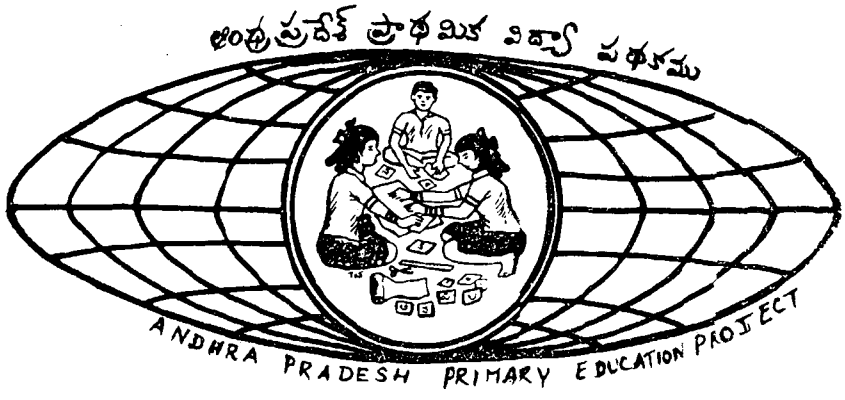
Andhra Pradesh Primary Education Project

(A. P. P. E. P.)

COURSE V: INITIAL IN-SERVICE TRAINING FOR TEACHERS

PARTICIPANTS COURSEBOOK



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THE ANDHRA PRADESH PRIMARY EDUCATION PROJECT

(APPEP)

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ISSUED BY:

The Project Director,
Andhra Pradesh Primary Education Project,
Hyderabad
1989

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THE ANDHRA PRADESH PRIMARY EDUCATION PROJECT

(APPEP)

INTRODUCTION

The Andhra Pradesh Primary Education Project (APPEP) commenced with a Pilot Phase in 1984. In 1988 it was agreed to spread the project to all schools in Andhra Pradesh. This dissemination began in 1989 and this Coursebook is one of a series produced to assist in this process. The Coursebook is intended chiefly for primary teachers and it contains all the material needed by participants during their course. The materials are arranged in sequence to follow the course timetable so as to enable you to find individual items easily.

1. THE OBJECTIVES OF THIS COURSE

The purpose of this course is to introduce primary school teachers to the Andhra Pradesh Primary Education Project (APPEP) and to the activity-based approaches to learning adopted for APPEP, and to see this in relation to the response of the Government of Andhra Pradesh to the National Policy for Education. All primary teachers in Andhra Pradesh will receive an initial inservice course and later a 3 day follow-up course. In addition all teachers will be able to attend regular monthly meetings at their Teachers Centres.

By the end of the course you will:-

1. Be aware of recent developments and thinking regarding primary education both in India as a whole, and Andhra Pradesh in particular; and have considered your specific duties in relation to the NPE programme of action.

2. Be aware of the background to APPEP and the six principles which underpin the project.

3. Understand how APPEP fits into the strategy for improvement in primary education district by district in the next few years.

4. Have examined the application of the six principles to each of the four main subject areas of Language, Mathematics, Science and Social Studies.

5. Have practised appropriate techniques in the teaching of these subjects, so that you may continue to use these techniques on your return your own schools.

6. Have examined closely the concept of mutual support for teachers within the school, through the Teachers Centres and from the MEOs.

7. Have prepared details of individual assignments and action research to be completed before the 3 day follow-up course.

2. TIME-TABLE FOR COURSES CONDUCTED AT MANDAL CENTRES

DAY	0900-0945	1000-1120	1145-1300	1400-1530	1545-1700
1		Opening Ceremony. Primary Education in India	Structure of Course and APPEP Principles	NPE-1 Bloom's Taxonomy etc.	Teaching Aids Continuous Assessment
2	NPE-2	Group I Language Group II Mathematics	Teachers' Teachers'	Activities Activities	Continuous Assessment Assignments Action Research
3	NPE-3	Lesson Preparation Periods 1, 2 and 3	Teaching Preparation	Teaching with children	Discussion of lessons. APPEP Principles
4	NPE-4	Group I Science Group II Soc.Studies	Teachers' Teachers'	Activities Activities	Continuous Assessment, Assignments Action Research
5	NPE-5	Lesson Preparation Periods 1, 2 and 3	Teaching Preparation	Teaching with children	Discussion of lessons. APPEP Principles
6	NPE-6	Group I Mathematics Group II Language	Teachers' Teachers'	Activities Activities	Continuous Assessment, Assignments Action Research
7	NPE-7	Lesson Preparation Periods 1, 2 and 3	Teaching Preparation	Teaching with children	Discussion of lessons. APPEP Principles
8	NPE-8	Group I Soc.Studies Group II Science	Teachers' Teachers'	Activities Activities	Continuous Assessment, Assignments Action Research
9	NPE-9	Lesson Preparation Periods 1, 2 and 3	Teaching Preparation	Teaching with children	Discussion of lessons APPEP Principles
10	NPE-10	APPEP Principles Assessment of displays	Assignments Action Research	Who can help me? (Professional support)	Evaluation of course Closing Ceremony

3. THE ANDHRA PRADESH PRIMARY EDUCATION PROJECT (APPEP).

A BRIEF HISTORY OF APPEP:

In 1983 The Government of India and the United Kingdom agreed to carry out a Primary School Project (PSP) in Andhra Pradesh. It was agreed that the best ways to help bring about improvements in the schools would be to provide more classes and additional in-service training for the primary school teachers. To do this it was decided:

a. To establish a Project Head Quarters in Hyderabad, with a Project Director. In addition to an Administrative Unit, the Head Quarters was divided into 3 cells i.e.

i. A Human Recource Development Cell.- to organise the training of the teachers.

ii. A Design Cell - to design school buildings and supervise their construction.

iii. An Evaluation Cell - to monitor progress of the PSP.

b. To carry out an experiment to see if the introduction of new approaches in teaching would be acceprable in Andhra Pradesh. To do this it was decided:

- To choose 11 district which were grouped into 4 clusters.

- In each district to select 3 blocks.

- In each block to select 10 schools.

This meant 330 schools but in fact only 328 schools participated.

c. To provide training for the teachers in the trial schools. To do this it was decided that:

- Some teachers in the Project would receive training in U.K.

- There would be training in Andhra Pradesh. Courses each of 5 days were conducted at State, Cluster and Block levels.

- Teachers should meet regularly at Teachers' Centres. One school of the 10 selected schools in a block became a Teachers' Centre. Here all the teachers from the Project schools met for one day a month for a programme of activities.

Im 1987 the project was evaluated and it was agreed that the experiment had been successful. It was also agreed to develop pllans for the spread of the project throughout Andhra Pradesh. Thhis dissemination is called Phase II and the intention is that alll teachers in all schools will participate in the project. For Phase II the project was renamed and is now called the Andhra Pradesh Primary Education Project or APPEP for short.

In Phase II APPEP will be introduced gradually year by year from 1989. Nine district will enter APPEP in 1989, eight more in 1990 and the final six in 1991. This will be linked to the establishment of District Institutes of Education & Training (DIETs). Within each district the introduction of APPEP will take five years 20% of the mandals adopting APPEP each year. All the teachers in each school in each mandal will be trained at the same time. Some teachers will receive their training at the DIET and others at the mandal level. All teachers will receive the same training i.e.

Initial Inservice Course	10 days (18 if at the DIETs)
Follow up Course	3 days
Teacher Centre Meetings	1 day meetings held 6 times each year.

Teachers and schools will be grouped with between 20 and 30 teachers in each group. For each group one school will be chosen as the Teachers' Centre.

Phase II will also include the building of new schools, classrooms and Teachers' Centres and all the school and centres will receive supplies of teaching materials to help in the development of the new ideas of APPEP.

THE PRINCIPLES OF APPEP

You should have already received and read your Pre-Course Material which discussed the ideas behind APPEP in detail. You should also have thought about the questions given in the Pre-Course Material. Here are another set of questions for discussion.

a) Providing Learning Activities

1. Make a list of the activities that you gave your children over a period of a week.

2. Can you attempt to classify these activities in some way? For example, copying, drawing, finding answers in the textbooks, solving problems, writing notes in a book.

3. How many of these activities required the children only to record what they had already done?

4. How many of the activities required the children to think deeply about their work?

5. Do you think the activities you gave the children were good ones? How do you judge good activities?

b) Promoting Learning by Doing

1. Why in mathematics do we use sticks, stones, bottle tops or seeds?

2. Why do we sometimes use seeds to help in the teaching of writing?

3. Why do we take children out of the classroom to a local place of interest?

4. Why do we provide children with plants, jars, soil and water for experiments?

5. How does all this practical work help the children to learn?

c) Developing Individual, Group and Whole Class Work

1. When do you think the children should work as individuals?

2. Are there any occasions when children cannot work in groups?

3. When is it a good idea to keep the class together as a whole?

4. Why do many people think that teaching the children as a class can be a poor method?

5. Can you combine individual, group and whole work in a single period?

d) Recognising Individual Differences

1. Make a list of the differences between children that we should take note of in our teaching.

2. Why is it important to notice individual differences?

3. Why do individual children vary in their performance betweeen subjects?

4. Why do individual children vary in their performances in one subject over a period of time?

5. How can we provide for individual differences when there are very many children in the class?

e) Using the Environment

1. What do we mean by the environment?

2. Can you say how you made use of the environment during your teaching in recent weeks?

3. As a group can you produce a list of items from the environment you have used in your teaching? Classify these items in some way.

4. Do you think using the environment in your teaching takes as long, longer or not so long as teaching from the text-book??

5. Do the children enjoy the lessons when you use the environment? If yes, why? If no, why not?

f) Creating an Interesting Classroom

1. What can you do to make your classroom interesting for the children?

2. Do you provide displays? If so, why?

3. What is the purpose of display?

4. Which of the children's work should or should not be displayed?

5. For how long should the children's or teacher's work remain on display?

4. OTHER IMPORTANT IDEAS TO TAKE NOTE OF:

BLOOMS' TAXONOMY OF EDUCATIONAL OBJECTIVES

In the 1960's Benjamin Bloom and his colleagues thought it important to try to be more precise about what we do when we teach children or adults. Bloom thought it was possible to define what we try to achieve in a lesson in terms of the objectives we try to reach. He then made a list of these educational objectives and classsified them into different categories to produce a composite list. This he called his **'Taxonomy of Educational Objectives'** and this has had an important influence on thinking about how we should organise our lessons. The Government of India has now adopted Bloom's ideas as policy for use in our schools. We must therefore try to understand more fully what Bloom's ideas mean for us in preparing our lessons.

It is necessary first to explain more generally what Bloom's Taxonomy is. He classified all his educational objectives into 3 broad areas; these he called **'domains'**. The three domains are:

1. The Cognitive Domain.
2. The Affective Domain.
3. The Psychomotor Domain.

1. The Cognitive Domain:

This domain involves all our intellectual processes such as remembering, understanding, interpreting, analysing and making judgements. Some of these intellectual processes are simple such as remembering facts. Other are more complex and depend upon our being able to carry out the simpler processes. For example, If we are to explain why rivers flow down hill to the coast we first remember what a river is.

Psychologists and educationalists have identified four levels of intellectual processes which are linked to the level of difficulty of the process involved. The levels are:

- Knowledge (K): Remembering things.
- Understanding (U): This requires being able to explain what things mean. We may know that the sun is hotter at midday than in the early morning but do we know why it is so?
- Application (A): Being able to use information in some way. We may know Pythagoras' theory but can we apply it make a right angle on the ground when starting to build the corner of a house.
- Creativity (CRE): This involves a number of processes. The first is the ability to look at an unfamiliar situation or problem and to separate the known or familiar from the unknown or unfamiliar aspects. This process usually referred to as analysis helps you understand the new situation or problem.

CRE also includes the ide he collecting together of information to help explain something which has been observed. We notice that most farmers eat little during the day and eat their main meal in the evening. How can we explain this?

The answer to this leads to our creating new explanations of events and to originality. It involves our use of imagination and reasoning to reach our conclusion.

CRE also involves evaluation. This means making judgements about things in our lives - what to wear, which food we eat and so on. We also decide if we like to listen to the radio, go to the cinema or read a newspaper. We also make judgements about the books we read and our educational experiences. Children have to learn to make judgements and as teachers we can help them make their judgements by giving them practice in doing so.

2. The Affective Domain:

The affective domain is less concerned with what we know and more with what we feel about things.

Interests (I): We all have different interests because some things we like and others we do not. Some people like to read a lot of books, others do not enjoy books. Some people are very interested in football or cricket. Developing interests is most important in children. If a child finds a topic interesting she/he will find it easy to learn. The child will be motivated to learn even very complicated ideas.

Appreciation (Apr): Very often appreciation is connected to music or art or painting. Some people think very highly of a particular way of singing, others do not enjoy that style so much. Each person however does decide what is liked: each person attempts to make an appreciation of the singing. The same need to appreciate can be related to all aspects of life such as a good family, friendly relationships, food, clothes, and good behaviour to give but a few.

Attitudes (Att): We may have different attitudes to things we observe. Some people may be indifferent to the suffering of others. Other people may want to do all they can to help others. We all have attitudes which influence the way we respond in circumstances and we have attitudes to every-day things like smoking, our standard of dress, travelling on buses, on trains, or in cars, the opposite sex.

Value (V): Our attitude to things show our values. If we see a person who is injured we may feel great sympathy because we place a high value on being healthy and fit. This same value may reflect our attitude to keeping fit through sports or what we eat.

Opinions differ us to whether we should formally teach attitudes, values, or appreciation in the school but whether we do so or not in our schools, classrooms or lessons we will be influencing the

development of these aspects of the affective domain by our conduct, organisation and ways of speaking with children and our colleagues.

3. The Psycho-Motor Domain:

This domain deals with the co-ordination between the brain and the actions we take.

Manipulative Skills (MPSK):

These are to do with our ability to handle things. Picking-up pins or a small stone requires good manipulation of the fingers and co-ordination of the brain, eyes and hands. Writing is a good example of a manipulative skill, so is drawing a picture or a straight line using a scale.

Often manipulative skills (or motor skills) are given more precise names such as:

- Correctness (errorless) - being able to copy actions correctly.

- Accuracy - being able to draw pictures or letters of the alphabet with accuracy.

- Speed - being able to carry out an action quickly - like catching a ball or running.

- Co-ordination - being able to co-ordinate say your brain, eyes and feet to kick a football. Often children at puberty have poor co-ordination.

- Productivity - being able to produce a result with the minimum use of energy - such as lifting a plate with one hand and not two as a young child would.

All these skills are essential and can be developed by the exercises we give our children.

Bloom's Objectives and learning outcomes:

This aspect of Bloom's Taxonomy had led to much discussion and takes us into the realms of different theories of learning. Bloom and others believe that all our knowledge has been learned as a result of tiny, individual learning experiences and in our minds we have been able to put all these experiences together into a whole. Other psychologists disagree with this approach. What Bloom's theory means is that we should be able to be very precise not only about what the learners will do during a lesson but more importantly what they will be able to do at the end of the lesson. Bloom is more concerned with educational outcomes and he insists that these should be stated very clearly in terms of the learners newly acquired abilities at the end of a learning experience. Thus for Bloom an objective is not: 'To teach about number bonds'. It should be 'The pupils will be able to use number bonds up to 10'. The first statement emphasises what the teacher will do and is teacher-centred. The second statement emphasises what the children will do at the end and is

child-centred.

Below are a number of teacher-centred objectives. Under each statement re-write the objective to fit Bloom's ideas of a child-centred approach. Keep you statements short.

1. To teach the children about the sun and moon.

2. To teach the meaning of the national emblem.

3. To teach the rivers of Amdhra Pradesh.

4. To teach vowels.

5. To teach division.

6. To teach about right angles.

7. To teach transportation.

8. To teach that plants need water.

9. To teach poetry.

10. To teach a song.

Using the chart below write what you consider to be the advantages and disadvantages of different teaching aids. Add more aids if you wish.

AID	ADVANTAGES	DISADVANTAGES
1. Textbooks		
2. Blackboard		
3. Flannelboard		
4. Workcards/ Worksheets		
5. Posters/Charts		
6. Models		
7. Kite		
8. Radio/ Audio-cassettes		
9. TV/Videos		
10. Slide/Film Projectors		
11.		
12.		

Introduction

Everyone agrees that assessment is an essential part of teachiinng and learning. The problem is that too often assessment has beeeen restricted to just one way of doing it, namely written teestts and/or examinations.

There is an enormous amount of literature on the short- comiinggs of written examinations as the only form of assessment. Firrsst there is the question of validity, i.e. how are the marks arrivveed at, and what do they mean? For example, what does a mark of 5544% really mean? Are you certain that it represents a bettteer performance than that of a person getting 53%, or worse tha conne scoring 55%? If two examiners marked the same paper (or evveen yourself on a different day!) would they (you) necessarily giivve identical marks? How does any given mark in one subject compsarre to the same mark in another subject?

Next there is the question of how well a pupil does under stresssss; or if he is not feeling well. Is it fair to judge a pupill''s performance over a whole year by what he can write in just 2 orr 3 hours in response to a limited number of questions?

Then tnere is the acknowledgement that written tests tend tto concentrate on the cognitive rather than the affective domains oof learning... And so on.

For these reasons, the term Continuous Assessment has been giivveen to the notion of assessment spread throughout the year, and tthhe use of instruments other than written tests. It is concerned wiitth the progress in learning of individual students, and less wiitth their position relative to one another.

The problems are:

> In what ways, other than written explanaitions, should we assess the children's work?
>
> How often should we assess the work?
>
> How should we keep a record of the assessments made?
>
> What extra work does this mean for the teacher?

It has to be admitted that more often than not, continuous assessment degenerates into assessment by periodic examinstiion rather than simply final examination - largely because of two factors:

- Convenience
- Time pressures on the teacher.

The Practice of Continuous Assessment

In using continuous assessment you have to ask a number of important questions:

1. What do I expect a child to know, understand, and be able to do as a result of my teaching? Do these things include words like "appreciate", "enjoy", "co-operate with", "contribute"?

2. Which of these things can be tested by written tests/examinations? Which of them can't? Continuous assessment will be concerned with things which cannot be dealt with by examinations.

3. Has account been taken of the developmental stages that children have to go though in understanding certain concepts? For example,

   In Language, does the child understand the concept of a sentence?

   In Science, is the child able to observe closely and describe what he sees?

   In Social Studies is the child able to understand the difference between large and small families? Can she say if her family is large or small?

   In Mathematics, has the child understood the concept of 'fair exchange' before attempting place value?

These kinds of questions put the emphasis on stages of children's learning and the fact that children reach these stages at different rates. They also make the point that trying to teach children at a level well beyond (as opposed to "just" beyond) the stage they have already reached is going to be a waste of time.

In your discussions on the first day of each subject module, it would be valuable to consider these stages; consider how you could determine whether a child has reached each of these stages, and if so how. Next, how you would incorporate both the activity and then the record into a child's "Progress Report".

Below are some suggestions as to how you might include continuous assessment in your teaching. The most simple way is to make your "mark book" more comprehensive.

i) by adding columns with different kinds of heading such as:
   "Stages in development"
   or "Work chosen for display"
   or "Title of supplementary readers"
   or "Assignments", and

ii) introducing a variety of different symbols for these

eg. a) For "Stages in development" and "Supplementary Readers"	/	a mark upwards across the "squarre" in the mark boook to show the stage beggun
	and X	a down-stroke acrrcoss to show completticonn.
b) For "Work chosen for display"	*	for outstanding
	+	for good work put up for encouragement
c) For "Asssignment"	✓	for work satisfactorily dlorne
	✓+	for work better tthan satisfactory
	✓-	for work less tthan satisfactory
	0	for work not hamnded in.

Ancther method is to keep an exercise book for comments about ithe children's progress. Allocate one page (2 sides) for each chiilld. Observe each child as often as possible and make notes which will record how the work is progressing. Make sure also the chil.dren keep a record of what they have done.

Work put up for display should not be torn out of pupill's notebooks. Separate paper should be provided and if necessary, ithe work copied out. Why?

A further simple but excellent method is for each child to makte a folder in an early "Art/craft" period and in this put work that he/she thinks represents his/her best efforts. The only likkely problem here is storage - but increasingly this is being dealt with either through Operation Blackboard or directly by classsroom design.

None of these actually involves the teacher in much more work than would have been done otherwise but does provide a record of other things than marks; and something to show visitors/parents as to the children's achievements.

5. **SUBJECT ACTIVITIES:**

THE ORGANISATION OF THE SUBJECTS AND THE TWO-DAY MODULES:

In the sections that follow in the Coursebook there are a series of topics in each of Environmental Studies I (Social Studies), Environmental Studies II (Science), Mathematics and Telugu. These topics are arranged in 2 day modules. The module begins with a series of activities designed for the participants and is followed by a lesson preparation exercise based on the topic. This is followed by a period of teaching with children. the 2 day module ends with a review of the principles of APPEP as they related to the work done in the 2 days. Also through the 2 days thought should be given to how the work of the children would be continuously assessed. All participants will be expected to carry out assignments during the period between this initial course and the follow up course and possible topics for these assignments will be discussed.

Details are given below.

a) Timetable for the two day modules

i) The timetable for the 2 day module will be:

Day 1	10.00 - 11.30	:	Teacher activities
	11.45 - 13.00	:	related to lesson plans
	14.00 - 15.30	:	the following day
	15.45 - 17.00		Continuous Assessment, Assignments, Action Research
Day 2	10.00 - 11.30		Period plans worked upon
	11.45 - 13.00		and completed.
	14.00 - 15.30		Teaching with children
	15.45 - 16.30		Discussion of teaching
	16.30 - 17.00		Review of APPEP Principles applied to subject

i) It is assumed that a total of 40 teachers will take part in the course. At DIETs when there are 80 teachers, they should be regarded as participating in two simultaneous courses.

ii) During the 2 day module the 40 teachers will be divided into 2 groups of 20 teachers.

i) In the first 2 day module the first group will be concerned with one subject area, say Language, whilst the second group will be concerned with another, say Mathematics. In the second 2 day module, the other two subject areas will be covered - Science with the first group and Social Studies with the second.

v The third and fourth 2 day modules will be organised in the same way as the first two except that the subjects will be exchanged, Group I following Mathematics and then Social Studies and Group II Language and then Science.

vi) Each 2 day module will include teaching with a group of children.

vii) Each 2 day module will close with a discussion of the application of all six APPEP Principles to the teaching of the subject concerned.

b) Activities in each 2 day module in each subject

i) The title of the topics overall are defined at the beginning

- On Day 1 a series of activities designed for the teachers related to the selected topics will be provided. The teachers in groups will carry out the activities and prepare appropriate learning materials.

- The morning of Day 2 will be devoted to the detailled consideration of 2 lessons based on the selected topics, 10 teachers considering Lesson A and 10 teachers Lesson B. Each lesson is divided into a number of parts. Only the first 3 parts corresponding to 3 periods on the timetable are shown. The lesson is planned to provide help for the teachers but also to provide every opportunity for the teachers to decide what might take place in the periods.

Period 1 is given in full.

Period 2 is given only in part and the teachers are expected to decide what should take place.

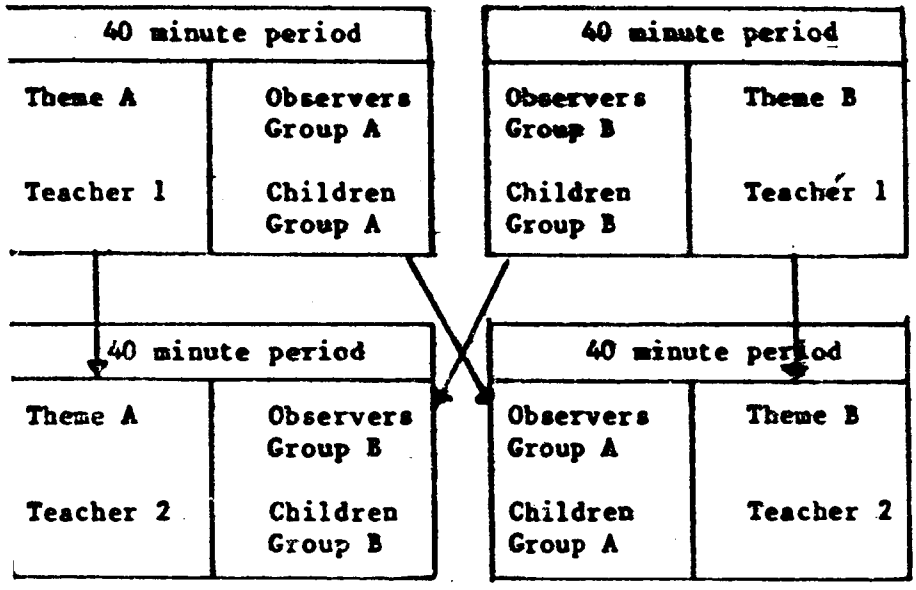
Period 3 is not given at all. Participants are expected to develop the whole of Period 3 and to make sure that Periods 1–3 are planned as a continuous and progressive lesson. They should also indicate how many more periods they consider are necessary to complete the lesson properly. This is explained in greater detail below in the section headed "LESSON PLAN".

THE ORGANISATION OF THE TEACHING WITH CHILDREN:

The intention is that everyone shall contribute to a teaching session with children. It is intended that this teaching shall take place in the afternoon of the second day of the module, and be followed by a discussion. The teaching should be limited to 40 minutes and there should be not more than 20 children in a teaching group.

Two consecutive teaching sessions will take place using the same subject matter, but with different children and presented by a different member of each sub-group of 10 course members. The content and the methodology of the teaching may come from the work already prepared for pupils during the morning of the same day or a new period prepared by the teacher provided it is on the same topic. During each period the remainder of the two sub-groups will act as observers. By the time all four subjects have been completed most participants will have taught one session. A teaching observation sheet is available for those not teaching. A check list is also provided to help you to record your comments, stressing APPEP principles, your thoughts on the materials used, and the manner in which the period is taught.

In diagrammatic form, the arrangements are as follows:



After the teaching sessions there will be a discussion, which will begin with the contributions of the teachers responsible for the actual teaching. This will be followed by a wider discussion based on the observation sheet check list and the observers' comments. All comments should be constructive, looking always to what was seen to be effective, and how improvements could be made.

Content Analysis - with breakdown of objectives in terms of Bloom's Taxonomy.

Period 1	Period 2	Period 3
Title (given) Specific Objective (given) Content 1 (given) 2 (given) 3 (given) Teaching Learning Materials required 1 (given) 2 (given 3 (given) Teacher/Pupil Activities 1 (given) 2 (given) 3 (given) 4 (given) Evaluation of Children's Leraning Comments by the Teacher	Title (given) Specific Objective (given) Content 1 (given) 2 (given) 3 ? Teaching Learning Materials required 1 (given) 2 (given) 3 ? 4 ? Teacher/Pupil Activities 1 (given) 2 (given) 3 ? 4 ? Evaluation of Children's Learning Comments by the Teacher	Title (given) Specific Objective (given) Content 1 No. of 2 headings 3 to be determined Teaching Lerning Materials required 1 Requirement 2 to be 3 determined Teacher/Pupil Activities 1 All steps 2 to be set 3 out 4 Evaluation of Children's Learning Comments by the Teacher
(In this period all this information is given to the teachers)	(In this period about 50% of required information is given to the teachers)	(In this period only the specific objective of the period is given to the teachers)

OBSERVING TEACHING

TEACHING OBSERVATION CHECK LIST

The six APPEP principles through which learning can be improved are:

1. Providing learning activities.
2. Promoting learning by doing.
3. Developing individual, group and whole class work.
4. Recognising individual differences.
5. Using the environment.
6. Creating an interesting classroom.

In observing teaching you should be able to identify where the teacher has endeavoured to apply the above principles with the children. In addition you are concerned with how successful the teacher was, e.g:

A) Did the children work in groups? If so what was the quality of their interaction? Was their discussion productive and did it help their learning?

B) Did the teacher make provision for individual differences between children? If so, how?

These two points A) and B) are examples. You can think of many more.

On the Teaching Observation Sheet the list of headings, which includes the APPEP principles, is as follows:-

a. Clarity of instruction. Did the children know what to do at all stages of the plan?

b. Distribution of material: Was this done efficiently and quickly?

c. Practical work: Was there provision for practical work by the pupils? Was this well organised?

d. Class/group/pair/individual activity: What arrangements were made for such activity/ Did you think a particular arrangement was effective?

e. Discussion: Was there opportunity for pupils' discussion? Was the discussion productive?

f. Environment: Was use made of the environment? If so, was the experience useful for the children?

g. Individual differences: Did the teacher make provision for individual differences? How?

h. Understanding: Did you think the children showed understanding of the topic?

i. Effectiveness of Implementation: Assess the effectiveness of implementation at various stages of the plan overall.

Record your comments in the appropriate box on the chart.

Headings: (a) Clarity of Instruction (b) Distribution of materials (c) Practical work (d) Class/group/pair/individual work (e) Quality of discussion (see (d) above) (f) Use of environment (g) Individual differences (h) Evidence of understanding (i) Effectiveness of implementation

Observation Sheet

You should write comments under the headings a - i (inclusive) as appropriate.

Introduction	
Development (Steps)	
Conclusion	

Overall comment: (good points + suggestions for improvement) _____

_____

6. ENVIRONMENTAL STUDIES 1 (SOCIAL STUDIES)

APPEP PRINCIPLES AND SOCIAL STUDIES

1. Providing learning activities

The children must have opportunities to collect information and use that information in ways suited to their ages, to record what they have discovered or to discover patterns or to suggest explanations for what they have seen. For the lesson 'Our Trees' under Natural Resources the children might:-

visit nearby trees and forests and collect data on the types of trees growing there;

compare small and large trees;

compare fruit bearing and flowering trees;

compare the uses of trees;

draw pictures of trees and soil erosion;

make models using clay and wood;

prepare an album of trees;

make a sketch map of trees;

collect poems about forests, plant growing;

investigate how trees are protected;

find out about community responsibility for trees;

visit a Social Forestry Programme.

2. Promoting learning by doing

Children learn quickly if the teacher provides practical work for them to do. For the lesson 'Rivers of Andhra Pradesh' the children might:-

draw the rivers on a map of Andhra Pradesh;

name the rivers;

locate where dams have been located;

make a model of a dam using clay, plaster of paris;

visit a river or dam near the school;

visit village elders for interviews on rivers, lakes and festivals;

prepare an album with pictures of rivers, dams, etc.

3. Developing individual, group and whole class work

Good teaching provides for children to work in a variety of patterns, i.e. individually, in pairs, groups and as a whole class.

Individual Work

write an individual description of work done.

draw an individual diagram, illustration or map.

make an individual model.

accept and carry out classroom responsibilities.

observe and record information about the topic studied.

Group Work

prepare a diagram or map.

discuss and decide how to conduct a survey.

analyse the data collected on the survey.

prepare an album based on the topic studied.

make a model.

Whole Class Work

arrange for all the class to take part in a field trip with everyone having a special task to do.

all participate in a dramatisation of a famous historical incident.

contribute to keeping the school clean and tidy.

contribute to a discussion about a topic being studied.

prepare and participate in a local festival.

ask questions of a visitor to the classroom, e.g. the health worker.

4. Recognising individual differences

It is important to be aware of individual differences among the children and to provide appropriate work for each child's needs. An effective way of identifying the needs of individual children is by keeping records of what each child does and how successful s/he is:-

provide simpler exercises for the child who cannot draw a map

give extra help to the child who is unable to think of the questions to ask whilst interviewing a resource person

provide simpler activities for the child who cannot record information collected

organise additional activities to stimulate the child who completes the expected work quickly

ensure that in group work the individual talents of each child are drawn upon and developed, e.g. deliberately using those who are best at drawing, writing, planning, dramatising to fulfil these tasks.

5. Using the local environment

The environment around the school is a rich resource for learning and much learning can take place outside the classroom. For lessons such as 'Places of Worship' the children might:-

visit the local temple, mosque or church;

make drawings of the place of worship visited;

observe the places visited;

collect information from the priests;

invite the priest to visit their school to talk about his work;

make a model of the temple, mosque and church using clay, stones, etc., and explain how and why they are different.

In addition lessons can be organised on local crops, hills, rivers, or on local craftsmen such as carpenters, tailors or on local shops, factories, post office or bus stops.

6. Creating an interesting classroom

An interesting classroom will encourage the children to come to school and to learn. The work done in Social Studies can help make the classroom more interesting by:-

provide displays of work done by the children and by the teacher;

attract the attention of the children to new pictures, posters, charts about social studies which the teacher has provided;

arrange the models made by the children in an attractive way.

Each groups or sub-group carries out each activity

1. How important is water in our daily lives?

In groups of 5 discuss how we use water in our daily lives.

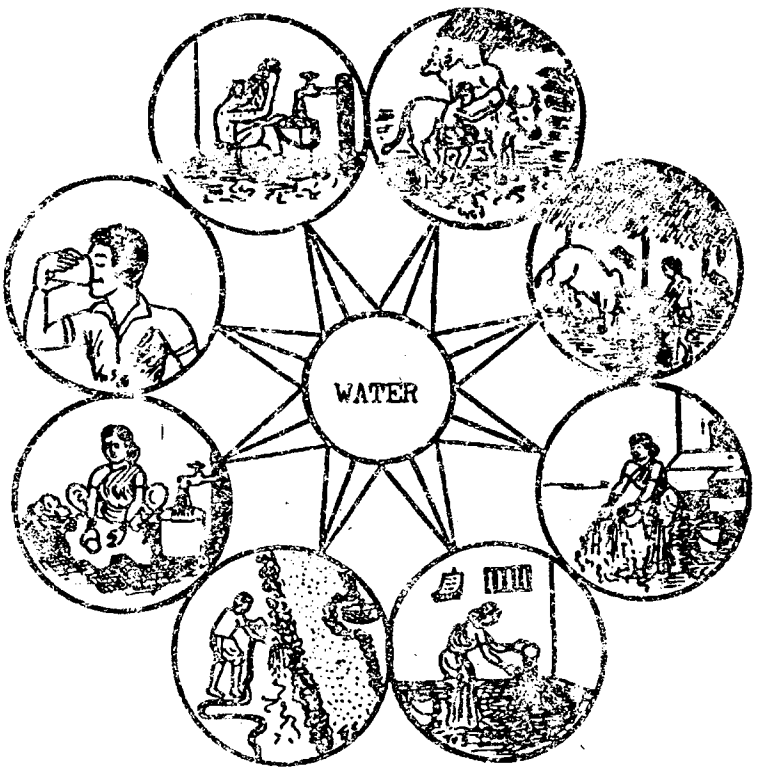
Make a list of our uses of water and arrange the list into the most important at the top and the least important at the bottom.

Discuss the list again.

Design a diagram to illustrate how we use water.

Here is an example. Do not copy this diagram. Make a diagram of your own.

How we use water



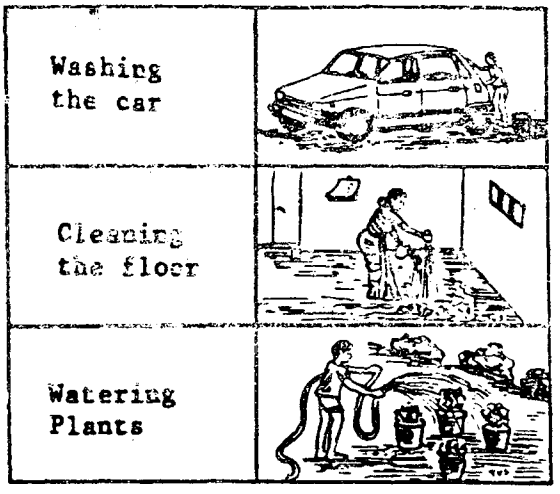
Display your diagram.

2. Which uses of water would you reduce during a drought and in which order?

Use the diagram you produced in Activity 1 as a guide. If the amount of water you have available gradually decreases you will have to reduce your consumption of water. On which use will you economise first: which next? and next? which will be the last use of water on which you can economise? Produce a table to show the results of your discussion.

Here is an example. Don't copy this diagram. Make one of your own.

Uses of water



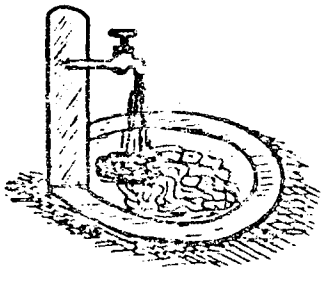
Say why you have chosen the order you have shown in your diagram or table.

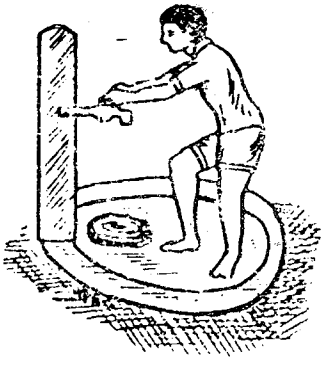
Display your result.

3. How can we conserve our water?

In groups discuss different ways in which we can conserve our use of water. Make a note of possible ways and illustrate.

Conserving water

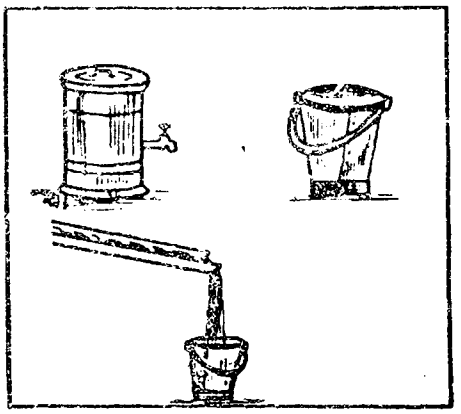




What other ideas do you have. Can we use water more than once? Discuss and make pictures to illustrate you ideas.

4. How can we store water for our daily use?

What are the different ways in which we can store water for daiily use? Make a chart showing different ways of storing water.



Do not copy these. Invent your own.

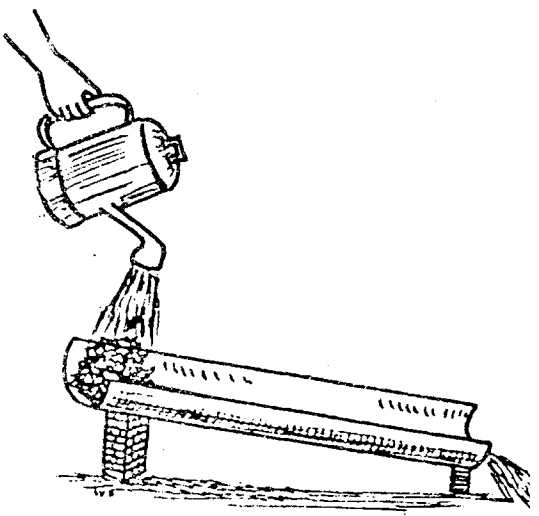
5. Action songs on rain, rivers and water

In groups make a list of the action songs you know about rain, rivers and water. Each person selects one action song and prepares a picture to illustrate the song. Each person then displays the picture and performs the action song. The best song is selected and everyone performs it with actions.

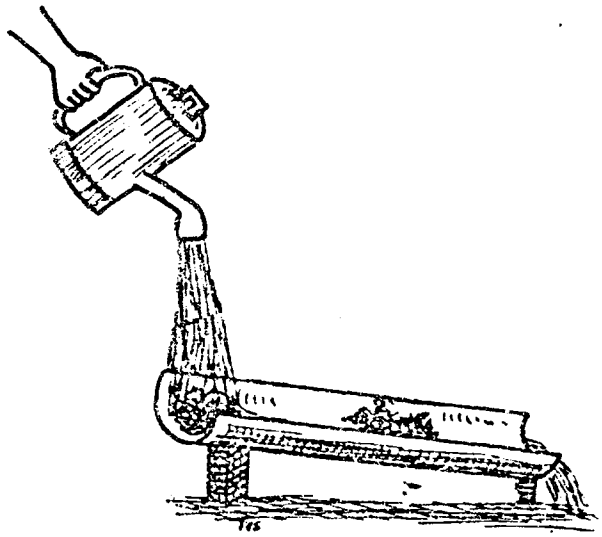
6. Water is destructive

As one group conduct an experiment to show that water is destructuve. Use some suitable material to make a trough and arrange the trough so it slopes downwards towards one end.

Collect some soil and place it in the trough at the upper end. Make sure the soil contains small stones, sand and humus. Pour some water into the soil from a watering can. Try to make it have the effect of rain. Note what happens to the soil. Which parts of the soil are washed away? Which parts of the soil are washed furthest away? Which parts of the soil are most fertile? What is your conclusion?



Place some small stones midway down the trough. Pour more water on the soil. What do you notice happens at the stones you have placed midway? What would happen if the plants are also placed with the small stones? Place the plants there, pour water and observe what happens.



Draw a picture to illustrate what has happened midway down the slope.

Looking for the effects of water nearby

Go outside and try to discover places where the destructive effect of water can be seen.

What are those effects? How can they overcome? Draw a diagram to illustrate or demonstrate what you mean.

SUBJECT: ENVIRONMENTAL STUDIES I

LESSON: WATER — Class I & II

Content Analysis

1. To discover that clouds form in the sky and that clouds produce rain (K).

2. To learn that rain is necessary and we should welcome rain (A).

3. To discover that rainwater collects in different places such as rivers, wells, tanks, ponds, puddles, etc. (K).

4. To be able to carry out a survey of one source of water and report findings (S).

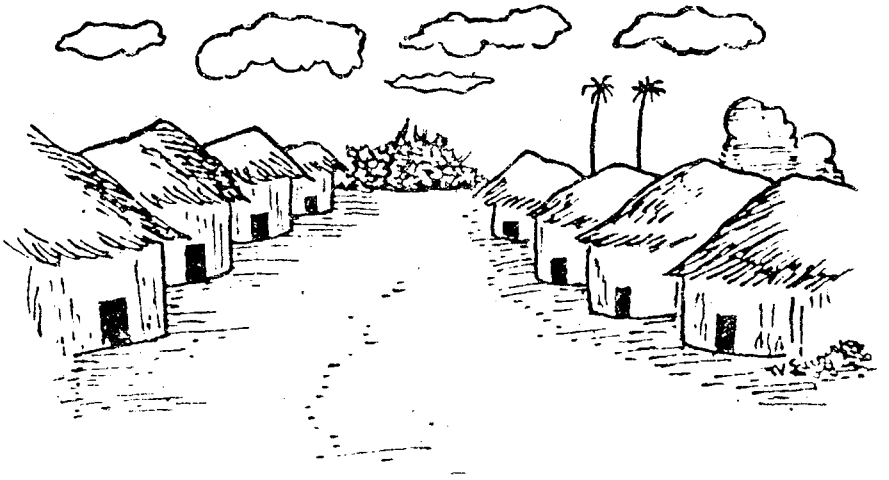
Period 1: The Source of Water — Time: 40 mins

Specific Objective

To help children discover how rain is formed, and what happens to it after it has fallen (see Content analysis 1 and 3).

Teaching/Learning Materials Required

1. Collect pictures of clouds and of falling rain.



2. Collect a few sheets of paper, pencils, brushes, paints for each group.

Teacher/Pupil Activities

1. The children sing the song of 'Vana Vana Vallappa' with rhythm and action welcoming rain.

Vana Vana Vallappa
Vakili Thirugu Chellappa
Chetulu Chachu Mallappa
Thirugu Thirugu Thimmappa
Thiraga lenu Narasappa.

2. The teacher shows the children the pictures and encourages them to talk about rain.

a. What do they see in the sky before it rains?

b. How do clouds form?

c. How do you feel when it is raining?

d. Do you like rain?

e. Where does the rainwater go?

f. Do we need rain? What for?

Evaluation of children's learning

The children draw a picture about rain, label it, and write a few sentences either on how they feel about rain, or what use rain is.

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Visiting one source of water Time: 1 hour 20 mins

Specific Objective

To visit a source of water and to discover what is there (ssee Content analysis 4).

Teaching/Learning Materials Required

1. Select the pond (lake or tank) to be visited.

2. Decide how the visit is to be organised.

3. Make arrangements to enable the visit to take 2 periods.

Teacher/Pupil Activities

1. Divide the children into 4 groups. Groups decide what they most want to investigate and exchange ideas, etc., e.g.:
   Group 1 - To observe and note the things they see in the water,
   Group 2 - To collect samples of water,
   Group 3 - To observe and report on things they see round the pond,
   Group 4 - To discover how the water reaches the pond.

2. Visit the pond; carry out the activities in groups and return to the class.

Evaluation of children's learning

Ask for verbal reports from each of the groups on your return to class.

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Making a report — Time: 40 mins

Specific Objective

To give an opportunity for making a complete report on what has been done and found out (see Content analysis 2 and 4).

Teaching/Learning Materials Required

Teacher/Pupil Activities

Evaluation of children's learning

Comments by the teacher

What went well and why?

What went badly and why?

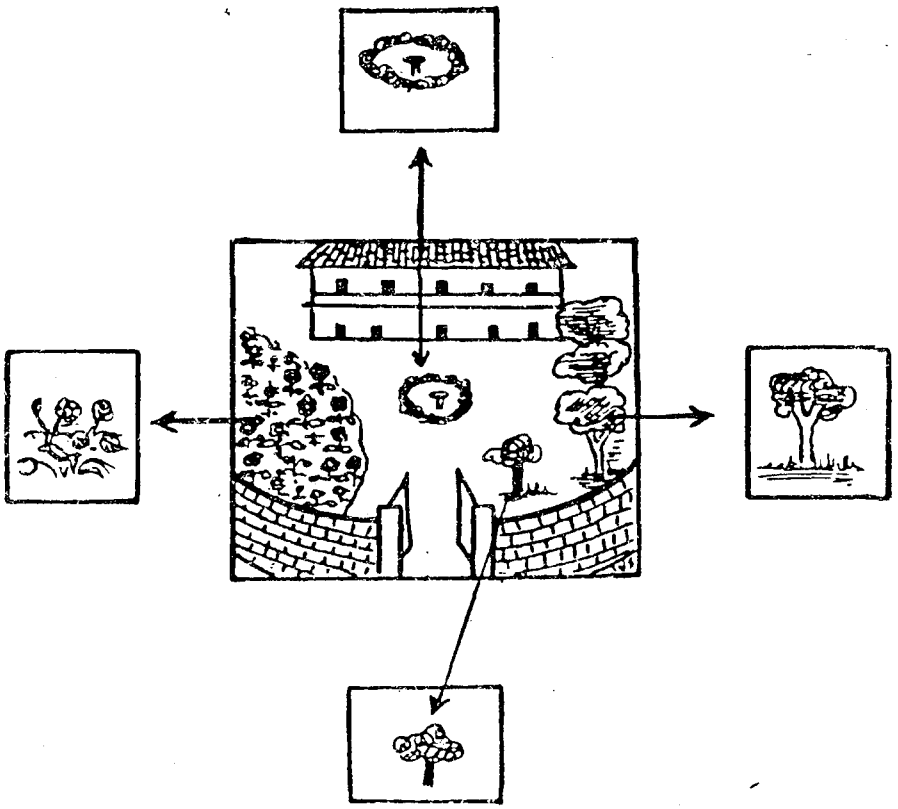
Which children have understood?

Which children need more help?

Each Group does all activities

1. Making a survey of the plants, shurbs and trees nearby

In groups of 5 decide how to conduct a survey of plants, shrubs and trees nearby. Go outside and make a map of the area showing the location of each item noted. Return to the classroom and complete your map showing each item and label it. Which of theese will develop into trees? How many trees are there nearby? Can you see any pattern in the location of particular types of treess and the physical surrounding? For example are most of one typee of trees in one place? If so why do you think that is? Is it something to do with the supply of water or the type of soil there? Discuss possible explanations for the patterm of distribution of trees. Add your explanations to your map e.g..



Do not copy this diagram. Invent your own.

2. What benefits do we gain from trees?

In small groups discuss and list the benefits we gain from trees. Now classify the benefits in same way. One way to classify might be to use heading such as Economic Benefits, Social Benefits Physical Benefits. Discuss different ways of classifying your benefits and dray up a table. Illustrate your table to make it more attractive and interesting. Eg.

Trees provide shade and we can be cool.

Display your table and explain to the other groups what you have done.

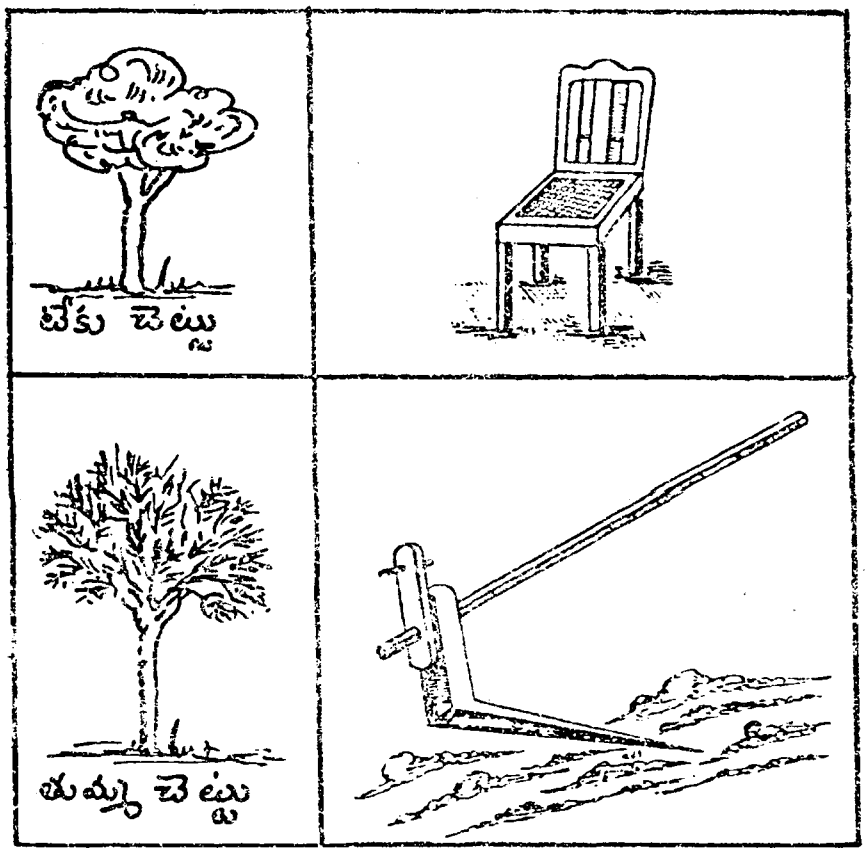
3. Classifying different types of wood

Look at the samples of wood provided and describe what you see. How close is the grain of the wood? How hard is the wood? Is there any connection between the closeness of the grain and the hardness or softness of the wood? Draw up a table with illustrations and classify the woods eg.

Hard woods	Soft woods
teak 	

4. What are different woods used for?

In groups, make drawings of the different types of trees found nearby. If possible attach a piece of the bark and a leaf. Write against this the name of the wood which is obtained from each tree. What is the best use of each type of wood? Why is each piece of wood best suited for that use? Add this information to your drawings.



5. Visit to a shop which sells timber/wood

If there is a shop nearby visit the shop as one group. Before visiting the shop discuss how the visit will be conducted. Arrange who will collect different types of information such as types of wood available, cost, where does the wood come from, who brings the wood, what is each type of wood used for? After the visit return to the workroom and, prepare a diagram to illustrate what you have discovered.

6. An interview with a carpenter:

If possible try to arrange an interview with a carpenter. Decide before the visit the questions that are to be asked and the information to be collected. Where does the carpenter obtain the wood he uses? Why does he buy those woods? What different articles does he make? Why does he use a particular wood for different articles?

7. What can we use in place of wood?

The supplies of wood may become exhausted quickly and we will have to find other materials to use in place of wood. Make a list of as many different uses of wood as you can think of. At the side of each use, suggest what could be used in place of wood. Use pictures to make your list more interesting.

For example:

Wood	Replaced by
	

At the bottom of your list/diagram answer the following question.

Could we replace wood completely?

8. How can we encourage people to plant more trees?

In one large group discuss how to set about planning a campaign to encourage people to plant more trees. Reaforestation especially Social Forestry is of the greatest importance for the future. How could a new campaign be organised? What sorts of publicity would be needed? What sorts of payments might have to be made to encourage people to plant trees? How can the trees be supplied and protected while they are growing?

Decide what other questions need to be discussed.

After a general discussion, divide into two groups and each group draws up a plan for a project to encourage people to plant trees. Each plan should show a timescale over which the project would last and the steps to be taken at each point in the project. The plan would also include new posters and leaflets to be designed and used for publicity.

Each group displays its plan. Each group also discusses and designs the posters and the leaflets. The groups then explain to each other what they have done.

SUBJECT: ENVIRONMENTAL STUDIES I

LESSON: FORESTS — Class IV

Content Analysis

1. To discover the names and types of trees near to the school (K).

2. To learn the types of trees found in Andhra Pradesh (K).

3. To note the locations of different types of trees nearby and in Andhra Pradesh generally (S).

4. To discover the relationship between tree type and environment (U).

Period 1: Trees near our school — Time: 40 mins

Specific Objective

To discover the trees that grow near the school (see Content analysis 1).

Teaching/Learning Materials Required

Select an area for the children to visit near the school where there are different types of trees.

Teacher/Pupil Activities

1. Divide the children into groups and explain that they are to visit trees nearby. Explain what they are to do.

2. Children visit the trees and note:

   a. types of trees,

   b. soil conditions in which trees are growing - dry, wet, stoney, etc.

3. Children return to the classroom and groups report verbally to the whole class what they have seen.

Evaluation of children's learning

Groups produce a drawing of what they have seen with a short written statement.

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

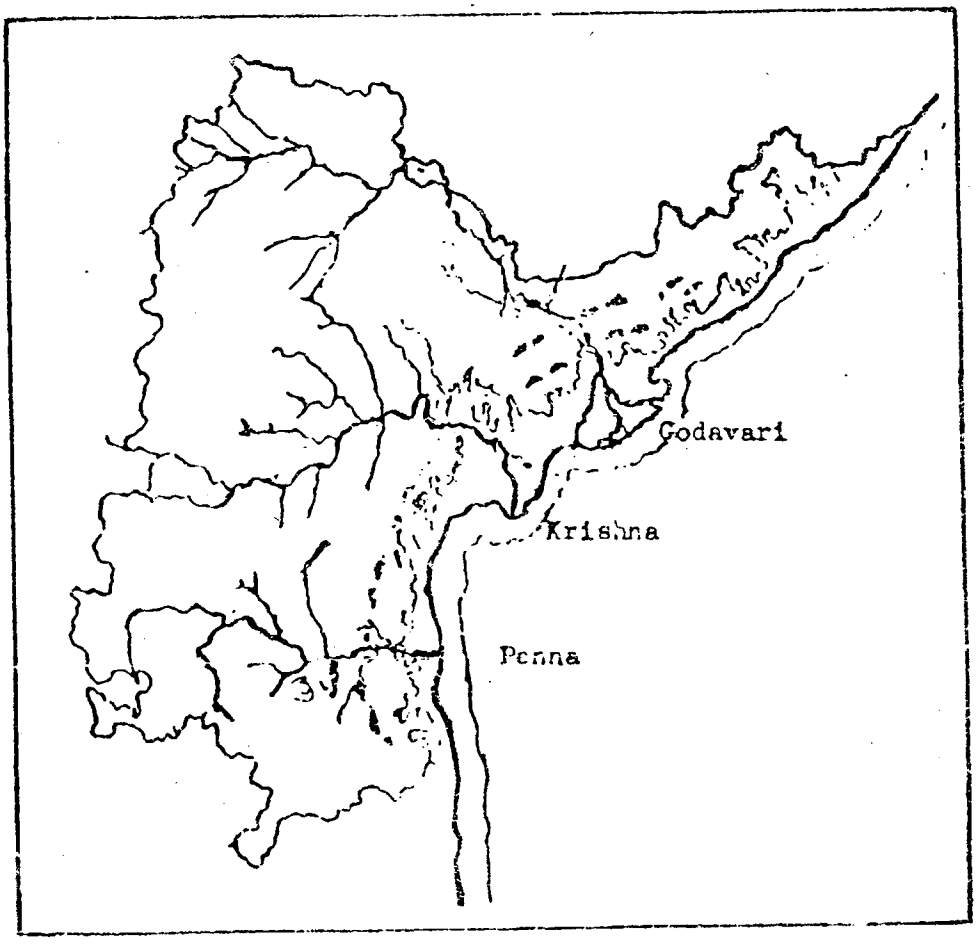
Period 2: Trees in Andhra Pradesh Time: 40 mins

Specific Objective

To help the children discover where the main forests of Andhra Pradesh are (see Content analysis 2).

Teaching/Learning Materials Required

1. Collect a large map of Andhra Pradesh showing mountains and rivers.



2. Make symbols to represent different types of trees.

Teacher/Pupil Activities

1. Supply the map of Andhra Pradesh. Make sure the children know what the signs for mountains and rivers mean.

2. Have the children talk about where they would expect forests to be.

3.

4.

Evaluation of children's learning

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Trees locally and in Andhra Pradesh Time: 40 mins

Specific Objective

To help the children discover that different types of trees are found in different environments locally and in Andhra Pradesh (see Content analysis 3 and 4).

Teaching/Learning Materials Required

Teacher/Pupil Activities

Evaluation of children's learning

Comments by the teacher

What went well and why?

What went badly and why?

Which children have understood?

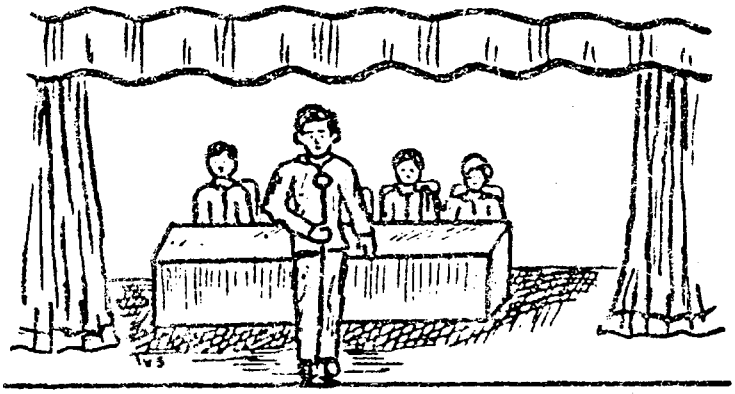
Which children need more help?

TEACHERS' ACTIVITIES FOR DEMOCRACY

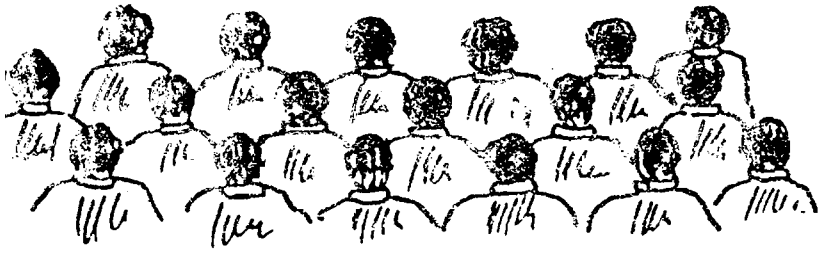
Each group or sub-group carries out each activity.

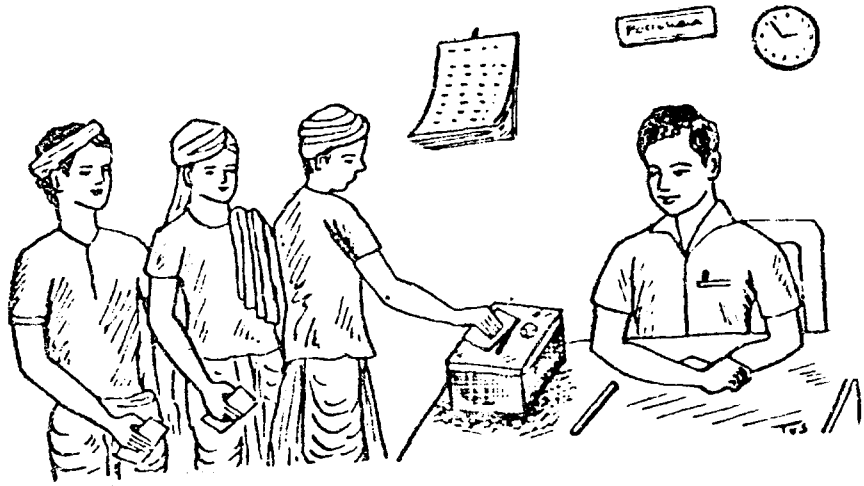
1. What does 'Democracy' mean?

In overall groups discuss how best to illustrate what 'democracy' means. This will require a great deal of thought and discussion. 'Democracy' means Government by the people. Every one has the opportunity to vote for some one to represent them in the Assembly and committees. How are these representatives chosen? Is there any more the representative can do for the voters after he has been elected? Perhaps a diagram might be like this:-

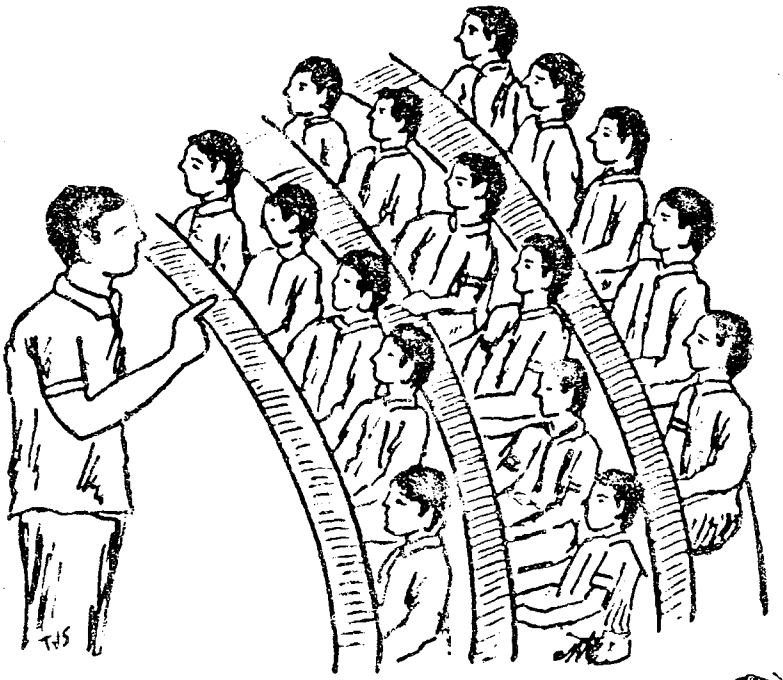


A candidate explains his ideas



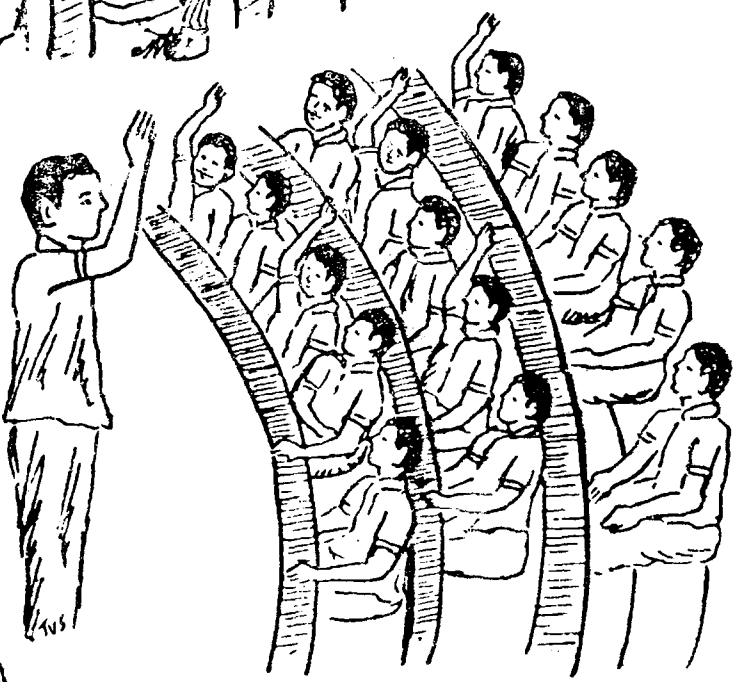


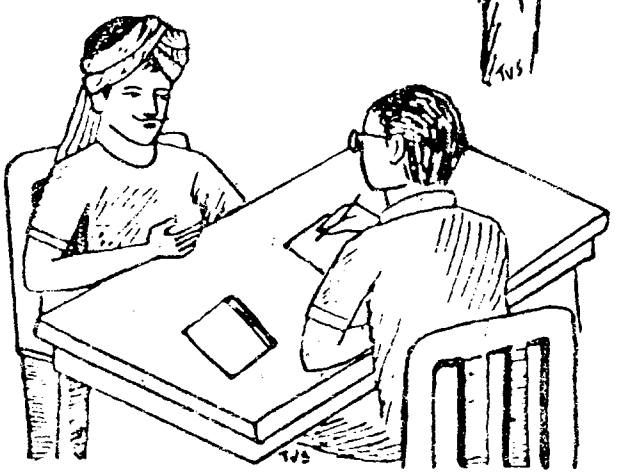
People vote for representatives



The representatives sit on committees and discuss plans.

They vote on what to do.





A voter goes to see his representative to ask advise and explain his problems.

Do not copy this diagram: Invent your own.

When groups have finished their diagram, they display them and explain them to the other groups.

2. What does Democracy means to you?

In this activity the intention is to conduct a survey of opinionss of all the other members of the course. The first step is too discuss the sort of questions that can be asked and how thee answers will be recorded. The next step is to decide how thee results are to used.

a) Which questions to ask? What about these; they are examplles only:-

i) Did you vote at the last local election?

ii) Did you vote at the last national election?

iii) Do you sometimes not vote?

(Add more . . . . .)

b) How to use this information?

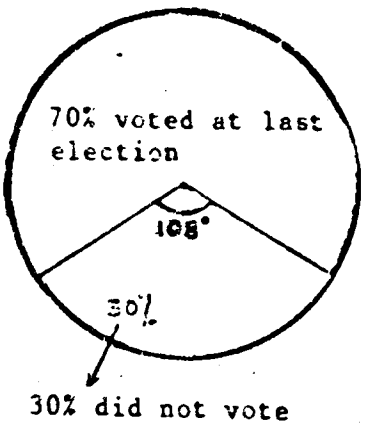
First count the answers and note down the totals e.g.

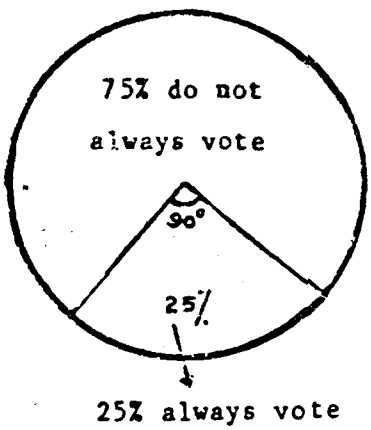
Did you vote at the last local election yes 70 no 30

Did you always not vote yes 20 no 60

c) How can you interpret these figures? Is it true to say that 25% of the people surveyed always vote? Is it true to say that 70% of the people surveyed voted at the last local election?

d) Can you show this on a diagram? What about this as an example:-

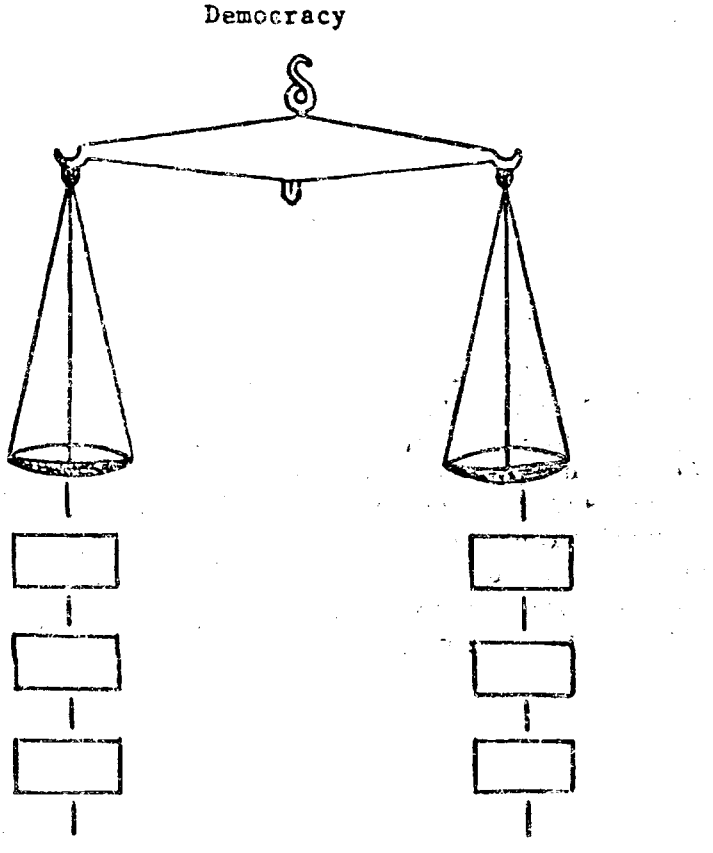




Do not copy this diagram: design new ones of your own.

3. What are the advantages and disadvantages of democracy?

In small groups first discuss the advantages and disadvantages of democracy. Think about how this information could be displayed on an interesting diagram. A simple table may be too dull. Perhaps a balance could be used:-



Separate cards are made and suspended from the balance. Note it is important that the cards are kept the same size or the balance will not balance. Organise a competition between two groups: One for advantages and another for disadvantages. The groups which can provide more cards tips the balance and wins. Add a final sentence below:-

"Democracy is (good/bad) because _____"

4. How can Society be made more democratic?

In this activity the opinions of other course members are investigated again. In pairs you must decide the questions you wish to ask. Ask each participant and record the answer. SSome questions might be:-

Should there be more frequent elections?

Should you have more opportunity to see your representaitive?

Think of more questions.

How will you record the answers on a diagram?

5. Interviewing a local councillor

The course tutor will arrange for you to meet an elected member of the local council. In small groups decide the questions you want to ask and how the answers are to be recorded. Devise also how you are going to use the answers you will receive. Conduct the interview and record the answers. Analyse the answers and draw your conclusion. In groups prepare a diagram to explain what a local councillor does. Include on your diagram the results of the information you collected. Display your diagram and explain your results to the other groups.

SUBJECT: ENVIRONMENTAL STUDIES I

LESSON: DEMOCRACY — Class V

Content Analysis

1. To learn the meaning of democracy (K).

2. To observe and participate in an election so as to see how democracy works (U).

3. To appreciate the value of democracy (Affective).

4. To note how the Zilla Praja Parishad and its committees are organised (A).

5. To discover how to participate in democracy (S).

Period 1: What is meant by 'democracy' — Time: 40 mins

Specific Objective

To help the children discover the meaning of democracy by participating in a class election (see Content analysis 1 and 5).

Teaching/Learning Materials Required

1. The intention is to conduct a class election for one pupil to perform a duty.

2. Select a duty for one pupil to perform.

3. Prepare voting papers and a voting box.

4. Work out in detail how the election will be conducted.

Teacher/Pupil Activities

1. Discuss with the class a duty which a child could perform.

2. Explain how the election will take place.

3. Start the election by calling for nominations.

4. Allow each candidate to prepare and present a speech saying why he/she should be elected.

5. Issue the voting papers and have each child vote placing the voting paper in the voting box.

6. Open the box, count the votes and declare the winner.

Evaluation of children's learning

Have the children explain why the one child was elected.

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Finding out about the Zilla Praja Parishad — Time: 40 mins

Specific Objectives

To help the children learn about local elections (see Content analysis 3).

To discover how those elected to the Zilla Praja Parishad represent the people.

Teaching/Learning Materials Required

1. A diagram showing the organisation of the Zilla Praja Parishad.
2. Diagram to show how a committee works.

Teacher/Pupil Activities

1. Discuss the work of the Zilla Praja Parishad with the children and identify some of its committees.
2. Discuss how a committee is made up. What is the role of the elected councillors?
3. Discuss what a committee does.
4.
5.

Evaluation of children's learning

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Contributing to the work of the Zilla Praja Parishad — Time: 40 mins

Specific Objective

To discover how everyone can make their ideas known to the Zilla Praja Parishad (see Content analysis 1, 3 and 4).

Teaching/Learning Materials Required

Teacher/Pupil Activities

Evaluation of children's learning

Comments by the teacher

What went well and why?

What went badly and why?

Which children have understood?

Which children need more help?

TEACHERS' ACTIVITIES FOR NATURAL RESOURCES

Each group does all activities:-

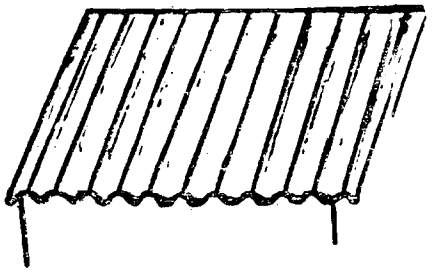
1. Making a list of metals in the work room

In groups of 5, look carefully around the room in which the course is being held, make a note of all the items made from metal. Can you name the metal used? Make drawing of the items you have noted and name the metal.

Display your drawings e.g.

Nail
(iron)

Bowl
(silver)

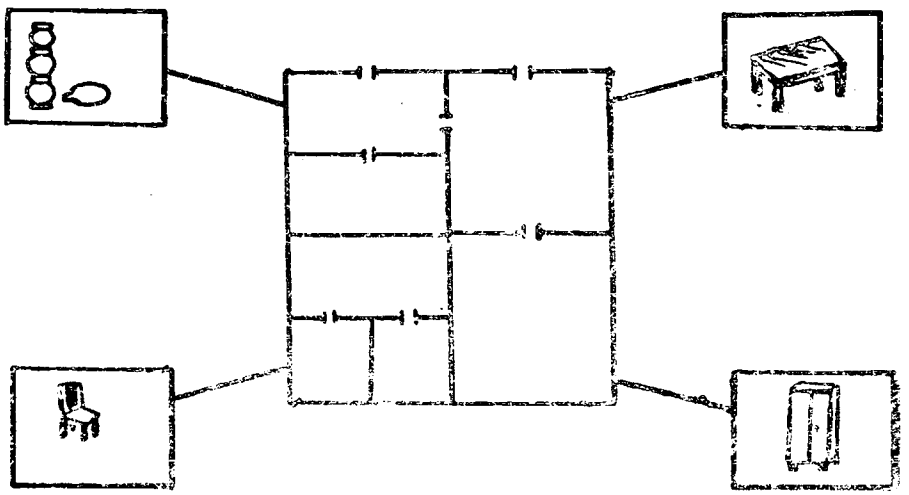


Corrugated iron
(zinc)

Do not copy these: invent your own.

2. What things do we have in our homes, that are made from metal?

Examine the articles provided by the course tutor. Which metals can you identify? Make a list of all the things we have in our homes which are made from different metals. Here is a list that may help. Furniture, utensils, tools, jewellery, parts of the house. Make a chart to show these e.g. a plan of your house.



Display your diagram and explain it to other group.

3. Select one metal

In small groups of 3, select one metal for more detailed study. First make a list of things made from that metal. Draw a chart to show the items and label them. Display the chart and explain to the other groups what you have done.

Gold 

Platinum 

Brass 

Silver 

4. Advantages and Disadvantages of each metal.

Look at the charts produced by the groups for the above activities. Each small group of 3 selects one metal (a different metal from that they chose for activity 3 above). The groups discuss the advantages and disadvantages of their selected metal. These could be shown in different ways. One way would be:

Advantages	Disadvantages

Think of different ways of showing your information. Try to use small pictures which are intended to make you laugh.

5. What could we use in place of metals?

The supply of the different types of metals is not inexhaustible and we need to be careful about how we use the supplies we have.

Each group selects one metal once again and discusses what could be used to replace the metal e.g. wood, plastic, glass, clay etc . For their chosen metal the group discusses and designs a diagram to show what could be used in place of the metal for each use they have listed. Use illustrations to make the diagram attractive. What would be the advantages and disadvantages of the new material used?

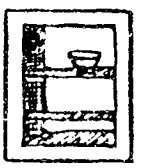
Display your diagram and explain it to other group.

6. How can we reduce our demand for metals?

This follows from the previous activity but places more emphasis on how can we take care of the things we have already.

How can we take care of our metal goods? By keeping them clean and safe. Can you illustrate this? e.g. a bowl left out in the room to rest or placed safely on a shelf. Select a few items we have in our houses or schools and design a chart to show how to look after our things so as to preserve them. In this was we can reduce our demand for metal.

A Chart might look like this

		
Bowl	Left outside	Stored properly

7. What it is like to work underground like a miner?

Perhaps some members of the group have had some experiences. If so encourage them to tell everyone what it is like to go underground to be a miner. If they have not had a personal experience maybe they know about mining from a relative. The whole group divides into pairs and each pair writes a short description together with an illustration. Stories and illustrations are displayed. Each pair tells the whole group what they have done.

8. Dramatising an accident underground:-

If the room has chairs and tables arrange them to form a tunnel to represent the mine under the ground. Divide into 3 small groups. Each group prepares a demonstration about an accident underground. Each group then performs their dramatisation action in turn before everyone. The best dramatisation is judged by everyone.

SUBJECT: ENVIRONMENTAL STUDIES I

LESSON: NATURAL RESOURCES — Class III

Content Analysis

1. To appreciate the importance of minerals in our daily life (A).

2. To discover that minerals come from mines (K).

3. To discover the location, names and products of the mines of Andhra Pradesh (K).

4. To establish empathy with the miners by attempting to imagine what working underground is like (Affective).

5. To appreciate how minerals are used to help us (Affective).

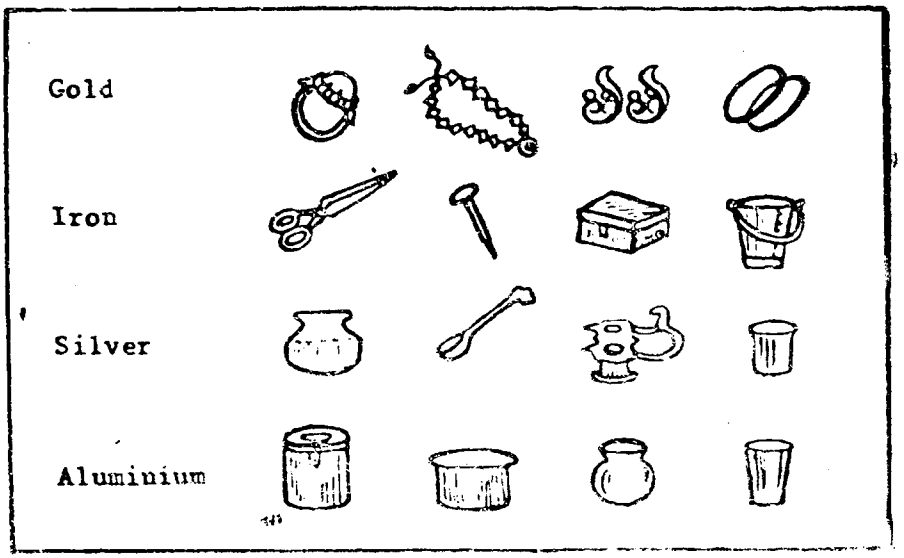
Period 1: The importance of minerals in our daily life — Time: 40 mins

Specific Objective

To help children understand the importance of minerals (see Content analysis 1 and 5).

Teaching/Learning Materials Required

1. A list of articles made from iron, copper, gold and other metals.



2. Note that coal is also a mineral.

3. Collect a number of utensils and implements used in day-to-day life, that are at least partly made of metal.

4. Collect pictures of mines.

eacher/Pupil Activities

Show children the utensils and implements.

Children discuss the metal used for the utensils and implements. Children prepare a list of the articles and the metal used.

Ask children to draw the pictures of the utensils and the implements and display.

aluation of children's learning

k children to list the articles used in the kitchen and the tal they are made from.

mments by the teacher

at went well and why? _____

_____

went badly and why? _____

_____

ch children have understood? _____

_____

ch children need more help? _____

_____

iod 2: Minerals come from mines Time: 40 mins

cific Objective

introduce the children to mines and to think about working ditions underground (see Content analysis 2 and 4).

ning/Learning Materials Required

Prepare a drawing of a mine.

Teacher/Pupil Activities

1. With the drawing of a mine discuss what it is like to go underground and dig for minerals.

2. Ask the children to imagine what it is like to be in total darkness. What would they feel like if the lights went out when they were mining metals below the ground?

3.

4.

Evaluation of children's learning

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

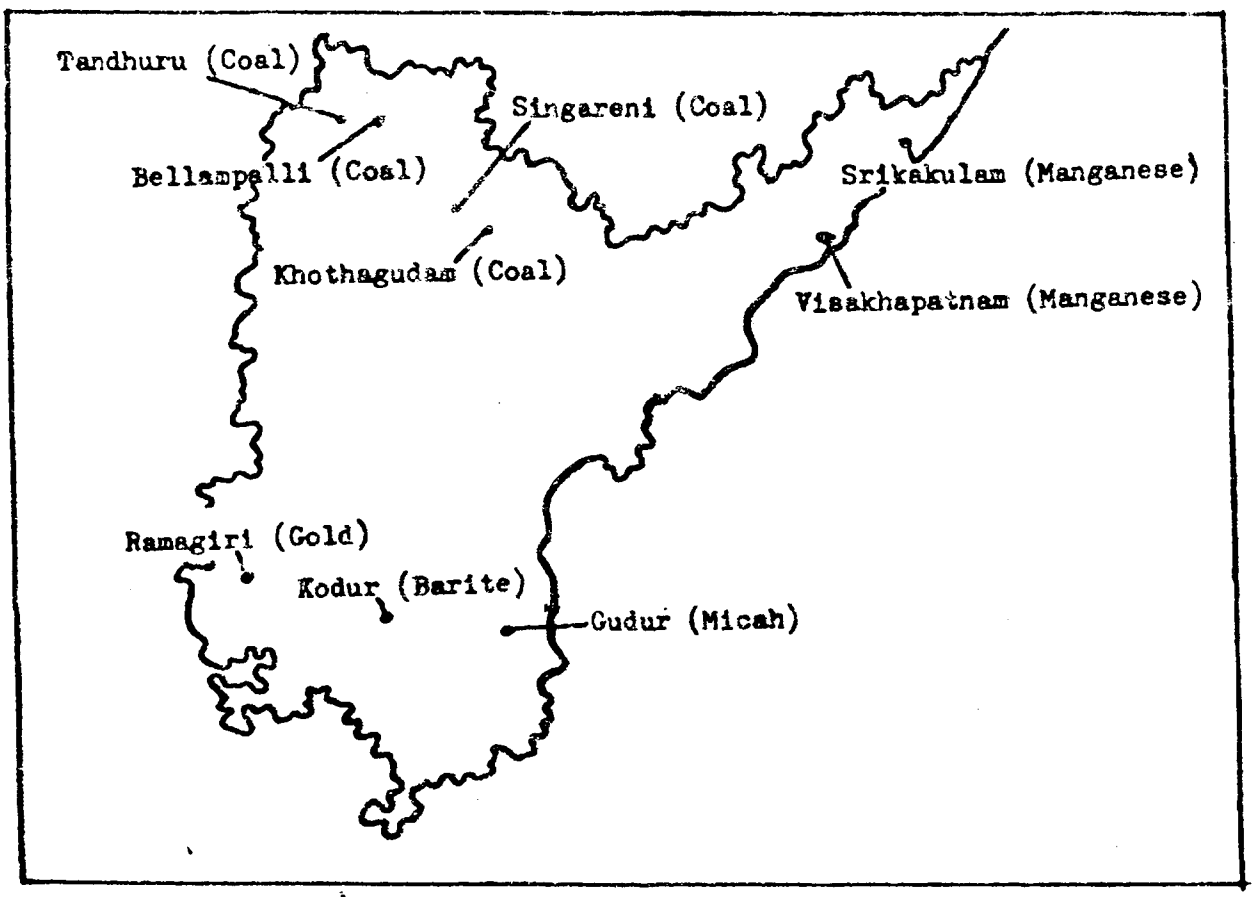
Period 3: The Mines of Andhra Pradesh Time: 40 mins

Specific Objective

To note the mines of Andhra Pradesh and what they produce.

Teaching/Learning Materials Required

1. Prepare a map of Andhra Pradesh giving the names of the places and the products.



Teacher/Pupil Activities

Evaluation of children's learning

Comments by the teacher

What went well and why?

What went badly and why?

Which children have understood?

Which children need more help?

7. ENVIRONMENTAL STUDIES II (SCIENCE)

APPLY PRINCIPLES AND SCIENCE

1. PROVIDING LEARNING ACTIVITIES:

In primary schools children use scientific skills (observing, raising questions, generating ideas, investigating, recording, interpreting, communicating) to find out about themselves and their environment. As a result of their first hand practical experience they will not only develop their scientific skills but will gradually build up scientific ideas about the things that they investigate.

Teachers should ensure that their children engage in practical learning by planning their activities and providing the necessary material. Here is an example:

Activity: A teacher wants the children to find out which fabrics would be best for wearing in wet weather. One way of doing this is to cut squares of different fabrics and test each one in turn by placing it over the open end of a tumbler, holding it taut with a rubber band and then pouring water into it. The time taken for water to pass through a fabric is a measure of its suitability for wet weather wear.

Planning: The teacher must try out the activity him/herself before s/he presents it to the children. S/he needs to do this so that s/he can choose suitable fabrics and select the quantity of water to be poured. By doing the activity personally s/he will also become aware of any possible difficulties and so will be able to help the children when they do it.

Providing materials: This activity requires tumblers, water, something to measure out the water, and fabrics. The teacher must ensure that all of these things are provided at the right time. Where will s/he obtain the fabric? From the children? From their parents? Or will s/he have to buy it? S/he also must decide how s/he will arrange the fabric. Will s/he leave it in one bundle? Or will s/he divide it into a bundle for each group of children?

2. PROMOTING LEARNING BY DOING:

a. Observing:
Children handle objects (plants, bicycles, soil, people...) and they can observe them by using some or all of their senses (seeing, smelling, feeling, hearing, tasting). The children also observe things happening (animal behaviour, a candle burning, a child running...)

b Raising Questions:
Children ask questions about things that they have observed (What makes some things fall slower than others? What changes occur when rice is cooked? Do heavy things sink? ...)

c. Generating Ideas:
Children think of possible ideas to answer their questions (things fall slower because they are flat, light, red ...)

d. Investigating:
Children plan an investigation, collect together things they may need and then carry out their investigation. (Sita and Ramu measure how high their classmates can jump in order to find out if tall children can jump higher).

e Recording:
Children use different methods to record what they have been doing (pictures, writing, charts, diagrams, graphs...)

f. Interpreting:
Children look at the results of their investigation, interpreting the information they have collected and using this to decide whether or not their idea was correct. (The log of wood floated so all heavy things don't sink)

g. Communicating:
Children select the most appropriate way in which to communicate their findings to other people (talking about it, dramatisation, making models, drawing pictures, writing...)

3. DEVELOPING INDIVIDUAL GROUP AND WHOLE CLASS WORK

Good teaching provides for the children to work in a variety of patterns as individuals, in groups or as a whole class.

a) Individual work is used less often in Science. It may be appropriate if tasks are shared within a group as shown in this example. A group is investigating insects found in different places. One child may collect insects from a bush while another collects them from a wall, yet another may be constructing containers in which to keep the insects. Individual work is also appropriate if a child needs to work on a calculation or graphical representation which has arisen from a group activity.

Occasionally a child will want to work on his own on some aspect of an activity that particularly interests him.

b) Group Work is particularly important in Science as it allows children to talk to each other about what they are doing, to discuss problems and to share ideas. For example a group of children observing what happens when they drop objects may each generate a different way to explain why some objects fall faster than others.

When a teacher selects the size of a group, s/he should consider to what extent the children will be actively

participating in that particular activity. If the group is too large some children will not be involved.

Different groups of children can either be doing the same activities as each other or different ones. This method has the advantage that individual items of equipment (e.g. a thermometer) do not have to be duplicated.

c. Whole Class: Activities involving a whole class often occur at the beginnings or ends of lessons. At the beginning of a lesson a teacher will want to introduce the topics to the whole class and to organise the activities. At the end of a lesson, when the activities have been completed a teacher may wish to bring together the whole class so that each group can report on their activity. In this way children can share experiences and offer suggestions and help to their classmates. Their teacher can guide their discussion and intervene where appropriate.

4. Recognising Individual Differences:

Children are individuals. Not only do they vary in their physical appearance but in the way they learn and in the rate at which they learn. In order to help all children teachers need to recognise individual differences and to provide appropriate learning strategies. Here are some ideas of how this can be done.

a) Keep records of what each child does.

b) Use these records when selecting activities for children. If a child is weak at observing, make sure he does activities which give him more practice in this skill.

c) Form mixed ability groups so that children can learn from each other.

d) Ensure that children rotate roles within groups, so that all children have the opportunity of taking on different roles (leader, observer, secretary etc).

e) Provide extra learning materials (e.g. flash cards) to help slow learners.

f) Praise children for effort rather than ability.

g) Give all children the opportunity to display their work and to present it to others.

h) Encourage all children to talk about their activities Talking means that they will have to think about what the are doing, it helps them to sequence events and allow others to share ideas. Children who have talked about an activity will find it easier to write about it afterwards.

i) Assess children on the way they carry out activities, not only on their written reports.

j) Reinforce different ideas by using role play, dramatisations and educational games.

(e.g. if children have been studying food chains this can be reinforced using a game in which pictures of a predator, prey and plants appear on the cards. Children play one card in turn and shout "snap" if one animal eats another (or a plant). The winner keeps all the cards already played provided they can say correctly what eats what.

5. Using the Local Environment:

The environment around a school provides children with a vast wealth of opportunity for scientific investigation outside of the classroom. For example, children studying rivers, lakes and streams can investigate physical and biological aspects of water. Collections can be made of the different creatures living on, in and on the bottom of the water and their form and method of locomotion can be related to where they live. A measuring tape, a watch and paper boat can be used to find out how fast water flows. Watching houses being built can help children develop ideas about structures and materials. They can observe changes that take place when cement is mixed and as it dries. They can question why bricks are arranged in certain patterns to make a wall. Later they continue to study in the classroom through practical activities such as making walls using model bricks arranged in different patterns and testing them for strength.

The local environment can also be a source of materials which can be collected and used for activities in schools.

Here are some common examples:

Sticks: For construction and support.

Paddy and beans: For growth experiments.

Cloth: For filtering and making parachutes.

Stones: For weights or for dropping experiments.

Old newspapers: For making darts and for making the outline shape of a child's body.

6. CREATING AN INTERESTING CLASSROOM

If a teacher makes his or her classroom an interesting place for children then ideas, questions and discussions will be stimulated, learning encouraged and the quality of work will improve.

Here are some ideas for doing this:

Interest tables: When starting a new topic arrange objects on a table and put question cards with them. Allow children to handle the objects. This

will stimulate childrens' interests in the topic.

Wall Displays: Display home made or bought posters to brighten the walls and provoke discussion. Display childrens' work to encourage the authors and as a means of sharing ideas-preparing charts which children can fill in.

Collection of materials: Display the material resources you have collected so that children can use them in their investigations.

Suspended displays: Suspend kites, model birds etc. from strings or threads pinned to the ceiling.

It is recommended that teachers work in groups of two. Choose at least 5 of these activities. Do 1.1 first then you may do them in any order. Make an interesting display of one activity (or two if you have enough time).

1 Fabrics

Collect different kinds of fabrics. Those used for clothes, table cloths and curtains will do, in fact any left over or old pieces that you can find.

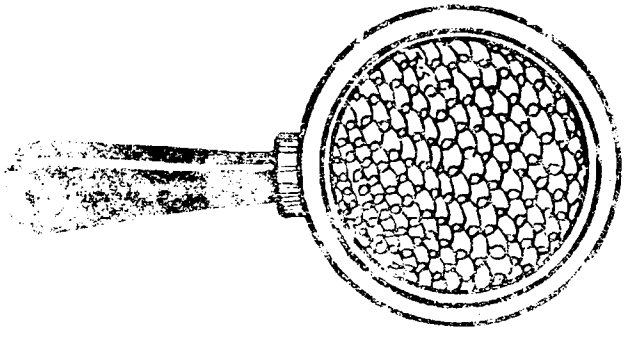
Now cut a small (about 5 cm) square from each piece and see what you can observe and find out.

1) What does it look like? (Colour pattern etc.)
2) What does it feel like? (texture, thickness etc.)
3) What does it smell like?
4) How has it been made? Is it made like felt or knitted or woven?
5) What else can you observe about it?
6) What could it be used for?

Do the same for each piece and make an interesting display to show what you have found out.

2 Clothes

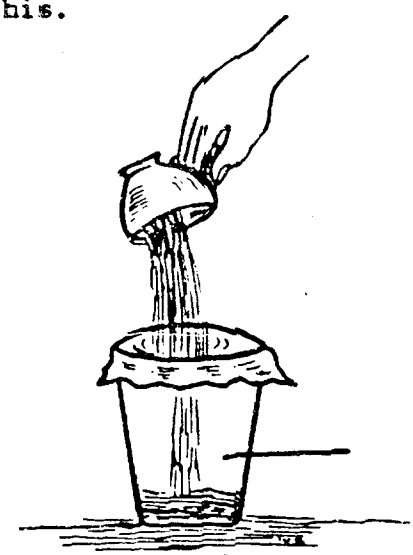
Make a collection of fabrics.
Examine each sample with a hand lens and draw accurately what you see. You will see that all are made of threads. In woven fabrics the threads are intertwined, whilst in knitted fabrics they are looped together. Compare these materials with compressed fabric such as felt.



3 What can we wear in the rain?

Which fabric will be best for keeping us dry? Try this test.

Choose three or four different kinds of fabrics and time how long it takes for 20 ml (or 4 teaspoonsful) of water to soak through each. You can do it like this.



Make a table for your results.

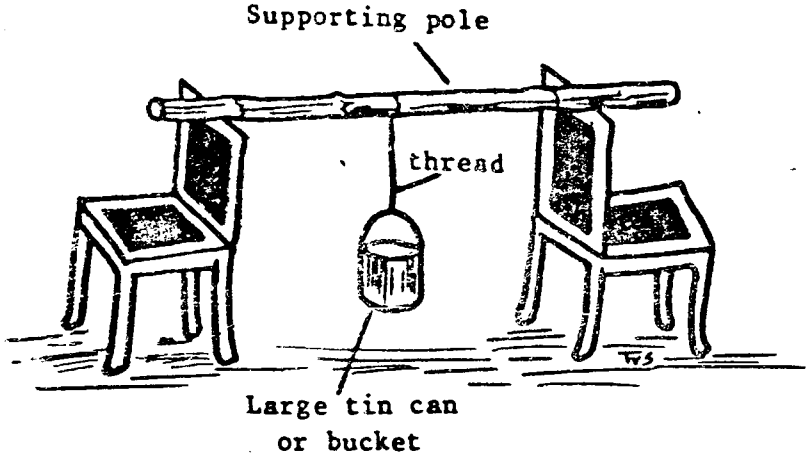
Type of cloth	Time to soak through
Wool	
Cotton	
Flannel	

Fill in the names of
the cloth you choose

Which is best in the very hot weather? Why?
Which is best to wear on a rainy day? Why?
Which is best for an umbrella? Why?

4 How strong are our clothes?

Collect different kinds of threads, cotton, silk, nylon and wool. Are different kinds of threads as strong as each other? You can test them like this.



Pour sand into the bucket until the thread breaks.
You can measure the quantity of sand used.
EITHER by counting the number of small tins (or tumblers) of sand you poured into the bucket
OR by using a spring balance to measure the weight of one small tin (or tumbler) of sand and then multiplying by the total number used
OR by weighing the total quantity of sand using a balance and weights.

Now try a different thread but make sure that you test the same length. Will the thickness of the thread make a difference? Make a chart to record your results.

Type of Thread	Number of cans of sand or weights required to break the thread
wool nylon cotton silk	

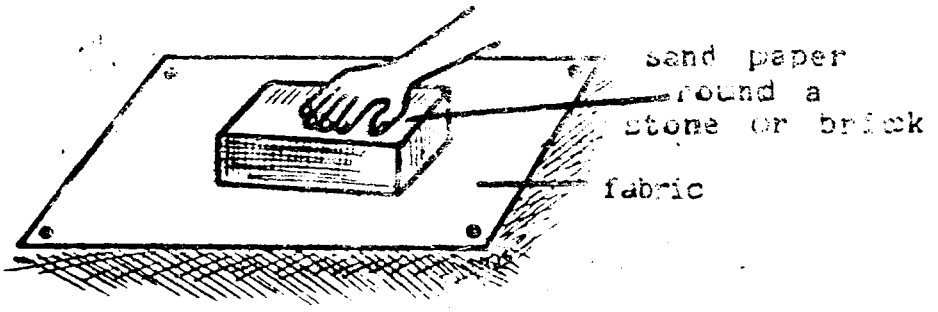
Which thread is the strongest?

What kind of thread would you use to make clothes for work?
Which would be best for a pretty dress?
Say why you chose each kind.

5 Will my clothes last for a long time?

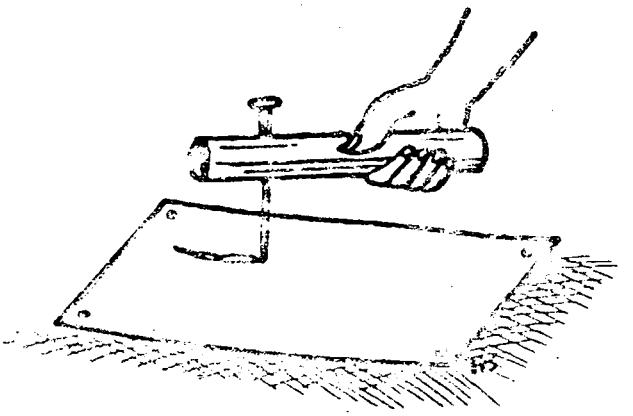
Working clothes for school need to wear well.
They won't be much good if they easily go into holes or tear.

You can test fabric by rubbing.
Put a piece of sand paper round a stone or brick (alternatively use a rough stone or brick) and rub the fabric under test. The fabric should be on a smooth surface (or on old newspapers) and held taut using hands and feet.
How many rubs make a hole?



Test each of the fabrics in turn to see which is the best.

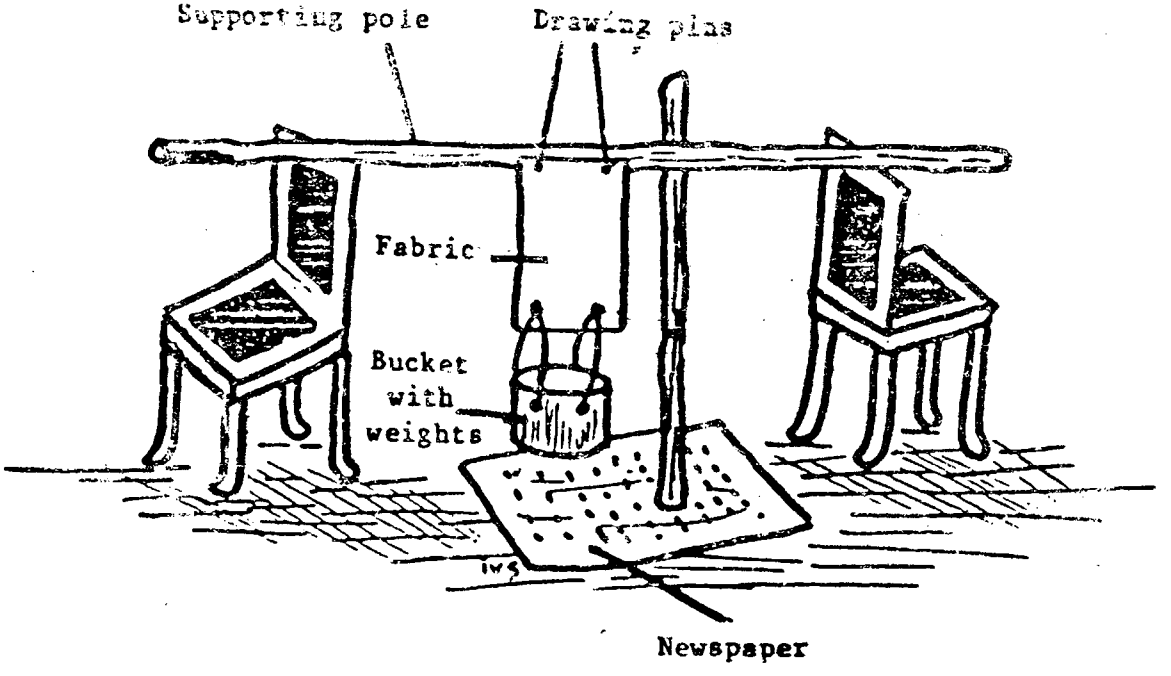
Now try a tear test like this. Which fabric is best?



Which fabric is likely to stand up to wear and tear best?

Will my clothes stretch with wear?

Test different pieces of fabric as shown in the diagram below.



Make a chart and fill in your findings.

Type of fabric	Amount of stretch in cm
Wool	
Cotton	

By how much does each stretch?
Compare start and finish marks.
Do some fabrics stretch more than others?
For what kinds of clothes would each fabric be suitable?

SUBJECT: ENVIRONMENTAL STUDIES II

LESSON: CLOTHES WE WEAR — Class III

Content Analysis

1. Clothes are worn according to changes in climatic conditions to protect the body from extremes of weather. (A)

2. Clothes protect the body from dust and insect bites. (U)

3. Good dress gives a good impression. (A)

4. Usually two types of fibres are used in clothes; natural and artificial. (K)

5. Cotton is obtained from the cotton plant, wool and silk from animals/insects. (K)

6. Various characteristics of these fibres. (U)

7. The process of preparation of cotton fibres from dry cotton capsule; and steps in making silk. (K)

8. Designing patterns for fabrics to create an interest in dress patterns and styles. (Creativity)

Period 1: Our need for clothes — Time: 40 mins

Specific Objectives

To help children realise the need and importance of clothes. (See Content analysis 1, 2 and 3.)

Teaching/Learning Materials Required

1. Collect and make up a set for each group:

- A small piece of cotton cloth.
- A small piece of flannel.
- A small piece of silk cloth.
- A small piece of nylon cloth.
- A small piece of woollen cloth.
- A small piece of gorgette.
- A small piece of canvas cloth.

2. Prepare

- Short evaluation sheets.

- Flash cards with pictures showing different types of clothing (clothes for different occasions, children's clothes, clothes for different seasons).

3. Collect magazine pictures as required for Activity 3.

4. Prepare two matrices (or charts) as shown below:

(a)

Fabric sample	Fabric	Appearance	Feel	Smell	Drawing using hand lens

(b)

Picture No.	Type of clothes	Fabric	Season	Reason

5. Teacher supplies pictures of different clothes, e.g.

a) School uniform
b) A beautiful dress
c) White games dress
d) Punjabi suit
e) Working clothes
f) Wet weather clothes
g) Clothes for cold weather
h) Clothes for hot weather

Teacher/Pupil Activities

1. The teacher shows the children, as a whole class, pictures (flash cards) of different dresses. He/she asks boys and girls:

a. What names do you give each of these clothes?

b. When and where would a person wear each of these clothes?

c. Why do people wear clothes?

d. What sort of clothes do you wear for a special event?

The teacher discusses the replies with the children, and tries to get the conclusion that clothes are worn to protect

the body from extremes of weather, from dust, scratches and insect bites and to give a good appearance.

2. The teacher gives the children pieces of different fabrics and asks them to:

   name each fabric
   observe each carefully using their eyes, fingers and noses
   draw what each fabric looks like through a hand lens
   record all their observations in a matrix (as shown under 4(a) above)
   glue a small piece of each fabric onto the matrix

   (This activity should be done in small groups with the children recording their own findings and making a group record using the matrix above.)

3. The teacher should provide each small group of children with old magazine pictures of children and adults clothes for different seasons, ages, colour, uses, boys and girls, etc. Each small group should then be asked to decide:

   which fabric would be most suitable for each type of clothing?
   in which season would each be worn?
   on which occasion (working, a wedding, playing, etc.) would each be worn?

   A summary may be made using a matrix like 4(b) above.

4. Children to observe in small groups different types of clothes and record their findings in a matrix.

Activities are suitable for group work. Some however are whole-class activities between teacher and pupils.

The teacher then concludes by getting the children to draw the conclusion that we wear clothes for different purposes and seasons.

Evaluation of children's learning:

Teacher puts these questions to a sample of the children:

a) Why do we wear woollen clothes in winter?
b) Name two ways in which clothes are useful to us?
c) When and why do you like to wear attractive clothes?

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Types of clothes Time: 40 mins

Specific Objectives

To help children to recognise natural fibre and artificial fibres and know how they are prepared. (See Content analysis 4, 5 and 6.)

Teaching/Learning Materials Required

1. Collect: -
   - A dry cotton capsule.
   - A cotton plant.
   - Cotton with seeds.
   - Some silk thread.
   - A strand of wool.
   - A thread of synthetic cloth.
   - A piece of fur.
   - Cocoons.
   - Matches.

   * Sufficient materials for the work of each group of children.

2. Prepare an evaluation sheet.

3. Matrix for use in Step 2 as follows:

Threads which break easily	Threads which catch fire easily

4. Some activities can be undertaken in groups to encourage discussion; some must be undertaken only by the teacher (e.g. burning threads).

Teacher/Pupil Activities

1. Teacher asks the children about the preparation of a dress or a boys garment.

   a) How are the clothes made?

   b) What we do to make a dress or a boy's garment?

   c) Who stitches the clothes?

   d) Where does the cloth come from?

   The teachers may obtain a variety of replies from the children. The stress should be on the type of cloth used in making up dresses.

2. Class activity. The teacher takes the following threads in turn:

   Cotton thread
   Silk thread
   Synthetic thread
   Woollen thread

   In each case the thread is stretched and then lighted using a match.

   Have the children write down what they have seen on the matrix sheets supplied by teacher (see 2c).

Evaluation of children's learning:

Questions put by teacher to a sample of children:

a) What is the source of natural and artificial threads?

b) .
   Teacher to determine other evaluation activities and how information can be appraised.

c) .

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Preparation of cotton and silk clothes Time: 40 mins

Specific Objectives

To help children understand how cotton clothes are prepared from a dry cotton capsule and how silk thread is prepared from silkworms. (See Content analysis 7.)

Teaching/Learning Materials Required

Teacher/Pupil Activities

Teacher to determine the steps to fulfil the purpose of the period, together with the necessary materials and evaluation activities.

Evaluation of children's learning

Comments by the Teacher:

What went well and why?

What went badly and why?

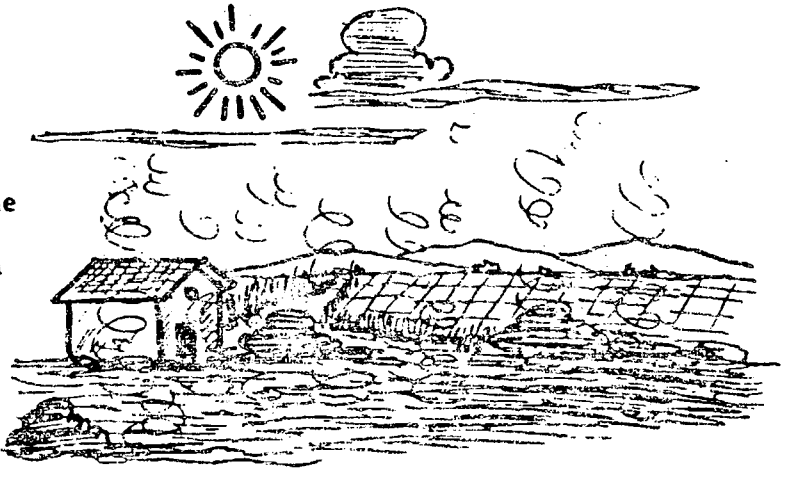
Which children require more help?

Which children have understood?

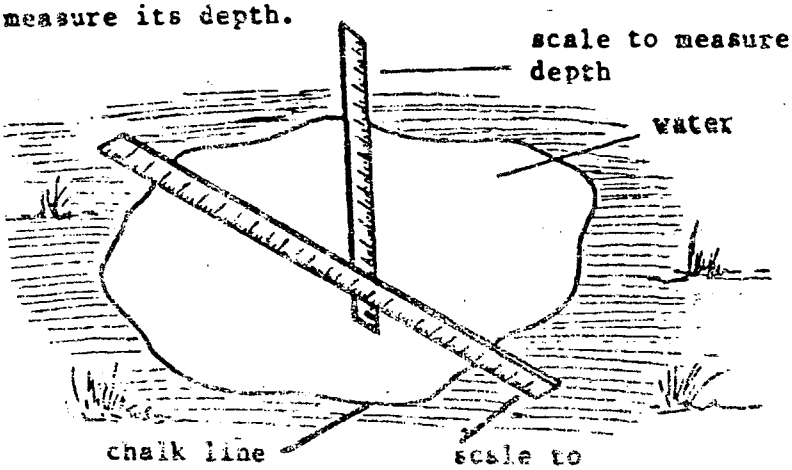
It is recommended that teachers work in groups of two. Choose at least 5 of these activities. You may do them in any order. Make an interesting display of one activity (or two if you have enough time).

1 Water drying up

When the sun shines the heat causes the water to go into the air. You can see this if you watch a puddle of water drying up. We say that the water evaporates.



How long does this take?
You can find out if you make a puddle of water on a hard surface. Chalk round it and measure across it. Measure its perimeter using a piece of string. If the puddle is deep enough, measure its depth.



Repeat your measurements every 5 or 10 minutes as appropriate and make a chart.

Time	Puddle Measurements		
	Perimeter	Depth	Measurement across
After 5 mins After 10 mins After 15 mins			

How long did it take to dry up?
Does it make any difference if the puddle is in the shade?
You could try again in another location to find out, but make sure that you observe both at the same time to ensure the same environmental conditions. What else do you need to keep the same to ensure this investigation is fair?

2 Evaporation: How much? How long?

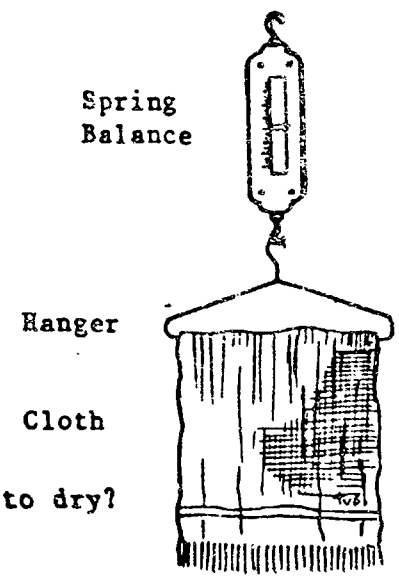
2.1 Evaporation from washing.

How much water evaporates from a piece of cloth?
How long does it take to dry?
You can find out like this.

Hang a piece of cloth (approximately 60cm x 30cm) on a hanger and suspend it from a spring balance (0-500 in 1g increments).
Record its weight at the start and then at five minute intervals until it is dry.

Make a table like this.

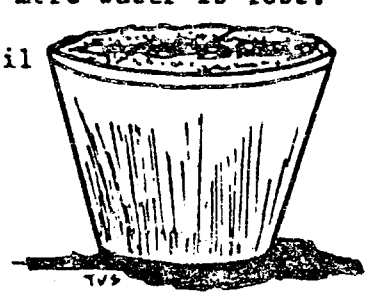
Time	Weight
0 mins	
5 mins	
10 mins	
15 mins	
20 mins	
25 mins	
30 mins	

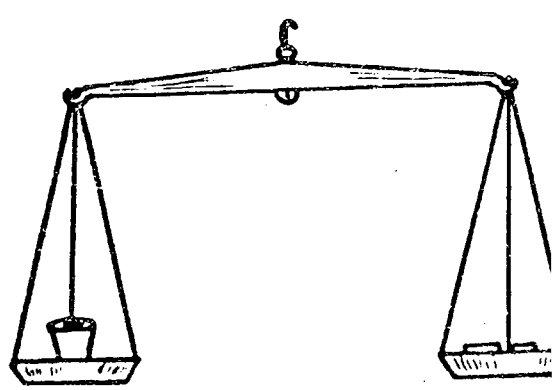


How long did it take the cloth to dry?

2.2 Evaporation from soil

Put some moist soil in a flower pot, weigh it on a balance.
Now put it in the sun and weigh every 15 minutes until no more water is lost.





Make a table and record your results.

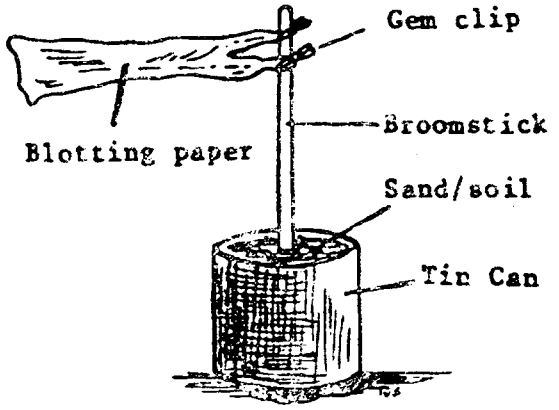
Time	Weight
0 mins	
15 mins	
30 mins	

How long did it take to dry up all the available water?

3 Evaporation: How fast?

Does water evaporate more quickly in some places than in others? You can find out like this.

Fill a tin can with sand or soil.
Now take a broom stick and attach a strip of damp blotting paper to it with a gem clip to make a flag.
Stand the broomstick in the sand/soil as shown.



You can make lots of these and stand them in different places, in the sun, in the shade, in a windy place, in the classroom and so on. Make sure that the blotting paper is equally damp. Check every ten minutes to see when each is dry and time how long it takes.

Make a table to record your results.

Drying place	Drying time
In the classroom In the shade Under a tree In a windy place Add other places you find	

Now arrange your results in order to show which dries first and last.

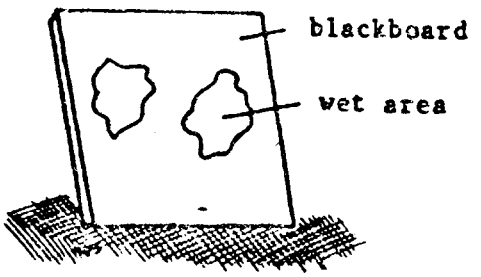
Order	Drying place
1 2 3 4 5	

Which conditions do you think help the water to evaporate quickly?
Why do you think this is?
What happens?

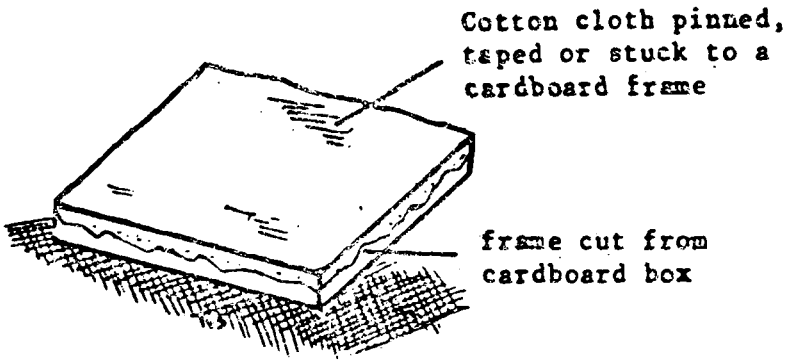
4 Evaporation: Slowing it down

How can you slow down the rate of evaporation? Try this test.

Wet two areas of a blackboard making sure they are of equal size.



Now cover one of them with a frame of damp cloth. You can make this easily from an old cardboard box and some cotton cloth.

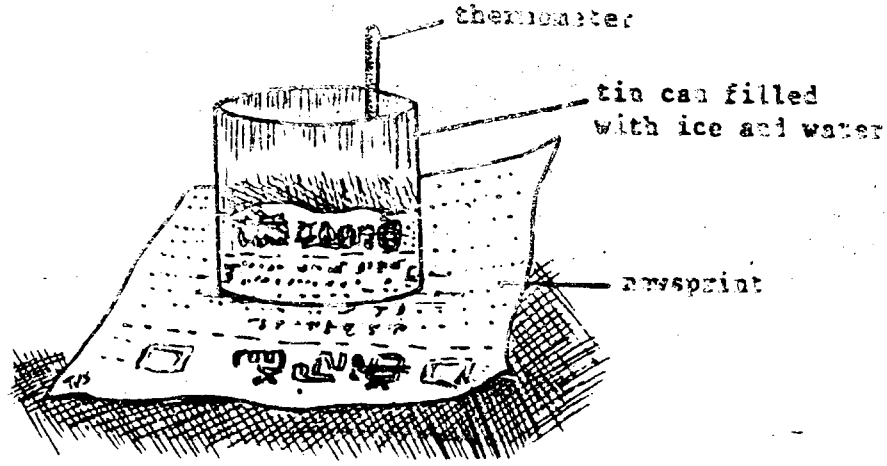


Time how long it takes for each area to evaporate. Was there a difference? Why do you think this was so? How does this relate to what happens in nature?

5 Condensation

Water in the air can also be changed back into liquid water. This is called condensation. To see this happen, the air containing the water must meet a cold surface.

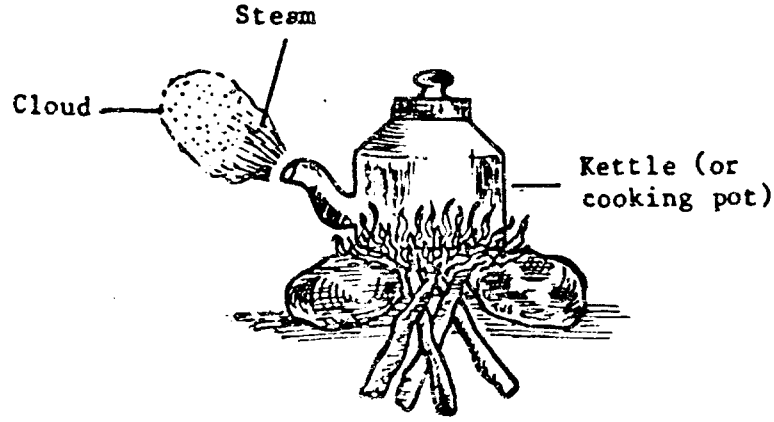
Stand a shiny tin on some newsprint. You will be able to see its reflection in the surface of the can. Now fill the can with cold water and ice, a little at a time. Using a thermometer, note the temperature at which condensation occurs. When this happens, droplets of water will appear on the outside of the can and you will no longer be able to see a reflection of the newsprint.



What makes water in the air turn into liquid water? Find out what clouds are. How does this activity relate to their formation?

6 Clouds and rain

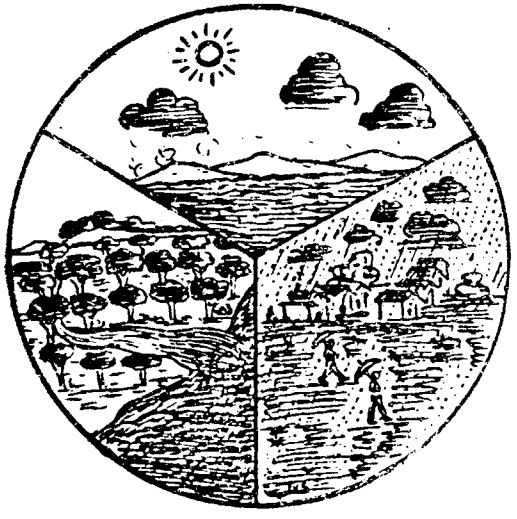
A boiling kettle produces invisible steam which gets cooler as it moves away from the spout of the kettle. As it cools it condenses to become tiny drops of water to form a cloud which you can see.



Put some ice into a bag made out of a piece of cotton material and tied with string. Hold this against the cloud produced by the kettle to make it even colder. What do you notice? The drop in temperature has made the water droplets in the cloud run together to form large drops of water which are too heavy to stay up in the air. They fall as rain.

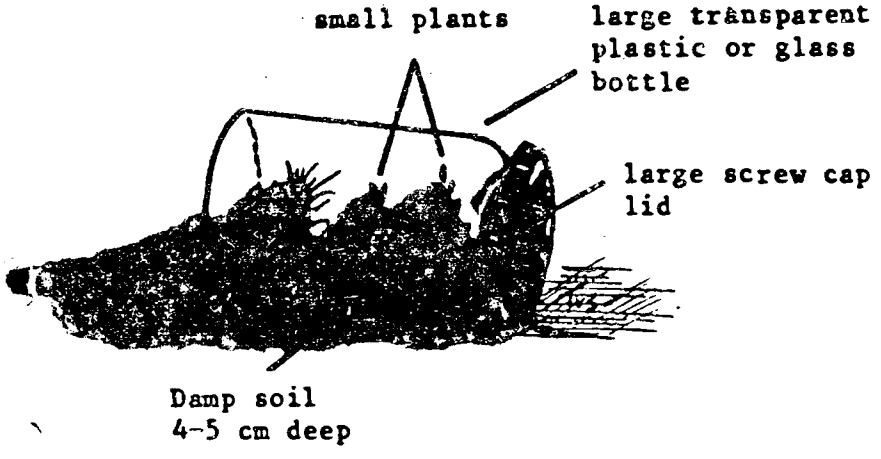
7 The water cycle

Water from the sea and from the land evaporates in the heat of the sun. As it moves higher it condenses to form clouds, ready to fall as rain as these cool. The rain falls on the sea and on the land.



The water goes round and round in a cycle.

You can make water go round and round on a small scale by setting up a bottle garden.

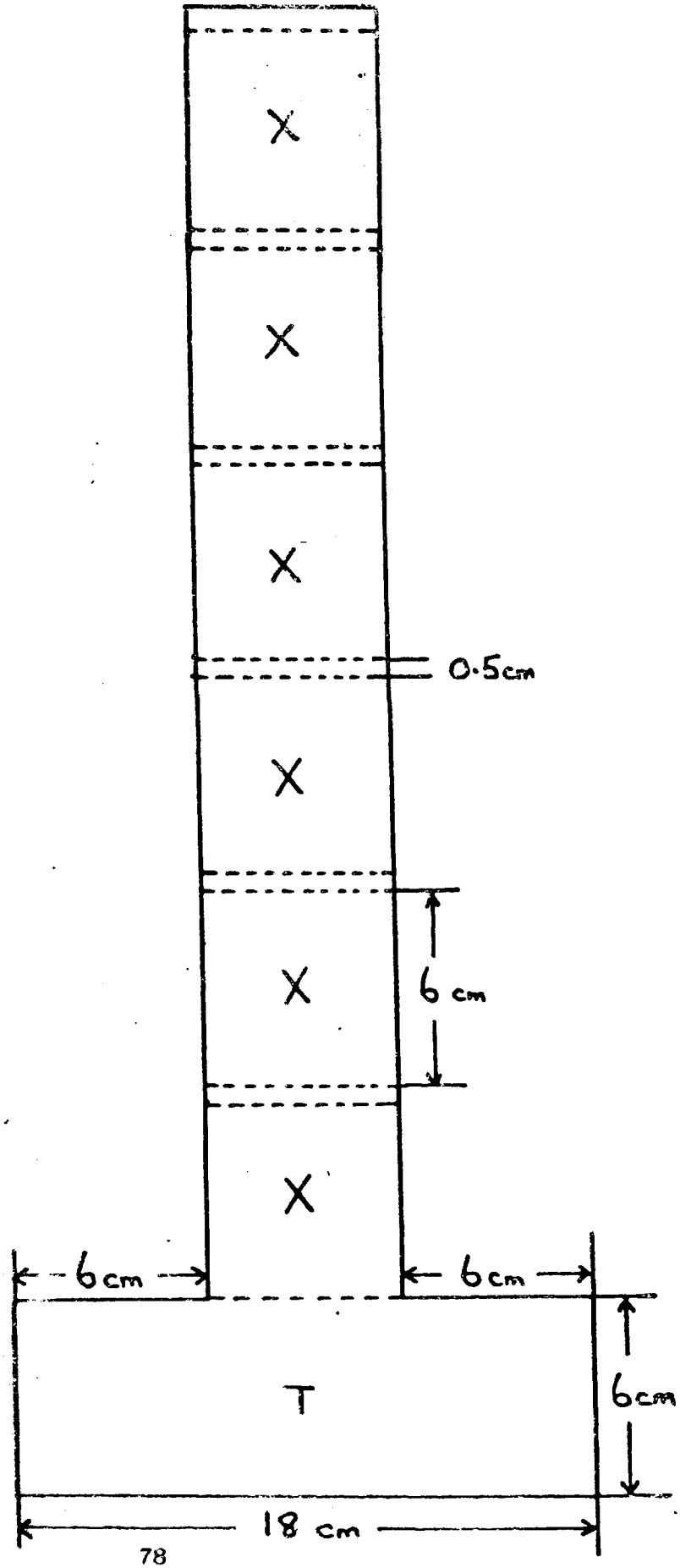


A Bottle Garden

If you put it in a light place, the plants will grow without any further watering. Why do you think this is possible?

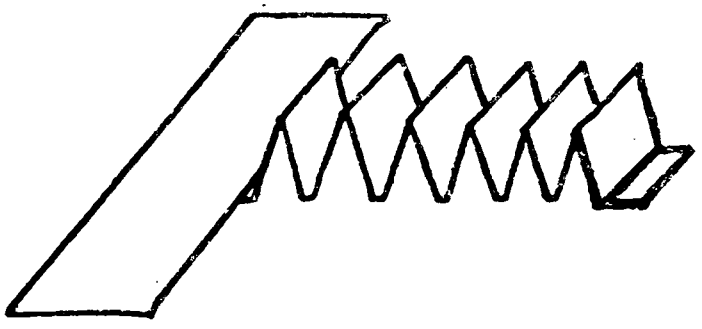
8 The power of water

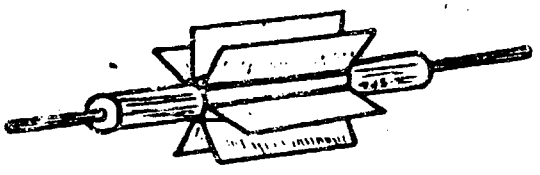
Water can be made to turn a wheel. You can make one like this:



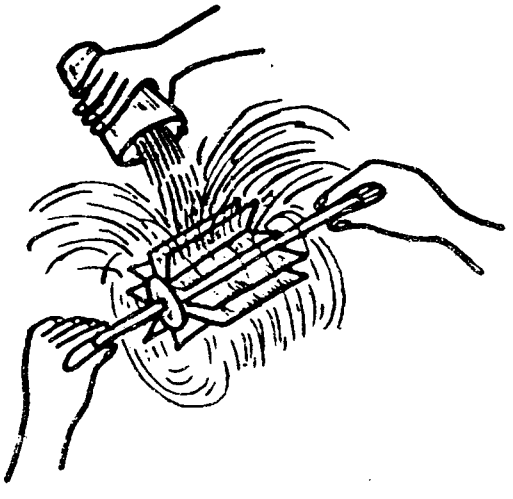
Cut this shape out of thin card. Fold all the dotted lines in the same direction.

The sections marked X will form the blades of the water wheel. Make a vertical fold in the middle of these but in the opposite direction to the original folds. Glue together the two sides of each blade. The section marked T will form the spindle. Pull it in a vertical plane to form a cylinder with a double wall. Glue together the two sides of the wall.





When the glue has dried, put a pencil (or stick) through the spindle. Fill a tin can with water and pour it on the wheel.



SUBJECT: ENVIRONMENTAL STUDIES II

LESSON: WATER — Class V

Content Analysis

1. Flowing water and still water contain energy. (K)
2. Water exerts upward, downward and sideways pressure. (K)
3. The pressure of water varies with depth. (K)
4. Pupils collect pictures of rivers in spate and arrange them in a way to show the damage to constructions, uprooting of trees and loss of life. (Creativity)

Period 1: The energy in water — Time: 40 mins

Specific Objectives

To help the children understand that water is a source of energy. (See Content analysis 1 and 4.)

Teaching/Learning Materials Required

1. Collect some pictures showing a river in flood and its effects like the collapse of houses, uprooting of trees, etc.
2. Prepare one large tin cylinder with three holes of the same size and at the same height in different places around the sides of it.
3. Prepare a large board marked with concentric circles about 2cms apart from each other.
4. Activity 1 suitable for class or group activity, also Activity 2.

Teacher/Pupil Activities

1. Ask the children the following questions by showing the pictures related to floods.

   - What do you see in these pictures?
   - Why do you think the trees have been uprooted?
   - Why have the houses collapsed?

   Children discover, through discussion that there is energy in flowing water.

2. Teacher asks, "Do you know whether still water contains energy? Let us find out".

a) Activity -

Place an empty tumbler in a child's hands. He feels that it has weight.

Fill the tumbler with water. Ask the child what do you feel now? (The increase in weight of the glass.) Why has the weight increased?

Note to teacher: -

Children will give several guessed as answers, but you hope that some children can tell you why.

Explanation: -

The water has weight hence the weight of the tumbler increased when it is filled with water. The glass of water exerts pressure on the child's hands.

b) Activity -

Take an improvised cylindrical tin vessel with 3 holes at the same height in different places around it. Place it on a large board marked with concentric circles about 2 cms apart.

The children close the holes with their fingers and fill the cylinder with water. The children release the 3 holes and observe that the water flows out in jets. They notice that the water flows out with equal pressure in all three directions. The children mark where the water falls. This should be about equal distance from the tin.

It is likely that the children will observe what happens to the jets of water as the tin empties. If they do, ask them to explain what they see.

They will notice that the jets fall closer and closer to the tin and finally stop flowing altogether. The explanation is that the water pressure is caused by the weight of water in the tin above the holes. As the jets flow, the amount of water becomes less. Therefore there is less and less pressure to push out the water.

Explain to children that the pressure of water is also called "water pressure".

Evaluation of children's learning:

Teacher to put questions and appraise the results, [orally or in writing].

a) Why are trees uprooted in the floods?

b) Do you think that water has energy? Give some examples.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Water exerts upwards and downwards pressure Time: 40 mins

Specific Objectives

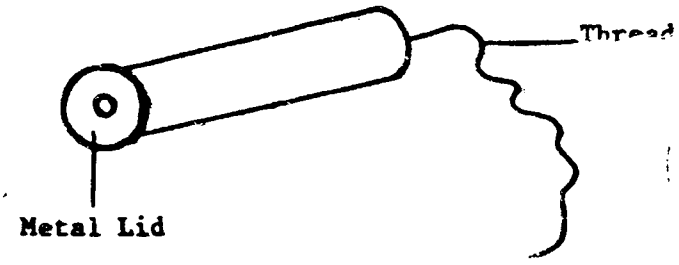
To help children to understand upward and downward pressure of water. (See Content analysis 2.)

Teaching/Learning Materials Required

1. Children sit around the teacher on the floor, in step 1.
2. Collect bamboo sticks open at both ends and a metal lid.
3. Hollow cylindrical container with a piece of rubber hose pipe attached to one end.

Teacher/Pupil Activities

1. Take a bamboo stick open at both ends and take one metal lid and tie it to the end of the bamboo with thread as shown in the picture.



Close one end of the bamboo stick with a metal lid by pulling the thread through the tube. Slowly dip the tube in a vessel containing water and let go of the thread. The children observe carefully. Slowly move the bamboo stick into a different position. What happens to the lid?

Ask the children: -

Does the metal disk fall into water?

If not, why does it not fall?

Explanation: -

Water exerts pressure on the metal piece and keeps it from falling down.

Ask the children: -

What do you understand by this experiment?

Teacher: Encourage children to discuss among themselves to arrive at a conclusion, but be prepared to join in to ensure children's understanding.

2. .
Teacher to devise additional steps and materials to fulfil the purpose of the period.

3. .

Evaluation of children's learning:

The teacher put questions orally or in writing, e.g.:

(a) Why do you think that water exerts upward pressure?

(b)

He/she then appraises the results.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Water pressure varies with depth Time: 40 mins

Specific Objectives

To help children to discover that the pressure of water varies with depth. (See Content analysis 3.)

Teaching/Learning Materials Required

a)

b)

c)

Teacher/Pupil Activities

1. .
Teacher to devise steps and collect materials to fulfil the purpose of the period and draw up an evaluation activity.
2. .

Evaluation of children's learning:

Comments by the Teacher:

What went well and why?

What went badly and why?

Which children require more help?

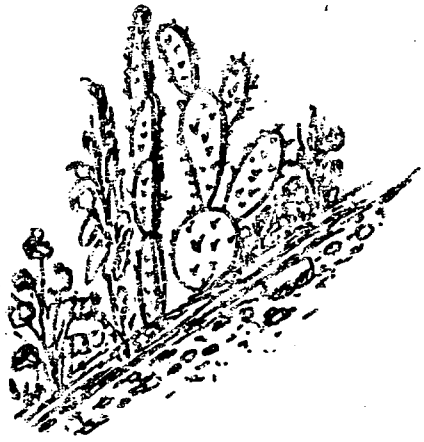
Which children have understood?

TEACHERS' ACTIVITIES FOR PLANT LIFE

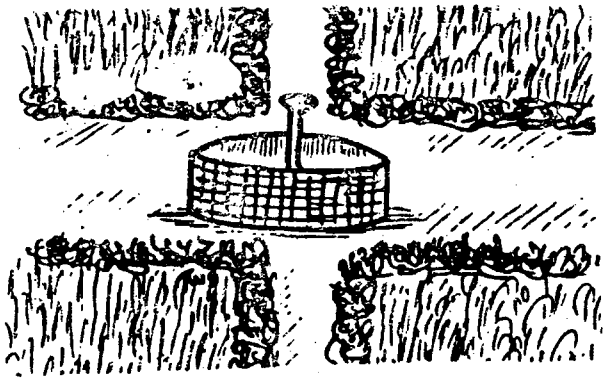
It is recommended that teachers work in groups of two. Choose at least 5 of these activities. You may do them in any order. Make an interesting display of one activity (or two if you have enough time).

1 Flowers

What flowers can you find growing in your neighbourhood? Walk around and make a small collection. Be careful to pick or cut them and not to pull them up by the roots. Make sure you leave the stem attached to the head of the flower so that you can put it in a tumbler of water to keep it fresh. Try not to pick too many plants; others will like to enjoy them too.
Arrange them in sets like this.

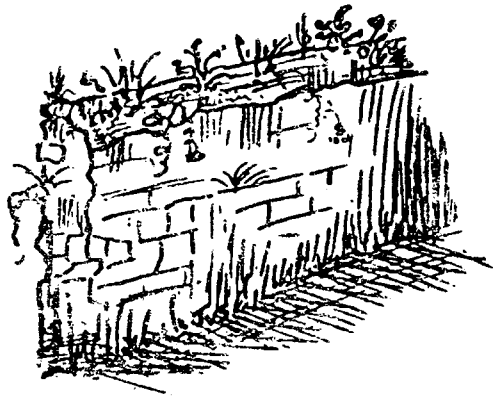


Those growing without a gardeners' help



Those planted by gardeners

CULTIVATED



Those growing in places where they are not wanted

WEEDS

Make a display.

What do we mean when we say that some plants are 'common'? Do any plants appear in more than one set?

2 What grows where?

Plants can grow in very strange places. Some can grow in the smallest cracks, others spread themselves on the ground or climb up the nearest support. Some are called herbs, some shrubs and some trees.

Go outside and look around. Fill in this chart below to show what you have found out.

What grows where?
Tick the chart in the appropriate place for each plant name.

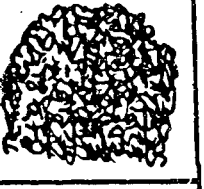
Name of Plant	Type of plant					Where found			
	Tree	Shrub	Herb	Climber	Creeper	Cultivated ground		Waste Ground	Cracks in walls and paths
						Planted	Weeds		

Do some plants grow in many kinds of places? Which?
Do some grow only in a few places?
Make a list of these.
Do some only grow in one kind of place?
Which are these?

3 How much shade?

Make a record of shade patterns on the ground.
Compare three places with different amounts of shade.

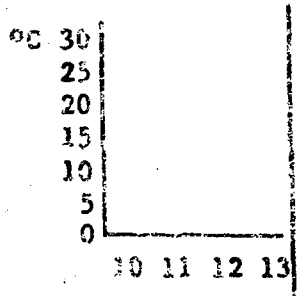
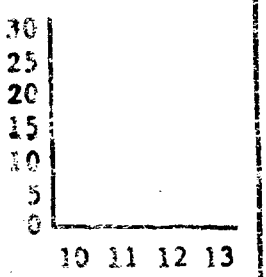
Place a sheet of white (or light coloured) card on the floor in a shady place. Now draw around the shade patterns cast on the white surface. Do the same again for the other shady places. Make a chart.

Site of Shade	Estimate of space between leaves		
	More sky than leaves	About half and half	Very little
1			
2			
3			

How much sky can you see between leaves? For each, try to estimate the amount of space between leaves. Put your estimate on the chart.

4 Sunny and shady places

What are the differences between sunny and shady places? Go outside and choose two places where you can make observations, one very sunny and the other very shady. Make a chart like the one below and fill it in as you go along.

COMPARISONS	OBSERVATIONS	
	A sunny place	A shady place
1 Stand for five minutes in the sun and then for five minutes in the shady place. Describe how you feel in each place.		
2 Place thermometers near the ground in each place. Record the temperature each hour. Plot graphs.		
3 Test how long a wet cloth takes to dry. wet sponge broom stick	Time / Wet / Dry 10.30 10.40 10.50 11.00	Time / Wet / Dry 10.30 10.40 10.50 11.00

5 Plants growing in sun and shade

Do some plants grow only in the shade and others only in the sun?

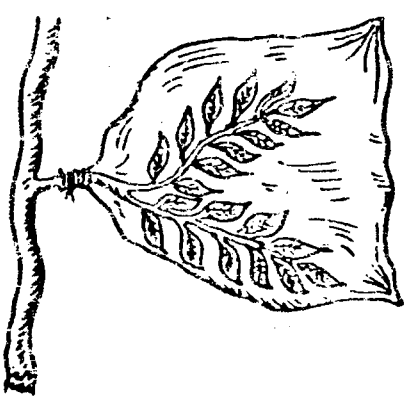
Go out and investigate some waste ground.
Record your observations on the chart.

Name of plant	Where growing		
	full sun	slightly shady	full shade

Do some plants grow in both sun and shade? Make a list of those that do.

6 Leaves

Leaves give out water. This is called transpiration. You can show this by putting a large polythene bag around some leaves growing on a tree or shrub and then sealing it. After a while you will notice water droplets forming on the inside of the bag.



Choose a large tree which has some branches that you can reach and use this method to help you work out how much water the tree loses in an hour.

CLUE - You need to think of a way of estimating the total number of leaves on the tree.

SUBJECT: ENVIRONMENTAL STUDIES II

LESSON: PLANT LIFE Class IV

Content Analysis

1. Plants prepare their own food material with the help of minerals, salts, water, carbon-dioxide, sunlight and chlorophyll. (K)

2. Animals depend on other sources of food whereas plants prepare their own food. (U)

3. Plants require sunlight to prepare food. (K)

4. The green leaves contain chlorophyll which is essential in the preparation of food. (K)

5. The plants absorb water and mineral salts with the help of roots. (K)

6. Only the green coloured leaves prepare starch. (K)

7. The products of plants will be collected and exhibited in an orderly manner in the class. (Creativity)

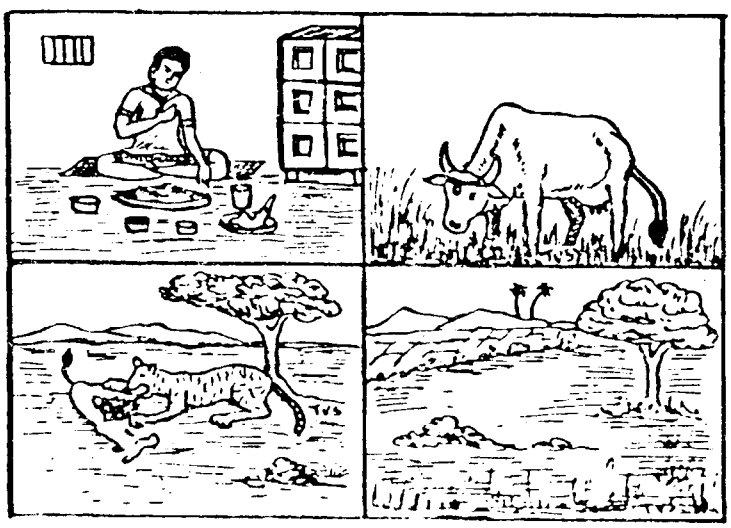
Period 1: Plants prepare food Time: 40 mins

Specific Objectives

To help the children deduce that plants prepare their own food whilst animals eat other things for food. (See Content analysis 1 and 2.)

Teaching/Learning Materials Required

1. Collect pictures of animals (including man) eating food; also pictures of plants. You will need enough for each group.



2. Collect foods that we get from plants - e.g.: groundnuts, tamarind, banana, walnut, guava, brinjal, tomato, carrot, spinach, cauliflower, rice, dall, gram, and sugar- sufficient for work in groups.

3. Collect small quantities of cooked rice, dall, and vegetables.

4. Prepare labelled strips - e.g. roots, stems, flowers, seeds, fruits and leaves.

5. Prepare matrices as in the following diagrams for noting the results.

Some activities are suitable for group work, some for whole class treatment.

PICTURE	DESCRIPTION/OBSERVATION
1	
2	
3	
4	

	Rice	Dall	Grams	Green Vegetable
Cooked Hard/soft				
Colour				
Taste				
Uncooked Hard/soft				
Colour				
Taste				

Teacher/Pupil Activities

1. The teacher gives each group pictures of a humans and animals eating and a picture of a plant. He/she asks the children to discuss two questions for each picture:

   What food does it eat?
   How does it eat?

   The children fill in their observations on a sheet provided by the teacher.

   The teacher then asks the following questions to the whole class:

   What do people eat?
   What do animals eat?
   How do they eat their food?

   Conclusions: They eat plants or food from animals (eggs, milk, meat). They have a mouth or a beak to take in their food. The food is then swallowed.

   The teacher then asks the children what happens if people or animals do not get enough food?
   Conclusion: People and animals need enough food to give them energy to help them grow and to keep them healthy.

2. Each group is given seeds, fruits, vegetables, rice, gram, and a little sugar. The groups name the foods and sort them out into sets according to what part of a plant they come from. Give out labelled strips so that the group can match the strip with the contents of each set (stems, roots, leaves, etc).

   The teacher then asks the following questions to the whole class.

   a) What parts of plants are vegetables?
   b) Where does sugar come from?
   c) Do we eat any flowers?
   d) What parts of plants do we eat?
   e) If we can eat leaves, flowers, roots, fruits, seeds and stems, what must they all contain?

   Conclusion: People eat foods that come from all parts of plants. Leaves flowers, roots, fruits, seeds and stems must therefore contain food.

   The teacher then asks the children: We have found out that all parts of plants contain food and we need food to grow, to give us energy and to keep us healthy. But we also know that plants don't eat. Where do you think the food they contain comes from?
   Conclusion: Plants must somehow make their own food.

3. Give out small quantities of cooked and uncooked rice, dal and vegetables. The teacher may ask the children to compare the hardness, softness, colour and taste of the cooked and uncooked foods and record them in the matrix prepared above.

The group fill in the chart saying whether the items are hard or soft. They write in the colour and write about anything else they observe (e.g. taste, smell, size, texture). Ask the children why we need to cook food.

Evaluation of children's learning:

Give questions to a sample of children as follows:

a) What parts of plants do we eat?
b) Can an animal prepare its own food?
c) Can a plant prepare its own food?
d) Why do we cook food?
e) Why do we need food?
f) How do plants get their food?

Teacher to assess and appraise the results of the evaluation.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: How plants prepare food Time: 40 mins

Specific Objectives

To discover that roots absorb water and that leaves require light to remain green and take in sunlight in order to prepare food with the help of chlorophyll. (See Content analysis 3 to 5.)

Teaching/Learning Materials Required

1. Collect

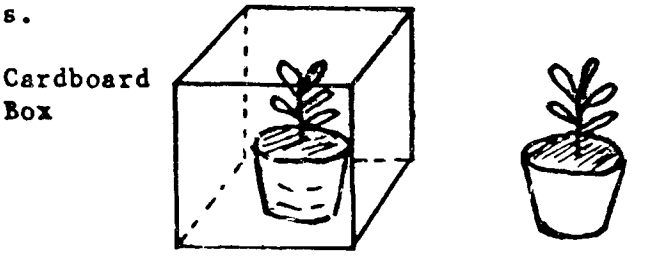
   - Eight potted plants.
   - Card-board boxes sized big enough to cover the potted plants.
   - Beakers.
   - Balsam plants.
   - Red ink.
   - Green leaves.
   - Red coloured petals.

2. Playing card sized pieces of cardboard, and a collection of leaves and flowers.

Some activities are conducted as a whole class together and some in groups.

Teacher/Pupil Activities

1. On one day following discussion with the class place two potted plants outside the classroom - for about five days. One potted plant should be covered with a card board box and the other is left free. The same is to be done by all groups.



The following questions are asked immediately on return to the class, these are asked again at the end of five days.

a) What happens to the plant which is covered by a box now and after five days? (Questions asked on both occasions). Children should be invited to predict what will happen to the plants on the first time of asking and after 5 days: for example the following questions:

b) Why do you think will happen?

c) i) What does the plant need to grow?

ii) Can you guess?

d) Which part of the plant can/cannot absorb sunlight? (2 questions)

e) Which part of the plant can absorb water? Can you guess?

2. Give a few green leaves, red flowers petals to the children. They crush these on white paper to observe the colour extract. The children may record their results either on the cards provided (aee 2 above) or in their notebooks.

The teacher should put questions to the children orally as follows: -

a) What colour is the leaf when crushed?

b) What colour is the flower?

c) What colour do you get, when you press a flower?

Note: - The teacher may tell the children the green colour of the leaf is due to chlorophyll, which absorbs sunlight to prepare food, which is stored in the form of starch.

3. The teacher to devise additional steps to fulfil the purpose of this period.

Evaluation of children's learning:

Teacher to devise evaluation activity.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Plants prepare food Time: 40 mins

Specific Objectives

To help the children understand that only green coloured leaves contain starch. (See Content analysis 6 and 7.)

Content:

a)

b)

c)

Teaching/Learning Materials Required

1.

2.

3.

Teacher/Pupil Activities

Teachers will have to prepare a list of steps to fulfil the purpose of the period and also provide necessary materials and an evaluation activity.

Evaluation of children's learning:

Comments by the Teacher:

What went well and why?

What went badly and why?

Which children require more help?

Which children have understood?

It is recommended that teachers work in groups of two. Choose at least 5 of these activities. You may do them in any order. Make an interesting display of one activity (or two if you have enough time).

1 Air pressure 1: Submarines

Put a plastic tumbler upside down in the water. The air will not escape.

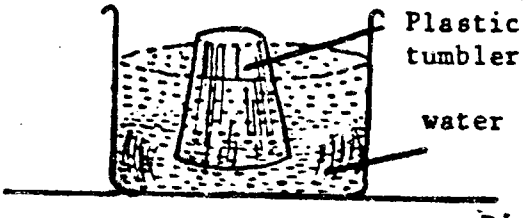


Diagram 1

Now see if you can make a model what will take exactly one minute to sink. Diagram 2 will give you a clue. How could you make it surface again?

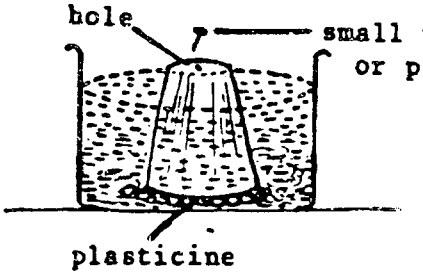


Diagram 2

When you are ready, set up situation in diagram 3. Can you explain why the water is not going into the jar?
How could you enable it to do so?

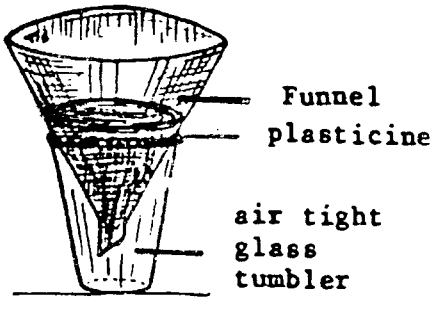
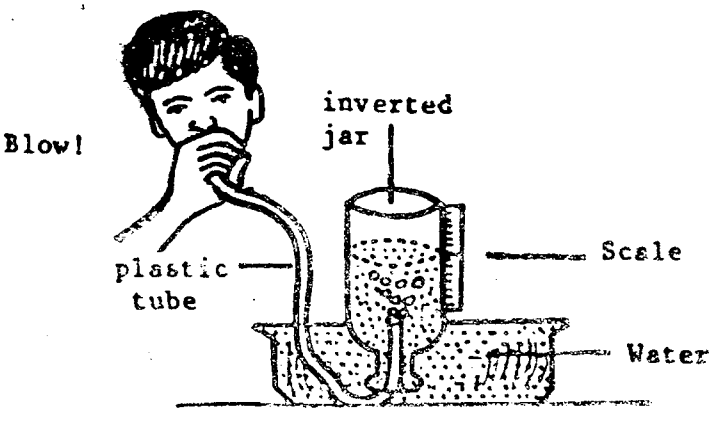


Diagram 3

Air pressure 2: Breathing

How much air can you breath out?
You can find out how to do it by looking at the diagram below.

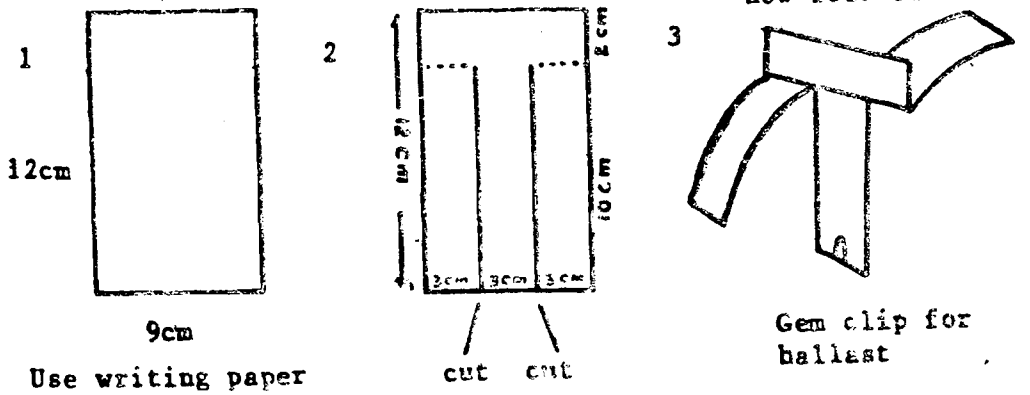


SAFETY NOTE: To avoid contamination, hold the tube in your hand. Do not let it come in contact with your lips.

Compare normal breathing with taking deep breaths.
Do men (boys) take deeper breaths than women (girls)?
Does your height make a difference?

3 Air pressure 3: Autogyros

Make an autogyro like this.



Now drop your autogyro. What happens?

A Does it make a difference if you use different material?
Try making one from card or blotting paper.
Try them out and see which one is best.

CLUE: First define what you mean by BEST.

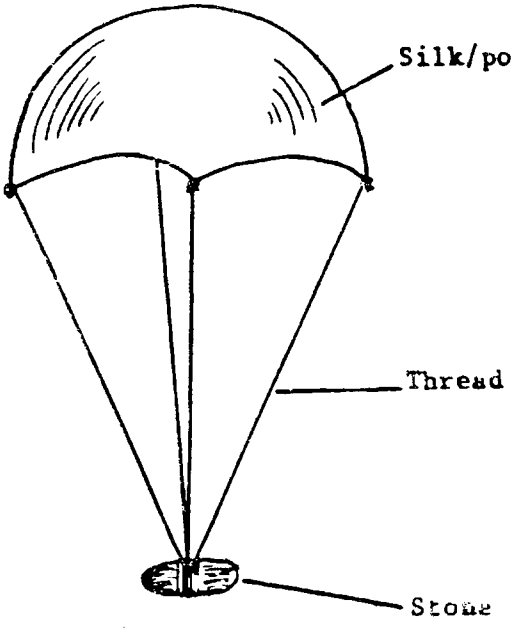
Material	Good	Fair	No use
Paper			
Card			

B Make autogyros of the same material but different sizes.
Does size make a difference? Draw a table to record your results.

Size	Good	Fair.	No use
Large			
Medium			
Small			

4 Air pressure 4: Parachutes

Make a parachute like this.



Test it by throwing i
in the air.
Does it open and dro

Alternatively you c
stand on a chair and
it open before you
it.

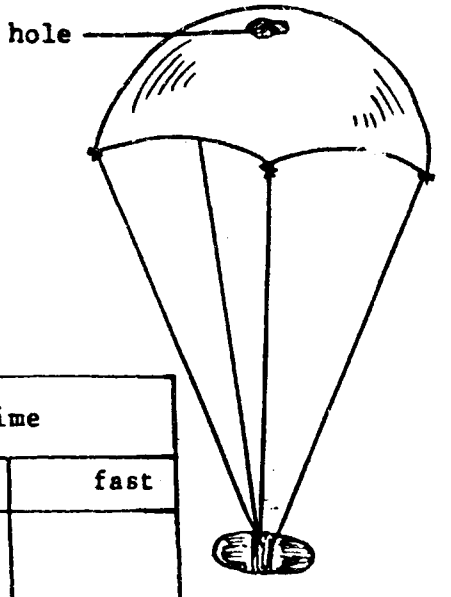
Try to explain-
happens when it w
well.

There is a way to make it work better.
Try cutting a hole in the top of a similar parachute like th

Is there a difference in the falling time? Does the one with the hole fall any better?

Does the size of the hole make a difference?

Make a chart of your results.



Type of parachute	Falling time		
	Very slow	slow	fast
No hole			
Small hole			
Medium hole			
Large hole			

Now you can try making your best parachute out of different materials. Make a record.

Parachute material	Falling time		
	Very slow	slow	fast
polythene silk cotton nylon tissue paper			

Does size make a difference? Choose one material and make parachute tops 25cm square, 30cm square, 40cm square and 50cm square. Test each in turn.

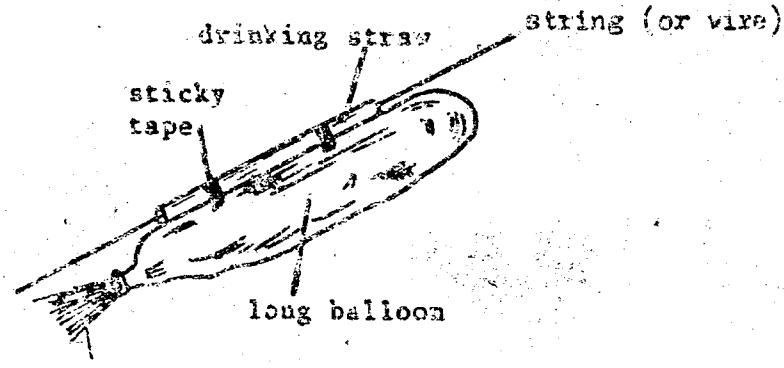
Parachute size	Falling time		
	Very slow	slow	fast
25cm sq. 30cm sq. 40cm sq. 50cm sq.			

Which factors make the best parachute?

5 Air power 1: Jet planes

Blow up a balloon and release it. What happens? Why?

Would it be better to try to control the path the balloon takes? The diagram will show you how to do this.

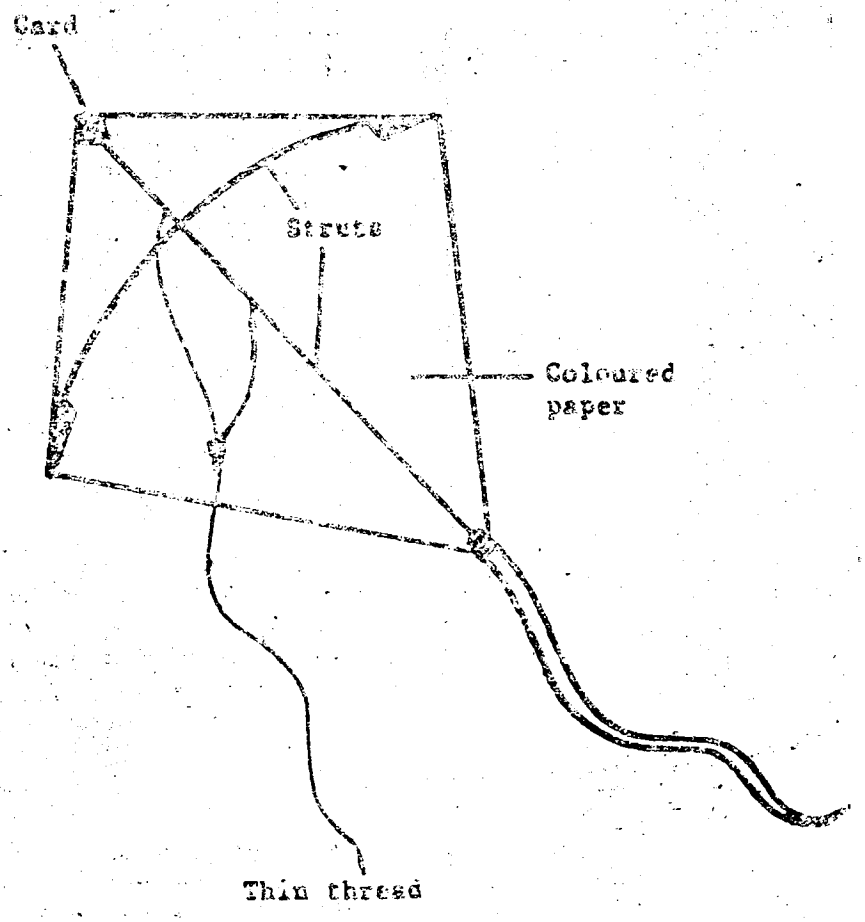


How well does the balloon travel now?
How long does it take to go up the string?
Does it matter how hard you blow up the balloon?
Try to answer these questions and explain your results.
Don't forget to make a record of your findings.

— Does the balloon travel faster uphill or horizontally? Find out the answer and explain it.

6 Air power 2: Kites

Make a paper kite. Use your own design or make one like the one in the picture.



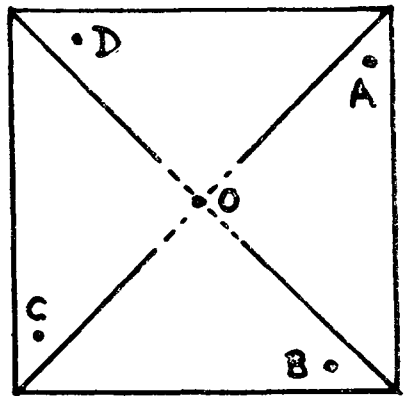
Find out what happens if your kite doesn't have a tail, keeping to your original design.

Make more kites using different types of paper, polythene or card. Test your kites to see which material is best. What things do you need to keep the same to make this a fair test?

Make a diagram of your design and record your results.

8 Air power 3: Windmills

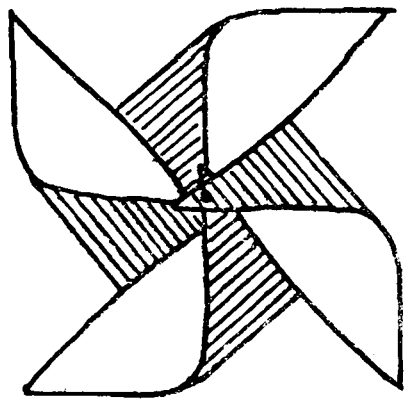
Take a square of stiff paper (light card) of side 12cm. Draw in the diagonals to intersect at the centre, O.



Cut along the diagonals towards the centre, stopping short about 2 or 3 cm from the centre.

With a pin make holes in alternate corners and in the centre at points A, B, C, D and O in the diagram.

Now take a pin, and folding the marked corners over in turn, put the pin through the holes A, B, C, D and O in turn.



Hold the sharp end of the pin in your hand and you have a paper windmill which will turn as you move your hand through the air.

Refinements are to make a handle, and put a small bead between the windmill and the handle before fixing the pin firmly into the handle.

Explain why the windmill goes round.
How would you make a windmill which turns in the opposite direction?
Is there a relationship between the speed of the windmill and its size?

SUBJECT: ENVIRONMENTAL STUDIES II

LESSON: AIR Class IV

Content Analysis

1. One of the properties of air is pressure. (K)
2. With the help of air pressure an ink filler takes in ink. (U)
3. The rubber tube in a fountain pen takes in ink with the help of air pressure. (U)
4. Taking in water through a straw is due to air pressure. (U)
5. Breathing causes lungs to take in and give out air. (U)
6. When a balloon is blown up it takes shape. (U)
7. Air occupies space like solids and liquids. (U)
8. Air expands when it is heated. (K)

Period 1: Air Pressure Time: 40 mins

Specific Objectives

To help the children discover that pressure is one of the properties of air. (See Content analysis 1 to 4.)

Teaching/Learning Materials Required

1. Collect pieces of papers, cotton, beads, stones. Also,
   - five ink fillers.
   - an ink bottle.
   - a fountain pen (with rubber tube)
   - ten glasses with water.
   - twenty-five straws.

2. Prepare a chart for use in Step 1. (Shown below)

Materials

MATERIAL	MOVED VERY FAR	MOVED SOME DISTANCE	DID NOT MOVE
PIECES OF PAPER			
COTTON			
BEAD			
STONE			

The children work in four groups, occasionally as a whole class with the teacher.

* Materials to be sufficient for work in groups.

Teacher/Pupil Activities

1. Give pieces of paper, cotton, beads and stones to the children in four groups. They blow on the above mentioned things.

   They observe and note down the results on the chart provided.

   The teacher puts questions to the children such as: -

   a) Why did not the stone move?

   b) What could be the reason?

   c) Which things could you move by blowing?

   d) What made these things move?

   The teacher hopes to get the answer "air pressure" or similar response from the children.

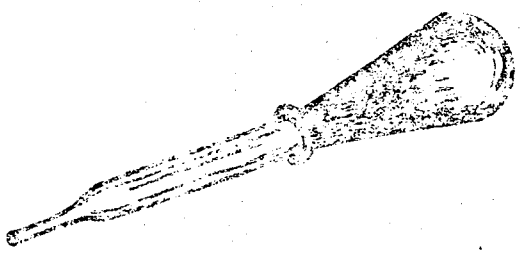
2. Give each group an ink filler and a tumbler of water. Each group should carry out the following activities and observe what happens:

   a) Hold the bulb of the ink filler in one hand, placing the open end close to the back of his/her hand, and squeeze.

   b) Place the glass tube of the ink filler into a tumbler of water and squeeze.

   c) Remove the ink filler from the water, keeping it close

[illegible] the surface of the water, squeeze.



An Ink Filler

As many children as possible should experience this activity.

The teacher then puts these questions.

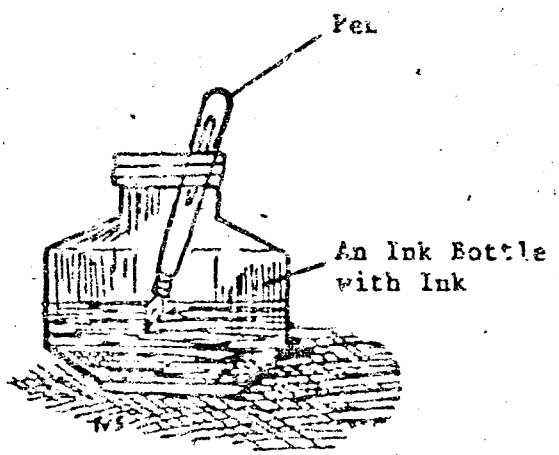
a) What is the sequence of activity which enables the pen filler to take water from the tumbler?

b) What do you think makes the pen filler take water from the tumbler?

c) What happens if the rubber bulb of the pen filler is replaced by a rigid metal tube?

In this step the teacher is trying to show that air pressure forces the water into the pen filler, when the bulb is released.

The teacher should then demonstrate the action of a fountain pen when it is filled from a bottle of ink. He/she should ask the children to compare what they observe with their observations about the ink filler.



3. The teacher distributes straws and two glasses of water to each group. The children use the straw to suck water from the glass.

The teacher should put questions similar to the following: -

(a) What do you think makes the straw take up water?

(b) What do you do to take water through the straw?

Note: - The teacher should explain to the children that when a child sucks in he/she causes a fall in air pressure at the top of the straw so that the straw takes up water lower down due to air pressure on the surface of the liquid in the glass.

The teacher and the children draw diagrams to illustrate what happens, and record their observations.

Evaluation of children's learning:

Teacher gives these questions to a number of children:

a) What happens when you take in water through the straw?

b) What happens when you take in water through an ink-filler?

and appraises the results.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Air occupies Space

Specific Objectives

To help the children discover that air occupies space. (See Content analysis 5 to 7.)

Teaching/Learning Materials Required

1. Collect

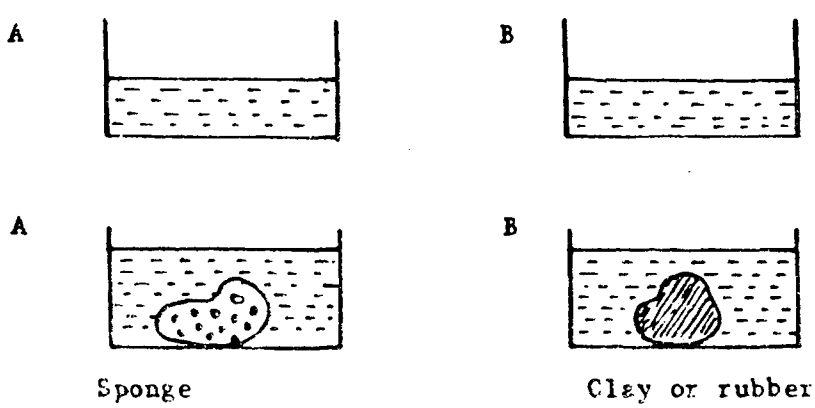
- Balloons.
- Sponge pieces.
- Clay or rubber pieces.
- Containers - from the science kit.
- Straw.
- Soapy water.
- Water.

Children work in groups in step 1.

Children to work individually in step 2.

Teacher/Pupil Activities

1. Each group takes two small equal sized containers A, B and pours equal quantities of water into each . They put a piece of dry sponge in container A and a piece of rubber or clay in container B.



The teacher should put questions as following: -

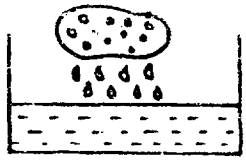
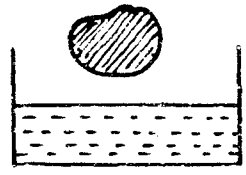
a) What was the water level in both the containers A & B?

b) What happened to the water level in container A, after adding a piece of sponge? (Rose and then fell).

c) What happened to the water level in container 'B' after adding a piece of rubber or clay? (Rose).

therefore the water level in that container falls. The rubber or clay does not soak up water and the water level rises.

Notice the difference when the sponge and the piece of clay or rubber are squeezed. Children to illustrate themselves.

	Sponge	Clay
When squeezed		
	Water	No Water

The children may each say that there are spaces in the sponge and no spaces in rubber/clay. When the sponge contains no water what do its spaces contain?

2. Give balloons to each group and ask them to inflate the balloons.

3.

Teacher to prepare additional steps to fulfil the purpose of the period.

4.

Evaluation of children's learning:

Teacher asks a number of questions to a sample of pupils and appraises the results.

What questions should these be?

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: The expansion of air Time: 40 mins

Specific Objectives

To help the children discover that air expands when heated. (See Content analysis 8.)

Content:

Teaching/Learning Materials Required

1.

2.

3.

Teacher/Pupil Activities

1. .
   Teachers to prepare steps to fulfil the purpose of the period, to supply materials and an evaluation activity.
2. .

Evaluation of children's learning:

Comments by the Teacher:

What went well and why?

What went badly and why?

Which children require more help?

Which children have understood?

8. LANGUAGE

APPEP PRINCIPLES AND LANGUAGE

1) Providing learning activities

To make learning effective, children should always be kept active. Active involvement is always helpful to learning. As an encouragement to active learning, the teacher should consider carefully appropriate activities and questions related to them. For this the following examples may be helpful:

a) Stories: Teacher prepares the main theme of a story content with simple sentences on a chart (or work sheet). In between the sentences a space is left to fill in with appropriate word cards.

Eg:

ఒక కాకికి _____ వచ్చెను.

ఆది _____ మూ నాలుగు చెప్పలు వేసికెను.

ఒక _____ లో కొంచెము నీరు కనబడెను.

కాకి _____ తాగుటకు ప్రయత్నించెను.

దానికి ఒక _____ తోచెను.

వెంటనే కాకి చిన్న చిన్న _____ తెచ్చెను.

నీటిలో _____ వచ్చెను.

నేరు _____ వచ్చెను.

నీరు	రావము	కూజా	నీటిని
గుటకు రాళ్ళు	ఉపాయము	వాటిని	కోడను	మెకి

b) Picture stories: Based on picture cards, a complete story is framed by putting the cards in sequential order or the teacher elicites some sentences on the displayed picture cards to form the story, children write/tell simple sentences. This activity is also helpful for work in groups. Children discuss amongst themselves, write sentences about the picture.

The small trick, the lion and the mouse are possible picture stories.

2. Promoting Learning by Doing:

Children learn quickly if they are able to use the language they have acquired.

Eg:

a) Organise activities with varied objectives: Children visit a shop and prepare a list of objects and discuss with the shop keeper their cost, their sources, their transport etc. Children enjoy the conversation and write the names of the objects or their description. Then they try to sketch them. In this way they gain experience and pleasure.

b) Children enjoy visits, e.g. to temples both local and more distant (e.g Tirupathi, Amaranath), to Zoo parks, etc. Help them to write about their information with simple sketches. Children themselves engage in discussion with the people concerned and collect information.

c) The child writes about himself under various captions with simple sentences in a series of little books.

- My family
- My friend
- The thing which I like best
- My good work, etc.

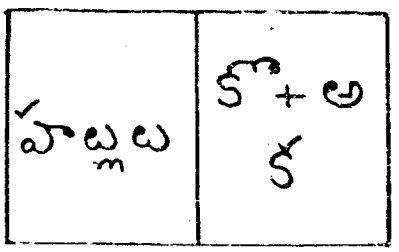
3. Developing individual, group and whole-class activity:

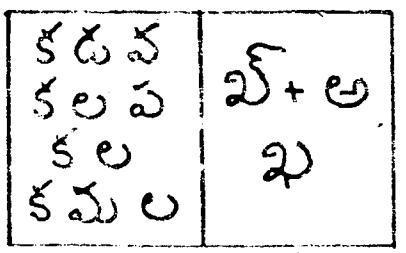
a) Group work

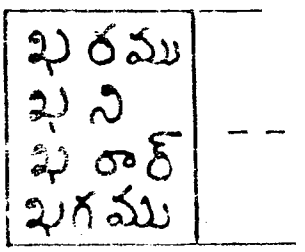
i) Developing conversation: Children of a class are divided into groups for learning and to develop conversation. Making the work enjoyable in groups by talking to each other in a learning situation also provides encouragement.

ii) Domino Game: Prepare question - answer cards, the first card contains a question; the answer will be on the next card. These cards should be arranged in series carefully to get the correct sequence.

Eg:







note books). The group leader of the group which finishes first reads the arranged written matter to all. In this way from the very earliest stage children learn to speak fluently and without fear.

iii) Completion of a story (with group thinking)

Eg: The teacher tells an incomplete story and asks the children to complete it. The children in groups share their ideas and all the group ideas are put together. The story is then completed. This activity develops creativity and original thinking.

b) Developing classwork (Individually)

i) Word building game.

The teacher prepares letter cards and keeps them in a basket (known as a letter basket). The child takes a card from the letter basket. The remaining children of the class listen to him read out the letter, and then write the words which begin with that letter only. Let the child write as many words as he can. Here each child of the class is doing the work instead of in group.

c) Whole class work:

i) Rhymes and songs can be taught to a class. Let the whole class read them through. In this way reading skills can be improved. Checking of reading can be done in pairs.

ii) Dramatisation - The whole class organises a playlet after the topic has been introduced by the teacher.

4. Recognising individual differences:

The teacher must identify the abilities of each child in language. For example, one child may not be able to write a sentence while another can. Work has to be given to each. All children's work is checked and separate exercises given for those who need extra help and those who can go ahead to the next task. Some examples are given below.

a) The teacher makes sure that a child who can do well is involved in each group. This child helps the others by checking the work of the group, e.g. putting the strips of a story in the correct order, in arranging pictures to tell a story.

b) A child who is not good in reading is linked with a good reader. This paired activity helps both children to improve.

c) The group leader checks the written material in his group and the teacher checks and guides the material before it is displayed in the classroom.

d) The teacher provides extra help for a child who cannot write

a sentence. Other children who can write sentences prepare a story.

5. Using the local environment is quite helpful to both child and teacher in the teaching-learning process.

a) Using real objects

Pebbles, seeds, bottle tops etc., are very useful. These are helful to learn the shape of letters / words / simple sentences.

b) Visits

Arranging for the children to visit temples, forts, rivers, tanks etc. to gain first hand information.

c) Searching for language

Encouraging children to look for things in the local environment which they can name, describe, talk about.

d) Collecting information

Asking people in the locality questions, listening to the answers, recording the information collected.

6. Creating an Interesting Class Room:

a) Providing Displays

The more attractive the classroom is, the more interest and attention it creates. Children feel proud of themselves to see their material displayed. The display of certain activities like dominoes, snap, Bingo, Turn it over, Snakes and Ladders, Who reaches hands first, Lotto etc., in the class room all help to make the children enjoy the learning situation.

Benefit of Display:

- Display creates an interest amongst children in the class room, and maintains a pleasant atmosphere for the teaching - learning process.

- Language is developed through discussions about materials on display.

b) Story telling

Story telling (through completion, through pictures, picture dialogues etc.), picture stories with children's comments, head-lines from news-papers, good hand writing (calligraphy) dialogues prepared with pictures by the children, should all be displayed.

c) Language corner

One corner of the room is called the language corner, and becomes more important day by day as items are brought by

the children. Notebooks containing stories/essays/poems/ pictures will be made in the form of zig-zag books and displayed in the language corner.

TEACHERS' ACTIVITIES FOR COURAGE

1. Whole group activity (10 people): Think about an incident you know which would explain 'courage'. Everyone has either participated in an incident like this or has heard of one. Now tell your story to the whole group.

2. Individual work: Select one of the stories you have heard. You must now think about how you could use the story with children in schools. How would you present the story in words? How could you present the story in pictures? If you are not a good artist you could use 'stick' illustrations. Here are some examples:

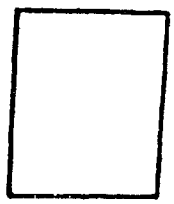
A person standing

A person running

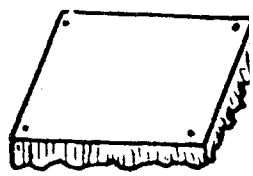
A person sitting

Make your illustrations simple.

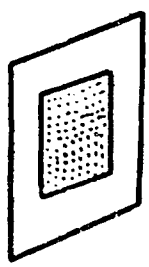
3. In groups of five: Prepare a flannel board. You can make this quite simply. You need a piece of board. This you cover with white cloth.



Fold the cloth over and pin it.



Now prepare your illustrations.



and on the back glue a piece of sandpaper.

Now place your illustration on the flannel board.

You can easily tell a story this way by using different pictures.

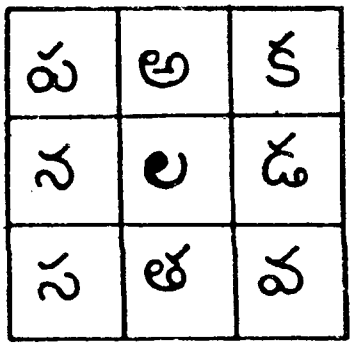
4. Using stories: In groups of 5, choose one of the stories developed in activities 2 and 3. Now look again at the story and discuss how it could be improved or lengthened to make into a booklet. Decide first which age of children the booklet is intended for. Now go ahead to prepare the booklet and cover page, which should have an illustration and a title. Complete your booklet and pass it to the other group. Discuss the other group's booklet. Which do you think is best? Why? Have a joint discussion

with the other group about both booklets. Can you think of good criteria for judging the booklets?

e.g. the story is clear and understandable
it has suitable illustrations
it is attractive
the language is suitable for the children for whom it is intended
(add some more criteria of your own).

5. Pair work: In pairs, you are to develop a dialogue on courage. Discuss with your partner what you could select as the theme of your dialogue. Then prepare a dialogue. Each pair will present the dialogue to the whole group. Which dialogue is best? How can you decide which is best?

6. Word building: Prepare for class use a copy of the following chart, together with separate "flash cards" of the individual letters indicated.



This may be used in a variety of ways:

(i) In Class I it may be a simple "matching" of letters on card and chart.

(ii) By reading down, across and up, find three letter words.

(iii) Using some of the letters and in any order, what other words can you form?

7. More word-building games

Using the same format, but using different letters, make your own such games.

8. Making up words

Select one word which is quite long and which everyone knows. Now try to make smaller words from the longer one.

Here is an example.

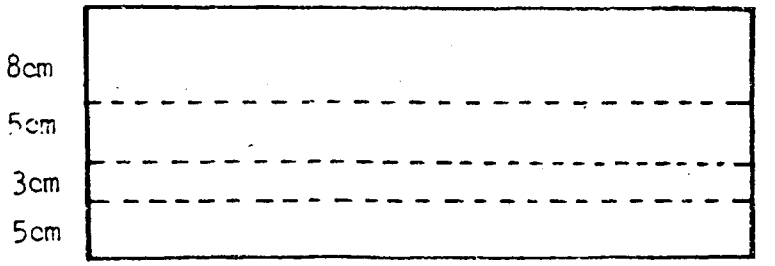
From vijayanagaramu వజయనగరము

come vijaya వజయ
naga నగ
munaga మునగ
ravi రవ

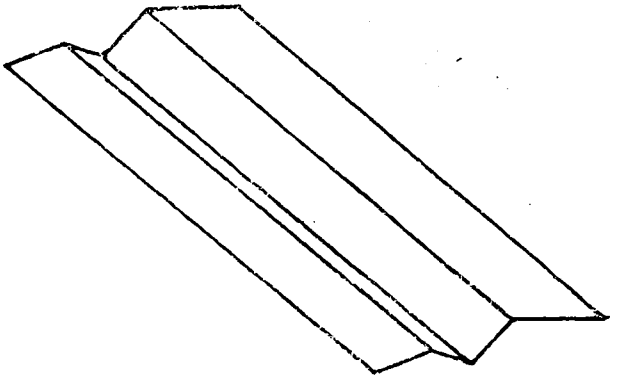
Design a chart to show your words and illustrate each word with a small picture.

9. **Making a Sentence Maker:**

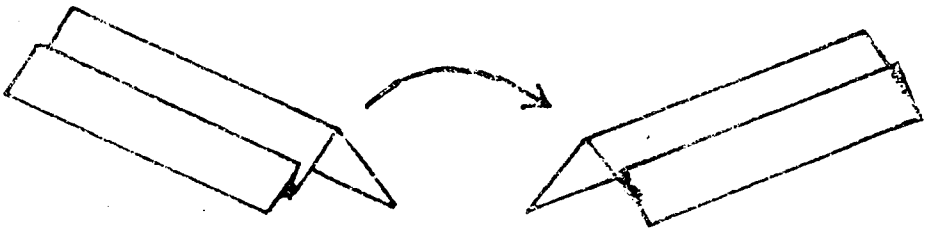
i) Take a piece of coloured card measuring 56 cm by 21 cm and mark off lines as below:



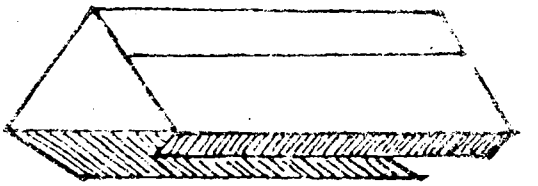
ii) Carefully fold along the lines:



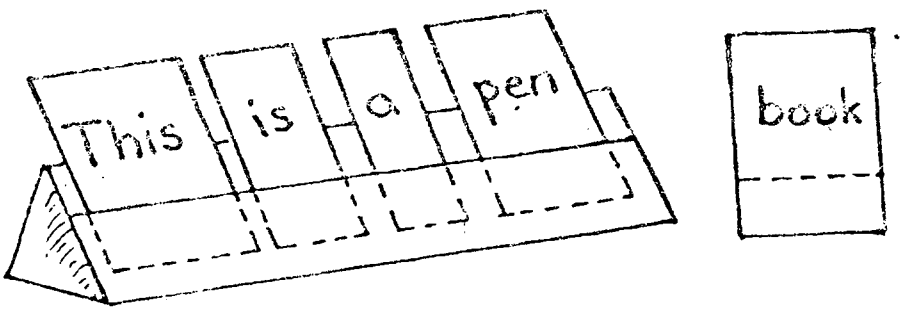
iii) Now stick down the ends at the first fold:



iv) Next fold the lower edges inwards and stick them together:



v) Word cards should be 7cm high. The lower 2cm will be hidden in the sentence maker:



SUBJECT: LANGUAGE

LESSON: SAHASA BALUDU (The Courageous Boy) Class II

Content Analysis

The Story of HARILAL YADAV, whose courage was subsequently recognised by the government.

Through this story,

1. To appreciate the qualities of courage and neighbourliness (A).

To practice language skills as follows:

2. To put words beginning with different vowels in alphabetical order (U).

3. To recognise and use the secondary forms of a (◌ा) and i (◌ी) in the construction of words (K).

4. To order a series of events presented haphazardly (U).

5. To develop listening skills (S).

6. To practise reading and writing skills (S).

Period 1: The story of Sahasa Baludu Time: 40 mins

Specific Objectives

1. To arouse the curiosity of the children to listen to and read the story.

2. To inculcate the concept of 'courage' in children (see 1 and 5 of content analysis)

Teaching/Learning Materials Required

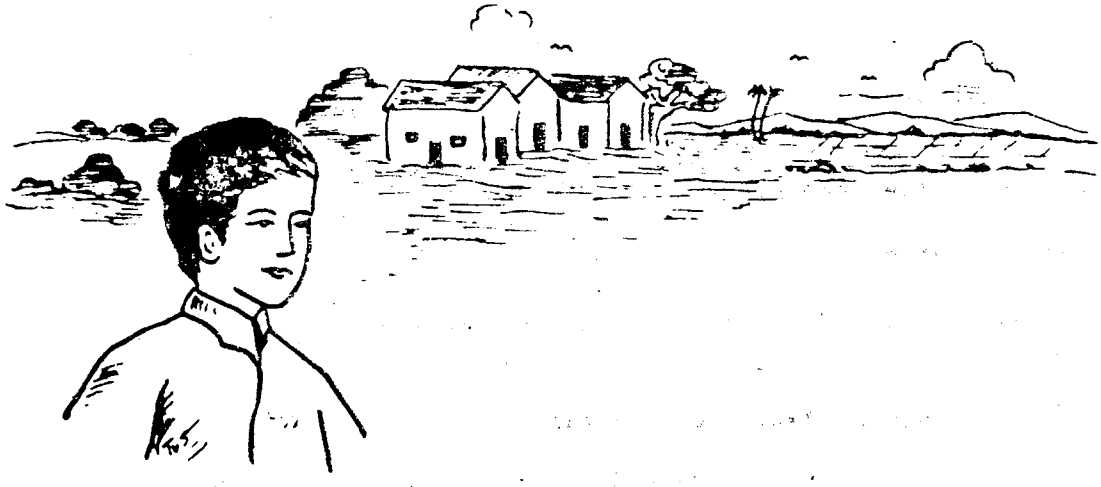
1. Collect pictures about the story of Sahasa Baludu.
   Picture 4/1
   4/2
   4/3
   4/4
   4/5 - 1 copy per group.

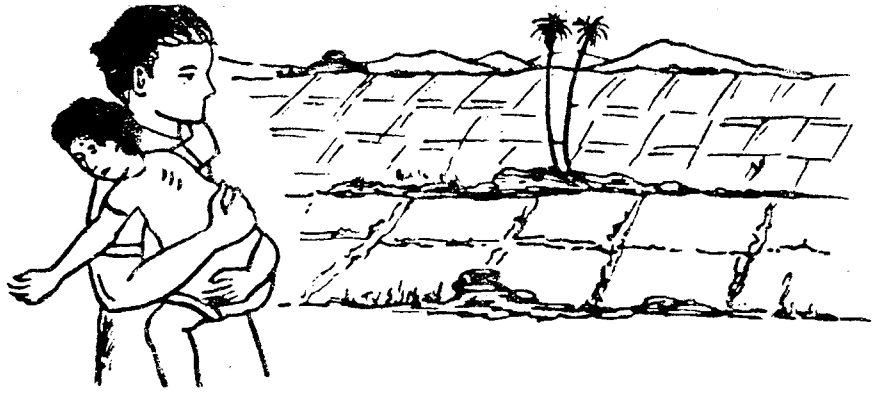
2. An evaluation "butterfly"

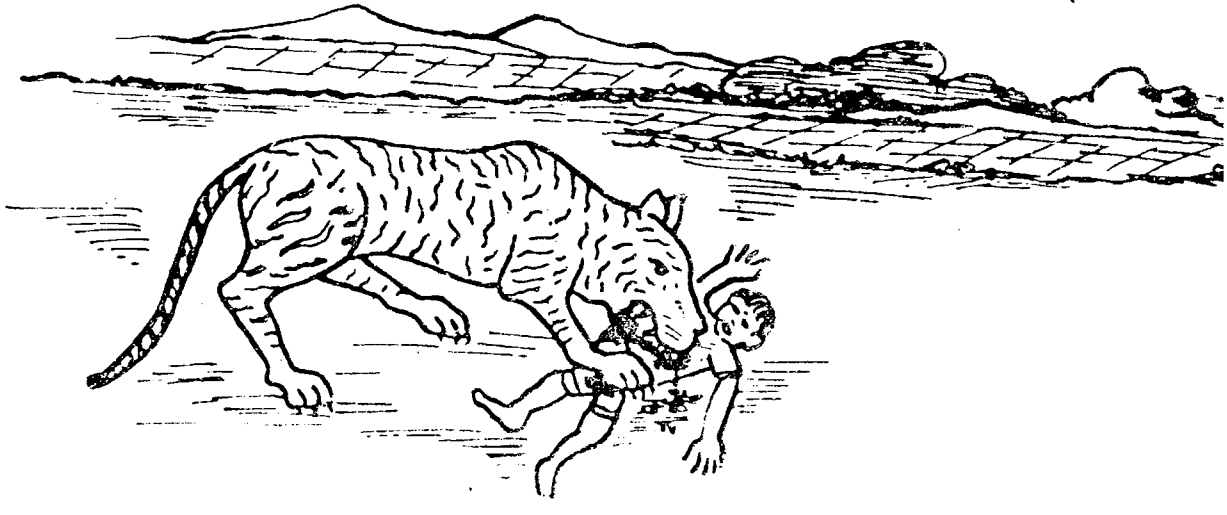
Teacher/Pupil Activities

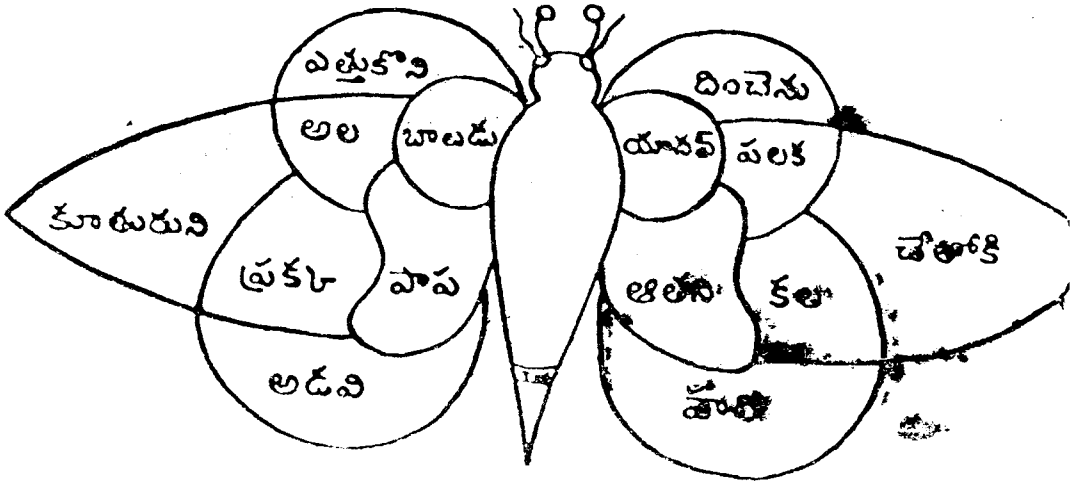
1. The children sit in a horse shoe shape and listen to the teacher telling the story of Sahasa Baludu using simple sentences.

2. The story is then read from the text (first third) with the teacher explaining any unknown words. The children follow








ఎత్తుకొని
అల
బాలుడు
కూతురుని
ప్రకృ
పాప
అడవి
దించెను
యాదవ్
పలక
చేతోకి
ఆలోచి
కళా

the text word by word and line by line.

3. The children in groups discuss this part of the story and group leaders recount it in their own words.

Evaluation of children's learning

Issue the evaluation 'butterfly' for children to complete in groups, following these instructions
(i) Colour in red the words containing a long a (ā)
(ii) Colour in blue the words containing a short i (ĭ)

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Courageous Work of Sahasa Baludu Time: 40 mins

Specific Objectives

1. To encourage the children to enjoy the story.

2. To encourage them to read the story. (See content analysis 1, 4, and 6)

Teaching/Learning Materials Required

1. Hand (paper bag) puppet of a tiger.

2. Illustrations as for Period 1.

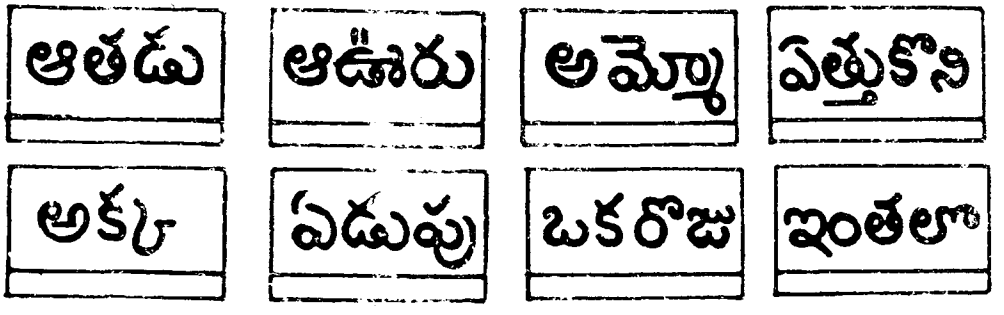
3. Prepare card games: sequential order, alphabetical order.

4. Prepare card games for groups to use the "stressing words".

Teacher/Pupil Activities

1. The teacher briefly tells yesterday's story again. The teacher asks the children to work in groups. The children group the words which are supplied to them in alphabetical order. Children collect the ' ఆ ' words together and arrange them in a line.

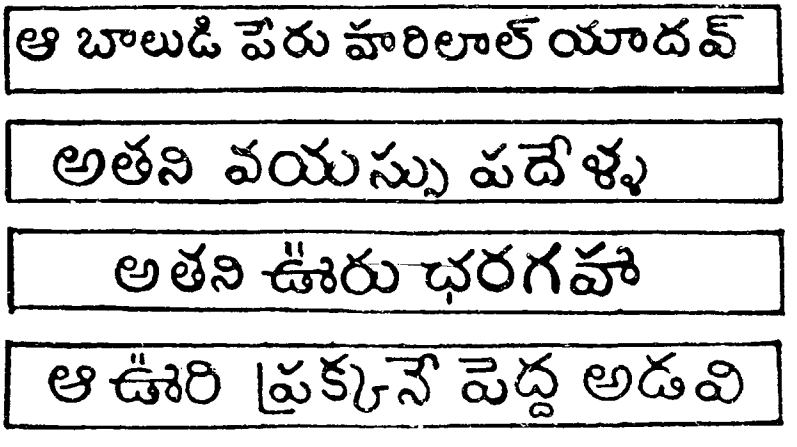
E.g.



After completing the arrangement the group reads the words in alphabetical order. The credit goes to the first group to complete.

2. Children move into a half circle and get ready for today's story.

The teacher reads the story very slowly and clearly from the text. After enjoying the reading the children again return to small groups, and work out a sequential card game.



The group reads the words and arranges them sequentially. The first group which arranges the words correctly is rewarded with applause.

3.

Teacher to add stages

4.

Evaluation of children's learning

Teacher to add evaluation

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Support of Neighbours Time: 40 mins

Specific Objectives

1. To encourage the children to write the story.

2. To encourage the children to use their own sentences. (See content analysis 6)

Teaching/Learning Materials Required

Teacher/Pupil Activities

Evaluation of children's learning

Comments by the teacher

What went well and why?

What went badly and why?

Which children have understood?

Which children need more help?

TEACHERS' ACTIVITIES FOR INDEPENDENCE DAY

Each group does all the activities.

1. Picture - Word Games

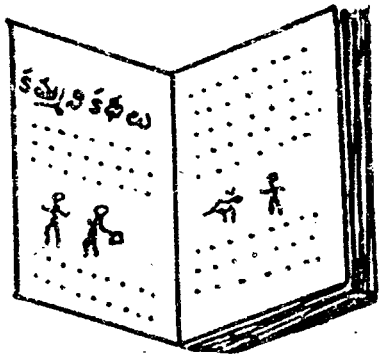
a) The following is a simple example of what is meant by a picture-word game:

The  was very hot and the tiger wanted to find some  . He rested under a  . Soon a  came along.

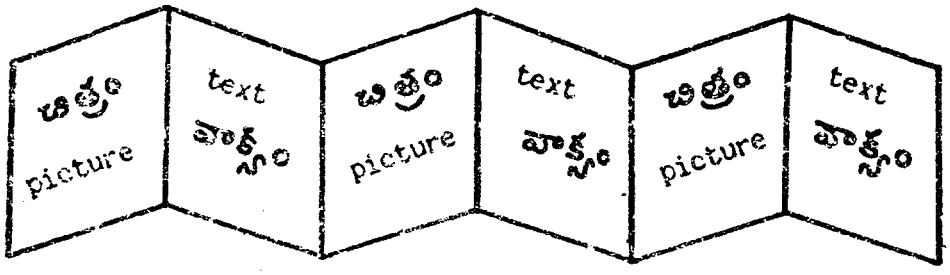
Individually think of some short incident related to what happens on Independence Day, or what it means, and write it out in picture-word game form.

b) In pairs, exchange your work, and write out the account of your colleague's "story" in full. Ask him or her whether you have got it right! If not, suggest some modifications.

c) In sub-groups of 5 make a booklet from the stories written in the previous activity. One person make a cover page using a piece of chart paper. Draw a suitable illustration on the cover. Display the booklet, e.g.



Judge which is the best booklet. Why is it the best? Discuss and agree criteria for judging the quality of the booklet. Use a needle and thread to sew the booklets, or make a zig-zag book like this:



Glue the pieces of paper together, or better still, decide how to show this information yourself.

2. Imaginative Writing

a) Individually, write the first half of an account of how you might celebrate Independence Day. Note: this is the first half only.

b) Exchange your story with someone else to complete. Now everyone tries to complete the story they have received. Try to use the same style as the first writer and try to decide how you think he/she intended to complete the story.

c) Stories should then be read to the whole group who should comment on style, continuity, appropriateness, etc. Choose one or two to be displayed.

3. Planning for Independence Day

a) In groups of 5, imagine that you are the planning committee responsible for drawing up the programme of celebrations at your school for 15 August next year. You are asked to prepare not only a schedule of events, but also any linked material such as Invitations, Reports, Head-teacher's speech, etc. Design a poster and a leaflet for the celebrations.

b) As part of the above, prepare a mini-play for performance on Independence Day. You will need first of all to agree a story, or plot, the main characters, and the number and description of the scenes.

Individual members should then prepare different parts of the play. These should then be brought together and the group agrees on the play. Now practise the play so that you can perform it for the others. Perform your play for the other groups.

SUBJECT: LANGUAGE

LESSON: AUGUST 15TH Class III

Content Analysis

1. To help develop a sense of national pride and identity (A).

2. To identify why we celebrate certain events, e.g. birthdays, marriages, religious and national festivals. In particular, to identify the importance of Independence Day as the national birthday (U).

3. To recognise pictures of Indian heroes and to know of their involvement in the struggle for independence - Mahatma Gandhi, Jawaharlal Nehru, Balagangadhar Tilak, Jhansi Lakshmi Bai, Subaschandra Bose.... (K).

4. To memorise a particular song (poem) (K).

Language Development

5. To practise listening and speaking skills (S)

6. To engage in simple dramatic presentations (S)

Period 1: Flag hoisting on August 15th Time: 40 mins

Specific Objectives

1. To make children aware of what goes on on Independence Day and to feel part of the Indian nation.

2. To learn a particular song (poem), (See content analysis 1 and 3)

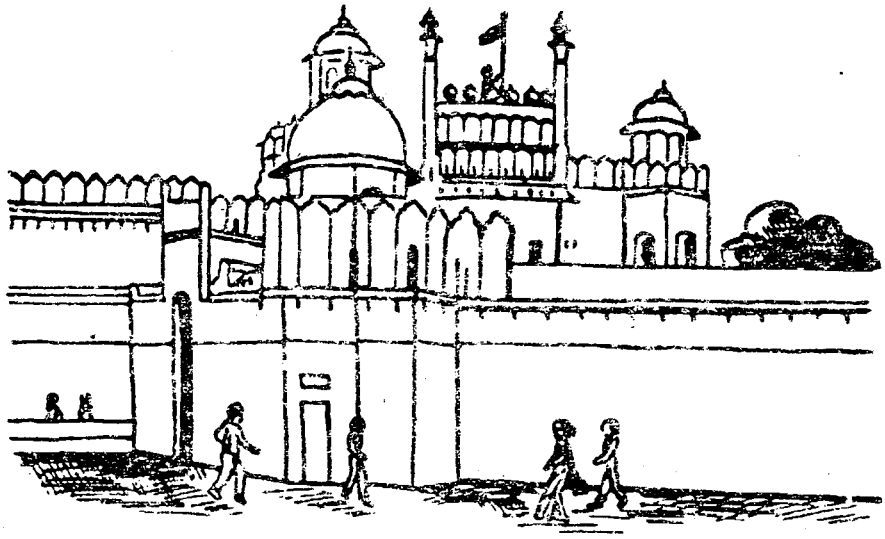
Teaching/Learning Materials Required

1. A song about the 'National Flag', e.g.

ఎగురాలి ఎగరాలి
మన భారత జెండా
మూడు రంగుల జెండా
[illegible] జెండా

మన గాంధీ తాతయు
మన నెహ్రూ బాబాయి
అందించి వారసుని
బొమ్మయు జెండా

2. Find pictures of "flag hoisting" at Red Fort. If not prepare a chart.



Teacher/Pupil Activities

1. The teacher asks the children to give the names of the national festivals and some religious festivals. The children are to say what the difference is between the two.

2. The teacher asks the children to write in their exercise books the names of the national festivals which are celebrated in the school.

3. The teacher asks the children to listen to the rhyme about the national flag and Independence Day on the tape recorder (if tape recorder is not available, the teacher himself sings the rhyme). The teacher encourages the children to sing the rhyme along with the tape (or teacher) for the second time. Then the children sing the same rhyme for the third time without the tape (or teacher).

Evaluation of children's learning

The children are asked to write the rhyme in their note books. They can also write other rhymes if they know them and if there is time.

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

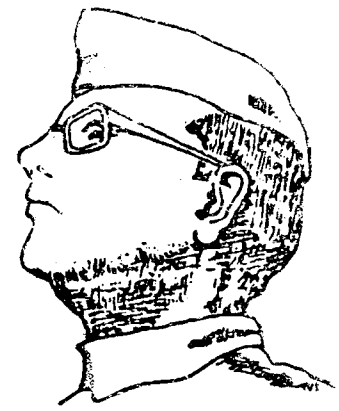
Period 2: Patriotism — Time: 40 mins

Specific Objectives

To develop the spirit of patriotism in the children through
a) Story of freedom
b) Role of Gandhiji and other leaders.
c) Satyagraha, and its meaning.

Teaching/Learning Materials Required

1. The teacher prepares the following pictures: Mahatma Gandhi, Jawaharlal Nehru, Balagangadhar Tilak, Jhansi Lakshmi Bai, Subaschandra Bose etc.

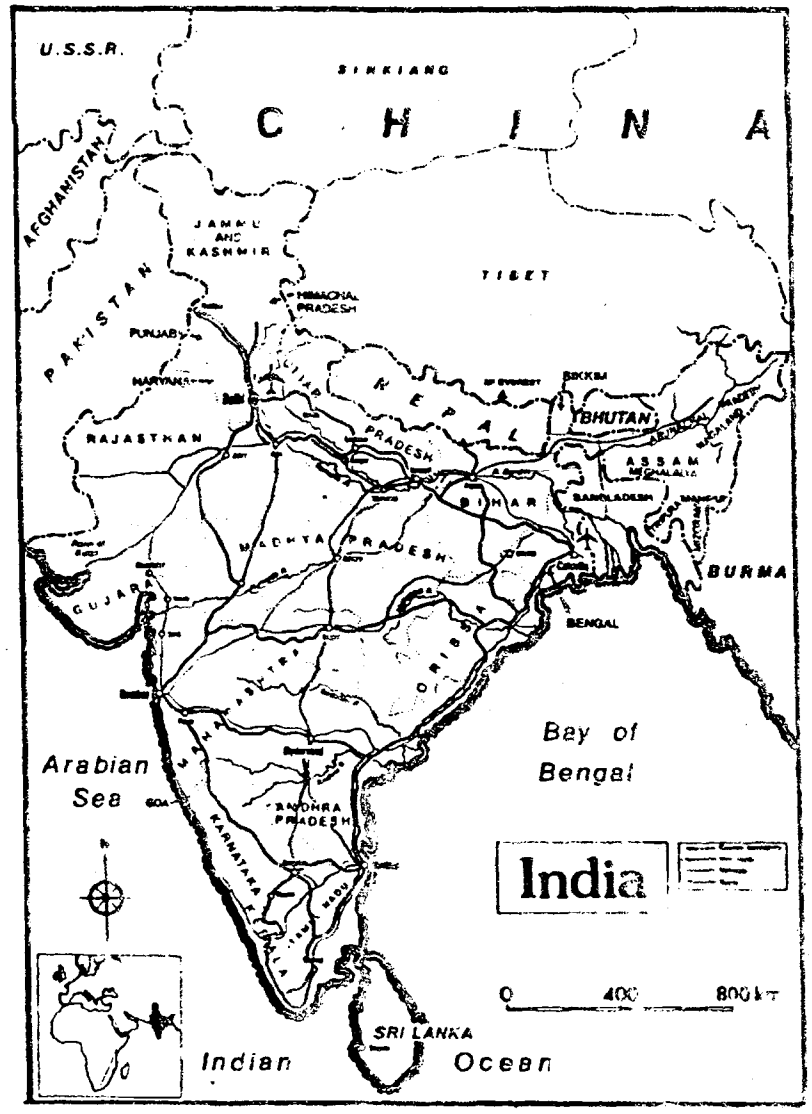


2. The teacher prepares a map of India and a National Flag.

3. Dialogues used for 'Guess who am I' are to be prepared.

4.

5.



Teacher/Pupil Activities

1. The teacher reads the lesson from the textbook (about 12 lines) and asks the children to repeat the dialogue.

2. The teacher shows the pictures of the national leaders and asks the children the names of leaders in the pictures. The teacher explains their roles in the fight for independence.

3. The teacher asks the children to play the game 'Guess who I am'.

   E.g.

   (1) దండి పోరాటంనడిపిన వాడిని
   జైలుశిక్షను పొందినవాడిని
   తెలుసు కొండీనాపేరూ? (గాంధీజీ)

   (2) స్వరాజ్యమేనా జన్మహక్కని
   పలికినవాణీ!
   నాపేరేమి? (తిలక్)

   (3) ఆంగ్లేయులను తూడల గొట్టి
   స్వాతంత్ర్యంకొరకై ప్రాణాలొడ్డిన
   నారీమణినీ!
   (4) నాపేరేది? (ఝాన్సీలక్ష్మి)

   (5)

Evaluation of children's learning

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: The national flag Time: 40 mins

Specific Objectives

1. To help the children learn about the national flag. (See item 4 of content analysis)

Teaching/Learning Materials Required

Teacher/Pupil Activities

Evaluation of children's learning

Comments by the teacher

What went well and why?

What went badly and why?

Which children have understood?

Which children need more help?

TEACHERS' ACTIVITIES FOR "DEEPAVALI"

Everyone will participate in all activities.

1. Preparing the story of Deepavali with pictures

In small groups discuss how to tell the story of Deepavali using pictures with words. Decide the sequence of the pictures to be drawn and who will prepare them. One sequence might be this:-

Do not copy this; make up your own sequence, pictures and words.

Prepare your illustrations.

Each group tells its story to the rest and the best story is selected. How can you judge the best? What criteria will you use?

Display the best story.

2. Writing a poem about Deepavali

In the same groups discuss how to write a poem about Deepavali. Write and agree your poem. How could you illustrate it? Each group reads its poem to the others. Which poem is best? How do you judge? The best poem is displayed.

3. Using Deepavali to learn about good and bad

In pairs, think and discuss how the story of Deepavali helps develop a sense of good and bad. Use illustrations of Lord Krishna and Narakasura. What actions show good and bad? Which values will this activity help to develop?

Each pair presents its ideas and displays its illustrations.

4. Telling the story of Deepavali without words

Each person in a group thinks about how to tell the story of Deepavali without words. You use actions to illustrate your story. Think about the story carefully and how you can 'tell' the story by actions. Each person performs his story and the others guess what the actions mean. Whose actions were best? Why? Were they the clearest?

5. Contrasting playlets

In groups of 5, each group produces a playlet. One group deals with the story of Deepavali. The other shows how Deepavali is celebrated now. Each group discusses and

develops its playlet, thinking about the words, the actions and the things needed (like hats made of paper perhaps) to use during the acting of the playlet. Each group then acts their playlet and watches the other group. Discuss the playlets and decide which you thought was best. Why did you think it was best?

6. Celebrating Deepavali next year

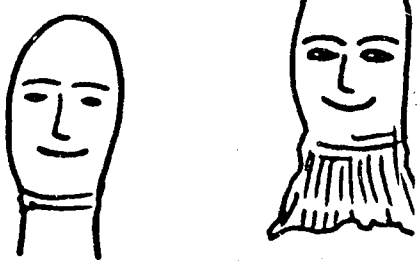
The groups recall how they celebrated Deepavali last year and draw up a plan for next year. The plan should include a timetable of events, a list of people who might take part, and some suggestions as to where it might take place. Who should be invited to attend? Make a draft of all the publicity that would be needed: a poster, a leaflet, invitations.

Show your plan to the other group. Which plan is the most interesting? Why?

7. Making puppets and performing a puppet show

Puppets are always enjoyable no matter what the age of the performers or audience. Decide how you will make a puppet of your own. Here are some ideas:

Draw on a finger or thumb



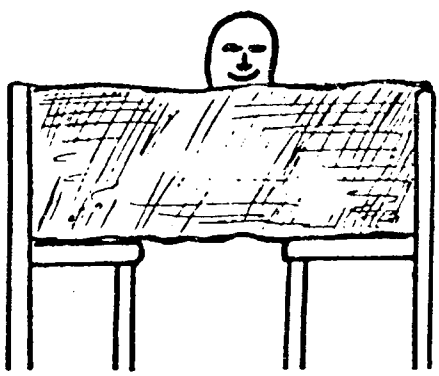
Cover your finger with a small piece of cloth. Paint a face on it.

Use your hand. Draw teeth on the top part of your thumb and bottom of your finger. Open your finger and thumb but keeping the tips together. Your hand will look like a mouth.

Paper puppet - put your hand inside a bag.

Can you think of any other ideas? If so, make your puppet.

To perform your puppet show make a small theatre like this:



Stretch a piece of cloth between two chairs. If the cloth reaches the floor it is better but not necessary. Stand behind the cloth (screen) and give your puppet show.

Whose performance was best? Why?

SUBJECT: LANGUAGE

LESSON: DEEPAVALI FESTIVAL — Class IV

Content Analysis

1. To identify the historical events of certain festivals like Dasara, Deepavali, Ramzam, etc. (K).

2. To help develop an aesthetic sense of celebration of the Deepavali festival (A).

3. To make the children understand the story of Deepavali, in particular the bravery of Satya Bhama (U).

Language Development

4. To practise listening and speaking skills through story sequencing, rhyme, dramatisation (A).

5. To practise writing through greeting cards (S).

Period 1: Why do we celebrate Deepavali? — Time: 40 mins

Specific Objectives

To help the children understand the importance of the Deepavali Festival. (See Content analysis 1 and 2).

Teaching/Learning Materials Required

1. The teacher composes a rhyme about Deepavali to help the children to enjoy the learning situation. The teacher prepares paper strips each containing a line of the rhyme.

2. The teacher collects greeting cards/pictures of various festivals of India, e.g. Dasara, Deepavali, Ramzam, Xmas, etc.

3. The teacher makes a flannel board.

Teacher/Pupil Activities

1. The teacher asks the children to name some festivals. The teacher shows the greeting cards and pictures of various festivals. Which festival do you like most and why? Place the cards and pictures on the flannel board.

2. The teacher sings a rhyme about Deepavali twice and shows strips of the rhyme to the children one at a time and asks the children to read the strips. These are then displayed on the flannelboard. The children read the whole rhyme.

దీపావళి వండుగ వచ్చింది
ఊరికి అందం తెచ్చింది
కళకళ లాడే దీపాలు
ఊరి నిండా వెలుగులు

అమ్మా! నాన్నా! పాపాయిలూ
వెలిగించారు దీపాలు
రండీ, రండీ బాలబాలికా
దీపావళి చూడగ రారండీ ॥దీ॥

3. The children in pairs read the story to each other from the textbook.

Evaluation of children's learning

The children ask the whole class questions on the story to see if everyone has understood the story.

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: The story of Deepavali Time: 40 mins

Specific Objectives

To help the children to understand the bravery of Satya Bhama. (See Content analysis 3)

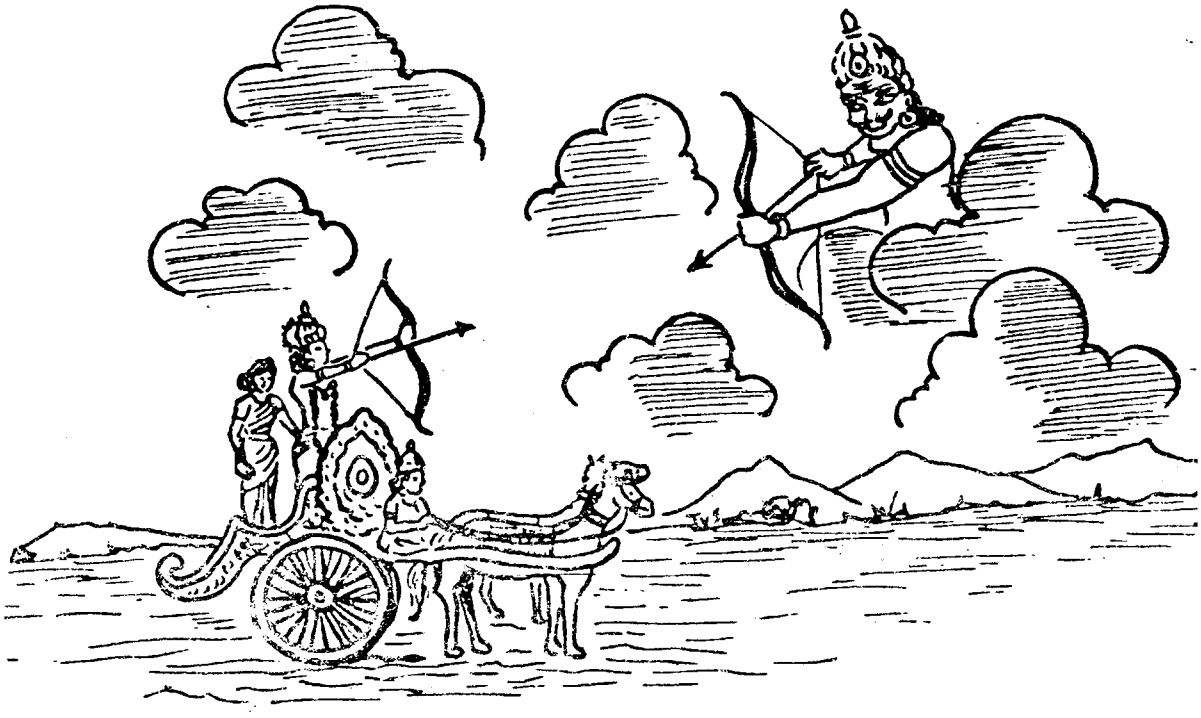
Teaching/Learning Materials Required

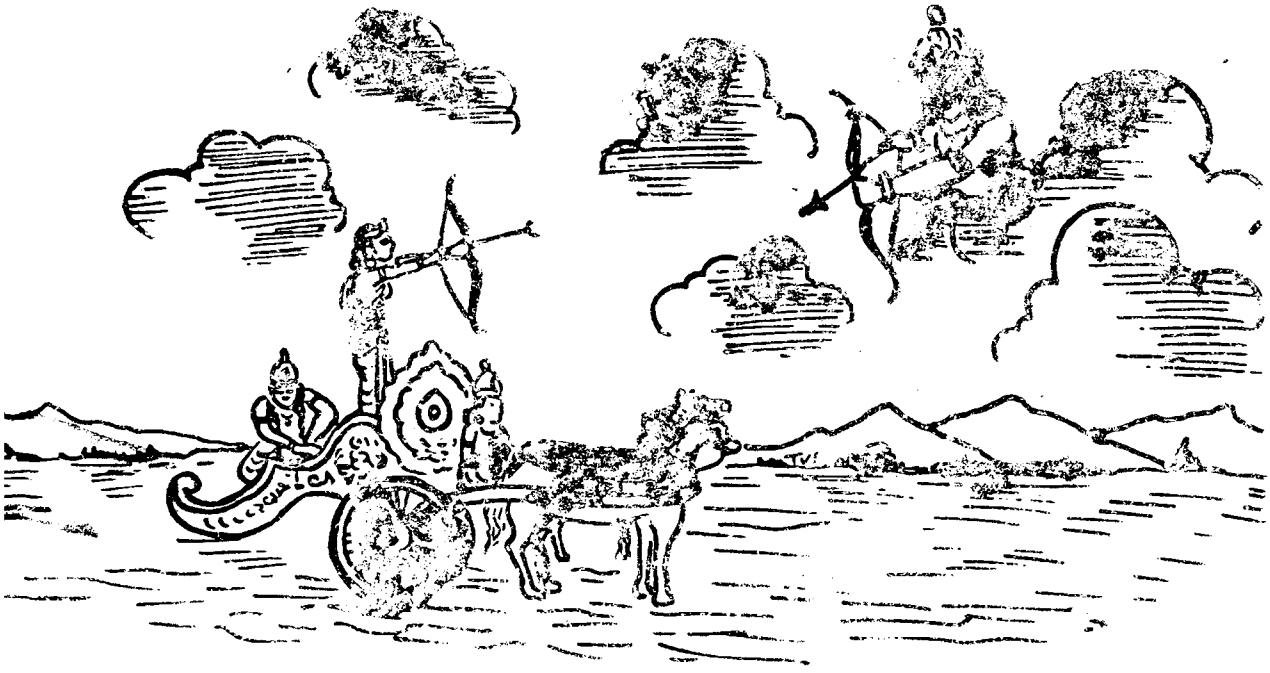
1. The teacher prepares a picture of Narakasura fighting with Lord Krishna and Satya Bhama.

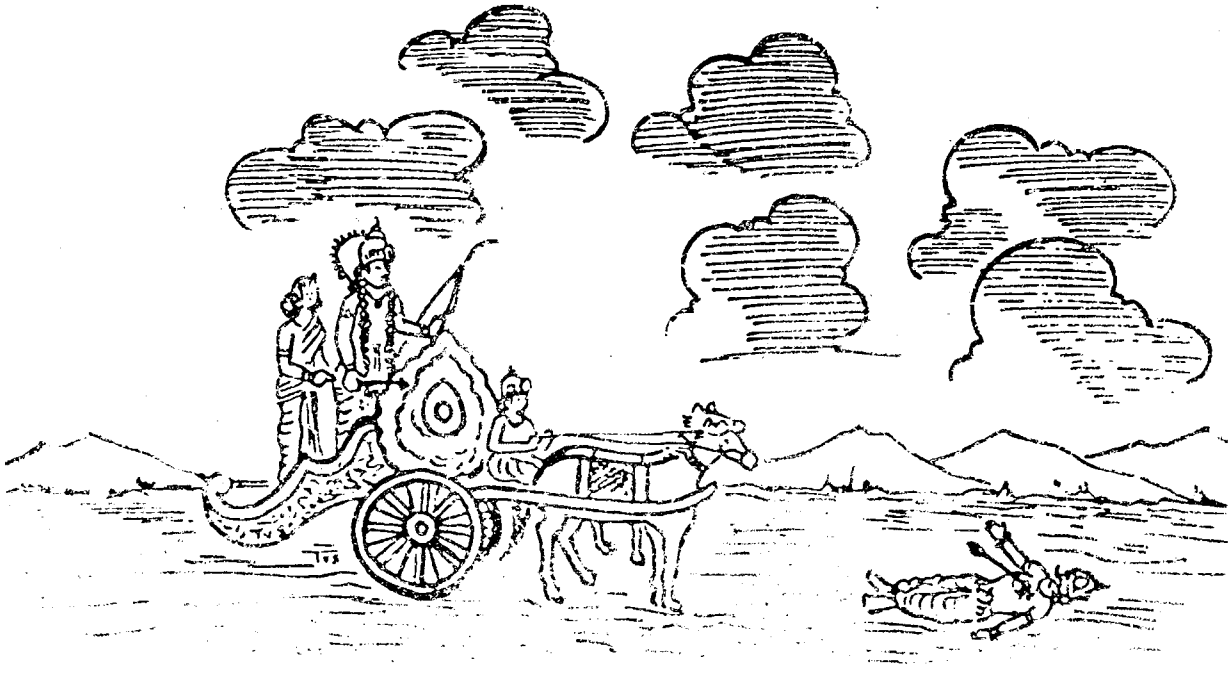
2. The teacher writes an action song about the story under the picture.

3.

4.







Teacher/Pupil Activities

1. Using the picture of the battle and the action song the teacher asks the children to read the rhyme. Two children read the rhyme.

1st Child నరకాసురుడనురాక్షసుడుండెను
2nd Child మునులను దేవతలను బాధించెను
1st Child మునులు కోరగా కృష్ణుడప్పుడు
2nd Child నరకుని బంధ్రులకై వెడలెన్
1st Child సత్యభామ తోడుగరాగా
2nd Child నరకుని తో యుద్ధం చేసిన్
1st Child యుద్ధంలో కృష్ణుడు మూర్ఛ చెందె
2nd Child నరకునిపై బాణాల్ వేసిన్ సతని
1st Child కృష్ణుడు తేచి నరకుని చంపెన్
2nd Child సంతోషించిరి ఎల్ల జనుల్

2.

3.

Evaluation of children's learning

The children each write three sentences of their own about the fierce battle between Satya Bhama and Narakasura.

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: How we celebrate Deepavali Time: 40 mins

Specific Objectives

To enable the children to write their own experience of Deepavali (See Content analysis 4 and 5).

Teaching/Learning Materials Required

Teacher/Pupil Activities

Evaluation of children's learning

Comments by the teacher

What went well and why?

What went badly and why?

Which children have understood?

Which children need more help?

[illegible]'S' ACTIVITIES FOR "PISINI GOTTU" (THE MISER)

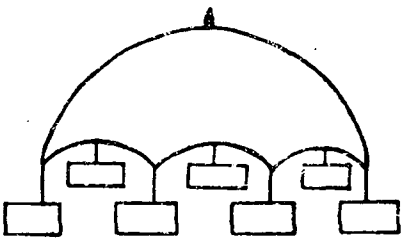
Everyone takes part in each activity.

1. One example of greediness

Each person thinks of an example of miserliness (greediness) that they have [illegible] in their lives. Each person tells the class their story. Which story is best? Why? How can you judge? Was it true, realistic, very probable, very funny, quite impossible but very well told? What makes a good story?

2. Making a word umbrella

What words do we associate with misers? In groups of 5 make a list of words. Write each word on a separate piece of card and draw a picture to illustrate it. Make a word umbrella or parachute. Take a piece of cloth and hang the cards from the lower edge.



Hang your umbrella/parachute from the ceiling. Which word umbrella is best? Why?

3. Telling the story of Pisini Gottu

In groups discuss how you should tell the story of Pisini Gottu. You are to 'tell' the story in pictures. Which pictures should you use? Here are some ideas:-

1. ధనికుని ధనార్జన
2. గుమాస్తా నమ్మించుట
3. ధనాపహరణం

Do not copy these: make up pictures of your own. Display your pictures. Which display tells the story best? Why?

4. Writing the story of Pisini Gottu

Each group now writes the story of Pisini Gottu and cuts the story into strips. Each group jumbles the strips and gives them to another group. The second group rearranges the story to put it in the correct order. Who did it first? Who got it wrong? Was there a reason why a mistake was made?

Display your stories on charts for all to see.

5. Making up an new story

In groups of 5 try to think of a new story to illustrate greediness. After discussion the group prepares for a dramatisation of the story. How many parts will there be? Who will play which part? Are special things needed, like a box to hide money, or a big plate with balls of paper to represent food? The group collects these things.

Perform the play to another group. Whose play is the most original or interesting or amusing? Whose play was acted best?

6. Preparing a poem about miserliness

In three small groups prepare a poem about miserliness. Do not make your poem too long - say 6 to 10 lines. Prepare to read your poem to the class.

Judging is a very important part of learning. How can we judge things? Poems are difficult to judge. Can we devise a form to use for judging? What would be the criteria? Good use of words, poem rhymes, lines of equal length, conveys meaning? Some of these you may agree with, others maybe you disagree with. Which criteria would you use? Draw up a table in your groups like this:

Criteria	Assessment of poem

Use this when judging. Did it help? If not, why not? How could it be improved?

SUBJECT: LANGUAGE

LESSON: PISINI GOTTU — Class V

Content Analysis

1. To use narration as a stimulus to concentrated listening (U).

2. To help the children to understand and enjoy the story through poetry (U).

3. To instil in children a feeling against miserliness (A).

Language skills

4. To practise listening and speaking through poems, sequential pictures/sentences, neat hand written work, etc. (A).

Period 1: Greedy old man and his gold — Time: 40 mins

Specific Objectives

1. To use narration as a stimulus to concentrated listening.

2. To help the children enjoy the story of Pisini Gottu. (See Content analysis 1 and 2)

Content

a) Greedy old man keeping his gold outside the village pit.

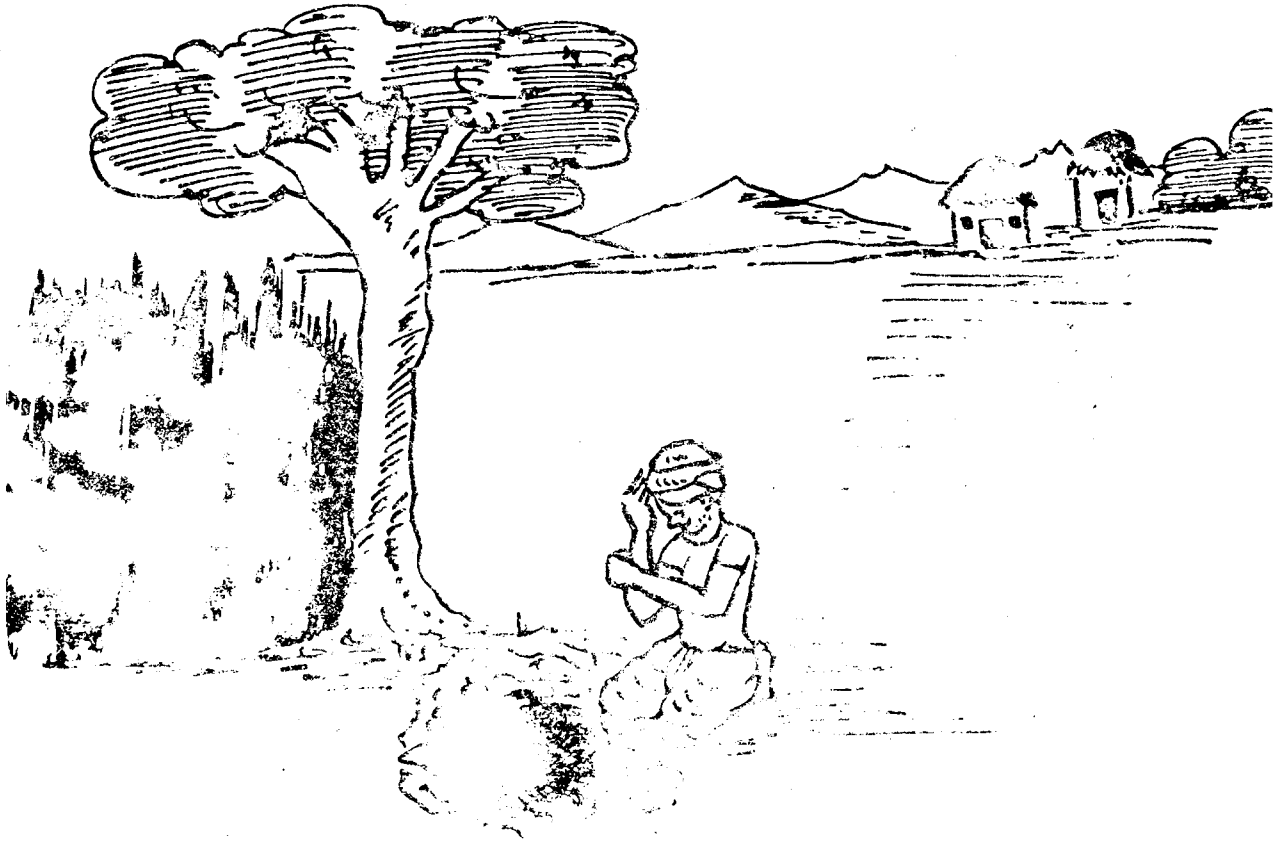
b) Always looking at the hidden gold and feeling happy.

c) Thief taking away the gold.

Teaching/Learning Materials Required

1. Prepares overall story in brief with simple sentences written on pieces of paper.

2. Prepares pictures of the story of the poem e.g. tree-digging, old man, old man burying his gold for safety, a thief taking away the gold, greedy man crying under the tree and a blank space for filling with a moral.



2. Teacher prepares a chart of the poem in bold letters.

గొడ్డుటూవు పితుక కుండ గొంపోయిన
పండ్లూడ దన్ను పాలనీయదు
లోభివాని నడగ లాభంబు లేదయా
విశ్వదాభిరామ! వినుర వేమ

Teacher/Pupil Activities

1. The teacher asks the children to recite/read the poem which is on the chart written in bold letters.

2. One or two of the best readers in the class will read clearly the poem on the board.

3. The teacher gives the meaning of the poem and of the Vinura Vema poem. The greedy person never offers anything to anyone else and if asked never gives.

4. The teacher starts a story of 'A Greedy Fellow' using the prepared strips. As he introduces each sentence the strip will be placed on the flannelboard. A complete story is created for the children.

5. With the prepared sketches the teacher tells the story again.

6. The children in groups are given sets of the sentences which make up the story and they put the sentences of the story into the correct order. After arranging them they write the story as it is and through the group leader submit it to the teacher. The teacher checks that the sentences have been arranged correctly.

7. The group leader reads the best handwritten story to the whole class.

Evaluation of children's learning

The teacher looks for the best of the children's handwritten work without spelling mistakes and shows it to all the others to observe. This encourages children to write neatly and accurately.

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

What went well and why?

Period 2: Consoling the Greedy Man Time: 40 mins

Specific Objectives

1. To improve reading and pronunciation.

2. To help the children enjoy the story of Pisini Gottu. (See Content analysis 2 and 4)

Content

a) Neighbours approach the old man.

b) Consoling the old man and encouraging him not to be greedy in the future.

Teaching/Learning Materials Required

1. Teacher makes use of the material already prepared (sketches).

2. Prepares the day's poems (3) from the textbook in short cutouts for arranging in sequential order which helps reading and writing.

3.

Teacher/Pupil Activities

1. a) The teacher asks one of the children to arrange the pictures of yesterday's story.

   b) After arranging the teacher asks the group leader/best narrator to tell the story with the help of the pictures.

2. a) The teacher reads the 3 poems for today clearly and with expression. The children listen and follow the text carefully.

   b) The children in pairs read the poems to each other in turn.

3. Teacher to add additional steps

4.

Evaluation of children's learning

Teacher to add evaluation

Comments by the teacher

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Avoid Greediness — Time: 40 mins

Specific Objectives

1. To ensure that the children have understood that "greediness" is to be avoided.

2. To provide opportunity for the children to make up their own stories, or tell others familiar to them, to illustrate the same point. (See content analysis 3).

Teaching/Learning Materials Required

Teacher/Pupil Activities

Evaluation of children's learning

Comments by the teacher

What went well and why?

What went badly and why?

Which children have understood?

Which children need more help?

1. Providing learning activities:

a) Comparison:

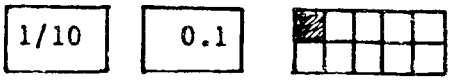
Children are provided with boxes of objects to sort and compare.

i)	Long stick and very short one	Size and shape
ii)	Small bucket and large bucket	
iii)	Large bangles and small bangles	
iv)	Large leaf and small leaf	
v)	Largest fraction and smallest fraction	Fractions
vi)	Set of unlike fractions 1/4, 3/8, 2/3	
vii)	Rs.1.95 Ps; Rs.14.05 Ps; Rs.14.50 Ps	
viii)	Using a place value chart comparing decimal fractions	Decimal Fractions
ix)	Areas of large leaf and small leaf	Measurement of area
x)	A big rectangle and a small rectangle	
xi)	Area of slate compared with that of a text book	and
xii)	A large light box; a large heavy box	weight
xiii)	A potato and a tomato	
xiv)	Parcels which vary in size and weight	

b) Matching:

i) Pens with caps	Number and place value
ii) Cups and saucers	
iii) Slates and slate pencils	
iv) Match boxes without drawers and set of drawers	
v) Matching fraction cards with the appropriate fractions, i.e.	Fractions

vi) Colouring fractions according to the fractions	
vii) Matching flash cards like	Decimals



viii) Identifying the decimal fractions on the number line	
ix) Observing the areas of various objects like paper, leaf, slate	Measurement of Area
x) Observing and estimating the weights of various objects like paper, stone, stick, book, tin	and Weight

2) Promoting learning by doing:

a) Using real objects

Counting numbers with the help of stones, marbles, sticks, bottle tops, seeds etc.

With the help of objects, learning to read fractions, decimal fractions etc.

b) Using a balance to find out whether two clay balls prepared from a single one are mathematically half or not.

c) Making models of vegetables, balls, slates, tins, toys, fruits, to understand the shapes of different objects.

3) Developing individual group and whole class work:

a) Individual work

i) Counting of stones, sticks, seeds, etc. sorting and ordering them.

ii) Representing objects with the appropriate numbers.

iii) Colouring grids to show appropriate fractions.

iv) Estimation and verification of lengths, weights, capacities etc.

b) Group Work:

i) Playing card games on number and place value, fractions, measurement of length, area, decimal fractions etc. viz. snap games, domino games, matching, bingo, etc.

ii) Children in groups estimating the area of the floor of the classroom and comparing it with the actual measurement.

iii) Children in groups preparing clay models.

iv) Children in groups recording the heights of their classmates and representing their findings on grid paper.

c) Whole class work

Introductions to topics are given to the whole class before engaging them in group or individual work.

Likewise revision sessions are often most conveniently and effectively conducted with the whole class.

4) Recognising Individual differences:

There are often considerable differences in mathematical ability between children. Below are four ideas of things that can be done to help.

a) When preparing work cards, questions are graded in difficulty, permitting all to complete the basic work necessary to consolidate the concept, but giving additional activities for the brighter children.

b) When working with models, easier models to make are given to the children with lesser ability; more complicated ones to the more able. All are used for class discussion.

c) Likewise any measuring tasks - in length, capacity, area, volume, weight, etc. can be graded according to children's ability to ensure that all are successful in what they are asked to do.

d) It is sometimes necessary to provide additional teaching for those having particular difficulty.

5) Using the environment:

a) Using stones, seeds, sticks, leaves, empty match boxes, used match sticks, etc., for counting numbers. Teaching place value concepts by bundling the sticks or using empty match boxes and seeds, or by agreed exchanges such as one big stone = 10 small stones (i.e. if one small stone is taken as one unit, one big stone is taken as 10 units; and a still bigger stone as 100 units etc.)

b) Using leaves to teach counting and/or area and also for teaching symmetry.

c) Using cattle feed (chappa dantu) for preparing various models viz. Cart, Abacus, for teaching circles, counting numbers and place value.

d) Using local post offices for getting information regarding rates for sending postcards, inland letters, printed covers etc. Estimating how much it costs to purchase 10 post cards, 5 inland letters, 15 envelopes etc.

e) Visiting the Grama Panchayat Mandal Office for getting information regarding the total population of the village, Mandal etc.

f) Visiting a local shop for estimating and calculating the costs of various items that are required in their house for the month.

6) Creating an interesting classroom:

a) Display all locally available raw material like stones, sticks seeds, cattle feed, plants, leaves etc

b) Charts like the hundred square (either 0 to 99 or 1 to 100), multiplication, addition.

c) Card games like snap or flash, Dominoes, Bingo, snap, on different concepts like number and place value, fractions etc.

d) Number lines of various kinds.

viz. i) from 0 to 100

ii) from -50 to +50

iii) from 0, 0.1 to 1.0

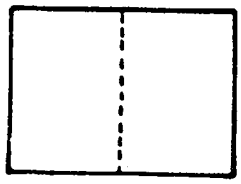
iv) from 0, 1/10 to 10/10 (1)

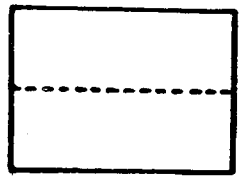
e) Clay models prepared by children.

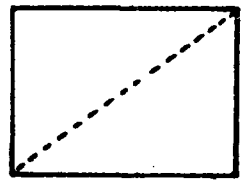
f) Selected class work of children.

HALVES AND QUARTERS

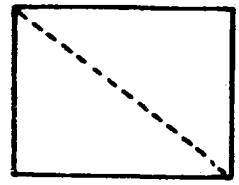
1. Given a rectangular sheet of paper, how many different ways are there to fold it in half?





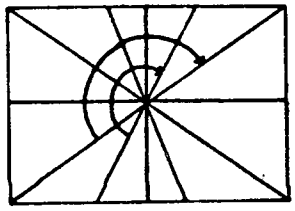


Any others?



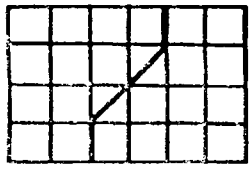
Try putting opposite corners together and folding.

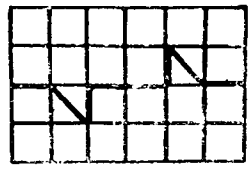
Does this make half? How can you be sure? (Cut along the line and see if you can make the two parts 'fit')



If we draw well these lines on a single diagram we see that they all go through a particular point, and if we turn the shape about this point it fits in the other half.

On graph paper try to make halves by drawing lines through the 'centre' that are not straight, eg.

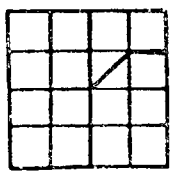


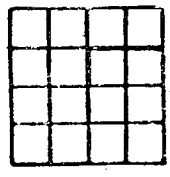


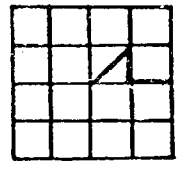
Draw some of your own.

2. How try to make quarters of a square by using the same idea of drawing a line from the centre to the edge, turn the paper through 90°, draw the line again; do it a third time and finally the time.

Here are some you can try; then make up your own.

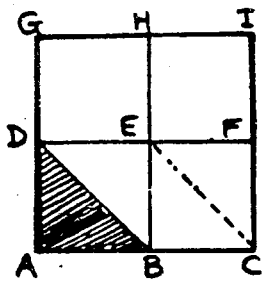






2. THE NINE-PIN BOARD:

A 'nine-pin' board is a board with 9 nails at the intersections of straight lines, making 4 squares as shown.

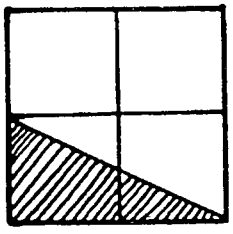


How many different triangles can you make using rubber bands - for sides and nails (or pins) as corners.

As the answer is very many more that you might think (!) we will approach the question systematically.

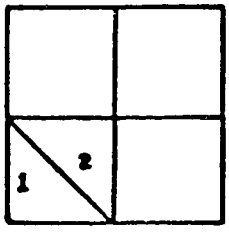
1. Put a rubber band round three pins. Suppose they are A, B and D in the diagram. Draw this picture as one solution.

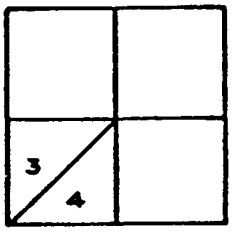
2. Now put the rubber band round three other pins. If for example I chose E, F and C, I would NOT draw this again as Δ EFC is the same size and shape as Δ ABC, but if it were a <u>different</u> triangle I would record it on another diagram, eg.



3. See how many different triangles (and so drawings you can make).

4. Now we come to an interesting and possibly more difficult question. How many triangles of each of the shapes you have drawn can you form on the board? As an example consider triangles like ABD.





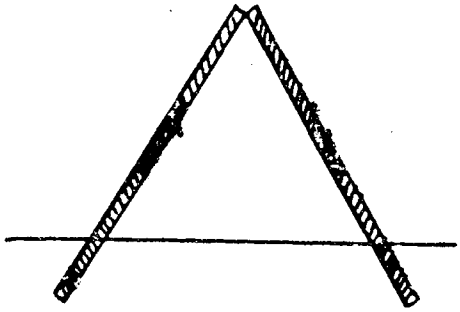
In the bottom left hand corner I can make four as shown. Since there are 4 corners, I can make 16 triangles like that altogether.

5. Now try the other triangles. Discuss the work in your group, and when you think you are sure as a group, ask the tutors to confirm your answer, or explain what you may have forgotten!

3. WORK WITH A PAIR OF HINGED MIRRORS:

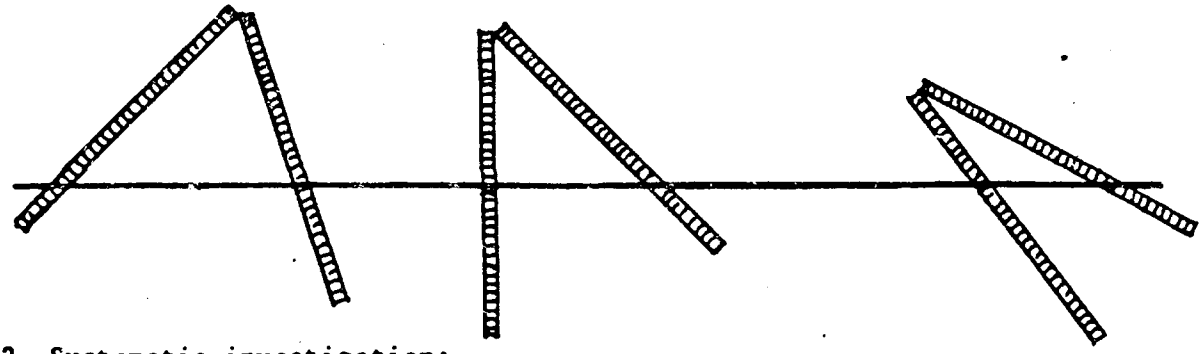
1. Experimental phase:

On a sheet of paper draw a straight line. Put your hinged mirrors so that they both cut the line and their line of intersection is NOT on the line, see diagram 1.



Look into the mirrors and see what shape is formed. Now change the angle between the mirrors and see what other shapes you can make.

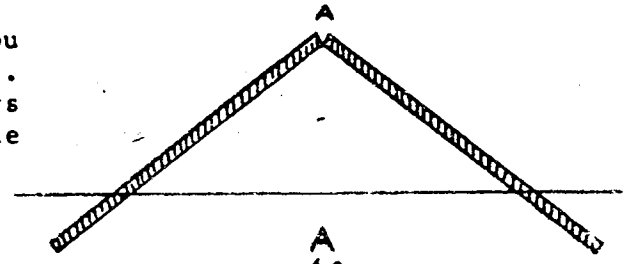
Try putting the mirrors so that they are not symmetrical, eg.



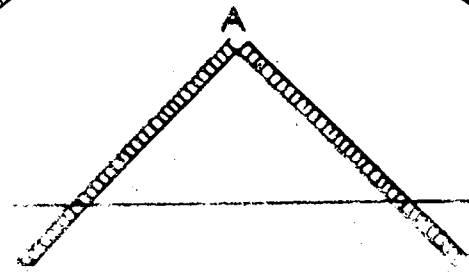
2. Systematic investigation:

Let us try to find a relationship between the number of sides of the shapes seen (n) and the angle between the mirrors A, in the case of regular polygons.

1. Arrange the mirrors so that you can see an equilateral triangle. Draw the position of the mirrors with a pencil, and measure the angle. Finally work out n x A



2. Now draw another line and arrange the mirrors so that you can see a square.

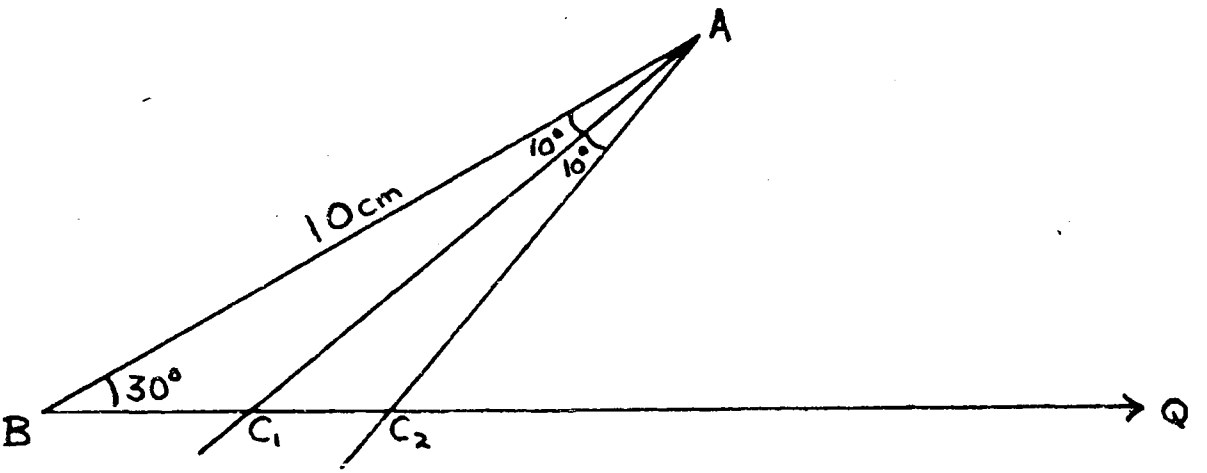


What is the angle between the mirrors this time?

3. Repeat for 5 sides, 6 sides, 7 sides, 8 sides . . . . .

4. THE INTERNAL STRUCTURE OF A TRIANGLE

We know in general in a triangle that the largest side is opposite the largest angle. Let's examine this more carefully in a particular case.



Draw a line (ray) BQ. At B draw an angle of 30° and mark off A so that AB = 10 cm.

At A draw a series of angles which are succesive multiples of 10°. (The first two are shown). Mark the points of intersection on BQ by C_1, C_2, C_3, C_4, ... etc.

1. Draw a graph of BC_i against angle A, ie.

Different angles A along the horizontal axis (independent variable). Corresponding lengths of BC along the vertical axis.

Questions:

- What happens when angle A becomes 150°?

- Would there be any significance in "negative angles"?

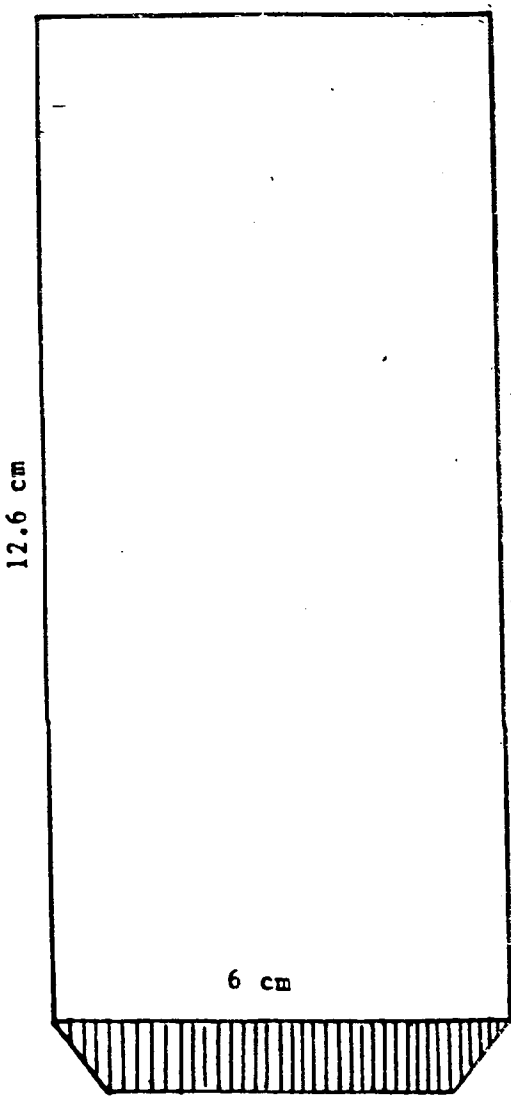
2. Draw another graph of AC_i against Angle A.

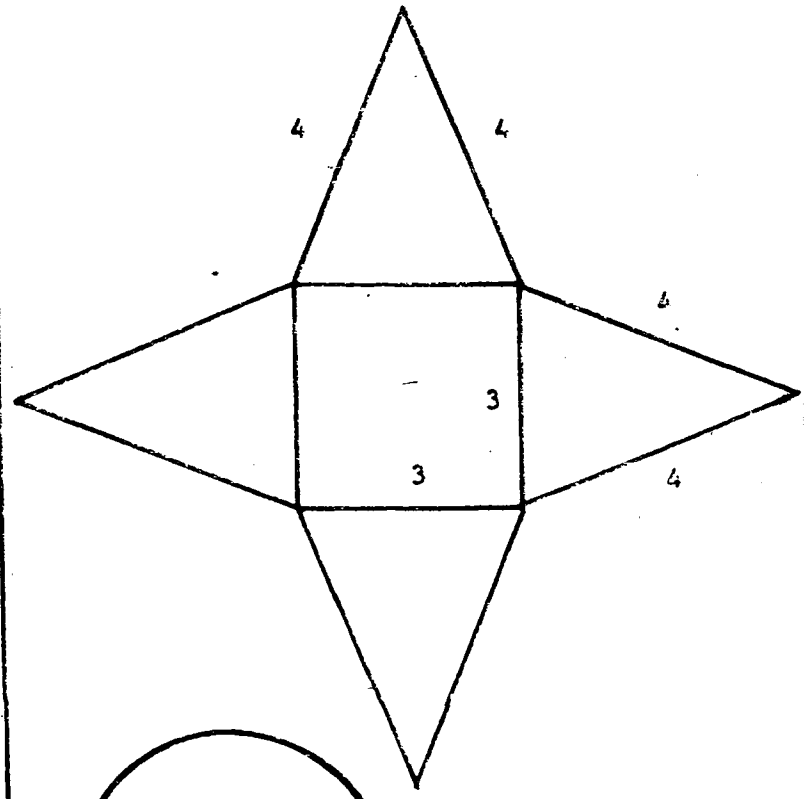
Answer the same two questions.

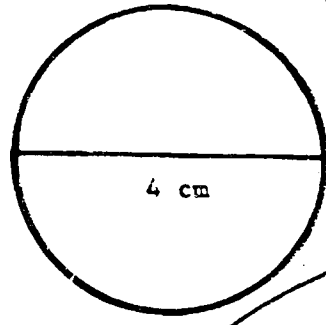
What is the significance of the "minimum"?

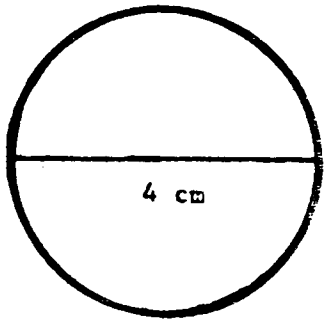
5. PREPARING GEOMETRICAL MODELS

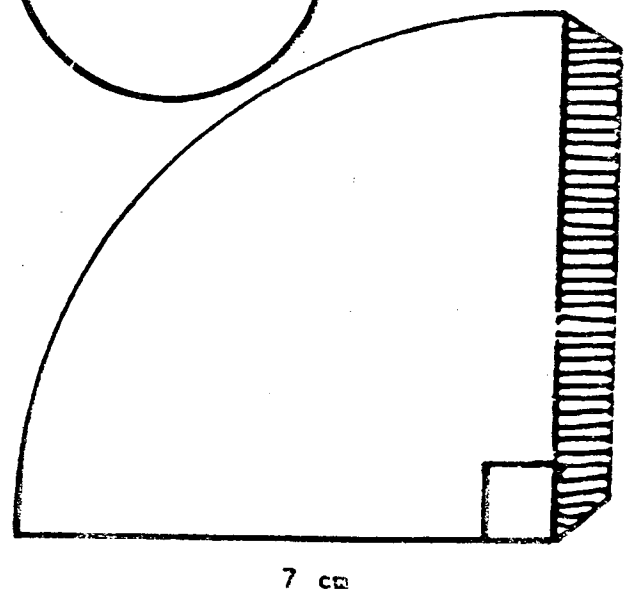
Transfer these shapes to coloured card. Cut out, fold along the dotted lines and glue down the flaps. For class size models, double all the measurements of length.











SUBJECT: MATHEMATICS

LESSON 1: SYMMETRY Class V

Content Analysis

1. (a) The definition of line or axis of symmetry

   (b) Knowledge that sometimes there are more than one line of symmetry. (K)

2. Recognising line symmetry in everyday life. (K)

3. Forming symmetrical shapes (A)

4. Drawing different varieties of symmetrical shapes in (3) above (Creativity)

5. Being able to handle scissors, knives, paper and carbon paper etc. Recording examples in (3) and (4) above (S)

Period 1: Initial Ideas of Line Symmetry Time: 40 mins

Specific Objectives

To help the children acquire initial ideas of line symmetry. (See Content analysis 1(a) and 2).

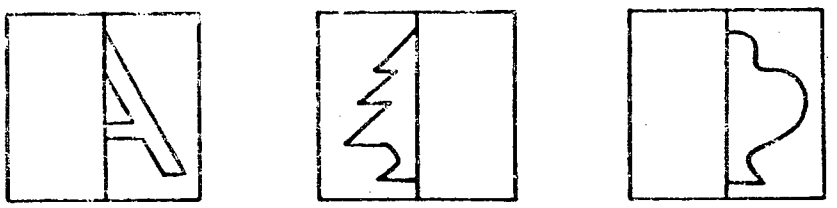
Teaching/Learning Materials Required

1. Some activities may be organised for groups of children, but some could be undertaken by children individually, given sufficient materials.

2. Drawing paper, water paints/different coloured ink.

3. Scissors, knives, rulers.

4. Sufficient number of drawings on paper as shown below for the pupils to work in groups. Examples:



Teacher should make other shapes which can show symmetry and make many copies.

symmetry" and show that you then see exactly the same picture when you look in the mirror as you do when you take it away.

e) Mirror strips (small mirrors)

Teacher/Pupil Activities:

1. It is suggested that children are allowed to make a small blot with paint or ink on a sheet of paper, which is folded into two along the edge of the shape. The blot must be small and placed in such a way on the sheet of paper that there is sufficient room for the mirror image of the shape to be produced after the folding has taken place. If working in groups the children should discuss amongst themselves what they have seen on the unfolded paper, and record their findings in a sentence or two. The teacher when talking to individual students or the whole class should draw out the idea of symmetry and what it means, and in particular the teacher should use and illustrate the words "axis of symmetry". It is important that pupils understand these terms as soon as possible. (See * above under (4))

2. The children, in groups or individually, are then told to fold pieces of paper once only and then cut out a shape from the folded paper. They should then unfold the paper and examine whether the two parts on either side of the fold (called the axis of symmetry or line of symmetry) are balanced, and whether one shape has a mirror image. Once again the pupils should discuss and record their findings if working in groups, or the teacher should question the pupils individually or as a whole class about what they have found and the pupils should then record their findings. It is important that the pupils describe the example of symmetrical shapes in their own words.

3. Using shapes as in (d) above, all pupils should complete the symmetrical picture. They cannot do this unless they understand what symmetry means, and the teacher should spend some time discussing the task with the children. Again it is important that the teacher finds out whether the children understand what is required of them, and what the task illustrates. The terms "axis of symmetry"/"line of symmetry" should be discussed in undertaking this task.

4. Children should be asked to fold a piece of paper more than once, cut out a shape from the folded paper, and, upon unfolding, examine the result. They should discuss the results with each other and record their findings. Teacher should also discuss the results of folding and cutting with individuals and with the whole class.

Evaluation of children's learning:

Children are asked to find out whether there is a line of symmetry in a shape and to show where this line can be found by drawing a diagram. Teacher to provide examples of shapes.

Next, using a mirror, children should record the image of a shape (to be provided by the teacher).

The teacher should try to draw out from children that the two figures on each side of a line of symmetry are identical but one is a reflection of the other, and that the image of a shape viewed in a mirror is identical, but one shape is a reflection of the other.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Symmetrical Drawings and Symmetrical Objects Time: 40 mins

Specific Objectives

1) To enrich the children's knowledge of the concept of symmetry and axis of symmetry, and
2) to develop their skills in observing symmetry in their surroundings.
(See Content analysis 2, 3 and 5.)

Content:

How to draw symmetrical shapes.

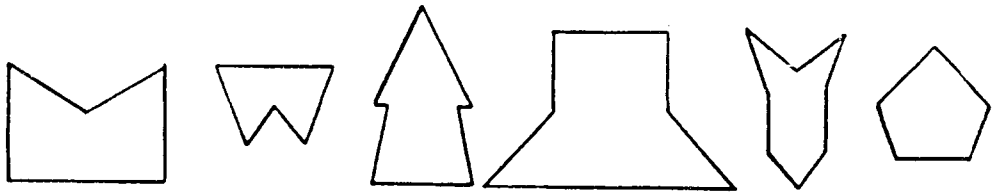
Finding symmetrical objects in the environment.

Teaching/Learning Materials Required

1. All the activities in this period plan can be organised fo. groups to encourage discussion amongst the children. Foi activities (2) and (3) children are to be allowed into the surrounding area for the collection of leaves and insects.

2. Grid paper, sketch pens, rulers, thick cardboard, adhesive.

3. Drawings on paper as shown below.



4. Two identical pieces of card. 

How many <u>different</u> symmetrical shapes can be made with them?

5. .

To be supplied by the teacher.

6. .

<u>Teacher/Pupil Activities</u>

1. After discussion with the whole class, the children are asked to draw symmetrical pictures on grid paper and identify the axis of symmetry in each case.

2. Children collect some leaves which appear symmetrical and some leaves which do not appear symmetrical (non-symmetrical) and paste them on thick cardboard with labels

3. .

What other steps should be incorporated in the lesson to satisfy the <u>purpose</u> of period 2 (above)?

4. .

<u>Evaluation of children's learning</u>:

How can the teacher organise an evaluation? What activities would be suitable?

<u>Comments by the Teacher</u>:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Symmetrical Shapes with Two or More Axes of Symmetry Time: 40 mins

Specific Objectives:

To reinforce the concept of symmetry and axes of symmetry using English alphabet letters. (See Content analysis 1(b), 3, 4, 5)

Content:

Teaching/Learning Materials Required

Teacher/Pupil Activities

1. .

2. .
What steps should be incorporated to satisfy the purpose of period 3?

3. .

Evaluation of children's learning:

Comments by the Teacher:

What went well and why?

What went badly and why?

Which children require more help?

Which children have understood?

SUBJECT: MATHEMATICS

NOTE: Teaching activities for Geometrical Shapes are the same as for Symmetry.

LESSON: GEOMETRICAL SHAPES — Class III

Content Analysis

1. (a) Recognises the plane and 3D geometrical shapes rectangle, square, triangle etc., cube, cuboid, cylinder, cone etc. (K)

   (b) Recalls the names of the plane and 3D shapes and their behaviour. (K)

2. Compares and sorts the plane and 3D geometrical shapes mentioned above. (U)

3. Looks for the geometrical shapes in his daily life situation and observes their properties and compares with those of the standard shapes (A)

4. (a) Prepares the clay models of those geometrical shapes
   (b) Draws figures of geometrical shapes (S)

Period 1: Behaviour of geometrical shapes — Time: 40 mins

Specific Objectives

To help children recognise that 3-D shapes can either roll or stand still or both; and recognise curved and flat surfaces.

Content:

Behaviour of geometrical shapes and their sorting according to certain properties. Learning appropriate vocabulary- e.g. parallel, perpendicular, plane and curved surfaces, vertex (corner), face, pyramid, prism.

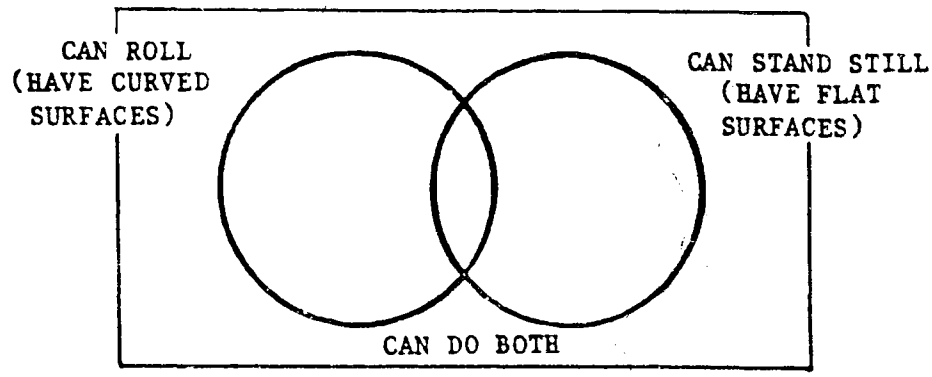
Teaching/Learning Materials Required

1. The teacher has to have ready the following shapes in sufficient number.
   Clay or wooden models of cube, cuboid, cylinder, cone, sphere together with prisms of different dimensions, together with everyday objects such as boxes, bottles, pots, etc.

2. Beads, balls, cylinders (empty or full cans), containers, boxes, bricks, in quantity.

3. A lump of wet clay, stiff cardboard, scissors, etc.

*. To prepare a big summary chart as shown below, and others as necessary. This should be made from a full sized sheet of coloured card.



Activities 1 and 3 below are suitable for group work to encourage discussion. Steps 2 and 4 are suitable for work in pairs.

Teacher/Pupil Activities

1. The children are each given a 3-D object and asked to find out whether it can roll or remain static. They are then asked to put the shape into the right space on the summary chart which is placed on the floor.

2. The children are asked to sort out the given 3-D shapes according to the following criteria:

   a) 3 dimensional shapes which can roll and shapes which can stand still.
   b) Shapes with corners and without corners.
   c) Solid shapes and hollow shapes.
   d) Shapes with flat faces only and shapes with curved faces only and those with both flat and curved faces.

   They then should make a list of items under each heading.

3. The children are asked to try to prepare models of 3-D shapes using wet clay.

Evaluation of children's learning:

Children are asked to list objects from their surroundings similar to the geometrical shapes they have studied and having the properties of rolling, standing still, fitting together, and fitting inside each other.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: 3-Dimensional Shapes Time: 40 mins

Specific Objectives

To learn the names: sphere, cylinder, cone, pyramid, prism, cuboid, cube, and know some of their properties.

Teaching/Learning Materials Required

1. Collect bricks, books, plates, jugs, toy clocks, bangles, tins, boxes, etc., and the matrix sheets similar to those used in activity (2) of Period 1.

2. Collect sufficient numbers of rulers, sketch pens and drawing sheets.

3. Have available wet sand (or sand and water) and a collection of empty containers, like matchbox drawers, cylindrical measuring vessels, etc., wet clay or plasticine.

4. Standard shapes made of clay or wood (cylinder, cone, sphere, cube, cuboid, prism, hemisphere, circle, triangle, square, rectangle, etc.)

5. A matrix sheet as shown below.

STANDARD SHAPE	OBJECTS OBSERVED SIMILAR IN SHAPE
CYLINDER	
CONE	
SPHERE	

Note: All activities are suitable for group work to promote discussion amongst the children.

Teacher/Pupil Activities

1. The children are asked to sort the following items into those having straight edges, and those having curved edges, and to record the results.
BRICKS, BOOKS, PLATES, JUGS, TOY CLOCKS, BANGLES, TINS, BOXES.

2. The children to draw three other items of their choice having straight edges and three things having curved edges.

3. .
Teacher to determine additional steps to fulfil the purpose of the period.

4. .

Evaluation of children's learning:

The children to go out into the surroundings of the school and look for shapes around the school and match them with the standard shapes, and record their findings on the matrix, example as above.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: **Plane shapes** Time: 40 mins

Specific Objectives

To examine some of the properties of two-dimensional plane shapes: square, rectangle etc. and shapes with straight and curved edges. (See Content analysis 1 to 4.)

Content:

a)

b)

Teaching/Learning Materials Required

a) .
Teacher to devise steps to fulfil the purpose of the period, and also to supply appropriate materials together with evaluation activities.

b) .

c) .

Teacher/Pupil Activities

1.

2.

3.

Evaluation of children's learning:

Comments by the Teacher:

What went well and why?

What went badly and why?

Which children require more help?

Which children have understood?

1. PROPERTIES OF ADDITION AND MULTIPLICATION

+	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14
5	6	7	8	9	10	11	12	13	14	15
6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17
8	9	10	11	12	13	14	15	16	17	18
9	10	11	12	13	14	15	16	17	18	19
10	11	12	13	14	15	16	17	18	19	20

ADDITION TABLE

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

MULTIPLICATION TABLE

Examine both tables and compare and contrast answers to the following questions:

1. What numbers appears in the "leading' diagonal?

2. Why are numbers "symmetrical" about the leading diagonal?

3. Take <u>any rectangle</u> along the lines within the table

   In (a) add numbers in opposite corners

   In (b) multiply numbers in opposite corners Result? Why?

4. Look for patterns of numbers within the tables, eg.

   The "counting on" property in the addition table

   The sum of the digits in the 9 times table.

5. In the multiplication table the X sign has been omitted since 1 times any number equals that number and it seems a waste of time. Could the + sign in the addition table likewise be replaced by 0? What would the column to the left and the row above the present multiplication table consist of?

6. Take an odd number of entries in any column or row;

It is true that the "middle" number is the "average" of them all? Apply this to a full rectangle with a middle number.

7. In the multiplication table, consider the Left Hand entries 2 and 7 and regard these as a fraction 2/7. Where can you find "equivalent" fractions?

MULTIPLICATION PATTERN

Using a ruler connect corresponding points with an arrow to show the result of multiplication (mod 10) - ie the remainder when the multiples of 10 have been removed. The first pattern for the 2 times tables has been done for you.

x 2

1.	.1
2.	.2
3.	.3
4.	.4
5.	.5
6.	.6
7.	.7
8.	.8
9.	.9
0.	.0

x 3

1.	.1
2.	.2
3.	.3
4.	.4
5.	.5
6.	.6
7.	.7
8.	.8
9.	.9
0.	.0

x 4

1.	.1
2.	.2
3.	.3
4.	.4
5.	.5
6.	.6
7.	.7
8.	.8
9.	.9
0.	.0

x 5

1.	.1
2.	.2
3.	.3
4.	.4
5.	.5
6.	.6
7.	.7
8.	.8
9.	.9
0.	.0

x 6

1.	.1
2.	.2
3.	.3
4.	.4
5.	.5
6.	.6
7.	.7
8.	.8
9.	.9
0.	.0

x 7

1.	.1
2.	.2
3.	.3
4.	.4
5.	.5
6.	.6
7.	.7
8.	.8
9.	.9
0.	.0

x 8

1.	.1
2.	.2
3.	.3
4.	.4
5.	.5
6.	.6
7.	.7
8.	.8
9.	.9
0.	.0

x 9

1.	.1
2.	.2
3.	.3
4.	.4
5.	.5
6.	.6
7.	.7
8.	.8
9.	.9
0.	.0

x 10

3. NUMBER CHAINS

Investigate number chains formed by the following rules:

- If the number is even, divide by 2.
- If the number is odd, multiply by 3 and add 1.
- Stop when you reach 1.

Example:

3, 10, 5, 16, 8, 4, 2, 1. (Length of chain, 8)

3 is odd so take 3(3) + 1 = 10

10 is even so take half = 5

5 is odd so take 3(5) + 1 = 16

16 is even so take half = 8

8 is even so take half = 4

4 is even so take half = 2

2 is even so take half = 1

1 - stop

All this is by way of explanation. It need NOT be written. Simply produce the chain.

1. Which number give the shortest number chains?

2. Which number (less than 50) gives the longest number chain?

   Let each member of the group take different numbers and put your results together.

3. Can you analyse possible number chains from "the other end"

In the example above, starting with 1, 2 must be the number before. Likewise 4 must precede 2. However, theoretically 4 could have come from either 8 or 1.

What then about 8? 16? . . . . . .

4. WORKSHEET - NUMBER BONDS

When we glibly say "knows the number bonds up to ten" I wonder if we realise just how much is involved.

Consider the number of ways of arriving at a total of just 5.

(1) Using 1 number 5 — 1 way (a)

(2) Using 2 numbers 1+4; 2+3; 3+2; 4+1 — 4 ways (b)

(3) Using 3* numbers 1+2+2; 2+1+2; 2+2+1; 1+1+3; 1+3+1; 3+1+1 — 6 ways (c)

(4) Using 4* numbers 1+1+1+2; 1+1+2+1; 1+2+1+1; 2+1+1+1 — 4 ways (d)

(5) Using 5* numbers 1 + 1 + 1 + 1 + 1 — 1 way (e)

* these need not all be different

Make a table as follows:

Record of the number of ways a given total can be made

TOTAL OF SMALLER NUMBERS	NO OF NUMBERS USED										
	1	2	3	4	5	6	7	8	9	10	
1											
2											
3											
4											
5	1_a	4_b	6_c	4_d	1_e						
6											
7											
8											
9											
10											

The entries for getting a total of 5 when using 3 smaller numbers are shown respectively as a, b, c, d, e in the above chart. Try to fill in the chart for totals up to 6. then examine the table for interesting patterns that emerge. If necessary talk to the tutor.

How many number bonds are there "up to ten"?!

5. MULTIPLICATION TABLES

On successive number squares, colour in all the multiples of 2, 3, 4, ... etc.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

6. STATISTICS

1. Within your group of 10 divide into pairs.

2. Within each pair, measure each other in centimetres
   (a) Height
   (b) Arm stretch

3. (a) Arrange the heights from lowest (smallest) to biggest in a list.
   (b) Arrange the arm stretch measurements from smallest to biggest in a list.
   Are these two identical?

4. Represent this information pictorially (appropriate graph)

5. Send one member to the other mathematics group to find the heights of all the people in that group.

NAME	HEIGHT

6. Group the heights of the 20 people from both groups by the use of tallies:

	Tallies	Total
130 - 139		
140 - 149		
150 - 159		
160 - 169		
170 - 179		
180 - 189		

7. Make a block graph to display this information.

SUBJECT: MATHEMATICS

LESSON: DIVISION — Class II

Content Analysis

1. Children will learn to recognise division
   a) either as sharing equally
   b) or as grouping (U)

2. They will extend their concept of grouping to that of repeated subtraction. (S)

3. They apply their knowledge in problems within the scope of their knowledge of multiplication tables. (A)

Period 1: Division by Sharing — Time: 40 mins

Specific Objectives

To help the children to understand the concept of the sharing aspect of division. (See Content analysis 1(a).)

Content:

Sharing aspect of division up to 2 digit numbers.

Teaching/Learning Materials Required

1. The children are made into four groups, according to the activities mentioned in this period plan. Group activities will be provided for this period.

2. Collect at least 50 (in number) of sweets, buttons, shells, empty matchboxes, marbles, sticks, plastic balls etc.

3. Prepare a peg board with sand or clay and collect at least 50 pegs made of wood or plastic sticks or waste ballpen refills.

4. Collect at least 20 play materials like balls, bats, rings, carrum board coins etc.

5. Prepare 4 boxes with cardboard and some (say 30) counters.

Teacher/Pupil Activities

1. The teacher gives 50 sweets to the first group of 10 children and asks them to share them among themselves, on a "one for you , one for you" basis.

   The 2nd group (10) of children will be given peg boards, and 30 pegs and asked to fix the pegs in rows on the pegboard with one row for each child in the group.

   The 3rd group (10) of children will be given 20 play materials and asked to share them out equally. How many does each get?

The 4th group of children will be given 4 boxes and 28 counters and asked to put them in the boxes one by one equally in all 4 boxes.

2. The teacher asks the following questions to the respective groups:
   a) How many sweets does each of you have? How have you shared them? (1st group)
   b) How many rows and how many pegs in each row have you made on the peg board? (2nd group)
   c) How many play materials does each of you have? (3rd group)
   d) How many courters have you put in each box? How was it done? (4th group)

3. The children should record their results, and the teacher explains that since 10 lots of 5 = 50 we can also write 50 ÷ 10 = 5 meaning 50 shared equally among 10 people results in 5 each. The teacher then discusses the other three activities and the results of sharing with the children.

Evaluating the children's learning:

With a small sample of children -

a) 15 things should be shared among 3 children equally. How many things will each child get?

b) What do you understand about the process of sharing equally?

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Division by repeated subtraction Time: 40 mins

Specific Objectives

To help the children to understand the concept of division as seeing how many groups of a particular size can be made. (See Content analysis 1(b).)

Content:

1. Division of a number by taking away groups of a certain size.

2. Division of numbers up to 2 digit number using a number line.

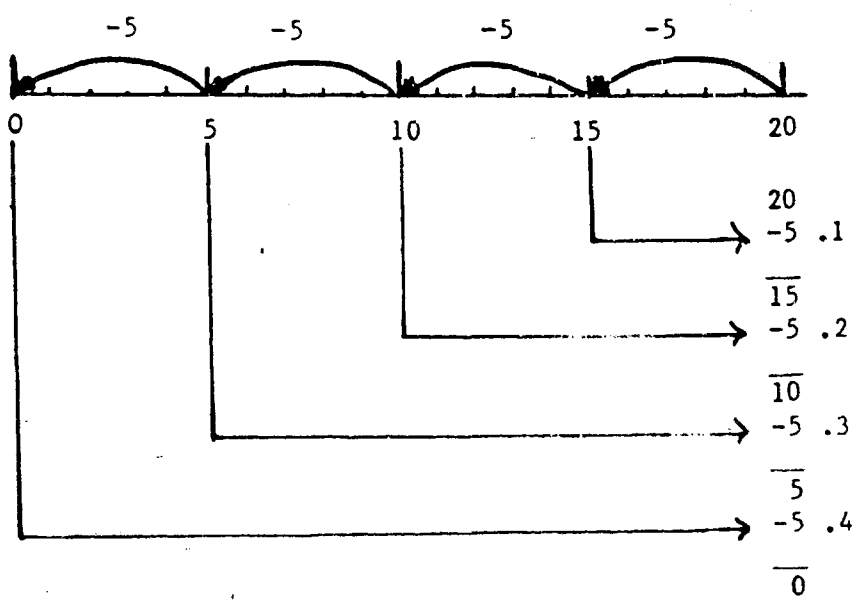
Teaching/Learning Materials Required

1. Activities will be carried out by groups.

2. Prepare number lines with cardboard numbers up to 20.

3. Collect 25 - 30 empty matchboxes, candles etc. of each kind.

4. Prepare diagrams showing a division problem through repeated subtraction.



4 hops

5. .

Additional materials as required to fulfil the purpose of the period.

6. .

Teacher/Pupil Activities

1. Empty matchboxes (say 30) will be given to the children; they will be asked to take away six matchboxes and put them in a bag, and again take away six matchboxes and put them in a separate bag likewise until all the boxes have been used. Each child in a group should experience this activity, the remainder to record in words and symbols (as in diagram).
   In each case the teacher tells the class that 20 ÷ 5, or 30 ÷ 6, are ways of recording the division using repeated subtraction.
   Teacher also refers to the differences and similarities in carrying out the activities in periods 1 and 2, and in the way in which they can be recorded.

2. Using another number of counters, say 12, see how many groups (sets) of 4 counters can be made. (12 ÷ 4 = ?)

3. Place the cardboard number line on the floor (or draw the number line on the floor). Children are asked to hop back starting at 20, hopping in fives. Each child in each group performs the activity, the remainder record the activity (as above).

4. .
   Additional steps devised by the teacher.
5. .

Evaluation of children's learning:

To be supplied by the teacher.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Division by repeated subtraction Time: 40 mins

Specific Objectives

To help the children understand division through repeated subtraction, using numbers less than 100. (See Content analysis 2.)

Content:

a) Division of three digit numbers by two digit numbers.

b) ...?

Teaching/Learning Materials Required

a) .
Teacher to devise steps to fulfil the purpose of the period, and also to supply appropriate materials together with evaluation activities.

b) .

c) .

Teacher/Pupil Activities

1.

2.

3.

Evaluation of children's learning:

Comments by the Teacher:

What went well and why?

What went badly and why?

Which children require more help?

Which children have understood?

SUBJECT: MATHEMATICS

NOTE: Teachers' Activites are the same as for Division.

LESSON: PICTOGRAPHS AND BAR CHARTS Class V

Content Analysis

1. To recognise pictographs and bar charts (K)

2. To read information correctly from pictograph and bar charts (S)

3. To make simple pictographs and bar charts (U)

Period 1: Introductory activities on pictographs and bar charts Time: 40 mins

Specific Objectives

Children to make a bar chart of their birthday months and of boys and girls in groups.

Teaching/Learning Materials Required

- Attendance register showing dates of births of children
- Match Boxes (one per child)
- Squares of paper 5 cms x 5cms (one per child)
- Coloured cards about 10 cms x 35cms, marked out as follows:

BOYS						
GIRLS						

You will need one for every group of 6-8 children

Small cards 5cms x 2 cms., one for each month of the year.

Teacher/Pupil Activities

1. Introduction: It is sometimes interesting to have a picture to summarise facts. "We are going to do this first with birthdays. I would like you all to think of the month you were born in."

2. Activity 1: Issue each child with a match box. Put out on the table (or on the floor) the cards with months of the year in order from January to December.

   Ask each child to come in turn and put his/her match box in a pile by the right label. If any child doesn't know his birthday month, tell him/her from the date in the attendance register.

   When all the children have put their boxes in place, you will have a bar chart of birthdays something like this:

   Now ask them a few questions such as:

   In which month were the most children in this class born?

   In which month were no children in this class born?

   In which months were there 2 children born? etc.

3. Activity 2: Divide into groups of about 8 (Each group to have some boys and some girls).

   Give each child a square of paper you have prepared and ask them to draw a picture of a boy is they are a boy; of a girl if they are a girl, and write their name underneath.

   Give out the group cards, and ask the boys to put their drawings one by one in the spaces opposite the word boys on their group cards; and likewise the girls, opposite the word girls.

   Each group will then have a bar chart (or pictograph) of boys and girls in their group.

Evaluation of children's learning:

Ask groups to change cards and from the card say how many boys and girls there are in each group.

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 2: Using Pictographs Time: 40 mins

Specific Objectives

- the child recognises pictographs
- the child reads correctly the data from pictograph (including those where one symbol represents more than one object).

Teaching/Learning Materials Required

4 pictographs prepared by the teacher based on the information about cattle, population, trees, crops in the village.

1.	ANIMALS	goats cows buffaloes chickens	1 shape stands for 2 animals
2.	TREES	palm neem tamarind mango	1 shape stands for 4 trees
3.	HOUSES	kucha semi pukka	1 shape stands for 10 houses
4.	POPULATION	men women children	1 shape stands for 20 people

Teacher/Pupil Activities

1. Divide the class into 4 groups.

2. Each group will be given a pictograph showing the data in

the form of pictures.

3. Children in groups are asked to observe the prepared pictographs and note down the data in their workbooks.

Evaluation of children's learning:

How would this be organised?

Comments by the Teacher:

What went well and why? _____

_____

What went badly and why? _____

_____

Which children have understood? _____

_____

Which children need more help? _____

_____

Period 3: Consolidation Time: 40 mins

Specific Objectives

To be able to answer the questions in the text book.

Teaching/Learning Materials Required

Teacher/Pupil Activities

1. .

2. .

3. .

Evaluation of children's learning:

Comments by the Teacher:

What went well and why?

What went badly and why?

Which children require more help?

Which children have understood?

10 **YOUR CLASSROOM**

MAKING YOUR CLASSROOM MORE INTERESTING

Amongst the aims of education in general are the following:

- to stimulate curiosity

- to build up confidence in approaching new situations

- to use knowledge to help solve problems

- to learn "how to learn"!

After the teacher the greatest single influence on the child at school is the immediate environment in which he/she is set, namely the classroom. If this is dull, uninteresting, colourless, devoid of stimulus, the message is being transmitted, "Education is dull, boring, useless."

On the other hand if the classroom is colourful, attractive, is repeatedly changing, the message is being transmitted, "Education is fun, interesting, worthwhile, progressive."

The teacher, therefore, needs to think about the impression the classroom makes on the child and to try to make the classroom a place that children want to come to. This will, of course, be linked with the use of audio-visual aids and most particularly with display.

The main "focus" of attention is the front wall which contains the blackboard. Every attempt should be made to keep this attractive, with perhaps some colourful pictures on either side of the board, or above it, which are changed from time to time - together with examples of on-going work - perhaps a Science experiment on growing plants: or a calendar recording the weather each day - something that requires a response from children day by day.

Many classrooms adopt the principle of having "interest" corners. These can be based on a subject, or topic, or theme, or just be a collection of things brought by children that they have found interesting.

The remaining walls and surfaces should also be put to good use. On the walls will be three major categories of posters/charts:

i) Children's work. Items chosen can serve a variety of purposes:

eg. a) A summary of work done by different groups in the class put up for interest and discussion purposes; or a collection of work which has been produced following the study of a theme or topic, e.g. use of water.

b) Examples of the achievement of good standards.

c) Work put up to encourage individual pupils.
If a child has tried very hard to make his work

presentable, display it even if it is not as good as other children's work. This will stimulate the child to try harder next time to produce better work.

d) As a stimulus to others.

Similar remarks apply to three-dimensional displays - models, kits, etc. Clay models by children frequently come into category (i) (c) above.

ii) Teacher-produced items for teaching particular topics. These should be changed when the topic has been completed and replaced by others when a new topic is introduced.

iii) Items produced by the children and the teacher together. Sometimes it is best to start a display with something to attract the children, e.g. the teacher provides a picture. The children and the teacher then work together to add items to the picture to make a better display. The children might add other pictures they have drawn or write a description. The final result is the combined effort of all in the class including the teacher.

iv) Semi-permanent items, e.g. map of India, map of Andhra Pradesh, in lower classes a number line and letters of the alphabet; in higher classes perhaps the multiplication table. These are available for reference whenever needed.

Of course in addition to the quality of individual items, one must pay attention to the overall effect of the display and the relationship between items - in other words care must be taken in the way in which items are displayed relative to one another. Often the pattern of posters themselves can be attractive - and may be used for example to illustrate different forms of symmetry.

Another important point is that the display must be at an appropriate height for children, particularly if they are expected to read the detail.

Assessing displays at your school

Below there is a proforma which you would use for the general assessment of displays when you return to your school.

SSESSING DISPLAYS AT YOUR SCHOOL

General - Overall impact - Use a 5-point scale. 1 and 5 are defined. 2,3 and 4 lie between.

	5	4	3	2	1
.) Plentiful (5) / Non-existent (1)					
ii) Lively (5) / Dull (1)					
iii) Colourful (5) / Colourless (1)					
iv) Varied (5) / Monotonous (1)					
v) Artistic (5) / Pedestrian (1)					
vi) Growing (5) / Dead (1)					
vii) Involves children (5) / Does not involve children (1)					
viii)					
ix)					
x)					

Individual items - Priorities: Real objects before pictures; pictures before words; word presentations may best be on single sheets or in booklets.

Teacher produced items

What is the purpose of producing the item?

In which particular lesson has it been/is it intended to be, used?

Is the medium the best available?

Are headings/explanations clearly legible - letters well formed and spaced?

Can it be used in a number of different ways?

How long has it been on show? Should it now be changed?

Children's work

1. Why is it on display? Possible reasons?

   i) as a record of work done

   ii) as a summary of work by different groups/individuals

   iii) as a examples of standards sought

   iv) as encouragement for particular pupils

   v) as a reminder of essential facts

   vi) as a stimulus for further activity.

2. How long has it been up? Should it now be changed?

ASSESSMENT OF DISPLAYS AT THE COURSE

All the material produced during the course has been put on display and you now have an opportunity to think about the value of the display. Visit each set of materials produced for language, mathematics, science and social studies and answer the following questions: -

1. Which displays do you think are most attractive? Give your reasons.

2. Which displays do you think are least attractive? Give your reasons.

3. Choose one item of display and think about the following:-

a) Is the lettering clear and can it be read easily?

b) Is the drawing/picture used clear and could it be easily understood by children?

c) For your selected item how would you improve it?

d) Can your selected item be used by itself or would it be better if it was used with other items e.g. a model?

e) Other commments:

4. How much of the display has been produced by the Resource Persons (Tutors)? How much by the participants? Is this a good balance?

---

5. Are all the displays for use in only one subject or can any be used in many different lessons? Give details.

---

(19)

11. WHO CAN HELP ME?

(THE MUTUAL SUPPORT SYSTEM)

There is no doubt that teachers will have many questions to which they will want the answers when they begin to implement the concept of active learning and the six principles in their work with children. How best can these questions be answered and problems resolved? In short the answer lies in the concept of Mutual Support, a network which involves the teacher, the headteacher, the strong teacher, the Teachers' Centre and its Secretary, and the MEO.

Teacher and Teacher:

In the school itself discussion between teacher and teacher about their work is very rewarding. It could be that one teacher has a problem about how to introduce a topic in language. How shall groups be arranged, what activities suggested for children, how can children's understanding be assessed? Another teacher in the same school may be particularly interested in language work or have had experience of teaching language over many years. Obviously a discussion between these two teachers would resolve many problems, and it could be that the first teacher can in return offer the second teacher some help in teaching science or mathematics. The essential point to remember is that discussion between teachers is a form of Mutual Support. The range of possible discussion is immense, but it could be summarized under two headings: context and methodology of teaching, which includes the organisation of classroom activities.

The Headteacher and the Teachers

The headteacher is equally important in this chain of mutual support. He/she should encourage teachers to help each other, as described above, but also assist by discussing with individual teachers a resolution of a particular teaching problem whether this be in content or in methodology of teaching. His/her part is to encourage the teachers to develop active learning for children and to develop the six principles. It means in practice, that he/she has to make known to all his/her staff good examples of say the display of children's work, or the use of the environment. It is the headteacher alone who can review the work of the teachers in the school, and draw the attention of all staff to good practice. Equally the headteacher must stress the need for teachers not only to provide active learning experiences for children, but he/she must help them to assess the degree of understanding of a topic which individual children have, and/or assess a child's ability to utilise a technique. The headteacher through his/her suggestions is reinforcing the concept of mutual support by the showing of ideas, and by his/her contribution to individual teacher's proposals.

How the MEO can help

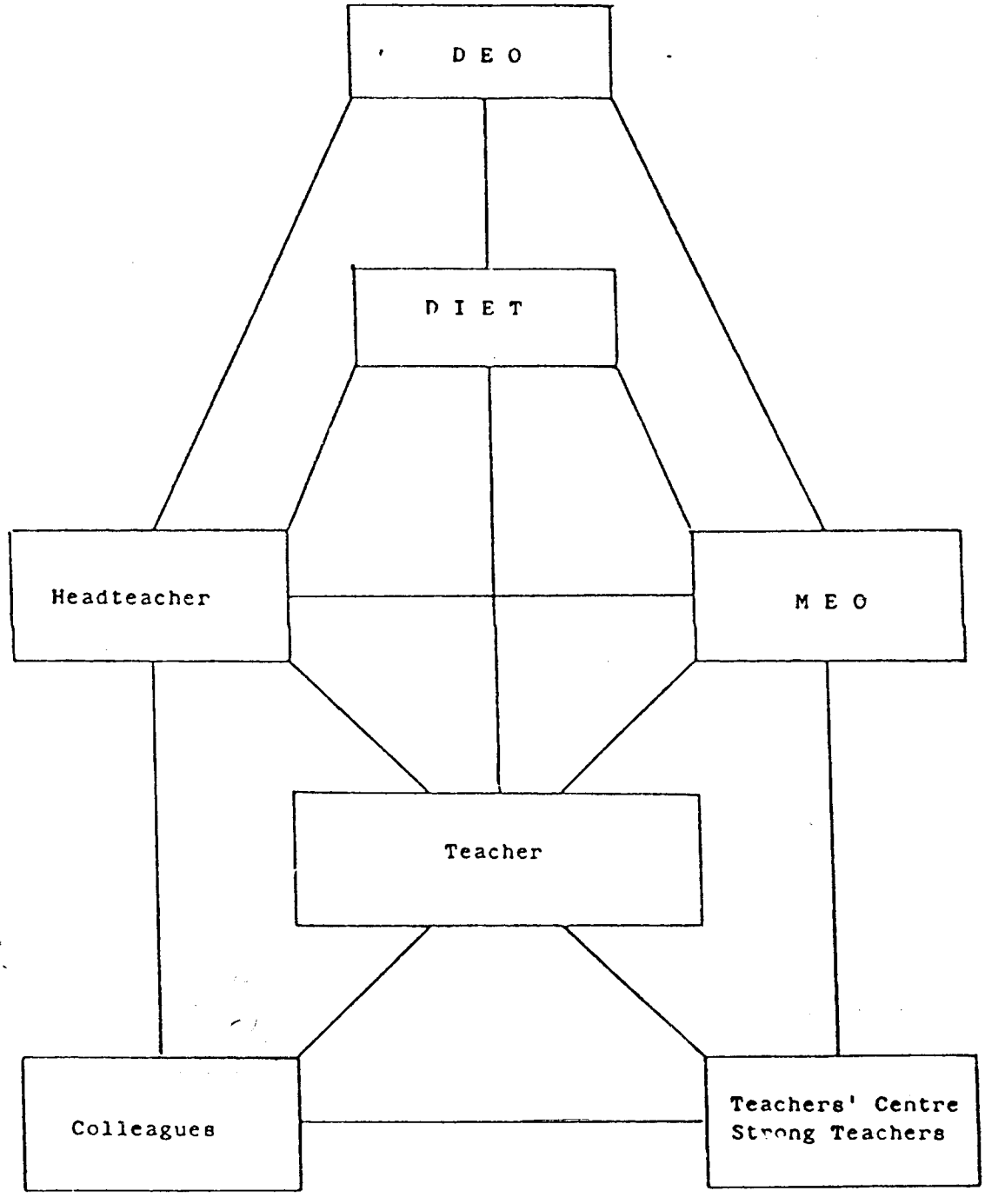
The MEO also contributes towards mutual support. His contribution is similar to that of the headteacher, but in addition the MEO is aware of activities in other schools, and hence can suggest ideas which have succeeded elsewhere. Equally he can share with another school some good teaching ideas which he has seen in the school he is at present visiting. The MEO can assist the headteacher and the teachers in terms of both the content and methodology of teaching (including the organisation of the classroom) and the MEO is able to put questions to teachers which will help them to think about presenting ideas to children in a new way. The MEO will also help them to think carefully about the purpose of activity methods in the work which is done by children. It is important to ask why we are encouraging a new way of teaching and learning and whether the children show more interest in their work and learn more.

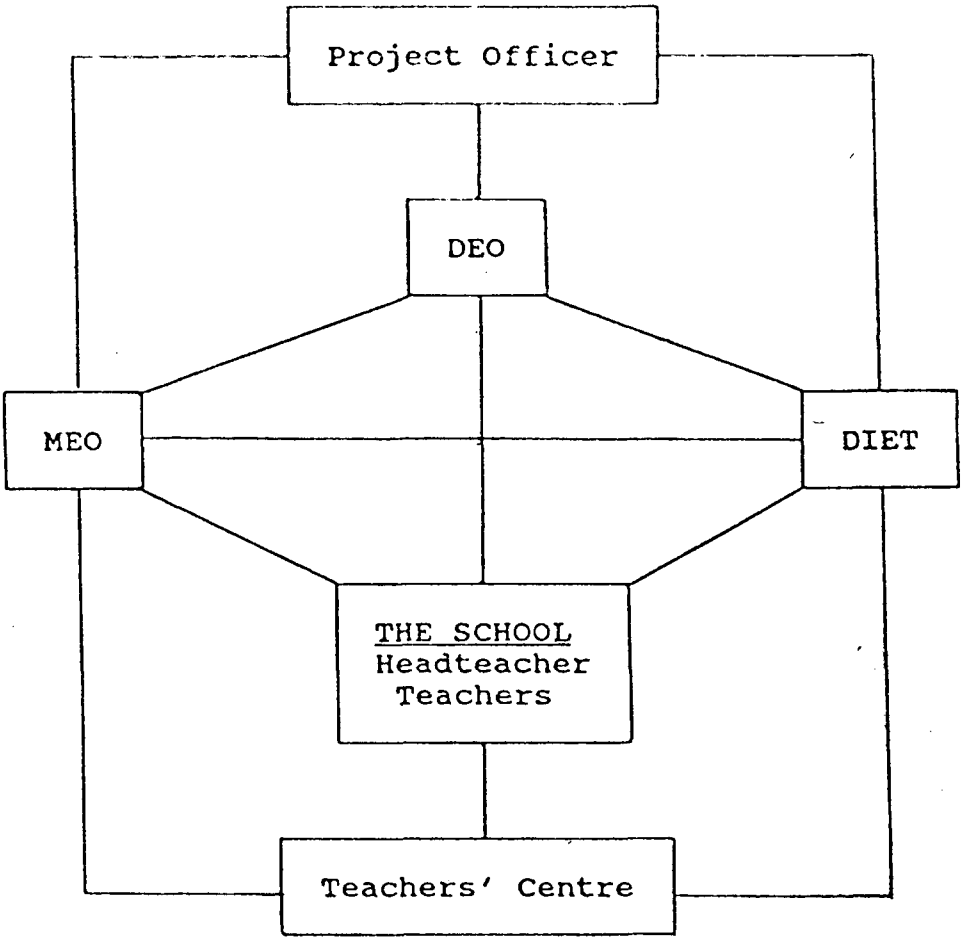
The Teachers' Centre

The MEO also has oversight of the activities of the Teachers' Centre, another source of mutual support. In this case many teachers from several schools come together to share their experiences and to hear about new ideas. A formal programme of inservice training and follow-up work will be organised for implementation at the Teachers' Centre. It is perhaps the most important unit in the system of mutual support for it is at such a Centre that fruitful interaction between teachers can take place. This will be encouraged by a good programme, which has been devised by the Teachers' Centre Secretary, with the participation of the Strong Teacher, and with the help of the MEO. Since the Teachers' Centre is so important, teachers need to give time to considering how the plans for Teachers' Centre activities can be drawn up and how individual teachers can hear about such activities. Similarly teachers need to know how they can arrange to have a topic raised which could be of general interest at a Teachers' Centre meeting.

The whole support system can be represented diagramatically as on the attached sheet. This should be prepared as a chart or drawn on the blackboard. A number of questions which teachers can consider during the discussion on mutual support will be found on a separate sheet.

The Mutual Support System




Project Officer
DEO
MEO
DIET
THE SCHOOL
Headteacher
Teachers
Teachers' Centre

WHO CAN HELP ME?

Some questions on support strategies for teachers

A. With another teacher in school

Thinking about the concept of active learning and implementation of the 6 principles:-

1. What kind of teaching problem would you want to discuss with another teacher in the school? List these problems.

2. With your experience and knowledge, how do you think you could help another teacher in the school? What are your particular interests in teaching? Write them down and discuss with your partner in the group.

3. Have you experienced this aspect of mutual support before? If so, write down how it helped you, or how you were able to help another teacher, and discuss with your partner.

B. Between headteachers and teachers

1. List the ways in which you feel the headteacher could help his/her staff with the concept of active learning and the implementation of the six principles. Discuss with your partner.

2. What particular help could the headteacher give to teachers to encourage the exchange of ideas and mutual support? Discuss with your partner.

C. The role of the MEO

1. How do you think the MEO can best help you and support what you are trying to do with children in your school. List the ways you think the MEO could assist and discuss your list with your partner.

2. What information could the MEO give you about Teachers' Centre activities?

D. The work of the Teachers' Centre

1. How can you find out about the programme of inservice training at the Teachers' Centre? Do you know who is the Secretary of the TC?

2. Do you know if there will be other activities for you at the TC in addition to the formal programme? How can you find out?

3. How can you try to have a topic discussed at a Teachers' Centre meeting? Should you discuss it first with your headteacher, the MEO, a strong teacher or the Secretary of the Teachers' Centre?

Discuss all these questions with your partner.

E. Mutual Support

What do you understand by the concept of mutual support?

Discuss with your partner.

12. ASSIGNMENTS

Between your initial inservice course and the 3 day follow-up course you will be expected to complete two assignments. One will be a teaching project; the second will be an action research project.

YOUR TEACHING PROJECT

For the teaching project this is what you do:-

1. Select a topic from the official syllabus issued by the Government of Andhra Pradesh for the class you teach. Do not select a topic covered in your Initial Inservice Course nor in the Teachers' Handbooks.

2. Develop a teaching plan for your selected topic using the six principles of APPEP that you have learned about on your course. Write your teaching plan in detail showing exactly what you expect the children to do throughout each stage of the topic. Your topic may cover three or four periods. It is important to remember that:-

a) The plan for your teaching should be realistic and can be completed in the time you allocate for it.

b) The plan for the lesson should show development throughout the periods so that the children are led to an appropriate conclusion.

c) You should indicate in your plan exactly what the children are to do, the activities they are to carry out, and the conclusions they are expected to reach.

d) You should indicate the materials you are to produce for the lesson and the way in which they are to be used.

e) You should show the means by which you are going to assess the children's work.

f) You should show the means by which you are going to assess if your plan has been successful.

3. Teach the plan with your class and complete your evaluation at the end of each period and at the end of the whole lesson. Describe how you would improve the lesson next time you would teach it and how you would improve your plan and your aids.

4. At the Follow-Up Course you will be expected to bring:-

a) Your lesson plan.

b) The materials you produced for the children.

c) The materials produced by the children.

d) A statement of your assessment of the success of your project.

5. You will be expected to display your materials listed in 3) above and to be prepared to comment on your plan and those of others in your group, and to show how your plan and materials put into practice the six principles of APPEP.

YOUR ACTION RESEARCH PROJECT

INTRODUCTION:

After your Initial Inservice Course you are expected to carry out an action research project and bring the results with you to the Follow-Up Course. All teachers are now supposed to play a leading role in carrying out simple research in education. Such research is often referred to as Action Research,

Corey says (NCERT - Research in Education, S.M. Corey) that Action Research (A R) is a research which a person conducts in order to enable him to achieve his purposes more effectively. A teacher conducts AR to improve his own teaching. A school administrator conducts AR to improve his administrative behaviour.

Such on-the-spot research can be carried out easily by the teachers and headteachers to solve simple school and classroom problems. The teacher must use suitable techniques, and adopt an experimental approach towards problem solving. This must be closely related to the realities of school instruction.

BENEFITS

Action Research

- Helps one to work on scientific and objective lines.

- Brings desirable reforms in the system.

- Provides solutions which are easy to comprehend and adopt.

- Is more suited to the implementation of research findings.

PROCEDURE:

There are normally a number of clearly identified steps. These are listed below and then a particular example given.

1. Identifying the problem:

Here what you have to do is to identify the problem about which it is desirable to take action.

For example:

* The students of class V are not showing good progress in Telugu language.

2. Delimiting and defining the problem

Here you analyse and state the problem more specifically.

For example:

* The V class students commit many mistakes in writing Telugu.

3. Diagnosing the problem:

In this step, an attempt is made to search for the reason for the current problem. The relation between the problem and the stated reasons should be established.

For example:

* The possible causes of students spelling errors may be

  i) The students are very careless in their written work;

  ii) The teacher does not spend enough time in correcting the written work.

  iii) No follow-up work by the teacher i.e. no practice of correct spelling.

4. Hypothesis:

Formulate a Hypothesis - i.e. a statement which can be investigated by action research.

For example:

* If the pupils are made to do written work in Telugu systematically followed by teacher's check and students' practice, the mistakes in words will be rectified.

5. Methodology:

The Hypothesis framed by you should be tested. This needs to be done systematically.

- Decide a timetable of the action research.

- Carry out the plan according to the timetable.

- Collect the data.

For example:

* The teacher determines the amount of written work to be given;
  the teacher plans to distribute the work according to a fixed timetable;
  the teacher examines the written work in the scheduled time;
  the teacher seeks the co-operation of his co-teachers for this work to be carried out;
  the teacher provides follow-up work.

6. Testing the hypothesis:

If the results of the research are positive, the assumption framed under the hypothesis is accepted. Otherwise formulate another hypothesis and repeat the steps again.

Analysis of data:

i) The note books in which students do their work are checked regularly. This gives an understanding how far the spelling errors have been minimised.

ii) Written tests in simple forms to find out the spelling ability.

If the students commit fewer mistakes in spelling, the action hypothesis is accepted.

WHAT YOU HAVE TO DO:

a) First you must choose a topic for research. Here are some examples:

i) Suppose an examination of your mark book shows a difference in level between boys and girls. An appropriate action research would be to try to find out why?

Possible reasons - family commitments, position in the family?

ii) Can the success of your good pupils be attributed to factors other than intelligence.

Both of these might be examined by a case study - choose 15 pupils and find out the facts; possible reasons - home back ground - availability of books, etc.

b) You must decide how you will carry out your research. Decide also upon a time scale.

c) Analyse the information you have collected and reach a conclusion.

WHAT YOU MUST BRING TO THE 3 DAY FOLLOW-UP COURSE:

a) You must bring with you a written statement about your research.

b) This written statement must show:

- the problem you investigated
- the way in which you carried out the research
- the analysis you did
- the conclusions you reached

c) At the 3 day course you will have to display your work and explain your conclusions.