DEVELOPMENT AND IMPLIMENTATION OF A STRATEGY

WORKSHOP

AT A GLANCE

Day I : Orientation about Multigrade Teaching

Day II : Development and Implementation of a Strategy

CHAPER IV
DEVELOPMENT AND IMPLIMENTATION OF A STRATEGY

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4.0 INTRODUCTION

This chapter presents details regarding the strategy which was developed and implemented in order to achieve the second objective of the present study. The workshop was carried out for the teachers of SSPA, Dabhoi taluka, Vadodara district. The two days workshop schedule is enclosed in appendix VII. The strategy was developed reflecting the competencies on the basis of prevailing teaching – learning process in multi-grade teaching. While developing a strategy following steps were followed -

4.1 SELECTION OF AREA / CONTENT

The environment text-book of class III and class IV consists of fifteen and twenty-one chapters respectively. The investigator, after intensive discussion with the subject teacher, subject experts, DIET lecturers and through class room observation the following content areas were identified.

From class III topics selected were

- Our body
- Air
- Water and life
- Air and water pollution

From class IV the topics selected were

- Our diet
- Weather
- Land
- Agricultural – Tools & Implements

4.2 DECIDING INSTRUCTIONAL OBJECTIVES

Instructional objectives based on competencies for the selected content has been listed as follows :

7.3.1.[1] To develop an understanding regarding the functions of important systems of human body. This competency was further subdivided as follows.

    7.3.1.1 Students states different parts of the human body

    7.3.1.2 Students describes different parts of human body

    7.3.1.3 Students states different system of human body

    7.3.1.4 Students describes different systems of human body

10.3.2 Students explain importance of air and its use in our life

10.3.3 Students explain about the Air pollution

10.3.4 Students explain the importance of water

10.3.5 Students lists the different sources of water

10.3.6 Students explain about water pollution.

10.3.7 Students find out the causes of Air pollution.

10.3.7 Students find out the causes of water pollution.

3.4.1 Students recognizes different agriculture tools and implements.

    3.4.1.1 Students states the importance of manufacturing articles.

7.4.1 Student understands the factors contributing to the preservation of good health

7.4.2 Students states various types of diet.

    7.4.2.1 Students explain the functions of food in physical growth

7.4.3 Students explain the importance of food and nutrition.

    7.4.3.1 Students explain about balanced diet.

7.4.4 Students explain about the contamination of food and water

    7.4.4.1 Students describes about different methods of purifying water

    7.4.4.2 Students state about the unhygienic conditions

10.4.5 Students tell about weather phenomena.

10.4.6 Students explain about air and weather relationship

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[1] In 7.3.1 first digit (7) indicates area, second digit (3) indicate class, third digit (1) indicates competency and subsequent digit indicates sub-division of competency

10.4.7   Students states different forms of water affecting weather, e.g. humidity, fog, cloud, and snow.

10.4.8   Students observe various weather phenomena and record them with pictographs.

10.4.9   Students understand the importance of soils in our life.

10.4.10   Students states the use of soils.

10.4.11   Students classify the soils of the locality according to sizes of its particles and fertility.

10.4.12   Students explain the fertility of soil.

4.3   STRATEGY FOR MULTIGRADE TEACHING

In this phase investigator had discuss two days workshop which was conducted on 6th & 7th October, 2003. Twenty-five SSPA vasahaty school teachers of Dabhoi taluka teaching in class III and class IV participated in the workshop.

The main focus of the workshop was to familiarized the primary school teachers with basic skills and strategies of multigrade teaching, that is to say in running a multigrade class and to make teachers aware about use of teaching time productively, by combining educational curricula.

Two days workshop was divided into four sessions (Appendix IX). The workshop comprised of the following components.

4.3.1   Basics of Multigrade Teaching

In this session an orientation regarding multigrade teaching was presented. The main points covered were as follows :

In places where, for various technical reasons such as lack of or long absence of a teacher, and of employing a separate teacher for only a few students, multigrade teaching approach has to be followed. Although, in recent years, their appears to have been several attempts to improve the school effectiveness in primary schools in India. These have included government initiatives, such as the Universalisation of Primary Education. (UPE). The Minimum Levels of Learning programmes and other initiatives such as operational blackboard,

World Bank Supported DPEP and presently Sarva Shiksha Abhiyan (SSA). Despite these initiatives, primary education continues with various problems may be because of two probable reasons.

1)   They have not addressed multi-grade teaching because it is regarded as a temporary phenomenon, which is not.

2)   Their focus has been directed narrowly at the provision of resources, either additional teachers or materials, rather than on ways to improve teaching and learning process in the classroom.

Multigrade teaching is a situation where teacher has to handle more than one grade simultaneously, which is a challenge for the teachers. Teacher is the key person in multigrade situation and should have multidimensional vision and practices.

In multigrade situations the teachers have to play two basic roles, one is managerial role and the other is pedagogic or academic role. Teacher should play a vital role in multigrade teaching with development of competencies in the students. Teacher must understand that learning is not only to acquire abilities of reading, writing, speaking, listening, etc. but learning means to acquire certain competencies.

During the workshop the focus was on the following questions-

-   How the teachers manage the schools in such hard situations ?

-   How they arrange the grades and curricula ?

-   How teachers manage their time and how they manage to complete the syllabi of two/three grades within the fixed time frame ?

-   Basically, how these teachers conduct class related pedagogic issues ?

4.3.1.1   Basic principles for a Multigrade Teaching

In the same session basic principle for multigrade teaching was stressed as follows

1.   A multigrade teacher should feel that he/she is undertaking a challenging job, which is, in a way, a matter of pride. It is a job that he/she can show his best. The feeling that he/she has done a good job

even in a difficult situation will certainly give him a sense of satisfaction, which is morally a good thing.

2. The multigrade teacher should get the feeling that the local people have placed a great deal of confidence in him by giving the responsibility of educating their children. In this capacity, he/she is therefore like a missionary engaged in fulfilling an important mission in life. .

3. A multigrade teacher, like any other professional teacher, should take care that he/she is there not just to teach but to help the children to learn maximally.

4. The multigrade teacher must also understand that a child learns better and more quickly if (a) he/she is given a chance of having personal experience of the matter taught which involves him in actual situation and if (b) he/she is given exposure to the new learning material again and again at different intervals of time, that is to say, if the exposure is made frequently spread out over a number of days or even months, what he/she has learnt will tend to be ingrained. Hence, real or simulated situations may be created which can provide opportunity to the children to have direct experience of what he is expected to learn. And the teacher should plan his lessons in such a way as would involve revision or reinforcement of what has been taught previously.

5. Learning gets stalled if the child is forced on to learn what he cannot comprehend or if he/she is made to bite more than he/she can chew. Learning takes place if the child is made to learn what he/she can grasp without much difficulty. Giving too easy or too difficult things to study will result in the child's making no progress. Get the child to go ahead steadily and confidently. A good teacher uses a language that the child understands and teaches just as much as what the child's mind can contain at the moment.

6. A successful teacher should try to preserve his energy as far as practicable and at the same time keep on teaching, guiding and

monitoring the students to an optimum level by employing different strategies.

4.3.1.2 Points to be kept in mind by the multigrade teachers

Some of the points discussed for teachers of multigrade teaching are as follows:

- Make school environment child friendly.
- Create a favourable environment in classroom by promoting play and learn technique.
- Prepare lesson plans with sufficient and proper time distribution in Integrated grades.
- Integrate the competencies of environment of class III and class IV.
- Identify learning problems of students and gaps in attaining competencies.
- Talk with the children in local dialect (we prepare a dictionary on local dialect which would help teachers to understand students easily and better)
- See that teaching should be more competency based rather than textbook/content based.
- Adopt teaching strategies like, activity based teaching, using TLMs, using self learning materials, promoting collective teaching.
- Create a conducive learning atmosphere, through play and learn and should identify grade-wise common competencies and should teach these common competencies to the concerned grades in a combined class.

Thus, the two days workshop has helped teachers to understand the multigrade situation and strategies which can be adopted by teachers for teaching environment in combined class III and class IV. Following approaches have been carried out for dealing with multigrade teaching.

1   Multi level groups and group learning

All the multigrade schools have combination classes with multi level groups. Groups, constituted with students of different grades and different abilities help each individual in learning. In most of the multigrade schools, students of higher grades guide and co-operate in pedagogic problem solving of students of

lower grades sometime, even students of higher grades, learn many competencies from the students of lower grades.

Group learning also provides a chance to students to repeat the competencies or curriculum of previous grade while sitting in a mixed group. This repetition makes them concrete in those competencies of previous grade. Thus mixing of different grades help the learners to improve their knowledge.

Group learning with mixed ability groups also gives opportunities for learning the contents of competencies to slow learners under guidance and supervision of fast learners. Now, here arises the question how the groups are to be formed? Formation of groups is a major area of concern in multigrade teaching. Teachers can follow following types of groups according to pedagogic needs.

Mixed ability groups

When feedback to slow learners or weaker students is required, these groups are better options for group learning. Another grouping technique is that groups can also be made according to the ability of the learners for e.g. Students who have not developed the reading ability should form one group. Students who can read words should form another group. Similarly, students who can read sentences can form another separate group. This approach helps the pupils to learn at their own pace comfortably.

2 Peer Learning

Peer learning can also be defined as part of group learning. It is a natural phenomenon that a child can learn better and faster with his/her friend. Keeping this in mind groups of two similar age children can be formed according to the competency to be developed.

3 Self Learning

As 6-14 years is the age when child discovers many new things consciously or unconsciously. The child learns directly from suitable learning materials in his/her surroundings. There is a larger social and natural environment for self-learning. Children learn directly from their environment. Suitable self-learning materials are either not available and if available teachers doesn't make use of it. Teachers should not rely only on textbook. Which is mostly content based.

Thus, to enhance activity based learning more self learning material like work sheets/activity sheets should be developed and to make, use of this work sheets, activity guide should also be developed so that usr knows how to use and where to use self learning material ?

4 Monitorial System

Usually, this is a technique, which is adopted by most of the teachers teaching in multigrade schools. Monitor bridges the gap between teacher and the learners Monitor.

Investigator feels that the role of monitor should not be only limited to disciplined and supervises the class in absence of the teacher but should also participate in organising groups, organising activity corners, managing self learning materials, preparing activity sheets, helping in roll call, etc. So, that the teachers time can be more productively used in a pedagogical process.

5 Time table and time management

Special attention has to pay in preparing the timetable of multi-grade school according to local needs and to complete the curriculum of each grade within the stipulated time. The curriculum should be divided according to competencies and the competencies of two grades/three grades should be integrated through different activities like games, story telling, field visits etc. Which can be enhanced by certain teaching aids for e.g. Educational film or charts, posters etc.

As there is no period system and focus is mainly on Gujarati and Mathematics, where environment subject is neglected so time table should be prepared in such a way that equal weightage should be given to all the subjects either by integrating the competencies of two subjects together i.e. while teaching Gujarati certain activities related to environment can be incorporated and ice-versa.. Moreover attendance card should be made where each student mark their presence twice a day. So that time of a teacher is not wasted in taking attendance.

Prepare the attendance card with the help of students. Each student has his own attendance card and should be kept in the classroom drawer or cupboard. Here,

the student had to tick mark in the card against a column of date. The student had to mark this tick in both the sessions that is pre-lunch and post-lunch. Each card is then collected by the class monitor. Thus, this self-attendance will save the time of teacher and also motivate the students to attend the school regularly. (Figure 4.1)

Figure 4.1

Self attendance Card

Name : Class : School :				
Date	July		August	
	Pre	Post	Pre	Post
1				
2				
3				
4				
5				
6				

6 Learning Corners

With the focus on how teaching aids and learning materials can be used to reduce burden of teachers and obtain better results ? All the four corner's of the classroom should be well displayed i.e. environment corner where all the games, puzzles, teaching learning materials, etc. should be displayed on one corner of the room so that when teacher is busy with teaching one grade students the other grade students are busy with the activities so that the time of all the students is utilized productively. Now at this point the question arises how to manage an allocated time ? So here the concept of time management is explained.

Time Allocation / Management

Allocated time

Instruction time

Academic time

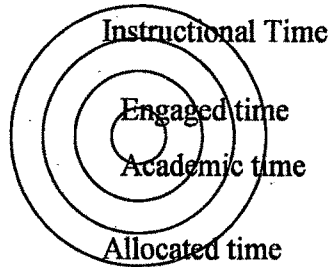Engaged time

Figure 4.2

Levels of Time

Figure presents levels of time. It can be seen that the correlation between the levels of time and learning becomes stronger as the circle becomes smaller.

Time Management : The way time is managed can also be an effective strategy o boost cognition. The time a student spends in the school can be divided :

1) Allocated Time : The amount of time the teacher or the school designates for a particular topic for e.g. 50 min. for mathematics.

2) Instructional Time : This is the amount of time left for teaching after routine management and administrative tasks are completed, e.g. Taking attendance, making announcement and administrative tasks are completed, e.g. Taking attendance making announcements, administrative interruptions etc.

3) Academic Time : This is in two parts, i.e. engagement and success. It is the amounts of time students are successful while engaged.

4) Engaged Time : The amount of time involved for students to pay attention. The time students are attentive. That is the time, which needs a lot of concentration to charge the cognition of the students.

Thus, the division of school time depicts that the way time is managed, to a large extent affect the cognition of the individual student especially the concentration during the time the student is engaged.

4.3.1.3 Psychological aspects to be kept in mind while selecting strategies

In multigrade teaching schools students are heterogeneous and thus while selecting strategies teachers should keep in mind certain psychological aspects, which are as follows :

1. Restructuring the competencies and rearranging the competencies i.e. from simple to complex so that understanding becomes easy.

2. Rate of learning differs among the group of students some are slow learners and some are fast learners thus the strategy should be selected in such a way that learner learns at their own pace and enhance learning.

3. Since all students need to master minimum essential competencies, the transition of the students should be continuous and cumulative, but don't expect the same achievement (mastery) level from all children.

4. Attention span : Students at the primary level have relatively short attention span on a single type of actively short attention span on a single type of actively, thus whichever activity selected by teachers should be of short duration i.e. of 15 to 20 minutes.

5. Interest of the learner : Pupils are always curious and any novel situation would stimulate them to give attention and learn. Therefore the nature of actively offered to children should change from time to time. Thus, interest of the learner should be kept in mind in order to generate learning.

Sometimes, in the middle of the class, the teacher may often notice children's interest flagging, in this case teacher can do two things : one, let them have some rest and two, dispel their boredom by changing the topic or by interpolating some interesting points. For example, suddenly ask the pupils a question like this, "If there are ten birds on a tree and a man shot at them. Six birds fell down dead. How many birds remained on the tree ?" (The answer is, from the practical point of view, none because the remaining birds have flown away) This will help in motivating children. Another way to freshen up is to ask riddles, gives puzzles to solve, etc. Thus, a resourceful teacher should have the collection of such stimulating materials in order to sustain and revive interest in pupils.

4.3.1.4   Ways of warming up the students

Before starting the actual lesson warm up students through different activities, which is one of the good ways to begin the joint class. Teacher's can warm up by asking questions on the date. For example, what day is today? What day was yesterday ? What month is it now ? What month (year) will it be next ? etc. This question can be passed round the class in a chain process for some 3 to 5 minutes every day. Certain life r elated questions or subjects to be applied to start a class like talking about seasons and corresponding seasonal food, climate, costume, festival, etc. Before starting a class teacher can eve show some related poster. So, that the curiosity in students is raised and will lead to some discussion.

4.3.2   Implementation of Strategy

The strategy to be implemented was discussed with the teachers, main features of the same were as follows.

4.3.2.1   Selection of the Content and Reorganization of the Units / Areas

The environment textbook of class III and class IV consists on fifteen and twenty-one chapters respectively. The investigator, after intensive discussion with the subject teacher, subject experts, DIET lecturers and through class room observation the strategy was developed on the selected units / areas.

These eight areas were selected on the basis of their importance in the entire text book, their linkage with upper classes content, difficulties faced in understanding as well as teaching. Moreover, these were the chapter / units which were related to the every day life of students and their immediate environment. Further, the Investigator found that teachers themselves were not fully equipped with the necessary resources like teaching aids, additional materials, methods and activities that can be employed while teaching. Considering all these factors, the investigator decided to develop the strategy for the selected topics / chapters of class III and class IV.

Further, all the topics were reorganized systematically in such a way that it would facilitate the learners to understand and comprehend the content easily (from simple to complex) on the basis of competencies.

Table 4.1

Re-organization of the chapters / units according to their competencies.

Lesson No.	Class III Chapter / Topics	Lesson No.	Class IV Chapters / Topics
1.	Discipline and Protection	21.	Accident : Safety Measures : First Aid
2.	Our Convenience	17.	Forms of Local self-government
3.	Let us Identify / know them	11.	Occupations and Artisans
		18.	The Ascent of Man
4.	Talk of the Home		
5.	Matters and its properties	19.	Forms of Matter
		20	Water and its forms
6.	The World Around us	1.	Living World
7.	Plants World	2.	Plants and Animals
8.	Animal World		
9.	Our Body	9.	Our Diet
10.	Air	7.	Weather
11.	Water and Life	8.	Land
12	Air and Water Pollution	10.	Agricultural : Tools and Implements
13.	The Earth and the Sun	4.	The Earth and the Sky
		5.	Identifying the Directions
		6.	Observing the Moon and its Phases
14.	Let's Understand Map	15.	The Map Reading
15.	Our District	13.	Gujarat : Physical Feature, Climate and Natural Resources.
		14.	The Economic Activities and The Modes of Transport System in Gujarat.
		16.	Diverse Folk Life
		12	Our Country
		3.	National Integration

4.3.2.2 Units and Sub-units covered in the development of the strategy

Unit	Sub-unit
Our Body	Different parts of Body Important system of Body Functions of Respiratory System Functions of Digestive System Functions of Blood Circulation
Our Diet	Different type of food Components' of food Balanced diet Food according to the season Diseases resulting from Food and Water Prevention of diseases
Air	Properties of air Importance of air
Water and Life	Occurrence of rain-fall Importance and use of water Sources of water
Air and Water Pollution	Knowing about air pollution Causes of air pollution Knowing about water pollution Causes of water pollution
Weather	Weather phenomenon Winter Characteristic of winter season Summer Characteristic of summer season Monsoon Characteristic of monsoon season Occurrence of rainfall Precautions to be taken during various seasons
Land	Importance of soil Different component of soil Different types of soil Different types of crops in different types of soil Soil erosion, conservation and preservation of soil
Agricultural: Tools and implements	Different tools and implements Importance of manufacturing articles

4.3.2.3 Selecting Appropriate Methods and Media for Classroom Transaction of the Selected Content

After sequencing the different sub-units in a logical sequence, investigator decided to select different methods and media's decided to select different methods and media for transactional of all the units. In order to make the whole process of selection scientific, the methods and media's were selected on the basis of certain criteria such as

a. Nature of the content to be transacted

b. Instructional objectives to be achieved

c. Feasibility of using various methods and media's

d. Availability of various resources to use different methods and media's

e. Appropriateness of methods and media for particular area.

Table 4.2

Details regarding methods and media

Area	Method	Media
Our Body and Our Diet	Discussion, Jigsaw game	Working Model, Chart, objects
Air and Water is Life	Poem, Experiment, Discussion	Chart
Air and Water pollution	Role Play, Field visit	Educational film on Importance of Water
Land	Demonstration, Experiment Field visit	Specimens of different type of soils
Agricultural Tools and implements	Demonstration Field visit	Objects and charts

On the basis of a selected areas lesson plan was prepared and same has been enclosed in appendix VIII.

4.3.2.4 Transactional Competencies

Teaching – learning process in education involves interaction between the teacher and the taught resulting in the achievement of the desired competencies. Teaching as a concept is to be conceived in three stages : planning, teaching-learning process and evaluation. During transaction, the teachers put plan into action and evaluate its impact in terms of competency achievement level at the end of the transaction.

In the competency based teaching-learning process, the subject content is used merely a vehicle to achieve relevant identified competencies at the level of mastery. While transacting curriculum content, the principles of psychology, management and societal aspects, as the case may be, should be integrated and practised, it becomes extremely important for the student teachers understand clearly the process of child development and growth and the management principles involved in order to effect maximum learning by the child. This would also further facilitate the transactional strategies.

4.3.2.5 Points To Be Considered While Designing And Conducting Activities

Teaches were briefed about the points to be consider in the use of particular activity.

Activity is synonymous with learning, involving not just physical movements but also reflection, imagination, critical analysis and creativity. Further, an activity based approach to learning does not mean a separation between the activity and content. In other words, a successful approach has to link activity with the Curriculum and content areas.

- Activity has to be matched to the learning level of Children
- An activity must have a specific purpose
- An activity is planned in terms of materials to be used, involvement of children, time management
- Instructions have to be clear and presented in a manner that children understand them

- The teacher should be able to manage the grouping, instruction and material
- Minimum involvement of teachers as 'the teacher' is important
- Analyse and reflect upon an activity

Following are the examples of activities.

Story Telling

- Mostly we all like story. Especially, children they love story.

- While telling a story, what you are doing is you are communicating. So to make communication effective and to catch the attention of children.

- Use teaching aids to tell the story (illustrate the story)

You can often use the story like this :

- Beginning of lesson : Tell story

- Lesson : Ask questions about story (children's activity)

- End of lesson : Re-tell story. Ask questions on it again.

- Next day repeat the story to check the receptivity.

Games

Now, if you are using game as an activity for developing environment competency you should keep certain points.

Rules

- Game you are choosing has to be simple to play.

- It should be enjoyable for the children.

It should have simple rules so that they understand the game properly.

Detail of the activities

Objective : To identify different parts of body and to understand the importance of cleanliness.

Story Game : Different blocks were provided and students were asked to arrange.

Theme : Arranged the blocks according to their daily routine for e.g. When you got up in the morning what they did first for e.g.

Activities :

1) Brush the teeth ?

2) Than drink tea ?

3) Than go to toilet ?

4) Take bath

5) Comb hairs

6) Eat food

7) Go to school

<center>OR</center>

2) Teacher arranged the blocks or cards and asked the students to develop a story. [Purpose : The skill of preparing story]

3) Jigsaw game where different parts of body were given and students were asked to place the right block on its right place.

Human body experiences different senses so here are certain experiments/activities, which were conducted.

1) Taste map

Objectives : Demonstrated that sensitivity to the four different basic taste is concentrated in different zones on the surface of the tongue.

Activity : Drew a sketch of the tongue on the blackboard and name the zones.

Placed one of the four glasses of solution on a table. Asked each student to dip a swab in the glass, applied it carefully to each of the four zones of tongue and noted down on a piece of paper which of the four tastes (sweet, sour, salty and bitter) and it was and in which zone ? Its sensation was most prominently felt. Student rinsed the mouth with plain water. Repeated the process with the remaining three glasses, one at a time (use sugar first with sweet taste, lemon for sour taste, salt for salty taste and bitter guard juice for bitter taste).

Evaluation

→ At the end of the experiment, asked the students to compare notes and identify which zone was most sensitive to which taste.

→ What were the other functions of human tongue?

Smells Around Us

Objective : To develop awareness regarding the different smells around us.

Activity : Asked the students to list down as many things as they could which have any kind of smell (kerosene, champa flower, mango, perfume, onion, smoke, garbage, sewage, agarbatti, etc.) After they have listed them, divided into groups having pleasant, neutral and unpleasant smells. Asked the students to identify the kinds of smells in their homes and localities. Where do the smells come from ? Why ? Are they pleasant or unpleasant ? If unpleasant what can be done about them ?

Variation

Asked each student to bring one thing/object with any kind of smell. Collected all these and played a game with two teams. One student from a team was blind folded and made to smell an object given by the other team and identified it by its smell. He guessed correctly, his team got a point. The same was then done with the other team and the game continued until all the objects had been smelt.

[The same activity can be repeated while teaching the chapter on Animal World]

For e.g. : Dog's can distinguish many smells that we can't ?

Which animals have a good sense of smell and which don't ?

Evaluation

How do you feel when some animal is decayed ? Pleasant / unpleasant ?

Which objects with unpleasant smells are also pollutants ?

The Things We Eat

Objective : To enable students to identify the sources of different items of food.

Activity : Teacher asked the students to get one vegetable from their home.

- Asked the students who among them had eaten roots.
- Similarly, asked about other parts of plants like stem, bark, leaves, flowers, fruit, seeds etc.
- Listed and classified on the blackboard.
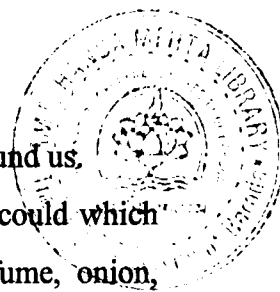
- Students were then asked to answer whether particular items were eaten raw or cooked and if cooked, name the dish.

- In the subsequent session each child brought to class the various roots, leaves, seeds, etc.

Evaluation : Ask the students to identify plants of which more than one part is eatable.

Sound And Noise

Objective : To make students aware of the concepts of sound and noise and realise that these are relative terms.

- To realise how sound / noise leads to noise pollution.

Activity :

- Asked students to make a list of sounds they heard.

- These might be sounds from nature like falling water, a wind blowing or thunder, sounds made by animals like a dog barking, a bird chirping or a donkey braying; or sounds of man like singing, shouting, scolding, etc.

- Asked them to sort out these in terms of pleasant sounds and unpleasant sounds.

- Asked each student to make some sound they could make animal sounds or any other sounds – even an unusual one, which was not generally heard.

- They made sounds using another object like rubbing two things or banging one against another. Other students replied whether they felt the sound was pleasant or unpleasant.

Evaluation : What are different animal sounds called ?

Can you make a sound that a cat would not like, or a dog would like ?

The 'Feel' of Things

Objective : To enable the students to recognize materials by touch.

Activity : students in the class were blindfolded. Placed the objects on a table and asked the students to feel and classify them into groups such as

- Rough or smooth
- Rounded or sharp edged
- Hard or soft
- Hot or cold

Further, asked them to suggest more names of items which fall in these groups. They were asked to organise their observations in a tabular form.

Concept of Air

We are surrounded by air. It is the most essential for all the living things. We utilize oxygen of air for respiration.

Ask : Can we see air ?

Students : Silence.

Teacher : Air is something which is not seen but we feel. Air can keep things out, it pushes and it holds children upon the inflated tyres of their bicycle, etc.

The air in motion is called wind. The wind carries away impure air and its place is taken by pure air.

Concept : Air is invisible

Activity I

Materials : - A large bowl of water

- a clear glass

- a piece of paper

Experiment : Put the piece of paper ball in a glass and without tilting the glass kept the glass in bowl of water and observed.

- Again put the piece of paper ball in the glass.
- Tilt the glass
- Observed what difference occurred ?

Conclusion : In this experiment the paper remained dry because the air inside the glass occupied space. Air left no room for the water to reach the paper.

- When we tilted the glass, some of the air flowed out of the glass, making room for water to flow.

  Thus, air occupies space but have no shape.

Activity 2

Objective : To develop an understanding about importance of air and air pressure.

Activity Making of Parachute

- Take square cotton cloth / thin polythene bag

- Make small hole in middle

- Tie eraser or clay ball according to the size of the cloth

- Four strings same size

Procedure :

- Tied four strings on the four corners of square cotton cloth

- At the end (down) tied clay ball or eraser

- Threw up/down parachute from high and observed

Evaluation :

- Suppose you stick tape o the hole what will happen ?

- Suppose you make the hole big what difference you may see ?

- Suppose you add more clay to the ball what difference might this make ?

Activity 3

Objective : To understand the importance of air

- Take two jars (one small and another big)

- Take two candles and match box

Experiment :

- Lighted the candles

- Put jar over the candle and

- Observed which candle burnt for longer period.

- Explained to the group that because of larger size of the jar air supply was more rather than smaller jar and so the candle under the larger jar burnt for a longer time.

Activity 4

Objective : To develop an understanding of air pressure.

Experiment

- Took two Balloons of same size.

- One group with one balloon in direct sunlight.

- Another group in a classroom.

- Observed the size and weight of balloon because of air pressure (increase or decrease)

Explain : Air pressure was raised as it was warmed.

Energy in The Air

Objective : To show how wind energy can be utilized to turn a wind wheel.

Activity :

- Prepared a simple pin wheel (wind wheel) using paper and a straight pin.

- Fixed it into soft material such as an eraser.

- Asked them to move it by different methods such as blowing on it, running with it or placing it in front of a fan.

- Asked students to observe that the faster the air moves, the faster the wind wheel rotates.

Evaluation : Asked students to make a wind wheel and hold it so that it moves fastest.

Air Pollution

Does air contains dust particles ?

- Kept the windows and doors of the classroom open.

- Asked children to find out if there was any dust in the air.

- Asked children to close all the doors and windows and allowed a ray of light to enter from one small opening.

- Asked children to observe the dust particles floating in the beam of light.

Water Pollution

Objective : To introduce the concept of water pollution.

Activity :

- Asked the students to collect water in glasses or transparent bottles from different sources like a pond, water tank, tap etc.

- Told the student to observe each

- Was the water clear or murky ?

- What was the colour of the water ?

Was anything seen floating on the water surface or in it ? Told the student to grade the water : clearest, clear, murky, very murky. Observed two glasses at a time, which was a good method of comparing the water in them.

Water was allowed to stand for 30 minutes and then asked the student to observe it again.

- Had anything settled at the bottom of the glass ?

- Asked the students to place equal amounts of water (say 20 teaspoonful) from the glasses into separate saucers. Placed the saucers in direct sunlight until the water was evaporated.

- Asked to observe was there any residue ? What was it ? Why they could not seen it before ?

Concept of Soil

Objective : To observe and understand that soil is composed of different materials. Also, that different soil has different compositions.

Activity : Asked the students to do the following activity

- Collected different types of soil – e.g. from the school ground, a natural path, a garden, under a tree, from a pond's edge, etc.

- Placed each type in a separate bottle, filled each bottle up to half its height. It was important that they were all filled to the same level. Labeled each bottle mentioning the source.

- Then added water so that it came up to 5 cm above the soil level, measured the water before pouring it in so that the amount of water each soil absorbs was recorded.

- Put the lid on the bottle and mix the contents by shaking. Bottles were allowed to stand for more than two hours.

- Marked on the bottles, the different levels where the heavier particles, the lighter ones and the ones that float occurred. Noted down the different colours of the various levels.

- Measured each depth with a ruler. Measured without disturbing the bottles. Asked the students to discuss their findings with others.

Evaluation : Did students understand that soil was made up of different components.

Concept Of Weather

Objective :

- To understand different weather.

- To make students conscious about the changes in weather.

- To develop a skills in observing weather changes. Air, Heat and water are the weather makers. Air is heater by contact with the earth.

Activity

- Collected weather reports for a week or more from a local newspaper.

- Read these reports to the children.

- Made a large calendar of squares on the board or chart paper or book.

- Each square represented one day.

- Summarized the weather for each day into a single word cloudy, fog, rain.

- Reviewed the weather calendar with the class.

Activity :

- Hanged the room thermometer on the wall of the class room.

- Recorded the temperature

Activity

- The students discussed the weather.

- How many types of weather conditions they knew ?

- Asked the students to prepare symbolic drawings of different weather conditions.

- The students could develop symbols according to the climate in their area.

- Asked students to make a chart with a square of 4 cm x 4 cm for each day of the month and stick the picture of different weathers and ask them to tick every day.

- They were asked to fill each of there squares with a symbolic drawing appropriate to the weather prevailing on that day. For e.g. If the season was Monsoon and it was very cloudy on Monday the 1st the students sticked the "very cloudy" symbol on the square.

Thus, in this chapter the strategy was developed and implemented with twenty-five teachers of Dabhoi taluka and teachers found the strategy interesting and useful in the real classroom situation.