollution | Brain problems<br>Deafness.          |

2. The given table is about the Environment protection laws- Complete the table using the information provided in the bracket.

| Environmental Protection Laws  | Year of the commencement of the Act. |
|--|--------------------------------------|
| 1. Air Act   | -                                    |
| 2. Water Act   | -                                    |
| 3. Environment Protection Act.   | -                                    |
| 4. Air (Prevention and control of pollution) Act<br>(1981, 1977, 1986, 1974, 1969) | -                                    |

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3. The following are some of the world level conventions. Classify and tabulate them.
    1. The Agenda 21
    2. Observation of world Environment Day
    3. The use of CFC has to be abanded by 2000 AD & by Developed countries by 2010.
    4. An umbrella agreement to take action to mitigate the causes of global warming.
    5. June 5, 1972
    6. Riode janeiro in 1992.
    7. Mentred 1987
    8. Dec 29, 1993
    9. Stabilize the emission of Co2 - by the year 2000 at 1990's level (Developed countries), year of the convention 1992.
    10. Demand of Developing nations for recognition of their national sovereignty over their genetic resources.
  4. Survival in the future depends on finding a balance between man and nature in a world of limited resources - Refute.
  5. "We must learn the principle of nature and live in harmony with nature". Comment.
  6. Conservation of Environmental resources is the end of the hour. Why? Comment.
  7. "Energy saved means energy produced" Substantiate.
  8. The following is a Biomagnification cycle.



Prepare a similar type of Biomagnification cycle

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**Unit X      Typical Environmental Problems**

1. Deforestation and Green house effect are closely related. Justify.
2. Large scale deforestation, if continues unabated, will threaten the normal existence of man on earth. Substantiate.
3. The tiny land of Kerala is burdened with all sorts of environmental problems. Elucidate.
4. A person who had been residing in a village nearby a forest went abroad with his parents in his childhood. After a long period he came back to his village and knew that the forest is gradually becoming desertified. He wants to save the forest from desertification. How can you advise him?

**Unit XI      Occupational Safety**

1. "Prevention is better than cure" - Evaluate the proverb in relation to occupational safety.
2. One student, who is working in a bio medical lab, got an electric shock. How do you react?
3. Death due to electrical shock (Electrocution) is common. List out the precautionary measures.
4. "Safety management provisions are required in a factory" Explain.
5. Be cautious against hazards due to fire - Elucidate.

**Unit XII      Occupational Hazards**

1. Arrange the following causes and diseases arising from different occupations.

|                                    |                                |
|------------------------------------|--------------------------------|
| Sugar cane dust                    | - Blood and bone marrow cancer |
| Benzene used in paint companies    | - Cataracts.                   |
| Glass making                       | - Bagassosis                   |
| Iron making<br>(Black smith's job) | - Siderosis.                   |
| Excessive noise                    | - Asbestosis                   |
|                                    | - Boiler makers deafness.      |
2. List out and explain different types of occupational diseases.

**Unit XIV**

1. Many drugs are used for non- medical purpose and its prolonged use leads to drugs addition, Elucidate.

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2. Enumerate different types of drugs which are being misused.
  3. Drug addiction can seriously affect our mental and physical health. Evaluate.
  4. Narrate the reason for the spread of drug habit in India.
  5. All kinds of drugs change the mood of the users but at the same time they may directly affect the brain and heart. Comment.

#### **Unit XV**

1. India is rich in resources inhabited by poor people. Comment on this statement.
2. Is population is an asset or liability to a country like India?

#### **Unit XVI**

1. Agriculture is in a backward state in India and is the cause and the result of our rural poverty. How can this be overcome?
2. The well being of majority of Indians depends directly or indirectly on the prosperity of agriculture. - Elucidate.

#### **Unit XVII**

1. Find out the Correct match.

| A  | B    |
|--|------|
| Actual percentage of forest in India           | 15   |
| Required percentage of forest                  | 19.4 |
| Culturable waste land in million hectares      | 20   |
| Barren land in million hectares                | 33   |
| Dense forest area of India in million hectares | 12   |

2. Economic development sometimes reduces forest. But we can economically develop by afforestation. Are the above statements true, Why?
3. Afforestation doesnot mean growing any trees. It is an activity to protect nature as well as a source of income what are your suggestions?
4. If almost all the trees are cut away by the government or an agency from your village, what should you do, as a committed social welfare activist ?

#### **Unit XVIII**

1. The revelance of Biogas in the context of conventional energy source?
2. Your opinion about in the merits of Biogas.

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3. Suggest certain measure to recycle the degradable waste.
  4. Suggest certain techniques for the recycling of rural waste.

### **Unit XIX**

1. Your neighbour is a licenced auto driver. He wants to buy an autorikshaw. Can you suggest suitable scheme for financial assistance.
2. Expand the following.
  1. IRDP
  2. TRYSEM
  3. PMRY
  4. SGSY
  5. FWP
3. List the major function of various agencies for rural Development.

| Agencies                            | Major Functions |
|-------------------------------------|-----------------|
| 1. SGSY                             |                 |
| 2. PMRY                             |                 |
| 3. Annapurna Yojana                 |                 |
| 4. Pradanmanthri Grama Sadak yojana |                 |
| 5. Pradanmanthri Gramayojana        |                 |

### **Unit XX**

1. Rural industries help the balanced growth of the economy. How?
2. From employment angle rural industries are more credible. Do you agree. Justify your answer.

### **Unit XXI**

1. The Health condition of mother and children is the curse in a welfare society. Substantiae?
2. List out special health programme to the children and mother?
3. List special nutritional programme to mother and children?
4. Health has an important bearing on the development of human resources in the country comment?
5. Poor sanitation, poor housing and unhealthy living conditions are the root causes of many rural diseases in the country substantiae.