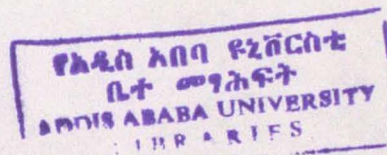


**EVALUATION OF THE IMPLEMENTATION OF GRADE 4  
ENVIRONMENTAL SCIENCE SYLLABUS IN ADDIS ABABA  
CITY**

**BY**

**ESHETU ASFAW CHERU**



**A THESIS SUBMITTED TO THE SCHOOL OF  
GRADUATE STUDIES OF  
ADDIS ABABA UNIVERSITY**

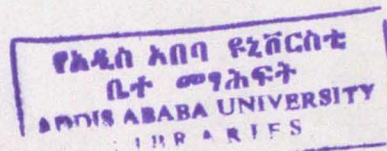
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ESHETU ASFAW

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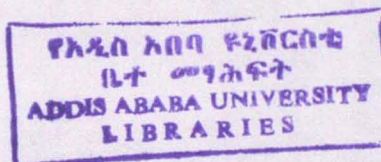
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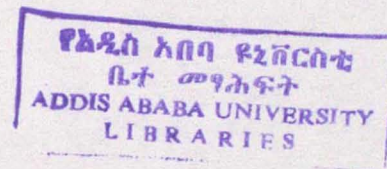
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## ABBREVIATION

<b>ALESCO</b>	Arab League Educational, Cultural and Scientific Organization.
<b>FENC</b>	Formative Evaluation of the Tryout Project of New Curriculum Materials
<b>FGD</b>	Focus Group Discussion
<b>EETP</b>	Ethiopian Education and Training Policy
<b>ICSU</b>	Inter-Union Commission on Science Teaching
<b>UNEP</b>	United Nations Environmental Program
<b>IUCN</b>	International Council for Conservation of Natural Resources
<b>NCERT</b>	National Curriculum for Elementary and Secondary Education



## ABSTRACT

In this study, an attempt was made to find out the discrepancies between the syllabus anticipations and classroom realities in implementing the grade 4 Environmental Science syllabus in Addis Ababa City. Particularly the study on the classroom interactions. To this end, 12 primary schools, 24 grade 4 classes, 12 directors, 12 vice-directors, 12 department heads, 48 teachers and 72 grade 4 students were used as the main sources of data. Hence, three data gathering instruments (Focus group discussion, observation checklist and questionnaires) were employed.

The findings made clear that teachers' actual use of periods for Environmental Science was found less than the periods indicated both in the syllabus and teacher's guide. Almost in all the sampled schools the syllabus was not available. The distribution of other curricular materials (teacher's guide and student's textbook) was found to be satisfactory in most of the sample schools.

The teaching methods dominantly used in all the samples schools were found to be lecture, and question and answer. Teachers in most of the school do not use teaching materials for the teaching-learning process. The teaching materials available in schools' pedagogical centers were out dated and could not be used for the current syllabus. In fact, there were few available teaching materials, that could be used in the implementation however, these materials were not used by the teachers.

Teachers effort in providing conducive learning environment was found low. As a result, students could not be actively participate in their learning.

## CHAPTER ONE

### INTRODUCTION

#### 1.1. Background of the Study

Primary education is the foundation for any system of education. Its main purposes according to Lock head etal (1991:1), are to produce a literate and numerate population that can deal with problems encountered at home and at work and to serve as a foundation on which further education is built.

The purpose of Ethiopian primary education is not different from the purpose indicated above. According to the current Ethiopia's Education and Training Policy, the purpose of the first cycle of education is to enable the students to become literate and numerate and gain basic awareness of environmental and social issues that are relevant to their own surroundings (EETP 1994:16). Further, it is stated in the same document, the primary education should encourage students to become active learner through the use of problem solving approaches, but not students who just memorize information through rote learning.

However, for the past 30 and 40 years, the Ethiopian school curriculum had been heavily criticized for its poor quality, low standard and lack of relevance (Education Sector Strategy, 1994). Other studies such as, the 1972's Sector Review, the 1986's Evaluative Study of the General Education System in Ethiopia and 1988's Contrastive Study of the General Polytechnic Education have confirmed that teachers are totally depend on lecture method of teaching as a result students become passive recipients rather than being active participants.

These and other problems of the education system remained unsolved till the 1994's Education and Training Policy came into existence. In line with the policy statements, the school curricula were gradually changed from primary to secondary educational levels..

As stated earlier, the main purpose of the first cycle of primary education is to enable learners to acquire skills in literacy and numeracy and to raise an awareness of the child about his/ her physical and social environment. To achieve such objectives syllabi were developed for different learning levels and tried out in 107 experimental schools.

One of the primary school syllabi, which were tried between the years 1995 to 1999, was the Environmental Science Syllabus. This syllabus is an integration of contents from the natural science, social science, agriculture, and handicraft and home science education that used to be taught independently.

An integrated curriculum promotes greater interrelation and cross-fertilization of concepts between subjects. Teaching, therefore, centered on themes or issues that crossed subject boundaries (Jenkins, 1975). Integrated curriculum demands a particular style of teaching. Therefore, selection of the appropriate instructional strategies is very important for the achievement of desired objectives underlying the integrated curriculum.

The instructional strategy selected has to be more learner-centered and activity-oriented. Teachers have to try to develop a conducive atmosphere by assisting the learners to gather appropriate information by providing learning guidance and feedback to the learners on their progress towards the objectives and by playing an active role in the learning process.

Development of an integrated curriculum has to pass through a sequence of activities; from the design to the improvement of the curriculum. Improvement of the curriculum is possible if the curriculum is tried out. Stressing this Bathory in Lewy ArieH (1977:104) said that "It is essential to check empirically the instructional material, suggested teaching methods, learning activities and learning equipment before they are used widely in the schools." What Bathory emphasized is that before the large-scale implementation of a new curriculum, one has to make certain that what are intended are effectively in promoting learning.

With this understanding the current Environmental Science Syllabus was evaluated through the formative evaluation conducted from 1995 to 1999. The objectives of the then formative evaluation were:-

- to examine the efficiency of the program,
- to ensure that the newly developed curriculum materials are in line with the new education and training policy,
- to assess the quality and the standard of the newly developed curriculum materials (Formative Evaluation of Tryout of the New Materials of Grade 1 and 5, 1995).

As was revealed in the objectives of the formative evaluation of the try out project, the evaluation comprises only evaluating the quality of anticipations (rationale, syllabus-anticipated instructional activities and learning experience). It leaves the discrepancies between curriculum realities and curriculum anticipations unevaluated.

## **1.2. The Statement of the Problem**

As mentioned in the background of this study, the formative evaluation focussed on the quality of the anticipation of the curriculum leaving the differences between curriculum realities and curriculum plans unevaluated.

The comparison of curriculum realities with curriculum anticipation is possible through implementation evaluation. This is because, although implementation evaluation has different forms, its main intent is to evaluate the extent to which curriculum anticipations become a reality.

Besides, the new syllabus demands students to be active participants in the teaching learning process. It also suggests different methods of teaching which promote students problem-solving capacity. But the schools at which the syllabus is implemented have been criticized for their classroom interactions as highly dominated by traditional method of teaching with the teacher being the sole actor in the classroom. Therefore, it has been found important examine how the new grade 4 Environmental Science syllabus is being implemented in such classrooms.

It is on the basis of this rational that this thesis was made to evaluate the implementation of the grade 4 Environmental science syllabus.

## **1.3. Objectives of the Study**

The main objective of this study is to evaluate the discrepancies between curriculum realities and anticipation related to the classroom interaction. Specifically the study will attempt:-

- to assess whether students-teacher interaction (teaching methods and materials used) match with the specifications of the syllabus;

- to assess the opportunities provided to students to master the objectives and attain the goals of the syllabus;
- to examine how the individual students learning assessed and evaluated.

To accomplish the aforementioned objectives, the following questions were formulated.

1. What curriculum materials are available in the school?
2. How are the curriculum materials distributed?
3. To what extent do teachers use the methodologies suggested in the syllabus?
4. To what extent do teachers use the instructional materials suggested in the syllabus?
5. How is the learning of individual students assessed and evaluated?
6. How are students involved and encouraged to master objectives and attain the goal of the syllabus?

#### **1.4. Significance of the Study**

Evaluating curriculum realities by comparing with curriculum anticipations and identifying the factors which are the causes of the discrepancies have a great importance in maintaining the effectiveness and quality of the new educational program in action. Supporting this Hogwon in Lewy ArieH (1977:150) mentioned that

"The effectiveness and quality of an educational program are determined by the interaction among (1) the nature and appropriateness of the program, (2) how it is used by teachers and students, and (3) under what conditions it is used. Therefore, the continuous improvement of an educational program is undertaken not only at the formative and tryout

stages but also during and after the large-scale implementation stage."

Moreover, the findings of this study are expected to have the following values:

1. It is worthwhile to analyze the discrepancies between the curriculum realities and anticipations of the syllabus so that curriculum developers and other concerned bodies will take corrective measures to narrow the gap between the realities and anticipations.
2. Identifying the causes for the differences between the curriculum anticipation and the curriculum realities. It helps curriculum designers and concerned bodies to see why the curriculum anticipated have not been realized.

#### **1.5. Delimitation of the Study**

The research work is delimited to six weredas of Addis Ababa City Administration. It is confined to grade four Environmental Science Syllabus implementation. Besides, the investigation of the syllabus implementation status, this research work focuses on instructional actions. Other aspects of implementation evaluation such as rational, goals and content are not included in this study.

The study is also limited particularly to government primary school. Public and private primary schools were not included in this study.

#### **1.6. Limitation of the Study**

Since the study is not conducted at the national level, the findings, which would have been the basis for fair generalization, are not free of limitation. The

basis not undertaking a national-based research is due to, mainly, to the time factor.

Furthermore, since the study does not include the implementation of grades 1, 2 and 3 Environmental Science Syllabi, the findings may not reflect the situations of these grades. The reason for not including these grades is also due to time and money constraints.

### **1.7. Definition of Terms**

1. **Evaluation of the Implementation Process:-** This refers to the implementation evaluation which is the evaluation of curriculum realities such as the actual instructional activities against anticipated instruction actions
2. **Environmental Science Syllabus:** - This refers to the grade four Environmental Science Syllabus designed after the 1994's New Education and Training Policy.
3. **First Cycle Primary School:** - This is the lower level of the primary education offering basic primary education for children from grades 1 to 4.
4. **Curriculum Anticipations:-** This is planned curriculum referring to content, instructional actions and learning experiences.
5. **Curriculum Realities:-** This refers to the implemented contents, instructional actions and learning experiences.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

The main purpose of this chapter is to provide a theoretical base for the study by examining the literature related to integrated primary science, which is known as Environmental Education.

This Chapter is organized into three sections. The first section looks at and takes general view of curriculum implementation evaluation. The section argues that curriculum implementation evaluation is essential because it enables us to identify the differences between curriculum anticipation and realities.

The basis of Environmental Science are Integrated Science and Environmental Education. In view of this, the second section focuses on the main intents of Integrated Science and Environmental Education.

Section three surveys some Environmental Science syllabi including the grade four Environmental Science syllabus which is the subject of this study.

#### **2.1. The Concept of Curriculum Implementation Evaluation**

##### **2.1.1. The Importance of Curriculum Implementation**

Many curriculum initiatives have failed because curriculum workers have not realized the importance of the process of implementation. Of course, the process of curriculum development is a challenging tasks, however, it is dangerous to think that the most important work have been completed once the design and dissemination have been finalized. The success is highly determined by the degree to which it is workable in practice its implementation. In this regard Pratt (1980) have said that:

"Curriculum change is a political process, a question of "who gets what, when and how" perhaps because its political nature, the question of implementation has often been ignored by curriculum writers and left to the administrative and management specialists, who have studied change and innovation extensively Pratt (1980:426).

Pratt alleges that curriculum authors do not always give attention to implementation to the extent that they should. The implication of this is that the importance of curriculum implementation and its determinative influence on the success of an innovation should be realized not only by curriculum writers but also by all those having interest in the curriculum.

Different educators give different meaning for implementation. Lewy (1977:22) assume implementation as the open use of program throughout an entire school system.

For Stern (1992:46), implementation is the translation of curriculum in to classroom reality.

Fullan and Pomfret (1977:336) define implementation as the actual use of an innovation or what an innovation consists of in practice.

Carl E. (1995:167) assumes implementation as the application phase of core syllabi and school's broad curriculum, every subject curriculum and every lesson unit/lesson.

Schubert (1986:42) regards curriculum implementation as a system of engineering that takes design specifications through various channels to the teacher and classroom.

Although the meaning given to implementation by different educators seem to have differences, all have a common agreement, that implementation is a stage

at which an innovation is changed in to practice at a classroom level. But implementation should not be referred as a mere carrying out of instruction. It should emphasize development that takes place within instructional learning situation.

Therefore a definition given by Leithwood (1991:446) which read as: "implementation is a process of behavioural change, in directions suggested by an innovation, occurring in stages, over time, as obstacles to such change are overcome." seems to sum up all the above definitions. It is this definition that the writer is going to use in the development of this thesis.

We need to study the process of implementation. The reasons as to why we study implementation as illustrated by Fullan and Pomfret (1977:336-339) are the following.

1. We do not know what has changed unless we attempt to conceptualize and measure it directly.
2. We need to understand some of the reasons why many educational change fail to become established.
3. If we do not study it, we ignore it, or else we confuse it with other aspect of the change process such as adoption (decision to use an innovation), or even we can confuse the determinants of implementation with implementation itself.
4. Unless we examine it separately, it may be difficult to interpret learning outcomes and to relate these to possible determinants.

All the reasons illustrated by Fullan and Pomfret imply that, to ensure the success of an innovation, its implementation should be studied. This is because the success or failure of an innovation very much depend on its implementation.

### **2.1.2. Curriculum Evaluation**

Although it should take place on a continuous basis, evaluation is an important following phase in the process of curriculum development. Carl.E (1995:171) by citing Steyn (1982:101) distinguished between pupil-oriented evaluation and curriculum evaluation as follows:

"Pupil-orientated evaluation is mainly adapted to determine the progress of learners on the way to goal realization in respect of the lesson, series of lessons, or the annual program, while curriculum evaluation determines to what extent the objectives of the curriculum have been achieved" (p:177)

According to Carl.E pupil-oriented evaluation is in reality only one aspect of curriculum evaluation as the focus in respect of the latter also falls on other aspect. Regarding to this Marew (2000:52) indicate that, evaluation is a broad perspective which is general judgement as to whether the change as manifested through the process of assessment and measurement, was a desirable one. Therefore pupil-oriented evaluation is one aspect of curriculum evaluation which refers to the more restricted activity of determining students achievement during implementation of the curriculum in the schools, while curriculum evaluation is a broad perspective which include pupil-oriented evaluation and other aspects of the broad curriculum.

Curriculum evaluation therefore comprises the evaluation/value determination of the effectiveness/functionality of all curriculum actions and the curricula which emanate from them.

Human (1986:24-32) as quoted by Carl.E (1995:178), set out a good description of the field of curriculum evaluation. According to Human curriculum evaluation comprises the description and judgement of curriculum anticipation and curriculum realities. As far as the anticipations and the realities are concerned, we need to distinguish between curriculum process and curriculum outcome. The latter consider curriculum goals as anticipation and curriculum outcomes as realities while the former consider curriculum plans, including syllabi and curriculum material as anticipation and curriculum events including instructional acts and learning opportunities as realities.

This study is concerned about the curriculum process. The aspects of curriculum which must be evaluated are by nature very comprehensive. However, this study focuses only one aspect of the curriculum - the curriculum process.

Curriculum evaluation needs models which may supply meaningful guidelines for the process which is undertaken. There are many models of curriculum evaluation. Models do in fact differ and are of value in specific circumstances. However, as Lewy (1977:10) alleged that models do not necessarily reflect alternative approaches to evaluation; rather, they complement one another. They shift emphasis from one focus or role of evaluation to another.

Whatever the model used in a certain study, the data obtained must however still be interplacated in relation to the specific context. However, it is very important to determine specific models which may be followed.

Lewy (1977:10-13) CarlE (1995:183) set out the following three points of departure which are normally valid in the determination of a model.

- Achievement of desired outcomes: which seeks mainly to determine the level of success of students or individuals. The curriculum developer will therefore determine to what extent the outcomes correlate with the expectation, which have been set.
- Assessment of merit: seeks to determine the merits of a specific entity according to a given standard.
- Decision-making model is primarily involved with future planning.

These three approaches (models) are not mutually exclusive but they link up with one another. Components of one model may even be encountered in another. It depends on circumstances and approaches as to what model may be followed.

### **2.1.3. Implementation Evaluation**

Some scholars use different terms for implementation evaluation. For example, Sergiova (1974:541, as quoted by Carl AE, 1995:191) uses the term 'discrepancy evaluation.' Stake (1967:532) refers to this form of evaluation as 'finding the congruence between intents and observations.' However Carl AE 1994 give clear definition for it as follows. "By implementation evaluation is meant evaluation of the extent to which curriculum anticipation become a reality" (p.191). That means, implementation evaluation is a comparison of curriculum events such as content, instructional actions, learning experiences with curriculum plans (anticipated curriculum events).

Because implementation evaluation comprises only the comparison of curriculum realities with curriculum anticipation, or rather evaluation of curriculum realities against curriculum anticipations as criteria, it leaves an evaluated equality of anticipations (rationale, aims, syllabus anticipated, instructional activities and learning experiences). This study is also implementation evaluation, because of the aforementioned reasons: the study focuses on the discrepancies between anticipated and observed curriculum events.

Although implementation evaluation does not evaluate the anticipations, it has its own purposes.

According to Leithwood (1991:445), purposes for implementation evaluation are:-

- assist in making accountability and management decisions
- serving research and development functions

When implementation evaluation is designed to provide information about the practice implied by the innovation by identifying those conditions under which implementation is likely to succeed, including problems likely to be encountered under conditions available for their resolution, determining the feasibility of innovation implementation including the capabilities required of the implementers it assists with management decisions.

When evaluation attempts to explain the innovation's success and failures it's primarily a research and development function. Information about success and failures of innovation helps, given disappointing outcomes, for example, to determine whether the innovation was fairly tried and did not work or whether it might work but not adequately tried. It may also try to explain causal relationship

between components of the innovation and effects on student achievement and to understand the relationship of the innovation to the situational variables.

Accountability, management, and research are not independent functions. A decision maker might profit from information relevant to several or all these purposes at the given time.

To sum up, as Fullan and Pomfret (1977:335-397) indicate after analyzing a variety of curriculum implementation evaluations, such evaluations are aimed at the following aspects:

- the learning content and curriculum material;
- curriculum resources and organizational matters;
- the knowledge and understanding of the curriculum on the part of teachers;
- the behaviour of teacher (instructional actions);
- the value judgement handed down by teacher is regard to the curriculum.

## **2.2. Integrated Science for Primary Schools**

### **2.2.1. The Concept of Integration**

Integration is a difficult concept to define. Ingram. (1979), has shown why the concept of integration is difficult to be defined as follows.

"There is no one, generally accepted view of the nature integration. Its uncertain function in the structure of knowledge, the different degrees to which it can be applied, the many ways in which it can be practiced, its variable status in the curriculum, its changing relevance for different age groups, the range of attitudes towards it, all render it a difficult concept to define" Ingram. (1979, 22).

As Ingram has shown, integration has varied characteristics. One of its characteristics is the difference in the degree of its application. As Skilbeck (1972) in Ingram B indicated there are three levels of integration. The first is

integration at the subject level. The second is that of interdisciplinary cooperation in which the logical coherence of separate disciplines is respected. At the third level the disciplines lose their separate identities and are replaced by a new form of the organization of knowledge based on psychological rather than logical principles.

The other characteristics according to Ingram (1979) is its changing relevance for different age groups. For example, the objectives of teaching integrated science at primary, junior secondary, and senior secondary level are different. According to Francis and Dyasi (1971), the objectives of primary science are: to introduce the pupil to the world of science by exploration and experimentation according to his interest. Furthermore it is to develop the pupil's ability to observe things around him more closely so that he can perceive relationships among objects and phenomena. While at the junior secondary level the exploration begins to take more systematic forms. As they consolidate the work of the primary level, the pupils are introduced gradually and practically to "great ideas ". At the senior secondary level the class might consist of future science teachers, scientists or science workers for whom the foundations for a future in science are being laid.

Hence integrated science for primary schools may not be relevant for secondary schools. Beside, the extent of integration may vary. For example, integrated science for primary schools could be re-combination of several subjects (biology, chemistry, earth science and physics) into a single subject (integrated science). While integrated science for secondary schools could be re-

combination of two subjects into a single (aspects of chemistry and physics into physical chemistry).

Despite the confusion on what is meant by integration, educationists bother to try to integrate courses. Their key intent is to provide a unified view.

d'Arbon in Cohen (1971), following an extensive review of the literature summarized what integration of science is in this way:

"Integration, when applied to science courses, means that the course is devised and presented in such way that students gain the concept of the fundamental unity of science, the commonality of approach to problems of scientific nature; and are helped to gain an understanding of the role and function of science in their every day life, and the world in which they live. An integration of science course eliminates the repetition of subjects from various sciences and does not recognize the traditional subject boundaries when presenting topics of them (p10).

d' Arbon's interpretation reflects the concept of integrated science teaching as based on the parallel assumptions that the universe has an inherent unity, and science as an attempt to provide an understanding of the natural world, has a unity of purpose, content and process. Further, integration may then be regarded as the removal of boundaries between subjects: subdivisions or categories.

The 1968 congress on the Integration of science teaching held in Droujba, near Varna by Inter-Union Commission on Science Teaching (ICSU), has given the following conclusions on the purpose and the meaning of integrated science:

"1. The teaching of integrated science contributes towards general education, emphasis, the fundamental unity of science and leads towards an understanding of the place of science in contemporary society. It avoids unnecessary repetitions and permits the introduction of intermediate disciplines.

2. A course of integrated science should emphasize the importance of observation for increased understanding of the environment: it should introduce pupils to logical thinking and scientific method.
3. As it may be necessary in an integrated course to omit some details it is essential that the content of the course should be judiciously chosen. It must be carefully compiled by collaboration between the different teachers and other specialists: New trends in integrated science teaching (1971:43).

From d'Arbon's review, the Inter-Union Commission on Science Teaching conclusions and other educationists (Blum 1991, Batts, 1991, Francis, and Dyasi, 1971,) it is clear that the definitions of integrated science teaching contain the educational aim of "helping students to gain an understanding of the role and function of science in their everyday lives and the world in which they live". They also signify that the environment is a typical constituent of integrated science program.

Blum, (1991) stressing the importance of the involvement of environmental elements in integrated science program has said that, "Integrated science teaching is not completed without environmental involvement, environmental involvement makes it more meaningful". (p.167).

### **2.2.2. Content Selection for Integrated Science Teaching**

As Rutherford and Gardner (1971), Jacobson (1968) pointed out, the scientific content of a given integrated science course may appear as a consequence of how the course is designed. In practice, the final selections usually involve both prior decisions and decisions made on the basis of organizing principles used to guide the shaping of the course. Further, they have pointed out four kinds of integrated science courses.

1. Those that integrate the subject matter from various subdivisions of a major sciences.
2. Those that blend two or more sciences in similar proportions.
3. Those blend two or more sciences together, but with a strong bias towards one.
4. Those that select contents as described in any one of the above three categories, but in addition, integrate materials from the non-sciences.

In the 4th category are courses on integrated science courses around questions of social relevance and utility of science. Most primary science education in the world fall in the fourth category.

The contents selected for a practical integrated science course depend upon the organizing principles. In recent years, contents from Environmental issues are taken as core integrating elements for primary sciences. These contents have helped to bring further integration in science education which make science education at a primary level to be more meaningful and practicable.

Environmental involvement in integrated science helps to take the learners into the surrounding environment where they collect data on changes that occur, map features of the surroundings, measure observable quantities and make judgement about the quality aspects of the environment.

Thus contents from different subject areas which can permit the involvement of Environmental elements, can be integrated by selecting appropriate themes such as Our family, Energy, Our Earth, Our Needs etc.

### **2.2.3.The Need to Integrated Science Teaching**

There are many arguments on why science teaching in primary education should be integrated. According to Blum (1991), Galtthorn and Foshay (1991), basically two cluster of arguments are used to advocate integrated science teaching in primary education. On the one hand are the epistemological and methodological arguments which see science as a unity with distinct substantive and syntactic structure. On the other hand are those emphasize the need to integrate the teaching of science for psychological, pedagogical, societal and practical reasons.

Ingram (1979) has classified, the need for integrated science teaching into three headings and described them as epistemological, psychological and social. According to Ingram epistemological uses are concerned with aspects of knowledge, psychological uses with aspects of learning, and social uses with certain aspects of classroom interaction and school-community relationships.

Blum (1991), Galtthorn and Foshay (1991) and Ingram (1979), all argue that science teaching in primary education should be integrated, because they have epistemological, psychological and social advantages.

From the epistemological point of view, curriculum integration can help the teacher in three ways in dealing with knowledge. First it can help him to cope with changes in knowledge; secondly it can help him to interrelate different areas of knowledge. Third, it can help him to make sense of, and find purpose in, knowledge as a whole.

From the psychological point of view, science teaching in primary education should be integrated to make the curriculum more consistent with the

condition of learning. That is, it provides opportunity for organizing curriculum materials on psychological ground. It has also close links with the concrete experience and practical situations of every day life and it is highly effective in motivating children to learn.

Piaget's work has also supplied arguments for integrated science teaching. As Blum (1991) indicated, since most students at the elementary level are in the concrete operational stage development, science teaching at this level should be based on identifiable objects but not on abstract ideas.

From the societal point of view, science is a central factor in the development of nations. It become relevant to development when people realized its importance in their lives and developed positive attitudes towards science as a developmental tools. Integrated science teaching therefore should treat interaction between scientific research and the agricultural, technological and social problems which arise in the developing village, the growing city, and emerging nation.

The increasing technological culture magnified environmental problems which demand interdisciplinary solutions. It is, therefore, only natural that environmental problems are dealt with more often and cover a wider context in integrated science programs than in disciplinary science courses.

The arguments, that we have seen up to this point, signify the importance of integrating science teaching. However, because there are only a few evaluation studies published, it is difficult to support the arguments with emperical evidence. But, the growing number of integrated science projects, shows that an integrated approach to science education is popular with curriculum developers.

The most comprehensive study that confirmed the need to integrate science teaching was of Aikin. As Mallery (2000) indicates, "Aikin's eight year study demonstrated that graduates of thirty experimental high schools performed better on both academic and social measures than did matched peers from a traditional subject-centered program" (p.8).

According to Mallery, the most dramatic Aikin's finding was that graduates from six high schools that used a variety of integrated approach achieved higher ratings than all other students in the research project.

### **2.3. Environmental Science Education**

#### **2.3.1. The Essence of Environmental Education**

Environmental issues emerged in the late twentieth century as a major focus of international concern and activity. Understanding the causes and impacts of global environmental change causes the environment to become a serious issue.

Between 1972-77 a series of conferences organized by United Nations were held. In 1972 in Stockholm, Sweden, in 1975 in Belgrade and in 1977 in Tbilisi, Georgia. The conferences made recommendations and guide lines. According to Gronvall (1994), among the recommendations of the 1975 conference was the establishment of the United Nations Environmental Program (UNEP). The recommendation of the 1977 Tbilisi's conference was highly significant in the development of environmental education. It was the starting point to systematize and co-ordinate the global program in Environmental education world wide.

In fact, it was in 1970 in Nevada, that the first definition of Environmental education was drawn up. Neal and Plamer (1990) have put the definition by citing Nevada's conference as follows.

"Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision making and self-formation of a code of behaviour about issues concerning environmental quality" (p.2).

According to the definition, the word 'environment' encompasses two basic facts: the biophysical and the socio-cultural. GronVall (1994) have explained that the biophysical facts of environmental education comprise the biotic and abiotic factors. The later aspect includes factors such as temperature, humidity, rain, soil, characteristic. While the former includes the living organisms, micro organisms, plants and animals including man.

On the other hand the socio-cultural environment comprises every thing around us which is developing by man through his tools, skills and social institutions.

Neal and Palmer (1990), GronVal (1994) and Dyasi (1979), have indicated that, based on the above accepted definition of environmental education, the contents that can be selected should serve the following objectives considered as, the goals of environmental education.

1. To foster clear awareness of and concern about economic, social, political and ecological interdependence in urban and rural areas;
2. To provide every person with opportunities to acquire the knowledge,

values, attitudes, commitment and skills needed to protect and improve the environment;

3. To create new patterns of behaviour of individuals, groups and society as a whole towards the environment.

From the definition and the goals of environmental education it can be clearly seen that integrated science can make a special contribution towards it. Integrated science portrays the scientific aspects of viewing one's environment, basic understanding. With that understanding, individuals become aware of the needs and problems in the environment.

### **2.3.2. Similarities between Integrated Science and Environmental Education**

The similarities between integrated science and environmental education are very apparent both in content and learning methodologies.

#### **Content**

In section 2.1.2. of this chapter, we have seen that, the content of integrated science is presented in an integrated fashion through the adoption of themes such as the nature of matter, energy and its transformation, ecology, nature and properties of living things and others. As Dyasi (1979) indicated, in addition to these themes, several integrated science projects include studies of water, including pollution, petroleum, cultural heritage, and shelter (e.g. the Australian science education project). The projects also include studies of the atmosphere, landforms, economics, aesthetics, ethics, and the built environment (e.g. some project in United Kingdom), biological, agrotechnical, cultural, economic, and social aspects of agriculture (e.g. Agriculture as Environmental

Science in Israel). Man and his surrounding environment, man and natural resources, man and universe (e.g. ALECSO project in the Middle East) are also embraced in the science project study.

On the other hand, in 1971 the International Council for Conservation of Nature and Natural Resources (IUCN) suggested an environmental education curriculum which would include the following concept groups: The physical environment - planet earth, energy flow, atmosphere, climate and meteorology, lithosphere, landforms and soil, surface water, ocean; living things - general ecology, populations and behaviour; and human activities - social organizations, production systems, economics, cultural, historical and aesthetic conditions, controls and planning Dysai (1971: p113).

Since an ecological, and therefore a scientific base is adopted in environmental education, it can be argued convincingly that its content would bear close resemblance to that of integrated science.

### **Learning Methodologies**

As we have seen in the previous discussions the aims of both integrated science and environmental education is to help the learner to understand his environment. The learning methodologies they adopt as well as the instructional resource they utilize could not be different. For example, according to Gronvall (1994) and Dysai (1971), both use activity methods extensively. In addition they use descriptive and analytical systems as well as, informal and experiential situations and two-way communication methods. Learning techniques include the use of measurement and monitoring, field trips (for studies of animal behaviour, soil and vegetation, lakes, streams and estuaries patterns of land use, and for

development of sensitivity to different environments); outdoor areas such as botanical and zoological gardens, agricultural and industrial areas, museums, and nature trails; mapping e.g. pictorial representation of concepts and graphs.

Of course, the methodologies and resources already mentioned are not the monopoly of integrated science and environmental education. The methods are known by modern methods of teaching as learner-centered aiming at helping the learner to acquire the required knowledge, develop skills and values through active participation. Therefore, most of learner-centered curriculum uses these methodologies and resources. What is apparent here is that both integrated science and environmental education do not have significant differences in both learning methodologies and contents.

### 2.3.3. Integrated Environmental Science

In section 2.2. of this chapter we have seen that integrated science and environmental education are very similar both in content and learning methodologies. It is these similarities that give rise to environmental science. Environmental science, is an emerging relationship between integrated science and environmental education presented diagrammatically by professor Blum at the Nijmegen conference as indicated in the figure below Dyasi (1979: 114).

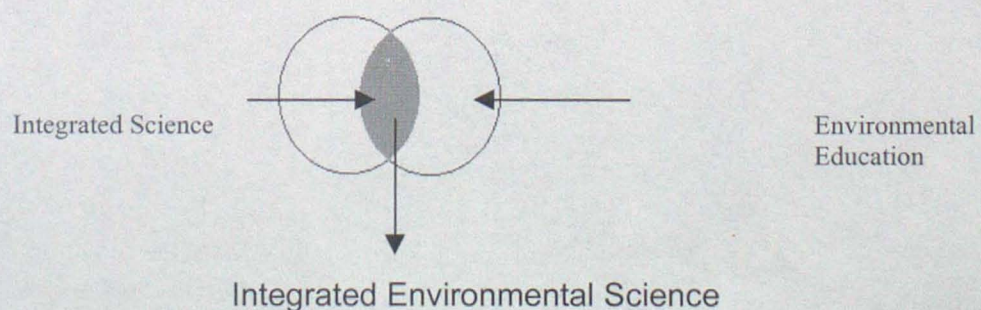


Figure 1: Relationship of Integrated Science to Environmental Education

As the diagram shows, integrated environmental science is a common point between integrated science and environmental education. That is the contents of environmental science are those contents equally shared by integrated science and environmental education. Moreover, the diagram shows, there are aspects of integrated science which are not of particular relevance to environmental education. But, as we have seen in the previous sections of this chapter, there are no integrated science contents which have significant difference from the contents that of environmental education.

From the figure, it is clearly seen that, the common contents of integrated science and environmental education are very few. Indeed, as Dyasi (1979) discussed, if integrated science programs include social and aesthetic aspects of living, they would share a very important characteristic with environmental education.

Those who are adherents of environmental education Szokolay (1980), Schneider, (1977), McInnis, (1975) view that all subject matter is environmental, which implies all contents of integrated science are also contents of environmental education.

If we examine syllabi of primary education of different countries we can find different situations. For example, primary science syllabus in India is prepared under the title of Environmental Studies. According to the Indian document, "National Curriculum for Elementary and Secondary Education" (NCERT, 1988) at the primary stage, during the first two years, the study of science will form an integral part of environmental studies. In class 3 to 5 it will be one of the two parts of environmental studies-one devoted to science and the other to social studies.

This revealed that, most of the contents of the Indian Environmental Studies syllabus at the lower primary education (class 1 and 2) is from natural science. In the next grades (3-5) some contents from social science are included and science will take only one part.

In Israel, primary science, is given as Environmental Science, which consists of a good deal of Biology as a basic science and Agriculture. It also treats some societal and cultural problems Blum. (1991:163).

In Africa, there are different syllabi for the teaching of science in primary schools. For example, in Botswana, Lesotho, Swaziland and Tanzania primary science education is given by integrating the physical and life sciences. In Kenya and Zimbabwe, science in primary schools is given by integrating physical and life sciences with agriculture. In Uganda and Malawi it is given by integrating physical and life sciences with Health education and Agriculture. In Zambia primary science is given as Environmental Science. (Bude and Lewin 1997).

Blum (1991), gives the following conclusion concerning those curricula, which have the adjective "environmental" in their name. It read as follows.

"Societal concerns are central to practically all curricula which have the adjective environment" in their name. These curricula usually favor a problem-centered approach and often treat social, legal, political, cultural and aesthetic aspect as well as science" (p.166).

From all the above discussion one can easily conclude that what ever the title of the syllabi are, be them environmental studies or environmental science, their contents are from integrated science and environmental education. Indeed all syllabi may not have equal contents from both integrated science and environmental education. Some may have more contents from integrated science

little from environmental education (as in Israel Environmental Science). However, the emerging trend in primary science education is an integration of science and environmental education.

#### **2.3.4. Environmental Science in Ethiopia Context**

Environmental science as a subject of primary education was first introduced in the Ethiopian education system during the 1980's experimental program of the general Polytechnical Education. The program was designed for the lower primary (classes 1-3). According to the then educational policy-education for production, scientific research and political consciousness, the general objectives of the environmental science program was:-

- to help students to study and understand their natural and social environment;
- enable them to analyze the natural and social environment with respect to political, history, geography, natural science education;
- to help the students to acquire knowledge and skills of preparing clean house, food clean water and whatever related to their daily life;
- to enable them to develop skill of careful observation of their environment, describe it using simple scientific method and report it.
- to prepare them for the courses political education on, history, geography and biology given in linear approach after grade 4. (The General Polytechnic Education (1-8) Syllabus ,1980:215)

According to the above mentioned document, the contents of the then environmental science syllabus were, political education, history, geography, health education, home economics and natural science.

The main objective of the syllabus was to introduce the students with their social environment (ibid :216). It is because of this main objective, that the contents of the syllabus became highly dominated with social studies especially political education. However, the program of the Polytechnical Education was terminated at its experimental stage before it was introduced to the formal education system due to reason not clear for the writer of this thesis.

Later on, after the change of the political system in the country, the current Education and Training policy was issued in 1994. The policy demanded a curriculum revision in accordance with educational objectives set out in the Education and Training Policy. As it is stated in the Education Sector Strategy document (1994 :14), the general educational objective is to produce citizens who are numerate and literate, and have the basic knowledge about themselves and their environment. According to the policy citizens will have the ability to recognize and solve individual as well as communal problems appropriately, and be productive members of the community. They will have the awareness to utilize their environment rationally and the attitude to interact with their fellow citizens in a civil and tolerant manner, the policy stipulated.

As is suggested in the same document, the content of the curriculum will be revised according to the general educational objectives by making it relevant to the needs of the community and realistic to the objective situation of the country. Specifically, the contents of science should emphasize application and will be properly linked with day to day activities of the students.

In relation to the teaching/learning process, the same document has indicated that, the teaching/learning process shall emphasize problem solving by

making the curriculum relevant and by adopting appropriate teaching methods (p.15).

Based on the goals and objectives primary education the learning areas (subjects) to be offered at different levels of education were selected. According to the policy, the educational structure is 8-4, that is 8 years of primary and 4 years of secondary education. Each level of education was divided into cycles. That is first cycles primary (1-4), second cycle primary (grades 5-8), first cycle secondary (grades 9 and 10) at which general education will end and second cycle secondary (grades 11 and 12) which is a preparatory for third level education.

At the beginning of the current policy, the learning areas selected for the first-cycle primary education were, Language, Mathematics, Natural science, Social Science and Aesthetic Education. Later on, in 1987, the learning areas have become Language, Mathematics, Environmental Science and Aesthetic Education.

The main change is on primary science education, that is substituting the former natural science and social science subjects by Environmental Science.

The writer of this thesis could not find documented evidence why this substitution was made. However, from the main intention of the policy, the substitution seems imperative. This is because, as can be seen from the policy statement, environmental involvement is highly recommended in the learning areas of primary education.

The current environmental science syllabus (grades 1-4) primarily an integration of natural science and, elements of the physical and social

environment. Specifically the grade 4 Environmental science syllabus contains contents from physical sciences, life sciences, agriculture, home economics and handicraft.

### 2.3.5. Grade 4 Environmental Science Syllabus

There are different definitions of syllabus, by different authorities. For example Lamm in Taylor (1977) have defined syllabus as a translation of aims into language of subjects. Esha (1991) has put the definition of syllabus by citing Chandler (1985) as the organizing document in areas of instruction. Dubine and Olshtain (1986) defined syllabus as one of the important curriculum tools through which curriculum developers convey information to teachers, learners, textbook writers, directors, etc.

Although the definitions given by different scholars seem to have differences, they all agree that the syllabus is a valuable document that is used as a reference material in instruction. The syllabi that are prepared by ICDR have also the same purposes. They are used as a reference material for educational objectives, contents, determination of instructional materials, the teaching learning strategy and means of evaluation.

The grade 4 Environmental Science syllabus, as other syllabi prepared by the institute, contains rationale, objectives, organization of subject matter, method of teaching, teaching materials and evaluation.

This syllabus, has been tried and evaluated. As the 1998 formative evaluation report indicated the findings regarding the syllabus are the following:



- The suggested teaching aids in the syllabus are in most cases were appropriate, possess varieties more or less adequate and relevant to the respective unit.
- The suggested teaching methods in the syllabus for each unit are found to be appropriate have variety, adequate and relevant.
- The suggested assessment techniques that are provided (listed) for each unit are appropriate, possess varieties, adequate and relevant to the respective unit.
- The suggested periods for each unit are adequate to cover the topic FENL4/8 (1998:66-68).

**Rationale**

The rational of the Ethiopian Environmental Science syllabus for lower primary (1-4) has been stated as follows.

"የአካባቢ ሳይንስ ተማሪዎች በአካባቢያቸው የሚገኙ ማህበራዊና ተፈጥሮአዊ ክስተቶችን፣ ሂደቶችን በተሟላ ሁኔታ ለማወቅ የእርስ በርስ ግንኙነታቸውን ለመረዳትና የእነዚህን እውቀት ለሰው ልጅ ጥቅም ለማዋል የሚረዳ ትምህርት ነው። ይህ የተቀናጀ የአካባቢ ሳይንስ ትምህርት በተለያዩ የትምህርት ዘርፎች የሚሰጡትን እውቀት፣ ልምዶች ክህሎት፣ ችሎታዎች፣ ዝንባሌና አመለካከት በማዋዕድ አላስፈላጊ ድግግሞሽን ለማስወገድ ምቹ ሁኔታዎችን ይፈጥራል። በመሆኑም ተማሪዎች በየደረጃቸው አካባቢያቸውን ማጤን፣ ማወቅ፣ መገንዘብ፣ መመዘን፣ መገምገም፣ መለወጥ፣ ማድነቅ፣ በአግባቡ መጠቀምና መንከባከብ እንዲችሉ የሚረዳ ትምህርት ነው።" (ICDR, 1990:3)

As is stated in the Amharic version, environmental science is an integration of knowledge, skills, experiences, attitudes and outlooks found in different subjects by avoiding unnecessary repetitions. It enables the students to know and understand the process and the interaction between physical and social environments and shows them the way to use these process and interactions for

their life. Furthermore, it enables the students to observe, investigate, know, understand, evaluate and use their environment appropriately.

### **Objectives**

The objectives of environmental science syllabi for the first-cycle primary education in general, and the grade 4 syllabus in particular are stated as a means through which the goals of the curriculum are translated into operation. They are written in specific terms specifying the intended learning outcomes. For each unit of learning, unit objectives are clearly stated. In each grade there are grade level objectives. For example, the grade 4 environmental science objectives are stated as follows.

Students will be able to:-

- know problem solving methods and develop skill of solving problems.
- know what nutrition and nutrient are and understand their use in their daily life;
- understand what digestive system, and process of digestion and healthy feeding are;
- understand what blood is and how it circulate;
- know the cause and the way to prevent them from disease;
- practice programming of time, money and labour;
- understand what property is and able to take the necessary care;
- know what plants are, their growth, main parts and way of reproduction;
- know what domestic animals are, their behaviour, reproduction and the necessary care they need;
- gain knowledge and understanding of heat transfer;
- gain knowledge and understanding about pressure, magnet energy and transfer of energies;
- know what chemicals, compounds, atoms are; understand their type, characteristics and use;
- know the conditions that are necessary for a country to be said a country;
- able to locate Ethiopia and her neighboring countries using scales and map of Ethiopia;
- understand Ethiopian natural and social characteristics;

- gain basic knowledge about the people of Ethiopia and their culture, development, state structure and different thoughts;
- understand language and culture are the basic factors that identify a country;
- contribute for the development of their country;
- develop love for work and participate in practical work according to their ability;
- develop a habit of working in collaboration with their peers based on the knowledge and skill gain in their study ICDR (1990 P:v).

### **Organization of Subject Matters**

The organization of the subject matter, that is the scope and the sequence, as suggested in these syllabi are as follows:

1. Observation and Investigation
2. Man and his living
3. Natural Environment
4. Our country
5. The people of Ethiopia, their culture and their development ICDR (p.ii)

### **Methodologies**

In designing a syllabus, it is obvious that, there is a need for indicating some alternative methods to be used or considered by a teacher during instruction. In this regard, the following methodologies are suggested in the grade 4 syllabus.

- |                           |                   |
|---------------------------|-------------------|
| 1. Explanation            | 8. Song           |
| 2. Question and answering | 9. Role playing   |
| 3. Discussion             | 10. Drama         |
| 4. Debate                 | 11. Invited guest |
| 5. Experimentation        | 12. Observation   |

6. Group and individual work 13. Demonstration (ICDR 1997 p.1-75)
7. Field trips

### **Teaching Materials**

Most syllabi contain a list of essential teaching materials, that are appropriate for effective implementation. Grade 4 Environmental science syllabus contains teaching materials that are considered appropriate for its classroom instruction. The materials are classified in the following groups.

- |            |                                             |
|------------|---------------------------------------------|
| 1. Charts  | 5. Photographs                              |
| 2. Tables  | 6. Samples                                  |
| 3. Posters | 7. Different equipment (Science kit) (Ibid) |
| 4. Maps    |                                             |

### **Evaluation**

Evaluation techniques are one of the elements that a syllabus is supposed to contain. The grade 4 Environmental Science Syllabus suggested the following evaluation techniques to be used in the teaching-learning process.

- |              |                          |
|--------------|--------------------------|
| 1. Questions | 4. Continuous evaluation |
| 2. Exercises | 5. Project work          |
| 3. Tests     | 6. Reports (Ibid)        |

### **Period Allotment**

There are 9 periods allotted for environmental science in a week. Out of these, 6 periods are for classroom instruction and 3 are for practical activities in and out side the classroom. In general 300 periods are allotted in a year, of these 200 periods are for classroom instruction and 100 periods for practical activities in and outside the classroom ICDR (1987:5).

## CHAPTER THREE

### DESIGN OF THE STUDY

The primary aim of this study was to evaluate the implementation process of grade 4 Environmental Science Syllabus. For this purpose both qualitative and quantitative methods were used. Most of the data used for this study were indeed qualitative. The quantitative data were also used to thoroughly analyse and understand the qualitative data. Using both methods in a single study is advisable and in some cases desirable. This fact is also supported by authorities like, Bogdan and Biklen (1982) and Robson (1993).

#### **3.1. Subjects of the Study**

The subjects of this study were 288 grade 4 teachers, 72 directors, 72 vice-directors, 72 department heads and 19584 students in 72 government primary schools in 28 Woredas of Addis Ababa region.

The researcher selected to study the implementation process of grade 4 Environmental Science Syllabus, he is one of the curriculum experts involved at the designing level of the syllabus. These would enable him to have the necessary knowledge and skill the study demands.

Grade 4 Environmental Science Syllabus, is selected, because this syllabus was implemented since the implementation of the new primary education curriculums. But at the early years of the implementation of the new primary education, science for grades 1 and 2 were not given in the form of Environmental Science. This makes grade 4 Environmental Science to be operational for relatively longer years.

Addis Ababa was selected, because the researcher was not able to go far from his permanent working place due to his job obligations.

### 3.2. Sampling Techniques

Purposive sampling technique was used to reach at the representative woredas and schools. This was due to the researcher interest to include primary schools from the periphery of the city.

The use of this kind of sampling is supported by Robson. (1993). According to him, the principle of selection in purposive sampling is the researcher's judgement as to typicality or interest (P:141).

From 6 zones, and 6 woredas who are relatively far from the center of the city and have at least two government primary schools which were not sampled for 1999's summative evaluation of primary curriculum were selected. These weredas were wereda 4, 23, 17, 12, 10 and 27. From these woredas 12 government primary schools were selected randomly. These schools were Dejzmach Balcha Abanefso, Tesfakoheb, Abune Basiliyos, Biruh Tesfa, Berehaneh Zarie, Misrak Ber Number one, Hizbaw Serawit, Mekane Hiwot, Belay Zeleke Number two, Addis Berehane, Gelan Number 1 and Akaki Cherka-Cherk.

From these schools a total of 48 teachers were selected by the use of purposive sampling. 12 directors, 12 vice-directors, 12 department heads in the sampled schools were selected by available sampling techniques.

Twenty four classes were selected by the use of simple random sampling technique. From each sampled classes 3 students were selected by purposive and random sampling techniques. The selection criteria was their classroom



achievement - one from higher achievers, one from average and one from low achievers.

### 3.3. Data Gathering Instruments

For the purpose of this study a total of 5 instruments were prepared. They were

- Focus group discussion for:-
  - teachers
  - students
- Observation check-list for:-
  - classroom observation
  - checking availability of teaching materials
- Questionnaires for:-
  - teachers
  - schools officials (directors, vice directors, and department heads)

**Focus group discussion:** A focus group discussion is an in-depth discussion in which small number of people talk about particular topic under the guidance of a facilitator. In most literatures, this instrument was used to enrich and complement studies like survey and case study. But, in this study this instrument together with observation check list are used as the main instrument. The use of this instrument as a primary instrument in qualitative study is supported by Morgan (1988). According to him this method can stand-alone as a primary method in qualitative studies. It is helpful in answering questions of "how" and in particular "why" people behave as they do (p.10).

The focus group discussion was designed to obtain a relatively reliable data from both teachers and students who are the main actors in the implementation process.

The researcher planned to have two independent focus group sessions in each school. The first session in each school. The first session is with teacher while the second is with students. The participants of teachers' focus group discussion are grade four Environmental Science teacher whereas the participants of students' focus group discussion are grade four students. The number of participants in teachers' focus group discussion are 4 teachers while in students' focus group discussion are 6 students.

The themes for each group were the same. However, the question related to conditions and situation that hindered the implementation were not included in students discussion.

The discussion themes focused mainly on the following:

- use of various teaching methods,
- conditions or situations that hindered the use of various teaching methods,
- use of various teaching materials,
- conditions or situations that hindered the use of various teaching method,
- utilization of various evaluations techniques,
- provisions conducive classroom environment for students learning and students involvement in their learning.

**Observation Check-list:** These instruments are the second major instrument for this study. There were two observation check-lists. The first was designed to

examine the extent to which teacher's use various methods of teaching, teaching materials and evaluation techniques, and their ways of providing opportunities to their students in mastering the objectives intended by both the syllabus and teacher's guide during the teaching-learning process. This observation checklist was adapted from Yolo (1977:201) however, considerable modification have been made so as to make the instrument suitable for the purpose it was designed.

The observation checklist has column for time, , teachers activity, all suggested teaching methods and materials (See Appendix A). In each observation the type of teaching methods and materials used were registered by putting "✓ " mark in the respective boxes. Time consumed in employing a particular teaching method and materials were registered by writing it in the space provided for this purpose. Teacher's and student's activities during the teaching learning process were also registered by the use of "✓" mark.

The classroom observation as indicated above is highly structured. But to make it flexible and be used for collecting ethnographic data, spaces were provided at the end of the instruments. Selected and relevant data were collected by recording the events as they occur.

The second observation check-list was designed to check the availability of teaching materials in the school pedagogical center (SPC). The check list contains a total of 82 teaching materials classified into 7 major groups.

Their availability was checked by looking at all the teaching materials in the SPC. Those available materials were counted and their amount registered. Teachers use of available teaching materials were also registered based on their

extent of use (frequently, sometimes and never at all). The basis used for determining the extent of use were the following.

- If teachers used more than half of the available teaching materials, it was considered as they used frequently.
- If teacher used half and below half of the available teaching materials, it was considered as they used sometimes.
- If teachers did not use any of the available materials, it was considered as they never use (not at all).

**Questionnaire:** Two kinds of questionnaires were prepared for teachers and school officials. Teacher's questionnaire had five parts. They were designed to triangulate the data obtained by major instruments - focus group discussion and observation.

The first part of teachers questionnaire was used to gather data related to teacher's background information, availability and distribution of curriculum materials such as textbooks, syllabus and teacher's guide.

The second part and third parts of the questionnaire were used to gather data about teacher's extent of use of the various teaching methods. (See Appendix C)

The fourth part of this questionnaire was used to gather data about the extent of their use of teaching materials. Teachers were asked to put "✓" mark according to their extent of use of materials (very often, often, sometimes and not at all) in the respective boxes given for each major groups of teaching materials.

The fifth part of this questionnaire was used to gather data about why teachers use some teaching methods very often, often and sometimes, and why they do not totally use some of them. Teachers were asked to select, among the alternatives

given, what they think are the best possible reasons. The alternatives were prepared by the use of literatures like Chan L.K.S and Cole P.G (1994), and teacher's responses during the tryout of the instruments.

The second questionnaire contained three parts. The first part was used to gather information about school facilities (laboratory, SPC) and distribution of textbooks, syllabus, teachers guide and other related issues (see Appendix D).

The second and third part of this instrument are similar to those of the second and fourth parts of teacher's questionnaire respectively.

### **3.4. Try Out of Instruments**

Two government primary schools, Dil Betigil and Entoto Amba which are found in Zone 4, wereda 11 were selected for the field trial. Two assistant researchers who were 3rd year university students taking education course were selected with the help of my advisor. Training on how to administer the instruments were given to them for three consecutive days; but, one of the assistant researchers did not avail himself for the job.

All in all, 12 students, 6 teachers, 2 directors, 2 vice directors and 2 department heads were involved in the tryout.

As it was mentioned earlier the major instruments of this study were the observation and focus group discussion. The focus group discussion was tested to check whether it will adequately serve the purpose it is prepared for or not. It was found effective in serving the purpose for which it was designed. During the tryout the teachers were observed talking freely on the issues raised by showing serious concern. Even some teachers have felt a sense of guilt about the response they give in the questionnaire.

Students focus group discussion was also tested for its effectiveness to gather data from students of grade 4. To this end, they were asked to talk about their learnings by the use of probing questions. For those probing questions which students exhibited misunderstanding, some modifications were made.

In order to test the reliability of the classroom observation check-list used to measure the extent of implementation, the researcher along with his assistant observed four teachers twice. The inter observer agreement was calculated and found to be 86.4 in two classes from Dill Betigil primary school and 86.5 in two classes from Entoto Amba Primary Schools (See Appendix...).

The second observation check-list was prepared to check availability of teaching materials. Before the field trial it was checked by assistant observer and colleagues, if it contains all the teaching materials suggested both in the syllabus and teacher's guide. It was tested for its simplicity to be administered. No problem was observed regarding this instrument.

Teachers' questionnaire was administered to a sample of 8 teachers from two schools. Teachers' questionnaire was administered to a sample of 8 teachers from two schools. It was tested for clarity of the questions, directions it contains and for the information that it can draw from the teachers. During the field trial it was found that 6 teachers returned the questionnaire without responding to the open ended part. However, during the discussion held with those teachers who were not respond on the aforementioned part no significant reason was given as to why they did not respond. Very few teachers said that it would have been convenient to respond if the questions had alternative choices. Based on teachers suggestions, the open ended part of the questionnaire is replaced by alternative choice.

Questionnaire for school officials was tested for clarity of questions, directions it contains and the consistency of the information that it can draw from different schools officials in the same school.

However, during the field trial it has been observed that there were differences between officials regarding availability and distribution of curriculum materials. It was learnt that the differences occurred because the department heads did not have correct informations regarding the aforementioned items.

### **3.5. Data Gathering Procedure**

Before the actual data gathering process preliminary session was made with teachers, directors, vice-directors and department head. The issues discussed were aims and objectives of the study, excepted activities from each of the subjects of the study during data gathering process and clarification on each parts of the questionnaires.

The data gathering process was started by administering observation check-list prepared to check the availability of teaching materials. In this data gathering process, the researcher and his assistant have participated. The researcher asked SPC's head whether each items are available or not turn by turn. The available items were checked by counting. The extent of the teachers use of the available teaching materials was also checked by head's witness supported by documented records.

In measuring the extent to which teachers use of various teaching methods, materials and evaluation techniques, and students activities and teachers activities during the teaching-learning process were observed by the use of the observation check-list prepared for this purpose. Each class was observed twice. Both the researcher and his assistant have actively participated in the observation.

In administering teachers' and students' focus group discussion the groups were divided into teacher's and students' group. This help to ensure confidences and maximize active participation in the discussion.

The participants of teachers' focus group discussion were working into two different workshift. Conducive time to held the focus groups session was the time between the end of the first and the beginning of the second shift. That is in their lunch time.

To avoid the discomfort caused by the inconvenient time and to put the teachers at ease lunch was served.

In the focus group discussion, the researcher and his assistance were involved. The researcher worked as a facilitator while the assistant as recorder or note taker. The researcher introduced the topic for discussion and explained the presence of the tape recorder or note-taker. He also asked the group for permission to tape recording the discussion. He assured them that the information they gave is confidential and for the exclusive use of the study.

During the discussion, the researcher uses the guide to check whether all items have been discussed.

In students' focus group discussion, only students from the observed class were involved. All the participants are from the same shift. To welcome the students and to put them at ease only a drink was served.

### **3.6. Data Analysis Techniques**

The raw data collected were both qualitative and quantitative. The qualitative data were gathered through teachers' and students' FGD, classroom observation and observation of SPC.

Teachers' focus group discussions were recorded in 18 one hour cassettes while students' in 6 one hour cassettes. The transcription process was conducted during the data collection at nights and the week ends. After all the FGDs have been held and transcribed, responses were compared and findings are arranged by FGD topic. The data collected through this instrument was transcribed.

The data gathered through classroom observation by large was ethnographic. A descriptive analysis was made for the events observed in the classroom.

The raw data collected using the observation for SPC, and teachers and schools officials questionnaire were analyzed by the use of computer. The finding obtained through these instruments are arranged in tables in line with the basic research questions.

In analyzing extent of teacher use of various teaching methods, materials and evaluation techniques the transcription of both teachers and students FGD, the descriptive analysis of the ethnographic data, and used. The percentage of relevant data from observation checklist, and teachers and school officials data were used.

To examine the reason as to why teachers use limited number of teaching method, the transcription of teachers' FGD and percentage of relevant data from teachers questionnaire were used. To investigate the reason as to why teachers use of a limited number of teaching materials in addition to the aforementioned data the percentage of the available materials, and teachers use of the available materials were used.

In order to investigate teachers support and student involvement transcription of teachers and students FGD and descriptions of relevant data from classroom observation were used.

## CHAPTER FOUR

### PRESENTATION AND ANALYSIS OF DATA

This study employs both the qualitative and the quantitative research methods in presenting the data. Both research methods employed are aimed at answering research questions that are concerned with evaluating the actual teaching learning process in the classroom.

The chapter is organized into five parts in line with the research questions, data obtained through different instruments are analyzed under the following major themes of the study under consideration.

#### **4.1 Availability and Distributions of Curricular Materials, and Period Allotment**

##### **4.1.1 Availability and Distribution of Curricular Materials**

Educational inputs comprise many aspects such as curriculum, human, material and financial resources. The adequacy and quality of inputs are one of the main determinants of successful curriculum implementation. In this sub-section, data about the provision of curricular materials will be presented and analyzed. Data regarding this issue were gathered through teachers' Focus Group Discussion ( FGD ) and questionnaires for teachers and school officials.

##### **Data from the Teachers' Focus Group Discussion (FGD )**

The sources of the data were twelve independent FGD groups (one group from one school). Their responses regarding the availability of curriculum materials are the same in all groups except one. The responses of the eleven are the following:

- *We do not have syllabus. We have only student's text book and teacher's guide*

The remaining one group members responded as:

- *We did not receive any curriculum materials up to now. We teach using one student's text borrowed from another school.*

Teachers' responses revealed that no school has the syllabus. Most of the schools use only teacher's guides and students textbooks.

As it was indicated earlier, the study attempts to see whether the qualitative data is supported by the quantitative or not. To this effect questions related to the issue in discussion were included both in teachers and school officials questionnaires.

Teachers' response for the question "Which of the curriculum materials (syllabus, teacher's guide and students textbook) do you use for teaching?" is given in table 1 below.

**Table 1. Teachers Use of Curriculum Materials**

	Curriculum Materials Used	Frequency	Valid Percent
Valid	With teacher's guide and student's textbook	39	90.7
	With all	4	9.3
	Total	43	100.0
	Missing Data	1	
	Total	44	100.00

School officials responses with reference to availability and distribution of curriculum materials is given in the following two tables.

**Table 2. Availability of Curriculum Materials**

Curriculum Materials	Availability		Missing Data	Total	Valid Percent	
	Available	Not Available			Available	Not Available
Syllabus	3	32	2	37	8.6	91.4
Teacher's Guide	30	-	7	37	100	-
Student's Textbook	37	-	-	37	100	-



Table 1 indicates that, among 44 teachers, 39 teachers (90.7%) use teachers guide and students textbook for their teaching. Only 4 teachers (9.3%) use teacher's guide, textbook and syllabus for their teaching. In other words, this is to mean that 39 teachers (90.7) do not have a syllabus, while 4 teachers (9.4%) have syllabus.

As can be seen from table 2, among 37 respondents 32 (91.4) have confirmed that the syllabus is not available in their schools while 3 respondents (8.6%) have claimed that there is a syllabus in their schools.

Although seven data were missed, Table 2 shows that teacher's guide and students textbook are available in all (100%) schools. Regarding the distribution, as indicated in Table 3, 80.6% of the school officials have confirmed that the distribution of teacher's guide is 1:1. In reference to student's textbook, 58.3% of them responded that the distribution is 1:1 among the students and it is 100% among teachers.

As can be seen in the above three tables, even though very small differences are observed, teachers' responses were substantiated by the officials' responses.

Both the qualitative and the quantitative data confirmed that the syllabus is not available almost in all schools while other curriculum materials are available.

Appropriate distribution of teacher's guide and students textbook among teachers have been observed in all schools. The distribution of the textbook among students is also satisfactory ( 89% ) and is above 1:3.

To sum up, as Dubin and Olshtain (1986) indicated, the syllabus is a valuable document that serves as a reference material for educational objectives, contents, determination of instructional materials, the teaching learning strategy and means of evaluation. Furthermore, in the absence of student's textbooks and teacher's guides it remains to be the sole dependable reference material that teachers can make the

maximum use. In this regard, the availability of syllabus in schools is very indispensable. On the other hand, since official curriculum materials such as student textbooks and, teacher's guides are the outcomes of the syllabuses, the latter's absence may not seriously affect the implementation process.

#### **4.1.2 Period Allotments**

In any innovation, the minimum required time to implement a program is specified at the designing level. The required time to implement the grade 4 Environmental Science Syllabus, as it is specified both in the syllabus and teacher's guide, is 300 periods a year. From these 200 periods allotted for the classroom instruction, 100 periods were meant for practical activities in and outside the classroom.

However, the data obtained from the teachers' FGD indicated below show differences between the planned and utilized periods.

#### **Data from the teachers Focus Group Discussion ( FGD )**

Teachers' responses regarding the utilized periods are the following.

- *We use 7 periods a week out of which one is used for the radio program.*  
This is the response of most of the participants.

Others response was the following:-

- *We use 5 periods a week out of which one is used for the radio program.*

In fact this was the response of very few groups. But there were still other groups who have a different opinion. The response they gave was the following.

- *We use 8 periods out which one is used for the radio program.*

As can be seen from teachers' responses and the syllabus's period allotment, there is considerable difference between the planned periods and the actual periods utilized. One of the reasons that account for this discrepancy is that the syllabus did

not consider the periods required for the radio program. In some schools where the weekly period is less than seven, the main reason as the teachers indicate was due to lack of information. They were not aware of the fact that the planned periods were 9 in a week. This is because the teacher's guide does not clearly indicate the periods allotted for a week. The researcher has checked that the teachers guide did not indicate the periods allotted for each week. However, it indicates the periods necessary for each content. The sum of the periods was found to be inconsistent with the total yearly period indicated in the syllabus. Therefore, it is too difficult to conclude that the considerable discrepancies due to the absence of the syllabus in school. It can be concluded that the problem was due to negligence and irresponsibility of teachers, school officials and those involved in the preparation of the teacher's guide.

To sum up, since the discrepancies between the planned and the implemented periods are considerable, and they may continue to grow, significant negative effect will appear on the implementation process.

#### **4.2 Extent of Teacher's Use of Various Teaching Methods**

To bring about the desired learning objective, it is necessary to employ various methods of teaching for the teaching-learning process. The use of teaching methods which give much more emphasis to the needs of the students is important for implementing the syllabus such as Environmental Science which demands greater involvement of students in the learning process.

This section, which addresses teacher's use of various teaching methods, has two sub-sections. In the first subsection (4.2.1.), data about teachers' actual use of teaching methods will be presented and discussed. In the second section (4.2.2.),

data about the reasons why teachers actually use only few suggested teaching methods will be presented and discussed.

#### 4.2.1. Teachers Actual Use of Teaching Methods

Regarding this issue, data were gathered through of the following instruments:

1. Teachers' FGD
2. Students' FGD
3. Classroom Observation
4. Teachers' Questionnaires
5. School Officials' Questionnaire

#### Data From Teachers' FGD

Teachers' responses for the question related to their actual use of teaching methods are the following.

- *We know that different teaching methods are suggested in the teacher's guide. However we cannot use them all. We use the lecture method most of the time. We divide the weekly periods into three. In the first two periods of the week we introduce the topic to the students and give them explanation on it. On the next period, we will give them notes. On the third period, we will give them exercises. On the next weekly cycle we do the same.*

Teachers' response mentioned above is that the response commonly shared by some of the participants. Others who have different idea about their utilization of teaching methods responded as follows.

- *Indeed we are supposed to employ different teaching methods. However, we use lecture, questions and answer, and note writing on our teaching frequently. Sometime we use discussion and practical activities.*

Very few groups have also responded as follows: -

- *We mainly used lecture, questions and answer, and note writing. But, for the topics that we feel they need other methods, we use the necessary methods such as practical work and demonstration.*

Almost for all the respondents have confirmed that they do not use the teaching methods individual and group practice, field trips, role playing, drama, invited guest, students' observation and project work in their teaching-learning processes.

As it can be seen from the teachers' responses, most of them use lecture, question and answer and note writing as primary teaching methods. Some times few of them use discussion and practical activities. However, very few teachers have claimed that they use other teaching methods such as demonstration and practical activities whenever they feel necessary. But this opinion should be supported by other data for its reliability.

#### **Data from Students' FGD**

Direct questions as in the teachers' FGD were not used for the students FGD. They were asked to explain their learning indirectly. For example, the question used on the issue in discussion was intended to ask them what their teachers were doing in the classroom during the teaching learning process. Their responses are summarized as follows:

- *Our teacher starts the daily lesson by explaining the topic. After the explanation he/she gives us notes.*
- *Our teachers start the class by asking some questions about the topic discussed in the previous class. Then they give us explanation on the present topic. In the next period they will write us notes.*
- *Our teachers start the class by giving us explanation about the new topics. After the general explanation, if the topic has a practical activity, they explain to us how we can do the experiment by ourselves at home. Some time, they order us to bring some materials to the class and show us some practical activities. But they always give us notes.*

The data obtained from students FGD show that most of the teacher use lecture and note writing as the main teaching method . There are, of course, some

teachers who use question and answer and sometimes demonstrations in their teaching-learning process.

During the FGD, most of the students were observed accusing their teacher of their lengthy and boring lectures and note writing. To explain how she was vexed by her teacher method of teaching, a student has said: -

*"my teacher's teaching strategy is always the same. She always talks but we do not understand what she is talking about. After her talk there is always note writing. We write, we write, we write... until our hands are extremely exhausted (Ejachin Eskizil)." (Mekane Hiwot Primary school,5/4/2001).*

As vividly seen from both teachers and students' FGD, the teaching methods that are frequently used in grade 4 Environmental Science classes are lecture, note writing and question and answer. This fact is also confirmed during the class observation. The data gathered through classroom observation on this issue is presented below:

#### **Data from Classroom Observation**

As mentioned in Unit Three of this study, the classroom observation checklist was highly structured. However, during data collection, realizing the problem encountered due to the highly structured check-list, the researcher decided to record the events as they occur. These data, together with the data from the structured part of the instrument, are presented as follows.

In most of the classrooms, teachers were observed employing the same teaching methods. However, there were variations in their order of use. Some start by giving notes, others by giving explanation and still others were observed asking some questions. However, the most common activities observed during the observation are the following:

- *Teachers ordered their students to sit down by crossing their hands and listen to the lecture attentively.*
- *After the lecture, the students were told to open their textbook at the page where the topic in discussion is found and to copy it as it is.*

In some classes, different situations were observed.

- *Teachers started their teaching by asking questions about the previous lesson. After discussing the questions they started to lecture on the new topic.*
- *In the next period, teachers were observed to write notes on the blackboard. Some teachers were using their notebook, others were observed copying from the textbook.*

From the data gathered by the structured part of the instrument, a considerable amount of classroom hours were spent on the non verbal activities (note writing). The time spent for the lecture was also comparable to the time used for note writing.

As the classroom observation revealed, the teaching methods that frequently used were lecture and note writing. In very few classes teachers were using additional methods - question and answer.

There was only in one classroom where the teacher was observed using varieties of teaching methods.

- *During the first day of the observation, the teacher gave well prepared note and discussed it. In the next observation day, the teacher demonstrated the practical activity suggested for the topic discussed. The materials used during the demonstration were locally available and were collected by the students.*

The data gathered through the teachers questionnaires related to this issue is presented in table 4 next

#### **Data from teachers' questionnaire**

There were two items in the questionnaires related to this issue. The first item was used to ask teachers to put 13 teaching methods in rank order (1-13) according to their use. They were asked to give a rank order of 1 for the first most frequently

used method, 2 for the second most frequently used method and then 3 for the third most frequently used method etc. The result obtained is indicated in the Table 4 next.

**Table 4: Teachers' Response on Ranking the Order of the Teaching Methods they used**

No	Teaching Methods	Number of teachers ranking the method		Mean Value	Rank Order
			%		
1	Lecture	44	100	1.23	1
2	Question and Answer	44	100	2.55	2
3	Discussion	41	93	3.82	4
4	Note writing	44	100	2.84	3
5	Debate	18	41	5.80	6
6	Demonstration	36	82	5.30	5
7	Individual and Group Work	35	80	5.9	7
8	Field Trip	8	18	8.13	11
9	Song	36	82	6.60	8
10	Role Playing	17	37	7.60	9
11	Drama	20	45	8.10	10
12	Invited Guest	5	11	8.80	12
13	Observation	17	37	8.90	13

The second item required teacher to rate the 13 teaching methods according to their extent of use (frequently, sometimes, rarely, and never at all). The main objective of this item was to triangulate teachers' responses for item one. The result obtained is presented in Table 5 next.

**Table 5. Teachers Extent of Use of the Teaching Methods**

Methods	Extent of Use								Missing Data	Frequency	Valid Percent
	Frequently		Sometimes		Rarely		Never at All				
	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent			
Lecture	39	90.7	2	4.7	1	2.3	1	2.3	1	44	100
Question and Answer	35	83.3	7	16.7	-	-	-	-	2	44	100
Discussion	22	51.2	17	39.5	2	4.7	2	4.7	1	44	100
Note writing	30	71.4	12	28.6	-	-	-	-	2	44	100
Debate	2	4.7	14	32.6	13	30.2	14	32.6	1	44	100
Demonstration	12	25.9	19	44.2	7	16.3	5	11.6	1	44	100
Individual and Group Work	13	30.2	16	37.2	8	18.6	6	14	1	44	100
Field Trip	2	4.8	4	9.5	4	9.5	32	76.2	2	44	100
Song	4	9.3	15	34.9	10	23.3	14	32.6	1	44	100
Role Playing	1	2.3	9	20.9	5	11.6	28	63.6	1	44	100
Drama	2	4.7	10	23.3	10	23.3	21	48.8	1	44	100
Invited Guest	-	-	5	11.6	6	14	32	74.4	1	44	100
Observation	6	14.3	11	26.2	2	4.8	23	54.8	1	44	100

In the school officials' questionnaire, an item which is similar to item two in the teachers questionnaire was used. The result obtained is as shown in the next Table 6 .

**Table 6. School Officials' Responses on Teachers' Extent of Use of Teaching Materials**

Methods	Teachers Extent of Use								Missing Data	Frequency	Valid Percent
	Frequently		Sometimes		Rarely		Never at All				
	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent			
Lecture	33	89.2	3	8.1	1	2.7	-	-	-	37	100
Question and Answer	19	51.4	16	43.2	2	5.4	-	-	-	37	100
Discussion	12	32.4	15	40.5	2	5.4	-	-	-	37	100
Note writing	28	75.7	8	21.6	1	2.7	-	-	-	37	100
Debate	-	-	9	24.3	19	51.4	9	24.3	-	37	100
Demonstration	5	14.7	13	38.2	12	35.3	4	10.8	1	37	100
Individual and Group Work	6	17.1	16	45.7	10	28.6	3	8.1	2	37	100
Field Trip	1	2.9	5	21.6	14	43.8	6	18.8	5	37	100
Song	5	15.6	7	21.6	14	43.8	6	18.8	5	37	100
Role Playing	-	-	5	16.1	15	48.4	11	35.5	6	37	100
Drama	1	3	6	18.2	13	39.4	13	39.4	4	37	100
Invited Guest	-	-	2	6.1	8	21.6	23	69.7	4	37	100
Observation	13	37.1	10	28.6	17.1	6	17.1	2	37	37	100

As can be seen from Table 4, the most frequently used teaching method is the lecture (rank 1), the next is Question and Answer (rank 2) and the third is note writing (rank 3).

Table 5 also shows the same result, 39 (90.7%) that teachers use lecture, 35 (83.5%) question and answer and 30 (71.4%) use note writing frequently in their teaching-learning process.

School officials have also given similar responses. In Table 6, 33(89.2%) school officials disclosed that the teachers in their school use lecture method frequently in the teaching-learning process. The next two frequently used teaching methods are note writing (75.%) and Question and Answer (51.4%).

Generally, from all the data presented, it can be easily seen that the most frequently used teaching methods are lecture, note writing and questions and answer.

This shows that there is a big gap between the planned teaching methods which are supposed to be used by the teachers and the methods actually used.

#### **4.2.2 The Reason Why Teachers Use Limited Number of Teaching Methods**

In section 4.2.1, it was learned that teachers were using limited number of teaching methods for their teaching. Choice of teaching method is often related to individual teacher's teaching style. However, for subjects like Environmental Science which demand students' active involvement in the teaching-learning process, the use of lecture is an uncommon practice. But most of the classroom interactions observed were highly dominated by the use of this method. Teachers were asked as to why they use only few methods in the teaching – learning process. The most common reasons that were forwarded during the teachers FGD are the following.

##### **Data from Teachers FGD**

- *We use lecture method because the contents to be covered in the academic year are too much while the time given to cover them is very short. We have to hurry to complete the course on time. We cannot cover the course within the given time unless we use the lecture method of teaching. We do not bother about the methods we employ. What bothers us most is the completion of the course at the given time. Besides, supervisors frequently check us. The supervisors check us not for the use of varieties of teaching methods; they only check us whether we are at the expected topic or not.*
- *We know that the teacher's guide suggests different teaching methods, but some of them are time consuming. Others are difficult to use. For example, field trip and invited guest are among the methods that are difficult to employ. Field trip demands us to take our students to nearby industries, farms, factories etc. However, it is too difficult to find such places around the school. To take the students to these places we need to have money. But the school does not have budget for such activities. Besides, the students we teach need close caring and safeguarding from any accidents that they may face during the visit. Moreover there are too many students in the class. It is impossible to keep them away from any possible accidents. We cannot take this responsibility. The school officials have also refused to take this responsibility.*
- *Invited guest demands us to bring a qualified person to class. Is that possible? How can we bring such an individual without paying him? Blaming us for not using methods which are too difficult to implement in such uninviting conditions by itself is a sin.*

- *The use of group work, practical activities, observation role playing, debate, drama and demonstration demands us preparation which consume considerable time. We teach not only Environmental Science, other subjects too. We have to prepare for them too. Besides, the school wants us to participate in other school activities. For all this activities we need time, but we do not have sufficient time to accomplish all these tasks.*
- *To use demonstration, practical activities, and student observation, some teaching materials are needed. Our school pedagogical center does not have the necessary materials for the new syllabus. The school does not have a laboratory.*
- *We have not tried to use the methods role-play, project work, debate and drama. This is because we do not know them and we were not trained how to employ these methods in the teaching process.*

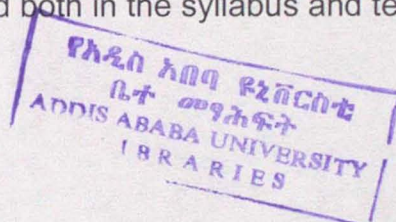
The above teachers' FGD result indicates that teachers have some reasons why they have limited themselves to using very few methods-lecture, note giving and question and answer. The common reasons they gave are the following.

- Too much contents
- Inadequate period allotment
- Big class size (68-70) students are found in a class
- Shortage of teaching materials
- The absence of budget allotted for activities directly related to the teaching-learning process
- Poor school administration

The 1998 formative evaluation results have shown that the topics and subtopics in the textbook are really well related with those in the syllabus. Besides, the content of the textbook show integrated approach and the suggested periods for each unit are adequate to cover the topic. The 1998 formative evaluation results further confirmed that if the periods allotted are properly implemented, they are enough to cover the contents in the textbook. But as we have seen earlier, the periods used are less than what was planned. This could be the reason for the

shortage of time they are complaining about. During the classroom observation, it was observed that the average number of students in a class was 68. In this regard, large class size could be a possible reason for not to using some of the teaching methods suggested both in the syllabus and teacher's guide. However, teaching methods appropriate for large class size are not only lecture and questions- and-answer. There are other methods that are appropriate for a large class size but not used. According to Reece and Walker (1994:116), other alternate methods could be Demonstration, Discussion and Debate. Teachers have also other reasons as to why they could not use these methods in the teaching-learning process.

Table 6 below shows this. The table is a summary of teachers' response on items 5 in their questionnaire. The item asks them to give reasons for "why" and "why not" of using each methods suggested both in the syllabus and teacher's guide.



**Table 7. Teacher's Response on "Why" and "Why not" Using Methods Suggested both in Syllabus and Teacher's Guide**

Methods	The Most Common Reason			The Most Common Reason			Missing Data	Total Frequency
		Frequency	Percent		Frequency	Percent		
Lecture	It enables us to give more explanation	30	68.2	It limits students participation	2	4.5	12	44
Question & Answer	It enables students to participate	18	40.9	-	-	-	26	44
Discussion	It enables students to participate	17	38.6	It consumes too much time	4	9.1	23	44
Not giving	It facilitates students study	27	61.4	-	-	-	17	44
Debate	It increases students questioning ability	5	11.4	I did not have enough time	19	43.2	20	44
Demonstration	Students like it	8	18.2	I do not have enough time	12	27.3	24	44
Group and Individual work	It encourages students to investigate and research	18	40.9	It consumes too much time	7	15.9	19	44
Field Trip	Places to be visited are available	3	6.8	It is difficult to get a place to visit	11	15	30	44
Song	It motivates students	14	31.8	I do not know how to prepare songs	9	20.5	21	44
Role Play	It enables most of the students to participate	6	13.6	I do not know the method itself	11	25	27	44
Drama	There are contents demanding only this method	5	11.4	I do not have enough time	14	31.8	25	44
Invited guest	Students are happy	2	4.5	It is difficult to get qualified person	27	61.4	15	44
Student's observation	-	-	-	-	-	-	-	-

As can be seen from Table 7, the reasons teachers gave for not of using demonstration, discussion and debate are similar. All the reasons are related to the time factor. They claimed that they don't have enough time to employ these methods in their teaching learning process.

Teachers have also indicated that the absence of appropriate teaching materials in the SPCs contributed a lot to their use of a limited numbers of teaching methods. Information about the availability of teaching materials suggested both in the syllabus and teacher's guide was gathered through observation. The result obtained are given on the following tables - Tables 8 - 14.

Among 12 schools included in this study, only one school was found with out SPC. The tables show the availability of teaching materials in 11 schools.

**Table 8 Availability of Charts in SPC**

Types of Charts		Available	Not Available	Total
The three basic foods	Count	9	2	11
	%	81.8%	18.2%	100.0%
Foods containing basic minerals	Count	3	8	11
	%	27.3%	72.7%	100.0%
Foods rich in carbohydrates	Count	4	7	11
	%	36.4%	63.6%	100.0%
Foods rich in fat	Count	2	9	11
	%	18.2%	81.8%	100.0%
Foods rich in protein	Count	3	8	11
	%	27.3%	72.7%	100.0%
The use and types of vitamins	Count	2	9	11
	%	18.2%	81.8%	100.0%
Digestive system	Count	10	1	11
	%	90.9%	9.1%	100.0%
Blood circulation	Count	7	3	11
	%	70.0%	30.0%	100.0%
Blood cells	Count	3	8	11
	%	27.3%	72.7%	100.0%
Composition of blood cells	Count	4	7	11
	%	36.4%	63.6%	100.0%
Balanced diet	Count	6	7	11
	%	54.5%	45.5%	100.0%
Different vitamins	Count	2	9	11
	%	18.2%	81.8%	100.0%
The disease AIDS	Count	5	5	11
	%	50.0%	50.0%	100.0%
The Malaria	Count	8	3	11
	%	72.7%	27.3%	100.0%
Jeardia	Count	1	10	11
	%	9.1%	90.9%	100.0%
Life cycle of Mosquito	Count	7	4	11
	%	63.6%	36.4%	100.0%

Types of Charts		Available	Not Available	Total
Life cycle of Beliharzia	Count	3	8	11
	%	27.3%	72.7%	100.0%
How disease inter into human body	Count	2	9	11
	%	18.2%	81.8%	100.0%
Prevention of diseases	Count	2	9	11
	%	18.2%	81.8%	100.0%
Jobs of different age groups	Count	1	10	11
	%	9.1%	90.9%	100.0%
Body change due to age	Count	1	10	11
	%	9.1%	90.9%	100.0%
Different plants	Count	5	6	11
	%	45.5%	54.5%	100.0%
Domestic animals	Count	5	6	11
	%	45.5%	54.5%	100.0%
Air circulation	Count	7	4	11
	%	63.6%	36.4%	100.0%

As can be seen in table 8, among 24 charts that must have been available, only 7 charts are found in most (above 70%) of the schools. 17 charts are not available in most (above 50%) of the schools.

**Table 9 Availability of Tables in SPC**

Types of Tables		Available	Not Available	Total
Planning	Count	4	7	11
	%	36.4%	63.6%	100.0%
Budgeting	Count	2	9	11
	%	18.2%	81.8%	100.0%
Time planning	Count	2	9	11
	%	18.2%	81.8%	100.0%

Three tables were to be found in all the schools. However, as it can be seen in Table 9, most (63.6%) of the school do not have the suggested tables. Particularly tables that show budgeting and time planning are found only in 2 (18.2%) schools.

**Table 10 Availability of Posters in SPC**

Types of Posters		Available	Not Available	Total
Family planning	Count	1	10	11
	%	9.1%	90.9%	100.0%
The disease AIDS	Count	4	7	11
	%	36.4%	63.6%	100.0%
Regions flags	Count		11	11
	%		100.0%	100.0%

A serious problem is observed on the availability of posters. According to Table 10 above, posters are almost non-existent, particularly posters which show Regions' flags.

**Table 11 Availability of Maps in SPC**

Types of Maps		Available	Not Available	Total
Boundaries of countries in the world	Count	9	2	11
	%	81.8%	18.2%	100.0%
Boundaries of countries in Africa	Count	8	3	11
	%	72.7%	27.3%	100.0%
Boundaries of Regions in Ethiopia	Count	7	4	11
	%	63.6%	36.4%	100.0%
High and low lands of Ethiopia	Count	8	3	11
	%	72.7%	27.3%	100.0%
Major mountains of Ethiopia	Count	6	5	11
	%	54.5%	45.5%	100.0%
Distribution of rain and temperature in Ethiopia	Count	5	6	11
	%	45.5%	54.5%	100.0%

Types of Maps		Available	Not Available	Total
Distribution of plants and wild animals of Ethiopia	Count	2	9	11
	%	18.2%	81.2%	100.0%
Types of soil in Ethiopia	Count	2	9	11
	%	18.2%	81.2%	100.0%
Distribution of population in Ethiopia	Count	1	10	11
	%	9.1%	90.9%	100.0%
Farm lands in Ethiopia	Count		11	11
	%		100.0%	100.0%
Distribution of industries in Ethiopia	Count	2	9	11
	%	18.2%	81.2%	100.0%
Distribution of minerals in Ethiopia	Count	2	9	11
	%	18.2%	81.2%	100.0%
Historical places in Ethiopia	Count	1	10	11
	%	9.1%	90.9%	100.0%

In the syllabus and teacher's guides, 13 maps are suggested to be used in the implementation process. However, among these 13 maps only 5 maps are found in some schools. From Table 11 above it can be easily seen that 8 maps are not found in most (above 54.5%) of the schools. Maps which show farm lands, population distribution and historical places in Ethiopia are not found in most (above 90.9%) of the schools.

**Table 12 Availability of Photographs in SPC**

Types of Photographs		Available	Not Available	Total
Ethiopian historical patrimonies	Count	3	8	11
	%	27.3%	72.7%	100.0%
Ethiopian philosophers and Artists	Count	3	8	11
	%	18.2%	81.8%	100.0%
Different faces of Ethiopian nationalities	Count	2	9	11
	%	18.2%	81.8%	100.0%
Different dressing styles in Ethiopia	Count	1	9	10
	%	10.0%	90.10%	100.0%

Table 12 shows that the photographs suggested in both the syllabus and the teachers guide to be available in SPCs are not found in most (above 72.7%) of the schools. The problem is serious as regards the availability of photographs.

**Table 13 Availability of Samples in SPC**

Types of Samples		Available	Not Available	Total
Different plants	Count	5	5	10
	%	50.0%	50.0%	100.0%
Different soil	Count	2	8	10
	%	20.0%	80.0%	100.0%
Different grains	Count	8	3	11
	%	72.7%	27.3%	100.0%
Different flowers	Count	6	5	11
	%	54.5%	45.5%	100.0%
Flags of different regions	Count	2	9	11
	%	18.2%	81.8%	100.0%

The samples that could have been available in all SPCs are indicated in Table 13. The total number of samples to be available is 5. However, the samples that are found in most of the schools (8) are samples of different grains, while the samples of

flowers and plants are found in 6 and 5 schools respectively. But samples of flags of different region and soils are among the least available samples. All in all the availability of samples is not as required. However, they are available relatively better than photographs, maps, tables and posters.

**Table 14 Availability of Materials in SPC**

Types of Materials		Available	Not Available	Total
Meter	Count	10	1	10
	%	90.0%	9.1%	100.0%
Balance	Count	6	5	10
	%	54.5%	45.5%	100.0%
Nails	Count	9	2	11
	%	81.8%	18.2%	100.0%
Set square	Count	10	1	11
	%	90.9%	9.1%	100.0%
Protractor	Count	9	2	11
	%	81.8%	18.2%	100.0%
Cylinders	Count	4	7	11
	%	36.4%	63.6%	100.0%
Scissors	Count	9	2	11
	%	81.8%	18.2%	100.0%
Knives	Count	4	7	11
	%	36.4%	63.6%	100.0%
Lamps	Count	1	10	11
	%	9.1%	90.9%	100.0%
Beakers	Count	3	8	11
	%	27.3%	72.7%	100.0%
Stove	Count	1	10	11
	%	9.1%	90.9%	100.0%
Ethiopian stove	Count	2	9	11
	%	18.2%	81.8%	100.0%
Lenses	Count	4	7	11
	%	36.4%	63.6%	100.0%
Tin	Count	4	7	11
	%	36.4%	63.6%	100.0%
Different size iron	Count	2	9	11
	%	18.2%	81.8%	100.0%

Types of Materials		Available	Not Available	Total
Cast iron	Count	1	10	11
	%	9.1%	90.9%	100.0%
Hand torch bulb	Count	3	8	11
	%	27.3%	72.7%	100.0%
Normal bulb	Count	4	7	11
	%	36.4%	63.6%	100%
Iron dust	Count	3	8	11
	%	27.3%	72.7%	100.0%
Magnets	Count	4	7	11
	%	36.4%	63.6%	100.0%
Rubber band	Count	1	10	11
	%	9.1%	90.9%	100%
Gesso	Count	2	9	11
	%	18.2%	81.8%	100%
Pick	Count	6	5	11
	%	54.5%	45.5%	100%
Shoven	Count	4	7	11
	%	36.4%	63.6%	100%
Sefed	Count	2	9	11
	%	18.2%	81.8%	100%
Sponge	Count	2	9	100%
	%	18.2%	81.8%	11
Pieces of wood	Count	4	7	100%
	%	36.4%	63.6%	11
Pieces of ceramics	Count	4	7	100%
	%	36.4%	63.6%	11
Cultural materials	Count	4	7	100%
	%	36.4%	63.6%	11
Science kit	Count	7	4	100%
	%	63.6%	36.4%	11

Table 14 contains a list of 30 materials which are suggested both in the syllabus and teacher's guide. These materials are supposed to be found in all SPCs. But as it can be seen from the table, only 8 materials are found in most (above 54.5%) of the school, while the other 22 materials are found in not more than 4

(36.4%) schools. Materials found in science kit are very helpful for demonstrating some practical activities in lower grades (grades 1-4). Unfortunately, the science kit is found in only 7 (63.6%) of the schools.

As it was learned during the observation, most of the valuable components of the available science kits were missing. This makes the number of usable kits to be very few.

As we have seen in the above tables - Tables 7-13, most of the teaching materials supposed to be available in all SPCs are not found. This is a serious problem. Teachers' complaints regarding this problem have some truth. Without teaching materials, it is impossible to employ some teaching methods such as demonstration, practical activities, discussion even the lecture it self.

Teachers' reason for not using varieties of teaching methods in their teaching is not only due to unavailability of teaching materials. They have also another reason - the absence of science laboratories in the schools. School officials were inquired to respond for the availability of science laboratory in their school. Their responses are presented in the table below.

**Table 15 Availability of Science Laboratories**

		Frequency	Percent	Valid Percent
Valid	Yes	7	18.9	18.9
	No	30	81.1	81.1
	Total	37	100.0	100.0

As Table 14 indicates, among 37 respondents, only 7 (18.9%) have confirmed the availability of science laboratory in their school. Indeed, the table does not show how many schools have science laboratories. But it can be inferred from the data

that the available science laboratories are quite few. This proves teachers' complaints of the unavailability of science laboratories are true. Infact, in the absence of laboratories and teaching materials, it will be difficult to use those methods, which provide a conducive environment for students to participate actively in their learning.

The need for budget in order to effectively use methods such as field trip and invited guest is a must. Besides, the place to be visited and the qualified person to be invited should be easily found around the schools. School official must take the responsibilities in facilitating the necessary conditions. They have to arrange programs, which enable teachers to take the students to field trips and invite guest speakers.

Also concerned bodies such as supervisors should not act as faultfinders. They rather work hard in supporting teachers, and facilitating conditions which promote conducive teaching-learning environment. On the other hand, curriculum designers who suggested these methods should reconsider their suggestions. Some of the methods suggested like role-play, field trip and group and practical activities cannot be realized in schools where almost all the classes are over populated. Suggesting such methods to be implemented in such schools, as the researcher believes is a mere negligence of the implementation process. Therefore, curriculum developers realizing that their work has considerable contribution to the success and failure on the process of implementation, they have to consider the actual school settings during the designing stage.

To sum up, as has been discussed in this section, our schools classrooms interaction is highly dominated by the lecture method which does not have any room

for students' participation. On the other hand, the syllabus that is supposed to be implemented demands high students' involvement in the teaching-learning process. This can only be realized through utilizing of appropriate teaching methods. But the methods could not be used due to the reasons discussed above. This clearly indicates that the syllabus implementation process is at stake. Moreover, the discussion show that what is actually happening in the classroom is far from the desired or the planned one.

#### **4.3. Extent of Teachers Use of Teaching Materials**

Students at their early stages are supposed to learn through their five senses - hearing, sight, touch, test and smell. Students who are the subject of this study are also found at their early stage. Most of them are expected to be between the ages 10 and 11.

From psychological point of view, science teaching at the early stage of the child should provide opportunities that are closely linked with the child's concrete experiences. Such experiences require the use of varieties of teaching materials in the teaching-learning process. Methods of teaching which are assumed to give opportunities to students' involvement can be effective if and only if they are supported by the use of appropriate teaching materials.

This section is organized into two sub-secessions. It discusses the extent of teachers use of teaching materials while teaching. The first sub-section (4.4.1.) discusses about teaching materials that teachers use frequently. The second sub-section (4.4.2.) deals with the reason why teachers use only some of the teaching materials suggested both in the syllabus and teacher's guide.

#### 4.3.1. Teaching Materials Frequently Used by Teachers

To gather information about teachers uses of various teaching materials, different instruments were used - both teacher and students FGD, classroom observation, observation of SPCs and teachers and school officials questionnaires.

The data gathered through these instruments will be presented and discussed one by one.

##### **Data from Teachers' FDG**

Almost all teachers have similar opinions regarding this issue. The most common views that were shared by most of the participants of the FGD are the following.

- *Most of the time we do not use teaching materials while teaching. But we sometimes use when we feel like using and if they are available. In addition to this, we will also use samples if students are able to bring them into the class.*
- *We frequently use charts, samples and materials for some demonstration. The materials we use are not available in the school. Students bring them to class. Since activities are time consuming, we do not demonstrate the whole activity in the class. We simply show the students how the activity can be performed and tell them to do the complete activity by themselves in their spare time.*

As teachers retorted in their FGD, most of them do not use teaching materials in their teaching. Indeed, some of them asserted that they use some teaching materials like charts, samples and some experimental materials. However, their assertions seem to be skeptical. None of them was certain in his/her assertion. The phrases "if we feel necessary", "If students are able to bring" and "If they are available" could not confirm their use. Rather the phrases signify that most of the time they teach without using teaching materials.

As indicated earlier, information about the issue in the discussion was also collected through students' FGD. The common views shared by most of the participants are the following.

#### **Data from Student FGD**

- *Yes! most of our teaching-learning processes are done without teaching materials. Although not frequently, our teachers use charts sometimes.*
- *Sometimes, they (teachers) order us to bring some teaching materials such as samples of soils, flowers and grains into class. They teach using the samples we brought.*
- *Teachers do not use teaching materials most of the time. When they are explaining about something they use the pictures in the textbook. They tell us to refer to them directly from the book. Sometimes they draw the picture on the blackboard and use them for their explanation. If there are practical activities to be performed, they orally tell us how they can be done and leave them for us to do by ourselves. But we do not do them because we cannot get the whole materials needed for the activities.*

There were three groups that responded differently. According to their responses, teachers have tried to demonstrate some practical activities in classes using the materials brought by the students.

Most of the participants of the discussion have expressed how they were distressed by their learning which is full of narration as follows.

- *"It was very good if our teacher uses something that can be seen (they mean charts, photographs, samples etc.) when they teach us. We know more when we see and do".*

Students' responses are similar to those of the teachers. Students' responses have substantiated their teachers' responses. Both the teacher and students made clear that most of the teachings are done without teaching materials. They also pointed out that the teaching materials that are sometimes used in the teaching-learning process are charts.

From both of the responses it can be learnt that, although it is not sufficient. There are some efforts tried by the teachers to provide better learning conditions. Their effort was not precluded by the absence of teaching materials. They used the materials brought by their students. Such efforts which totally depend on teachers enthusiasm should be promoted because it can serve as an alternative solution for our schools which suffer seriously from shortage of teaching materials.

The other sources of information on the issue in discussion are the data gathered during classroom observation. The information obtained is the following.

### **Data from Classroom Observation**

Almost every class in the observation has similar features. In most of the class teachers were not using teaching materials. They were observed supporting their lecture by showing the diagrams found in the textbook.

In some classes, teachers were observed using charts. But the charts used were not among the suggested ones. Some charts used were complicated, they were full of different information, and they cannot be used in a class where the majorities are very young. Some charts used were less relevant to the topic discussed in the class. To cite one example, the chart used for the discussion, "heat transfer" was the one showing the water cycle.

Some teachers were observed using samples in the teaching-learning process. But there were problems in their utilization.

For example, in one classroom the teacher was expected to teach about the structures and types of leaves. She was using three different types of leaf samples. What she did was as follows:

*Teacher:- Students! See these leaves. Are they similar?*

*Students:- No teacher (the whole class)*

*Teacher:- Yes! As you see, leaves are not similar. They differ in their shapes.(Mekane Hiwot Primary School, 1/4/2001)*

These were the only things the teacher said about the leaf samples. The samples could be and were supposed to be used to teach much more things about leaves.

Only one teacher was observed using practical activity. All the materials used in the practical activity were collected by the students. There were even other materials at one corner of the classroom. Some of them were already used and some are prepared for future use.

The classroom observation shows that most of the classes were without teaching materials. Teachers were observed using the textbook pictures to supplement their lecture. In fact, some teachers have claimed that they use samples and materials in their teaching. However, their actions observed during classroom observation were a mere show-off.

As teachers indicated in Section 4.2, one of the reasons they give for using lecture as their primary method of teaching was unavailability of teaching materials in the SPCs. Of course, a serious problem was observed regarding to this issue. However, although there were few in numbers as Table 7-13 shows, there are teaching materials in the SPCs which can be used for teaching the grade 4 Environmental Science Course.

To check the extent of teachers use of the available teaching materials, another instrument was used- observation checklist for teaching materials. The data obtained through this instrument is presented in the tables below.

**Table 16. Teachers Use the Available Charts**

Types of Charts		Frequency	Some times	Not at all	Total
The three basic foods	Count	6	3		9
	%	66.7%	33.3%		100.0%
Foods containing basic minerals	Count	2	2		4
	%	50.0%	50.0%		100.0%
Foods rich in carbohydrates	Count	2	2		4
	%	50.0%	50.0%		100.0%
Foods rich in fate	Count	-	-	-	-
	%	-	-	-	-
Foods rich in protein	Count	-	2	-	2
	%	-	100.0%	-	100.0%
The use and types of vitamins	Count	1	2	-	3
	%	33.3%	66.7%	-	100.0%
Digestive system	Count	1	1	-	2
	%	50.0%	50.0%	-	100.0%
Blood circulation	Count	6	4	1	11
	%	54.5%	36.4%	9.1%	100.0%
Blood cells	Count	4	3	1	8
	%	50.0%	37.5%	12.5%	100.0%
Composition of blood cells	Count	1	1	1	3
	%	33.3%	33.3%	33.3%	100.0%
Balanced diet	Count	2	1	1	4
	%	50.0%	25.0%	25.0%	100.0%
Different vitamins	Count	2	3	1	6
	%	33.3%	50.0%	16.7%	100.0%
The disease AIDS	Count	1	-	1	2
	%	50.0%	-	50.0%	100.0%
The Malaria	Count	3	3	-	6
	%	50.0%	50.0%	-	100.0%

Types of Charts		Frequency	Some times	Not at all	Total
Jeardia	Count	4	4	-	8
	%	50.0%	50.0%	-	100.0%
Life cycle of Mosquito	Count	1	-	-	1
	%	100.0%	-	-	100.0%
Life cycle of Beliharzia	Count	2	3	2	7
	%	28.6%	42.9%	28.6%	100.0%
How disease inter into human body	Count	2	1	-	3
	%	66.7%	33.3%	-	100.0%
Prevention of diseases	Count	1	-	1	2
	%	50.0%	-	50.0%	100.0%
Jobs of different age groups	Count	1	-	1	2
	%	50.0%	-	50.0%	100.0%
Body change due to age	Count	-	1	-	1
	%	-	100.0%	-	100.0%
Different plants	Count	-	1	-	1
	%	-	100.0%	-	100.0%
Domestic animals	Count	4	1	-	5
	%	80.0%	20.0%	-	100.0%
Air circulation	Count	4	1	-	5
	%	80.0%	20.0%	-	100.0%

Table 16 disclosed that teachers (greater than 50% in most cases) are frequently using most of the available charts except very few. But this does not mean that the situation is the same in all 12 schools that were the subject of this study. As vividly seen in the table, the schools at which the teacher use charts to support their teaching are not greater than 4 (33%). Indeed, there are two charts that are used in 6 (50%) of the schools. Consequently, it can be summarized from the above discussion that teachers in most schools do not use the available charts.

The situation in the extent of teachers' use of the available tables is similar. As Table 17 below shows, teachers in very few schools (not more than 3) sometimes use while teaching.

**Table 17 Teachers Use of the Available Tables**

Types of Tables		Sometimes	Not at all	Total
Use of tables which shows planning	Count	3	1	4
	%	75.0%	25.0%	100.9%
Use of tables which shows budgeting	Count	2	-	2
	%	100.0%	-	100.0%
Use of tables which shows time planning	Count	1	-	1
	%	100.0%	-	100.0%

Posters were suggested as teaching materials to be used to supplement the teaching learning process. The suggested posters are 3 in number. Table 17 below shows teachers' use of the available posters.

**Table 18 Teachers Use of the Available Posters**

Types of Posters		Sometimes	Not at all	Total
Use of Posters which shows planning	Count	1	1	2
	%	50.0%	50.0%	100.9%
Use of Posters which shows the disease AIDS	Count	1	3	4
	%	25.0%	75.0%	100.0%
Use of Posters which shows the Regions' flags	Count	1	1	-
	%	-	-	-

In Table 10, it was indicated that only one type of poster was found in 4 schools, and this reveals the fact that posters are not available in most of the school. On the other hand, as Table 18 shows, only teachers in one school frequently used

these available posters. Teachers in the other 3 schools use the available posters rarely. In the case of the poster which shows family planning, only two schools have this poster, but teachers in one school use it sometimes while teacher in the others do not use it at all. This indicates that teachers are not willing to use even the available materials.

Environmental science syllabus, as mentioned in the literature review, is an integration of different elements from different disciplines. Social science elements are one of the major constituents of the syllabus. Different maps, which are believed to be very important for the implementation of the syllabus, were suggested. As it was seen Table 11, some of the maps are found in some schools. Among other teaching materials that are supposed to be available in all schools, maps are relatively accessible. Their availability may mean nothing unless used by teachers. Teachers' use of maps is designated in Table 18 below.

**Table 19. Teachers Use Of the Available Maps**

Types of Maps		Frequently	Sometimes	Not at all	Total
Boundaries of countries in the world	Count	1	6	2	9
	%	11.1%	66.7%	22.2%	100.0%
Boundaries of countries in Africa	Count	-	6	3	9
	%	-	66.7%	33.3%	100.0%
Boundaries of Regions in Ethiopia	Count	1	4	2	7
	%	14.3%	57.1%	28.6%	100.0%
High and low lands of Ethiopia	Count	1-	6	1	8
	%	12.5%	75.0%	12.5%	100.0%
Major mountains of Ethiopia	Count	-	4	2	6
	%	-	66.7%	33.3%	100.0%
Distribution of rain and temperature in Ethiopia	Count	1	3	1	5
	%	20.0%	60.0%	20.0%	100.0%
Distribution of plants and wild animals of Ethiopia	Count	-	1		1
	%	-	100.0%		100.0%
Types of soil in Ethiopia	Count	-	1		1
	%	-	100.0%		100.0%
Distribution of population in Ethiopia	Count	-	1		1
	%		100.0%		100.0%

Types of Maps		Frequently	Sometimes	Not at all	Total
Farm lands in Ethiopia	Count	-	-	-	-
	%	-	-	-	-
Distribution of industries in Ethiopia	Count	-	2		2
	%	-	100.0%		100.0%
Distribution of minerals in Ethiopia	Count	-	-	-	
	%	-	-		100.0%
Historical places in Ethiopia	Count	-	1	1	
	%	-	100.0%		100.0%

Table 19 shows that 13 maps are suggested to be used. Among these maps only 4 maps were frequently borrowed frequently from the SPCs. In fact, it is difficult to conclude that these maps are used in 4 different schools. It can only be concluded that only teachers of not more than 4 schools used them. Teachers of most in the schools (not more than 6 school out of 12) rarely used maps. This means that teachers in most of the school use less than half of the available maps. There are also teachers in some schools that do not totally use any of the available maps. But as the data reveals, teachers use of maps is relatively better than the materials available in the schools.

Other teaching materials suggested to be used photographs. Four photographs are supposed to be found in the SPCs. But according to Table 11, most of the photographs are not available in most of the SPCs. However, even though they are few, some of them are available in some SPCs. Teacher's use of the available photographs is indicated in the table below.

**Table 20. Teachers Use of the Photographs**

Types of Photographs		Frequently	Some times	Not at all	Total
Use of Photographs which shows Ethiopian Historical Patrimony	Count	1	1	1	3
	%	33.3%	33.3%	33.3%	33.3%
Use of Photographs on Ethiopian Artists, philosophers	Count	1	1	1	3
	%	33.3%	33.3%	33.3%	33.3%
Use of Photographs of different faces of Ethiopian peoples	Count	-	1	1	2
	%	-	50.0%	50.0%	100.0%
Use of Photographs of dressing styles of Ethiopian nationalities	Count	-	-	1	1
	%	-	-	100.0%	100.0%

According to the table, the situation regarding the photographs is similar to those of the maps. The most available among all photographs are those which show Ethiopian historical patrimonies and Ethiopian artists and philosopher. These photographs are found in only 3 (25%) of the schools. Teachers in only one school used them frequently, others use some time and still others do not use them at all. The photograph that shows dressing style of different nations and nationalities of Ethiopia is found in only one school, but teachers in that school do not use them. The remaining which shows different faces of Ethiopian peoples are found in two schools, however, teachers in only one school used it some times while teacher in the other schools do not.

From Table 20 it can be learnt that still there is a problem in using the available teaching materials.

Teachers in their FGD have asserted that they sometimes use samples in their teaching. Table 13 shows that some samples found are not more than 2 (16%) SPCs.

The data regarding teachers use of the available samples are shown in Table 21 below.

**Table 21 Teachers Use of the Available Samples**

Types of Samples		Frequently	Some times	Not at all	Total
Different Plants	Count	2	2	1	5
	%	40%	40%	20%	100%
Different Soils	Count	1	-	1	2
	%	50%	-	50%	100%
Different Grains	Count	1	3	4	8
	%	12.5%	37.5%	50%	100%
Different Flowers	Count	2	2	2	2
	%	33.3%	33.3%	33.3%	33.3%
Flags of Different Regions	Count	-	-	2	2
	%	-	-	100%	100%

As can be seen from Table 21, samples of grains are found in 8 (66.67%) schools. Teachers in 4 schools have used them at one time or another, while teachers in the remaining 4 schools did not. This indicates that, most of the teachers do not use the available samples. The situation is the same for samples of plants, soils and flowers. However, in the case of samples of flags of different Regions, although they were found in two schools, the teachers did not use them.

Different materials that are assumed to be useful to do some practical activities were listed out in the syllabus. These materials are supposed to be found in all schools. As we have seen in Table 14, some of the materials are available in some schools.

But teachers in their FGD have confessed that they did not use practical activities in their teaching because the required materials for the activities are not found in the SPCs. However, the data given in the Table 21 below may give some useful evidence in checking how far their assertion is true.

**Table 22 Teachers Use of the Available Materials**

Types of Materials		Frequently	Some times	Not at all	Total
Meter	Count	2	1	7	10
	%	20.0%	10.0%	70.0%	100.0%
Balance	Count	1	1	4	6
	%	16.7%	16.7%	66.7%	100.0%
Nails	Count	2	4	3	9
	%	22.2%	44.4%	33.3%	100.0%
Set square	Count	2	4	4	10
	%	20.0%	40.0%	40.0%	100.0%
Protractor	Count	3	3	3	9
	%	33.3%	33.3%	33.3%	100.0%
Cylinders	Count	1	1	2	4
	%	25.0%	25.0%	50.0%	100.0%
Knives	Count	2	-	2	4
	%	50.0%	-	50.0%	100.0%
Lamps	Count	-	-	1	1
	%	-	-	100.0%	100.0%
Beakers	Count	-	-	3	3
	%	-	-	100.0%	100.0%
Stove	Count	-	-	1	1
	%			100.0%	
Ethiopian stove	Count	-	1	1	3
	%	-	50.0%	50.0%	100.0%
Lenses	Count	-	1	3	4
	%		25.0%	75.0%	100.0%
Tin	Count	1	-	3	4
	%	25.0%		75.0%	100.0%
Different size iron	Count	1	-	1	2
	%	50.0%	-	50.0%	100.0%
Cast iron	Count	-	-	1	1
	%	-	-	100.0%	100.0%
Hand torch bulb	Count	1	1	1	3
	%	25.0%	25.0%	25.0%	25.0%
Normal bulb	Count	1	1	1	1
	%	25.0%	25.0%	50.0%	100.0%

Types of Materials		Frequently	Some times	Not at all	Total
Iron dust	Count	-	-	2	2
	%	-	-	100.0%	100.0%
Magnets	Count	1	1	2	4
	%	25.0%	25.0%	50.0%	100.0%
Rubber band	Count	-	-	1	1
	%	-	-	100.0%	100.0%
Gesso	Count	-	-	3	3
	%	-	-	-	100.0%
Pick	Count	-	1	5	6
	%	-	16.7%	83.3%	100.0%
Shoven	Count	-	-	4	4
	%	-	-	100.0%	100.0%
Sefed	Count	-	-	2	2
	%	-	-	100.0%	100.0%
Sponge	Count	-	-	2	2
	%	-	-	100.0%	100.0%
Pieces of wood	Count	-	2	2	4
	%	-	50.0%	50.0%	100.0%
Pieces of ceramics	Count	-	1	3	4
	%	-	25.0%	75.0%	100.0%
Cultural materials	Count	-	1	3	4
	%	-	25.0%	75.0%	100.0%
Science kit	Count	3	4	7	
	%	42.9%	57.1%	100.0%	100.0%
Science Kit	Count	-	1	6	7
	%	-	14.3%	85.7%	100.0%

The data in Table 22 shows that teachers used some of the available materials. If we look through the whole data, we can easily find that teachers frequently used the first five materials. This means that there is some relation between availability and teachers' use. But the data also confirmed that even if the materials are accessible, teachers are indifferent to use them. This can be easily

seen in the first 5 items in the table. For example, meter is found in 10 (83%) of the schools but among 10 schools at which the material are found only teachers in 3(30%) schools used the materials while teachers in 7(70%) school did not.

Regarding this issue, teachers and schools officials were asked with their respective questionnaires. Their responses are given in the following two tables, Table 23 and 24.

**Table 23 Teacher's Use of the Teaching Materials**

Teaching Materials	Extent of Use								Missing Data	Total
	Frequently		Sometimes		Rarely		Not at all			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Charts	30	71.4	8	19	4	9.5	-	-	2	44
Posters	22	51.2	12	27.9	6	14	3	7	1	44
Tables	22	52.4	9	21.4	9	21.4	2	4.5	2	44
Maps	19	44.2	11	25.6	5	11.6	8	18.6	1	44
Photographs	6	14	8	18.6	8	18.6	21	48.8	1	44
Blackboard	41	95.3	1	2.3	-	-	1	2.3	1	44
Samples	17	40.5	12	28.6	7	16.7	6	14.3	2	44
Materials	14	33.3	17	40.5	4	9.5	7	16.7	2	44

As Table 23 shows, the first 6 teaching materials that are frequently used are blackboard (95.3%), charts (71.4%), tables (52.4%), posters (51.2%) and maps (44.2%). Materials that are very useful for practical activities are scarcely used. 17 (40.5%) of the teachers have claimed that they use materials sometimes in their teaching. The table also shows that 21 (48.8) teachers do not use photographs in their teaching.

As indicated earlier, the same questions were asked to school officials. The responses are given in the Table 23 below.

**Table 24 Teacher's Use of Teaching Materials as Seen by School Officials**

Teaching Materials	Extent of Use								Missing Data	Total
	Frequently		Sometimes		Rarely		Not at all			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Charts	20	60.6	8	24.2	5	15.2	-	-	4	37
Posters	23	65.7	10	28.6	2	5.4	-	-	2	37
Tables	11	34.4	11	34.4	7	21.9	3	9.4	5	37
Maps	11	33.3	18	54.5	2	6.1	2	6.1	4	37
Photographs	11	14	8	18.6	8	18.6	21	48.8	1	37
Blackboard	-	-	-	-	-	-	1	2.7	36	37
Samples	4	12.9	11	35.5	12	38.7	4	12.9	6	37
Materials	3	9.4	12	37.5	16	43.2	1	2.7	5	37

According to school officials responses, indicated in Table 23, the first two frequently used teaching materials are posters (65.7%) and charts (60.6%), while maps (54.5%), materials (37.5%), and tables (34.4%) are the first three teaching materials that are used some times. Samples (38.7%) are the first teaching materials that are used rarely.

To sum up, in teachers and students' FGD, it was learned that teachers do not use teaching materials in their teaching. They have confirmed that sometimes they use very few teaching materials such as charts, posters and samples when they feel the teaching materials are necessary for the topic they teach. This is also possible, according to their responses, if the teaching materials are available in SPCs.

Teachers claimed that they used some of the teaching materials available simply because they borrowed them. In fact, the first step to use the teaching materials is to borrow them from the SPCs. But this does not necessary imply that

teachers have made use of the materials they borrowed. Hence, it is very difficult to conclude that teachers use some of the available teaching materials.

The classroom observation has also substantiated the findings of teachers and students' FGD. Indeed some teachers were observed attempting to use some teaching materials but they could not use them properly. This was observed from teachers' activities that signify that the actions they showed were very pretentious. It appears that they brought the teaching materials just because they know some body will visit their class.

The other data which were gathered through teachers and school officials questionnaire do not agree with those data gathered through teachers and students' FGD, and classroom and teaching materials observation. It is difficult to interpret these data and produce reliable findings. However, the data can give some clues about the types of teaching materials that teachers can use frequently if they were really acting as they have responded in the questionnaires. According to their responses, most of the teaching materials they used are visual aids - charts and posters. Sometimes they used samples and maps.

On the other hand, the main objective of Environmental Science Syllabus is to help the learner understand his/her environment. The instructional resources (teaching materials) utilized must be the type which help the learner to acquire the required knowledge, develop skills and values through his/her active participation. These teaching materials should be the types of materials that enable the learner to involve his/her five senses (hearing, sight, test, smell, and touch) in his learning. In this regard, both the syllabus and the teacher's guide suggested appropriate teaching materials required for the implementation process. But as discussed earlier, the

suggested teaching materials were not used at all, or if there was an attempt, it was limited to the use of only one sense. What these indicate is that most of the suggested or the planned teaching materials were not implemented.

There may be reasons why the situation as we have seen is alarming. Some reasons were given at the teachers' FGD as to why they did not use teaching materials in their teaching. The following section is about this issue.

#### **4.3.2. Why Teachers Do Not Use Teaching Materials in Their Teaching – Learning Process**

In section 4.3.1, we have seen that teachers do not use teaching materials in their teaching. Section 4.2.2, has also shown that the available teaching materials in school SPCs are very few, outdated and irrelevant to the new grade 4 Environmental Science Syllabus. But in some schools there were few teaching materials available in some SPCs. Teachers as planned did not use these available materials. Teachers were asked why they do so in their FGD. The common responses they gave were the following.

##### **Data Obtained Through Teachers FGD**

- *We did not use teaching materials in our teaching. This is because the materials required are not found in our SPCs. Indeed, you may find some charts and models in SPCs, but they are outdated and were prepared for the ex-curriculum. We cannot use concrete objects at least to demonstrate some practical activities, because we do not have laboratories and the materials found in the SPCs are incomplete sets. Most of the important component are either lost or damaged.*

What they have said may be partially is true; that the schools do not have laboratories, most of the materials in SPCs are outdated and the Science Kits are not complete sets, but still there are some materials appropriate in some SPCs. Therefore, there must be some other reason that hindered teachers from using the

available teaching materials. To find out the real reasons, more probing questions were used. But most of the teachers' answers were similar and it was the following.

- *We use, when we feel that they are necessary.*

This was the most common answer given by most of the groups. But in one group a different answer was obtained; their direct words were the following.

- *"Do you want me to tell you the truth?" said one of the group members.*
- *"Yes! I am here to know the real reasons" said the researcher.*
- *Well! This is the case. We are extremely exhausted. We work for six consecutive periods each day. We may teach properly probably for the first three periods, but then we become tired. Do you think that we teach in the remaining three periods as we did in the first three? It is impossible!"*

The remaining group members have shown their agreement with the idea forwarded by their colleague by saying, "Yes she is write."

Another group member added:-

- *"Don't believe those who claimed that they use teaching materials frequently in their teaching. Most of us use the teaching material when we suspect that there will be a supervision or when the department head notifies that there will be a class visit."*
- *"Not only this said another group member:- we borrow many types of teaching materials from the SPCs. We do not care whether they are appropriate or not for the topic we teach. The only thing that we care about us is the recording made by the head of the SPC. The record has a considerable input in our promotion to the next career structure."(Balcha Abanefso Primary school, 23/3/2001)*

In the previous discussion (Section 4.2.2. and 4.3.1.), we have seen that most of the suggested teaching materials were not available in the SPCs. This could be the first reason as to why teachers do not use teaching materials in their teaching. But teachers in some schools, as witnessed by their students have tried to compensate the shortage using the materials collected by students. This shows that teachers, commitment for their profession affects the implementation process largely. But the finding of the FGD shows that there are teachers who are not using even the

available materials. Indeed, they forwarded considerable reason, which demands further investigation and immediate solutions, that it can be learnt from their responses that teachers are lacking commitment. School officials are also indifferent to the implementation process. The supervision they make should not be only for the purpose of teachers' evaluation that will appear two times a year. The evaluation must be made continuous to follow up both the progress and failures in the school programs. School officials must devise a mechanism that enables the teachers to use the available teaching materials properly.

What they all signified is that our schools are in desperate conditions. The classes are highly dominated by verbal explanations not supported by teaching materials. But as research findings (Engelmann and Carnine, 1982, Levin, 1983 in GaCole and Chanks) indicated, appropriate use of relevant examples, concrete objects and diagrammatic representations, enhance learning for most students, particularly when they are used in conjunction with precise verbal explanations. However, these could not be realized in our schools. The existing school conditions reveal that our children are not learning.

Infact as it can be seen both in the syllabus and the teacher's guide, varieties of appropriate and relevant teaching materials were suggested to be used during the implementation process. But, due to the reasons mentioned above, they were not implemented.

#### **4.4. Teachers Use of Assessment Techniques**

Assessment of students' learning is part of the teaching and learning process that should be done with great care. The formative assessment technique that teachers are supposed to use frequently in the course of instruction are helpful to

check periodically how much students have learned what has been taught in the classroom.

Different formative assessment techniques were designed to be implemented. These were Question and Answer, Field Reports, Class and Home works, Periodical Test, Projects and Practical Activities. Their implementation was examined through different instruments - teachers and students, FGD, and classroom observation. The findings are presented as follows.

### **Data Obtained Through Teachers' FGD**

Teachers were asked to explain how they assess their students learning and whether they were aware of the varieties of the assessment techniques indicated in teacher's guide. Their responses in their own words, are the following.

- *We know that different assessment techniques are suggested in the teacher's guide. But some of them are difficult to be implemented. For example, field report, project works and practical activities are among the difficult techniques that were suggested. This is because as we mentioned it before, we cannot use the teaching methods to which these techniques are applied.*

This was the response of some of the participants. Others have different views indicated below.

- *We know there are different techniques of assessment to be employed for the subject we teach. But most of the time we use Question and Answer to check whether the students understood the concepts we taught or not. In fact, we rarely use class and home works. It is also difficult to use it frequently. What makes it difficult to implement is the attendance of too many students in a class. For example in some classes there are more than 70 students.*

There were also some groups that have different ideas regarding this issue.

They have said: -

- *Application of varieties of assessment techniques in a class where the majority of students are inactive is not worthy. You can check this for*

*yourself. You can find many students who even cannot write and read. In fact, we use periodical tests that are already included in the school program.*

The researchers have checked if there were students who cannot read and write and found out there were some students who really do not write and read.

Still, there were very few group members who have reported as follows.

- *Besides the large class size, we are required to cover substantial amount of contents in a limited time. On the other hand utilizing varieties of assessment techniques is a time consuming task. Therefore, because we are running after time, we use only very few assessment techniques - most of the time Question and Answer.*

As it can be seen from teachers' FGD, most of them do not use varieties of assessment techniques. The techniques that are utilized to some extent are question and answer, and scheduled tests.

The most dominating reasons that hindered them from utilizing various assessment techniques are the large class size and shortage of time. In fact, it can also be inferred from their responses that shortage of teaching materials is another cause that forces them to use only few techniques.

The other data related to the issue in discussion is the one gathered through students' FGD. The result obtained is presented below.

#### **Data From Students' FGD**

The students in the discussion group have similar opinions regarding this issue. The most common ideas shared by most of the group members are the following.

- *Our teachers use question and answer to check whether we understood the concepts they taught or not always before they start a new topic. They also gave us tests at regular intervals of time. There are also mid and semester examinations.*

There were student accusing their teachers of their improper use of assessment techniques. The following is their response in their words.

- *Our teachers gave us home works but they do not correct and discuss it. Sometimes they give us three or five questions to do in the class but the class will end up without any discussions and corrections.*

Students' responses are not far from their teacher's responses. Students have confirmed that their teachers use questions and answers as an assessment technique to check their learning. They have also indicated that tests and examinations were also employed. But according to students' responses, class and home works are misused. Each assessment technique should provide feed back-feed back to teacher and students. Students want to know their progress. Therefore, teachers should provide feed back to their students. However, teachers, according to students' responses, use the technique (class work) not to assist their students, but to get time to rest. This was implied in the teachers' FGD in section 4.3.2.

On this issue, another data were collected by the use of the classroom observation checklist. As it was mentioned earlier, the instrument was highly structured but during the observation, some flexibility was made which helped to record the actual events.

#### **Data from Classroom Observation**

In most of the classes, teachers were observed using the technique of Questions and Answer to revise what they taught in the previous class. The number of questions they used were not more than 5 in most cases. But the hands raised were the same and few in number. Some of the questions were incorrectly answered. These indicate that the students were not clear of some of the concepts

taught in the previous class. However, only few teachers used the feedback and revise the previous lesson.

Although it was only one class, it was observed that the teacher was giving homework to her students. The teacher was not correcting the answer by collecting the students exercise books. She read each question turn by turn and asked each student how he/she responded to that particular question. Then the teacher gave the answers with detailed explanation.

To sum up, all the data with regard to this issue showed that teachers are using some of the suggested assessment techniques. In fact, some of the reasons they posed such as the large class size, shortage of time and the passiveness of students need further investigation. However, although they were not implemented properly, some teachers employed appreciable number of assessment techniques.

The researcher believes that there are some problems in the syllabus. For example the assessment techniques like field report, and practical activities are difficult to be realized in such a class where 70 students are crammed.

On the other hand, assessment of students learning, as it is part of the teaching learning process, is very important not only to assess the learning but also to enhance learning. Therefore, the uses of different assessment techniques require careful utilization. In this regard some problems are observed in the implementation process - the improper use of class and home works.

#### **4.5. Students' Involvement in their Learning and Teachers' Support**

Students learning can be optimized by involving them in the teaching-learning process. Teachers are required to provide conducive conditions for their students to maximize their involvement in the teaching learning process.

One way of providing conducive condition for learning is the provision of motivation. The provision of extrinsic motivation (external stimuli which the teacher may have to provide) demands the use of appropriate teaching methods (Reece and Walker 1994). In this regard, we have seen that teachers were not utilizing most of the teaching methods suggested both in the syllabus and teacher's guide. This implies that teachers were not able to provide a situation from which students will actively involve in the teaching-learning process. Besides, there are also other techniques which can be used to motivate students to be active participant in their learning. Some of the techniques that teachers can use to motivate students' learning according to Reece and Walker (1994) are verbal praise, test result/marks, arousal, use of materials familiar to the students, unusual context and games and simulation.

In Section 4.4, it was learned that teachers were not giving feed back to their students on assignments and classroom and home works. This is also an indicative event for the absence of the provision of conducive situation for the students' learning.

As we have seen earlier, the most commonly used teaching methods were lecture, and question and answer. Some motivational techniques such as verbal praise and use of familiar examples can be practiced through these teaching methods. Information related to these techniques was gathered through some instruments - teachers and students' FGD and classroom observations. The data obtained through the respective instruments are presented below.

## Data from Teacher FGD

Teachers were asked how they provide situations and encouraged their students to actively participate in their learning. The answer they gave were the following.

- *We encourage our students to participate in their learning using words such as "good answer!" "very good attempt!" etc. We also try to clear some difficult concept by using examples that are familiar to them. Further we try to help some less able students by preparing a tutorial class for them".*

This idea was shared by most of the participants of the groups. Others who have a different opinion on this issue have responded as follows.

- *We have tried to help our students to participate in the teaching-learning process. However, there are some problems which are out of our control that hindered students from participation. Some of them are too much content to be learnt, difficult concepts that could not be easily understood and unfamiliar words found in the textbook. We have also tried to help some less able students by organizing the class by ability group so that intelligent student could help their less able peers.*

There were group members who have still a different opinion on this issue.

Their responses are the following.

- *We said that our classroom is over-crowded; in such a situation it is too difficult to correct each students' exercises book and give them a feed back. On the other, hand we have shortage of time. We run fast to cover the contents in the given time. This is due to the indecent supervision. The supervisors condemn us just because we do not finish the contents on the given time. They do not bother about students' learning.*

Teachers' FGD responses show that they have tried to provide conducive classroom environment for their students to participate in the teaching-learning process. However, there were problems that are out of their control related to the textbook and the school administration.

According to the responses they forwarded, teachers have made appreciable effort to help their students to participate actively in the teaching-learning process by the use of verbal praises and other techniques that could be realized through the dominating teaching methods-lecture and, question and answer. However, this should be supplemented with other data.

The other data on this issue is the one which is gathered through students FGD. Students' were asked how their teachers encouraged them to participate in their learning. The probing questions used were like "do you ask questions frequently during the teaching learning process? Do you feel confidence when you attempt to answer questions in the class? Why?"

As indicated in Chapter Three, the samples used for the group were from different ability groups. The responses they gave were accordingly different. The most common responses were the following.

#### **Data from Students' FGD**

##### High achiever students

- *We ask questions in the class. We are not afraid to ask question. Rather, our teachers motivate us to ask question in class. In fact, most of the students do not ask question, instead they sleep in the class. They sleep because they always work after their class.*

##### Low achiever students

- *We are not afraid to ask and answer questions. Most of the time we do not ask questions, because we do not understand what the teacher is talking about. We prefer the radio program, because the radio teacher explains slowly and clearly. There are songs in the radio program. We enjoy them, we learn a lot from songs. But in the class we spend most of our time by writing notes.*
- *Our teachers try to help us learn better because they know we are less able. They arrange tutorial class for us but we cannot come because, we cannot get permission from our parents. Beside we are working to support our family. They have also arranged our sitting in the classroom. We sit with intelligent students who are obliged by the teacher to help us.*

Students' FGD data confirmed that teachers' effort is made in helping their students to participate in the teaching-learning process. The data also reveals other problems that arise due to the overused teaching-method - lecture method of teaching. The students were not able to ask questions because they did not understand what their teacher was talking about. The other problem indicated in students' FGD is that the social economic life style of students. Most of the students are from poor family. They should work after their school to support their family. They come to school with exhausted body from working for a long time.

There is another data gathered from the actual classroom interaction through classroom observation. The following data are obtained by recording relevant events selectively.

*In most classes, students were observed listening to their teacher's lecture without any interaction except the questions asked by the teacher at the beginning of the daily lesson. In some classes, teachers were observed shifting from lecture to note writing without any discussion. In these classes, while the teacher was lecturing, some students were observed sleeping and others talking to each other.*

*In fact, there were classes at which high students involvement were observed. For example, in one class, the teacher was teaching about pressure. She supported her explanation by group practical activity. Almost all the class was engaged in the discussion. Many students were observed asking question and attempting to answer questions.*

The classroom observation revealed that in most of the classes, students were observed showing no interest in their learning. This was due to the absence of the provision of conducive learning environment in which students could participate in their learning. But in a class where the teacher was using teaching methods that enable students participate in their learning, most of the students were observed fully engaged in the teaching-learning process. This indicates that, the reason given for

the students to sleep in the class is not only because they are working after the class, it is also due to lack of the provision of conducive classroom environment.

To sum up, the creation of conducive learning environment in which students could actively participate is impossible unless teachers use various teaching methods to achieve the set objectives.

The objectives to be achieved, as they are stated both in the syllabus and teacher's guide, are in the three domains - cognitive, psychomotor and affective. But as we have seen in the previous sections, the methods employed were lecture, and question and answer which are appropriate to achieve low level objective such as knowledge and comprehension.

In fact, some motivational techniques could be practiced through lecture, and question and answer if they are supported by appropriate teaching materials (at least by visual aids). But due to the unavailability of the materials and teachers' lack of commitment, they can't be realized.

Although it was not successful, teachers' effort in helping less able students is appreciable. However, as it is clearly seen in the data and discussions of this section most of the planned objectives could not be realized due to the inadequate provisions of conducive classroom environment. As a result, students could not be able to participate in their learning.



## CHAPTER FIVE

### SUMMARY; CONCLUSION AND RECOMMENDATION

#### 5.1. Summary

This study was intended to evaluate the implementation of grade four Environmental Science syllabus in the sample schools of Addis Ababa City Administration. To this end, some data-gathering instruments were used to collect information from which an authentic answers for the following questions will be obtained.

1. How is the availability of curriculum materials in the schools?
2. How is the distribution of curriculum materials among teachers and students?
3. To what extent do teachers use the methodologies suggested in the syllabus?
4. To what extent do teachers use the instructional materials in the syllabus?
5. How are students involved and encouraged to master objectives and attain the goal of the syllabus?
6. How is the learning of individual students assessed and evaluated?
7. What are the major factors that influence the implementation process in the syllabus?

The instruments used were, teachers and students' face-to-face discussions (focus group discussion), classroom and school pedagogical centers' observation, and teachers and school officials questionnaires. Descriptive analysis of the transcription of FGDs and observations have been made. These qualitative data were supported by quantitative data analyzed through percentages. The data were

collected from 12 sample schools, 12 directors, 12 vice-directors, 12-department heads, 48 teachers, 72 students and 24 classrooms. The analysis of the data have revealed the following findings.

#### **5.1.1. Availability and Distribution of Curriculum Materials, and Period Allotment**

Teachers and school officials in 11 schools have confirmed that there is no syllabus in their schools. But in the remaining 11 schools, teacher's guide and student's textbook were available.

In all schools, at which teacher's guide and students' textbook are available, the distribution of teacher's guide was found to be one teacher's guide for one teacher, while the distribution of students textbook varies from school to school, however, to the average one textbook was shared between three students.

In some schools, the weekly period allotted was between 5 and 7. In some schools they were 9 periods. However, in all schools among the weekly period allotted, one period was assigned for radio program. But the period given to the radio program was not considered by the syllabus.

#### **5.1.2. Extent of Teachers Use Various Teaching Methods**

Almost in all the schools the teaching methods employed in the teaching-learning process were found to be lecture, question and answer and note writing. However, there were very few schools that employed other methods like demonstration and discussion. Other methods like, role playing, drama, song, group and individual practical activities, field trip, the use of invited guest, debate and observation could not be practiced due to the following reasons.

- shortage of teaching materials

- shortage of time
- absence of budget for activities out side the school campus
- large class size

#### **5.1.3. Extent of Teachers Use of Teaching Materials**

Most of the classroom interaction were with out teaching materials except very few classes. Those school, that tried to employ some teaching for their teaching have used resources collected by the students. Indeed, in some schools, although it is not frequent, schools officials, teachers and students have confirmed that charts are sometimes used to support the over-used lecture method. Some of the reasons forwarded for the inadequate use of teaching materials indeed are indicated above, however, those which are peculiar particularly for this issue are the following.

- Teacher's lack of commitment
- Inadequate use of the available teaching material

#### **5.1.4. Teachers' Use of Assessment Techniques**

Teachers and students validated that the assessment techniques in use are question and answer, and scheduled test. Other assessment techniques could not be realized. Teachers attribute the causes to shortage of time, the passive nature of students to learning and the large class size. However, beside the limited number of assessment techniques used, teachers were observed using them improperly.

#### **5.1.5. Students Involvement in their Learning and Teachers Support**

As the teaching methods employed are highly dominated by the use of lecture, question and answer, and note-writing, teachers were not able to provide conducive and inviting classroom situations in which students could actively participate in their

learning and master objectives and attain the goal of the syllabus. Very few teachers have tried to encourage their students to be active participants in their learning by using limited number of motivational techniques like verbal praise and use of familiar examples and materials. Besides, few teachers were found enthusiastic about the less able students that the relatively intelligent students to help their learning.

## 5.2. Conclusions

On the basis of these findings, the following conclusions are made.

1. Although it is not serious, the absence of the syllabus in schools appears to affect the implementation process negatively.
2. The suggested and implemented periods have shown considerable differences. This problem is likely to continue and affect the implementation process.
3. Teachers extent of the use of various teaching methods found to be limited to the use of lecture, question and answer , and note writing. The other teaching methods suggested in their learning such as role-play, field trip, practical activity, group and individual work etc. suggested in the syllabus to facilitate active learning were not realized.
4. The majority of teachers are found teaching without teaching materials. Some teachers have used charts sometimes in their teaching.
5. Teachers have tried to implement some of the assessment techniques suggested both in the syllabus and teacher's guide. However, the implemented techniques were not properly utilized .
6. In most classrooms students were observed lacking interest in their learning. This was due to the absence of conducive learning environment.

7. Teachers in some schools have tried to help their less able students and provide conducive learning environment. Students in these schools have shown active participation in the teaching learning process.
8. Many factors impede the implementation of grade 4 Environmental Science syllabus. The major ones are teachers' lack of commitment, absence of appropriate and relevant teaching materials, large class size, improper schools administration and teachers' and school officials lack of interest in the implementation process.

### **5.3. Recommendations**

After recognizing and identifying major problems and their impact on the implementation process, the following recommendations are put forward:

1. Although teacher's guide and students textbook are direct derivations of the syllabus, the study shows that the implementation process is affected due to the absence of the syllabus in school. Hence Regional, zonal and other concerned bodies need to distribute the syllabus together with other curriculum materials before the actual commencement of the academic year.
2. In all schools, the periods in use are less than the suggested (planned). To avoid this discrepancy the following suggestions can be considered.
  - 2.1. During the planning stage, curriculum designers be aware of other activities such as radio program and consider periods for their implementation.
  - 2.2. During the curriculum designing, activities for the implementation have to be considered and the time required for each activity be taken into account.

- 2.3. The radio program has to be considered not only at the implementation stage, but also at the designing level. The time required for the radio program must be included in the syllabus.
  - 2.4. Teachers and concerned school officials have to give considerable attention for the periods indicated in the teacher's guide and make sure that the period allotted is in agreement with the periods indicated in the syllabus.
3. In most of the schools, teachers often use the lecture method in delivering their lesson. As this method does not encourage critical thinking as desired and pupils group work, it becomes one of the serious problems that affects the implementation process negatively. If the following suggestions are ventured, its negative effect will be minimized.
- 3.1. More schools or classrooms have to be built to reduce large class sizes. This could be realized through the collaborative efforts of the government in with parents and community members.
  - 3.2. The required budget for field trip, inviting guest and other relevant activities need to be allocated.
  - 3.3. The school, school officials and other concerned bodies have to seek ways of creating income to subsidize the required budget.
  - 3.4. Science laboratories should be considered as prime concern, and schools get well equipped, and necessary science facilities be available in all schools.

- 3.5. Teaching materials, like charts, models, samples, maps, photographs must be prepared insufficient number at the school pedagogical centers, the necessary budget for these activities must also be allocated.
- 3.6. Curriculum designers must check whether or not the periods they allotted are really sufficient to cover all the contents of the syllabus and take the necessary measures to review and refine the syllabus..
4. The available teaching materials that teachers borrowed from SPCs should be used for the teaching-learning process. Certain mechanism should also be devised by the school officials, at least, to ensure that the teaching materials borrowed are properly utilized. Factors attributed to teachers' lack of commitment may also deserve further investigation. Moreover, realizing that there is teachers dissatisfaction on the overall educational administrations all the concerned bodies should work hard in finding an immediate solution for the problems so that their causes are clearly known and timely dealt with.
5. The provision of conducive learning environment indeed are related to the utilization of appropriate and relevant teaching methods and materials. However, as this study showed, only few questions were asked by both teachers and students. Therefore, students should be encouraged to ask and answer as many questions as possible.
6. This study indicated that there are considerable number of students who are not able to write and read at this stage. This is a serious problem. Teachers and schools officials together with other concerned bodies must try to know the underlying problem and find out its immediate solutions.

7. The finding of this thesis indicates that teachers are using only few assessment techniques. Besides, the few assessment techniques used were not properly utilized. Therefore, teachers should realize that the importance of continuous assessment techniques goes beyond assessing students' learning to enhance learning. Hence teachers should also provide feedback to their students frequently. School officials should also play key roles to, at least provide teachers enough time to correct their students' exercises book and assignments by making them free from some other school activities which can be covered by other members of the staff.
8. As this study is limited to come up with all critical problems being featured in the current curriculum implementation processes, further and more in-depth study has to be carried out in order to provide plausible answers to some of the problems uncovered in the study.

## BIBLIOGRAPHY

### A. Books

- Batts D.G (1991) "Interdisciplinary Approach" in Lewy, A. (ed) **International Encyclopedia of Curriculum: Advances in Education**, Canada, Pergamon Press.
- Blum, A. (1971) "Science Teaching in Developing Societies: Psychological-social Determinants": in Richmond, P.E (ed) **New Trends in Integrated Science Teaching**. Vol. I UNESCO. Paris.
- Bogdan, C.R. and Bicklen, K.S. (1982) **Qualitative Research for Education: An Introduction to Theory and Methods**. Boston, Allyn and Bacon Inc.
- Borich, D.G. (1988) **Effective Teaching Methods**, New York: Macmillan Publishing Company.
- Brandit, D. and Bonn, G. (1997) "Assessment of Science and Agriculture in Primary School in Africa: 12 Countries Cases Reviews" in Bude, U. and Lewin, K. (eds) **Improving Tes Design** Vol. 2 UNESCP: Bonn.
- Carl, E.A. (1995) **Teachers Empowerment Through Curriculum Development: Theory into Practice** Cape Town: Juta Co. Ltd.
- Cohen, D. (1977) "Evaluation in Integrated Science Teaching- an introduction" in Cohen, D. (ed) **New Trends in Integrated Science Teaching**. Vol. IV UNESCO: Paris.
- Cole, G.P. and Chan, K.S. (1994). **Teaching Principles and Practice** 2<sup>nd</sup> ed. Australia: Prentice Hall.
- Dsai, H. (1972) "Future Development in Integrated Science Education in Relation to Environmental Education" in Reay, J. (ed) **Trends in Integrated Science Teaching** Vol. V UNESCO Paris.
- Dubin, F. and Elite, O. **Course Design: Developing Materials and Programs for Language Learning**. Cambridge, Cambridge University Press.
- Eash, M.J. (1991) "Syllabus" in Lewy, A. (ed) **International Encyclopedia of Curriculum: Advances in Education**, Canada, Pergamon Press.
- Fullan, M. (1991) **The New Meaning of Educational Change**. London: Cassel.
- Fullan, M. and Alan, P. (1977) "Research on Curriculum and Instruction. **Review of Educational Research** Vol. 47, No. 2

- Geotz, P.J. and LeCompte, D.M. (1984) **Ethnography and Qualitative Design in Educational Research**. Florida: Academic Press.
- Glatthorn, A.A. and Fashay, A.W (1991) "Integrated Curriculum" in Lewy, A. (ed) **International Encyclopedia of Curriculum: Advances in Education**, Canada, Pergamon Press
- Gron Vall, M. (1994) **Methodological Guide for Environmental Education in Ethiopia**. Mekuanent Kelemu (ed) Addis Ababa: Artistic Printers.
- ICDR (1998) **Classroom Interaction in Some Ethiopian Primary School**. Addis Ababa. EMPDA
- Ingram, B.J. (1979) **Curriculum Integration and Life Long Education** UNESCO: Hamburg
- Juckling, B. (ed) (1998) **Canadian Journal of Environmental Education** Vol. 1. Canada.
- \_\_\_\_\_ (1998) **Canadian Journal of Environmental Education** Vol. 3. Canada.
- \_\_\_\_\_ (1998) **Canadian Journal of Environmental Education** Vol. 4. Canada.
- Lewy, A. (1979) **Handbook of Curriculum Evaluation**. UNESCO: Paris.
- Lockheed, E.M. (etal) (1991) **Improving Primary Education in Developing Countries**. Oxford: Oxford University Press.
- Ministry of Education (1994) **Education Sector Strategy** . Addis Ababa.
- Ministry of Education of India (1988) **National Curriculum for Elementary and Secondary Education**. New Delhi.
- Neal, P. and Palmer, J. (1990) **Environmental Education in the Primary Schools**. Great Britain: Dotesion Printers.
- Reece, I. and Walker, S. (1994) **Teaching, Training and Learning** 2<sup>nd</sup> ed. Great Britain: Martins Printers.
- Robson, C. (1993) **Real World Research: A Resource for Social Scientist and Practitioner Researchers**. Great Britain: Black Well Publishers.

Strickland, K. (1991) "Student-centered Curriculum" in Lewy, A (ed) **International Encyclopedia of Curriculum: Advances in Education**, Canada, Pergamon Press.

Yoloye, E.A. (1977) "Observation Techniques" in Lewy, A. (ed) **Hand Book of Curriculum Evaluation**. UNESCO.

### **B. Unpublished Materials**

Dawit Mekonnen (1999) **An Evaluation of the Implementation of Seventh Grade English Syllabus in Eastern Gojam** MA Thesis. Addis Ababa University

Getachew Mekonen (1994) **An Evaluation of the Implementation of the Lower Primary School Social Science Studies Syllabus: The Case of Notrh Shewa Administrative Zone** MA Thesis. Addis Ababa University

ICDR (1990). **Grade Four Environmental Science Syllabus**

ICDR (1998) **Formative Evaluation of the Tryout Project of the New Curriculum Materials of Grade 4 and 8.**

### **C. Text Book**

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ለየት ያለ ሁኔታ ካጋጠመ በምርመራ ስር ሁኔታውን መመዝገብ ነው።

በሰንጠረዥ 2: 5 የማስተማሪያ ዘዴዎች ተጠቁመዋል። በያንዳንዱም የማስተማር ዘዴ ሊያጋጥሙ የሚችሉ ሁኔታዎች ተዘርዝረዋል። አብዛኛው እንደ ሰንጠረዥ ሁለት የሚሞላ ሆኖ በተለይ በመርጃነት የቀረቡ የማስተማሪያ መሣሪያዎች ካሉ ለዚህ በተሰጠ ቦታ ይመዘገባሉ። የክርክሩ፣ የድራማው፣ የሚና ጨዋታው፣ የመዝሙር፣ የግጥሙ ርዕስም

ይመዘገባል። በነዚህም እንቅስቃሴዎች በቀጥታ የተሳተፉ የተማሪዎች ቁጥር በጾታ ተለይቶ ይሞላል። በተጨማሪም ከእንቅስቃሴዎቹ በኋላ በክፍል ውስጥ የተደረገውን ሂደት በተሰጠው ቦታ መሙላት ያስፈልጋል።

በሰንጠረዥ 3፡ አንድ የማስተማሪያ ዘዴ ብቻ ተመልክቷል። በአብዛኛው ከ ላይ በተገለጹት ሰንጠረዦች አይነት የሚሞላ ሆኖ ምልክታ የተደረገበትን ቦታ በት/ቤት ውስጥ ወይም ከት/ቤት ውጪ መሆኑን በተሰጠው ቦታ "✓" ምልክት በማድረግ ይገለጻል።

በመጨረሻም የመማር ማስተማሩን ሂደት አስመልክቶ በክፍሉ ውስጥ የታዩትን ሂደቶች እንዳሉ የሚዘገቡበት ክፍት ቦታ ተትቷል። በዚህም ላይ የሚመዘገቡት ከዚህ ጥናት ጋር ቀጥተኛ ግንኙነት ያላቸው የክፍሉ ውስጥ ክስተቶች ብቻ ናቸው። ማለትም፡

1. በማስተማሪያ ዘዴዎች አጠቃቀም ላይ የታዩ አጠቃላይ ሁኔታዎች
2. በማስተማሪያ መሣሪያዎች አጠቃቀም ላይ የታዩ አጠቃላይ ሁኔታዎች
3. መምህሩ/ርቷ ተማሪዎች በመማር ማስተማር ሂደት ውስጥ እንዲሳተፉ ያደረጉት ጥረት
4. መምህሩ/ርቷ ተማሪዎች ትምህርቱን መከታተላቸውን ለማረጋገጥ የተጠቀሙበት ዘዴዎችን በተስተዋሉ ቁጥር መመዘገብ ነው።



ሰንጠረዥ 2

የማስተማሪያ ዘዴ	በመርጃነት የቀረበ የትምህርት መሣሪያ ካለ	ርዕስ	የተሳታፊ ተማሪዎች ብዛት		የመምህሩ ተግባር					የተማሪው ተግባር					የመማር ማስተማር ሂደት ከተግባር ክንዋኔ በኋላ									
			ወ	ሴ	ተመልካች አድማዌ	ጥያቄ ጠያቂ	መልስ ሰጪ	መሪ	ሌላ	አድማዌ	አስተያየት ሰጪ	ጠያቂ	መልስ ሰጪ	ሌላ	በመምህሩ			በተማሪው						
															ማሳሰቢያ	ገለጻ	ጥያቄ	መልስ	ተጨማሪ አስተያየት	ጥያቄ	መልስ	መልስ መስጠት	ሌላ	
1. ክርክር	የጀመረበት																							
	የቆመበት																							
	ልዩነት																							
2. ድራማ	የጀመረበት																							
	የቆመበት																							
	ልዩነት																							
3. መዝሙር	የጀመረበት																							
	የቆመበት																							
	ልዩነት																							
5. ሚና ጨዋታ / ሮል ፕሌይንግ/	የጀመረበት																							
	የቆመበት																							
	ልዩነት																							

ሰንጠረዥ 3

የማስተማሪያ ዘዴ	ርዕስ	ቦታ		የመምህሩ ተግባር					የተማሪው ተግባር				ከመስክ ጉብኝት በኋላ የመማር ማስተማር ሂደት													
		ታ/ቤት	ከት/ቤት ውጭ	መሪ	ተመልካች	ገለጻ ሰጪ	ጠያቂ	መልስ ሰጪ	ሌላ	አድማዌ	ተመልካች	ማስታወሻ መያዝ	ሌላ	ገለጻ/ማስታወሻ	ጥያቄ	መልስ	ሪፖርት ማድመጥ	ሌላ	ሪፖርት ማድረግ		መወያየት	መጠየቅ	መመለስ	ሌላ		
																			በቡድን	በተናጠል						
1. የመስክ ጉብኝት	የጀመረበት																									
	የቆመበት																									
	ልዩነት																									

III አጠቃላይ የክፍል ሁኔታ መመዘገቢያ

1. በማስተማሪያ ዘዴዎች አጠቃቀም የታዩ ሁኔታዎች

1.1. \_\_\_\_\_

1.2. \_\_\_\_\_

1.3. \_\_\_\_\_

2. በማስተማሪያ መሣሪያዎች አጠቃቀም የታዩ ሁኔታዎች

2.1. \_\_\_\_\_

2.2. \_\_\_\_\_

2.3. \_\_\_\_\_

3. ተማሪዎች በመማር ማስተማር ሂደት እንዲሳተፉ መምህሩ/ርታ የሚያደርጉትን ጥረት እና የተማሪዎች ተሳትፎ ሁኔታ

3.1. \_\_\_\_\_

3.2. \_\_\_\_\_

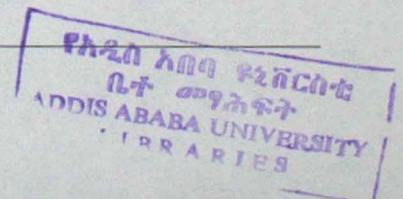
3.3. \_\_\_\_\_

4. መምህሩ/ቷ ተማሪዎች ትምህርቱን መከታተላቸውን የሚያረጋግጡበት የግምገማ ዘዴ አጠቃቀም ሁኔታ

4.1. \_\_\_\_\_

4.2. \_\_\_\_\_

4.3. \_\_\_\_\_



በአዲስ አበባ ዩኒቨርሲቲ

የድህረ ምረቃ ት/ቤት

የትምህርት ፋኩሊቲ

የካሪክለምና ኢንስትራክሽን የትምህርት ክፍል

የትምህርት መሣሪያዎች የምልክታ ቅጽ 2

ይህ ቅጽ በመጀመሪያ ደረጃ የመጀመሪያው ሳይክል የ4ኛ ክፍል የአካባቢ ሳይንስ መርሃ ትምህርት በምን ያህል ደረጃ በተግባር እየተተረጎመ መሆኑን ለማጥናት እንዲረዳ የተዘጋጀ ነው። በዚህ ቅጽ ውስጥ በ4ኛ ክፍል የአካባቢ ሳይንስ መርሃ ትምህርት ላይ የተዘረዘሩ የማስተማሪያ መርጃ መሣሪያዎች ተዘርዝረዋል። ይህም ቅጽ የተዘረዘሩት የመርጃ መሣሪያዎች በትምህርት ቤት የትምህርት ማበልጸጊያ ማዕከል መገኘታቸውንና አለመገኘታቸውን፣ ከተገኙም ብዛታቸው ምን ያህል እንደሆነ፣ በመምህራን ለምን ያህል ጊዜ በትውስት መስጠታቸውን ለማረጋገጥ ይረዳል ተብሎ የተዘጋጀ ነው። የትኛውም ምላሽ ሚስጥርነቱ የተጠበቀ ነው።

ውድ የትምህርት ማበልጸጊያ ተጠሪ የቅጹ ዋና አላማ ከላይ እንደተዘረዘረው ሆኖ ጥናቱም ለድህረ ምረቃ ትምህርት የኤም ኤዲ ድግሪ ማሟያ ወረቀት ስለሆነ በትክክል ያለውን ሁኔታ በመግለጽ ቅን ትብብር እንዲያደርጉልን በማክበር እንጠይቃለን።

I አጠቃላይ

1. የት/ቤቱ ስም \_\_\_\_\_
- 1.1. ዞን \_\_\_\_\_
- 1.2. ወረዳ \_\_\_\_\_
2. በት/ቤቱ ያሉ የ4ኛ ክፍሎች ብዛት \_\_\_\_\_
3. በት/ቤቱ የሚገኙ የአካባቢ ሳይንስ መምህራን ብዛት \_\_\_\_\_
4. በት/ቤቱ ለሚገኘው የትምህርት ማበልጸጊያ ማዕከል ቋሚ ተጠሪ/ሀላፊ/
 

አለው	<input type="checkbox"/>	የለውም	<input type="checkbox"/>
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5. የማዕከሉ ሀላፊ የሙያ ሥልጠና
 

አለው/ላት	<input type="checkbox"/>	የለውም/ላትም	<input type="checkbox"/>
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6. የሙያ ስልጠናው የፈጀው ጊዜ
 

ሀ. ከሳምንት ላልበለጠ ወርክሾፕ	<input type="checkbox"/>
ለ. ከወር ላልበለጠ ስልጠና	<input type="checkbox"/>
ሐ. ከሦስት ወር ላልበለጠ ስልጠና	<input type="checkbox"/>

ከነዚህ የተለየ ካለ  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



17. በማዕከሉ ለሥራ ማስኬጃ የሚሆን በጀት አለው? ካለው ምን ያህል ነው?

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18. ማዕከሉ ለሥራ ማስኬጃ የሚጠቀምበት ገንዘብ ለእንቅስቃሴው ምን ያህል ይረዳዋል? በቂ ነው?

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19. ማዕከሉ ለሥራ ማስኬጃ የሚሆን ገንዘብ ምን ያህሉን ይጠቀምበታል? ምን ያህሉንስ ተመላሽ ያደርጋል? ለምን?

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20. ማዕከሉን በሚመለከት ሊነግሩን የሚፈልጉት ነገር ካለ?

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II ከዚህ በታች የተዘተዘሩት የማስተማሪያ መገልገያ መሣሪያዎች 4ኛ ክፍል የአካባቢ ሳይንስ የመርሀ ትምህርት ውስጥ የተዘረዘሩ ናቸው። በሰንጠረዥ መሠረት አስፈላጊውን መረጃ በመስጠት ይተባበሩን።

የማስተማሪያ መገልገያዎች አይነት	የመገኘት ሁኔታ		ካለ ብዛት	መምህራን የመጠቀም ሁኔታ		
	አለ	የለም		ብዙ ጊዜ	አንዳንድ ጊዜ	በፍጹም
1. ቻርቶች						
1.1 አራቱን መሠረታዊ ምግብ የሚያሳይ						
1.2 ዋና ዋና ማዕድናት የሚገኙባቸውን የምግብ አይነቶች የሚያሳይ						
1.3. በካርቦ ኃይድሬት የበለፀጉ ምግቦችን የሚያሳይ						
1.4. በቅባትና ዘይቶች የበለጸጉ ምግቦችን የሚያሳይ						
1.5. በፕሮቲን የበለጸጉ ምግቦችን የሚያሳይ						
1.6 የቪታሚን አይነቶችንና ጥቅማቸውን የሚያሳይ						
1.7 ሥርዓተ ልመትን የሚያሳይ						
1.8 የደም ዝውውርን የሚያሳይ						
1.9 የደም ህዋሶችን የሚያሳይ						
1.10 የደም ህዋሶችን ሥሪት የሚያሳይ						
1.11 የተመጣጠነ ምግብን የሚያሳይ						
1.12 የተለያዩ ቪታሚኖችን የሚያሳይ						
1.13 የኤድስ በሽታን የሚያሳይ						
1.14 የወስፋት ዜና ህይወትን የሚያሳይ						
1.15 የጃርዲያ ዜና ህይወት የሚያሳይ						
1.16 የወባ ዜና ህይወት የሚያሳይ						
1.17 የቢልሃርዚያ ትል ዜና ህይወት የሚያሳይ						

የማስተማሪያ መገልገያዎች አይነት	የመገኘት ሁኔታ		ካለ ብዛት	መምህራን የመጠቀም ሁኔታ		
	አለ	የለም		ብዙ ጊዜ	አንዳንድ ጊዜ	በፍጹም
1.18 በሽታን የሚያመጡ ነገሮች ወደ ሰውነት የሚገቡበት መንገድን የሚያሳይ						
1.19 በሽታን የመከላከያ ዘዴዎችን የሚያሳይ						
1.20 በተለያዩ የእድሜ ክልል እና የታ የሚገኙ ሰዎች የሚሰሩትን ሥራ የሚያሳይ						
1.21 በዕድሜ የተነሳ በሰውነት ላይ የሚታዩ ለውጦችን የሚያሳይ						
1.22 የተለያዩ እጽዋትን የሚያሳይ						
1.23 የተለያዩ የቤት እንስሳትን የሚያሳይ						
1.24 የአየር ዝውውርን የሚያሳይ						
2. ሰንጠረዦች						
2.1. የዕቅድ ሰንጠረዥ						
2.2. የበጀት አወጣጥ						
2.3. የጊዜ ዕቅድ						
3 ፖስተሮች						
3.1. በዕቅድ መውለድን የሚያሳይ						
3.2. የኤድስ በሽታን የሚያሳይ						
3.3. የክልሎችን ባንዲራ የሚያሳይ						
4. ካርታዎች						
4.1. የአገሮችን ወሰን የሚያሳይ የአለም ካርታ						
4.2. የአፍሪካ አገሮች ወሰን የሚያሳይ ካርታ						
4.3. የክልሎችን ወሰን የሚያሳይ የኢትዮጵያ ካርታ						
4.4 ከፍተኛና ዝቅተኛ ቦታዎችን የሚያሳይ የኢትዮጵያ ካርታ						
4.5. ዋና ዋና ተራራዎችን የሚያሳይ የኢትዮጵያ ካርታ						
4.6. የሙቀትና የዝናብ ስርጭትን የሚያሳይ የኢትዮጵያ ካርታ						
4.7 የእጠቀሱና የዱር እንስሳት ስርጭትን የሚያሳይ ካርታ						
4.8 የአፈር ዓይነቶችን የሚያሳይ የኢትዮጵያ ካርታ						
4.9 የሀዝብ አሰፋፊርን የሚያሳይ የኢትዮጵያ ካርታ						
4.10 የእርሻ ሥራዎችን የሚያሳይ የኢትዮጵያ ካርታ						
4.11 የኢንዱስትሪ ሥርጭቶችን የሚያሳይ የኢትዮጵያ ካርታ						
4.12 የማዕድናት ሥርጭትን የሚያሳይ ካርታ						
4.13 ታሪካዊ ቦታዎችን የሚያሳይ ካርታ						
5. ፎቶግራፎች						
5.1 የታሪካዊ ቅርሶችን የሚያሳይ						
5.2. የኢትዮጵያ ታዋቂ የሙዚቃ፣ የፖለቲካ፣ የስፖርት፣ የስነ ጥበብ፣ የፍልስፍና ሰዎችን የሚያሳይ						

የማስተማሪያ መገልገያዎች አይነት	የመገኘት ሁኔታ		ክለ ብዛት	መምህራን የመጠቀም ሁኔታ		
	አለ	የለም		ብዙ ጊዜ	አንዳንድ ጊዜ	በፍጹም
5.3. በተለያዩ የኢትዮጵያ ክፍሎች የሚኖሩ ብሔረሰቦች መልክ የሚያሳይ						
5.4. የተለያዩ ብሔረሰቦች አለባቸውን የሚያሳይ						
4. ሳምፕሎች /ናሙናዎች/						
6.1 የተለያዩ የእዕዋት ቅጠሎች						
6.2 የአፈር አይነቶች						
6.3 የእህል አይነቶች						
6.4 የተለያዩ አበባዎች						
6.5 ባንዲራዎች						
7. የተለያዩ ቁሳቁሶች						
7.1 ሜትሮች						
7.2 ሚዛኖች						
7.3 ምስግሮች						
7.4 ሴት እስኪያር						
7.5 ፕሮትራክተር						
7.6 ሲሊንደሮች						
7.7 መቀስ						
7.8 ቢላ						
7.9 ኩራዝ						
7.10 ቢክርስ						
7.11 ምድጃ						
7.12 ጉልቻ						
7.13 ሌንሶች						
7.14 ቆርቆሮዎች /እቃ መያዣ/						
7.15 የተለያዩ መጠን ያላቸው ብረቶች						
7.16 ብረት ድንጋይ						
7.17 የእጅ ባትሪ አይን አምፎል						
7.18 የቤት ውስጥ አምፎል						
7.19 የብረት ዱቄት						
7.20 ማግኔቶች						
7.21 የጉማ ዘንጎች						
7.22 ገሶ						
7.23 ዶማ						
7.24 አካፋ						
7.25 ሰፊድ						
7.26 ስፖንጅ						
7.27 ጣውላ						
7.28 ስብርባሪ ገል						
7.29 የባህል ዕቃዎች						
7.30 የሳይንስ ኪት						

በአዲስ አበባ ዩኒቨርሲቲ  
የድህረ ምረቃ ት/ቤት  
የትምህርት ፋኩልቲ

የካሪክለምና ኢንስትራክሽን የትምህርት ክፍል

ለ4ኛ ክፍል የአካባቢ ሳይንስ መምህራን የቀረበ መጠይቅ

የመጠይቁ ዓላማ:- የዚህ መጠይቅ ዓላማ የ4ኛ ክፍል የአካባቢ ሳይንስ መርሃ ትምህርት /ሲለበስ/ የተግባር ክንዋኔ በምን ያህል ደረጃ በሥራ ላይ እንደዋለ ለማጥናት ነው። የጥናቱ ውጤት በካሪኩለምና ኢንስትራክሽን የኤም ኤ ዲ ዲግሪ ማሟያ ወረቀት ለማዘጋጀት የሚውል ሲሆን፣ ከዚህም በላይ በአካባቢ ሳይንስ መርሃ ትምህርት የተግባር ሂደት ላይ ያጋጠሙ ችግሮችን ለይቶ በማውጣት ለወደፊቱ በዚህ ዙሪያ ለሚደረጉ ማሻሻሎች ይረዳል ተብሎ ይታሰባል። ስለዚህ እርስዎ ይህን መጠይቅ በነፃ ስሜት ትክክለኛውን ሁኔታ በመሙላት ለጥናቱ የራስዎ የሆነ አስተዋጽኦ ያደርጉ ዘንድ በማክበር እንጠይቃለን። ጥናቱ የተግባሩን ትክክለኛ ገጽታ ማወቅ የሚሻ ስለሆነ በድጋሚ ትክክለኛውን ሁኔታ እንዲሞሉልን እንጠይቃለን። የትኛውም ምላሽ ሚስጥረነቱ የተጠቀበ ነው። ለሚያደርጉልን ትብብር በቅድሚያ እናመሰግናለን።

ክፍል አንድ

- 1.1. የት/ቤቱ ስም \_\_\_\_\_
- 1.1.1. ዞን \_\_\_\_\_
- 1.1.2. ወረዳ \_\_\_\_\_
- 1.2. የት/ደረጃዎ/ በትክክለኛ ምርጫ ላይ "✓" ምልክት ያድርጉ
  - 1.2.1. 12 መ.ማ.ተቋም  1.2.4. 12+3
  - 1.2.2. 12+1  1.2.5. 12+4
  - 1.2.3. 12+2 /ዲፕሎማ/  1.2.6. 12+4 በላይ/ሌላ
- 1.3. ያታ /በትክክለኛ ምርጫ ላይ "✓" ምልክት ያድርጉ
  - 1.3.1. ወንድ  1.3.2. ሴት
- 1.4. የአገልግሎት ዘመን በመምህርነት \_\_\_\_\_ ዓመት
- 1.5. በሳምንት የሚያስተምሩት ክፍል ጊዜ \_\_\_\_\_

1.1. ከሥርዓተ ትምህርት መሣሪያዎች፣ ማለትም መርሃ ትምህርት /ሲለበስ/፣ የመምህሩ መምሪያ፣ እና የተማሪው መጽሐፍ መሀከል እርስዎ በማስተማር ስራ የሚጠቀሙት በየትኞቹ ነው?

ሀ. የመምህሩ መምሪያ፣ የተማሪው መጽሐፍ

ለ. ሲለበስ፣ የመምህሩ መምሪያ

ሐ. ሲለበስና፣ የመምህሩ መምሪያ

መ. ሁሉንም

1.2. የመምህሩ መምሪያና፣ መርሃ ትምህርቱ /ሲለበስ/ ካለዎት ለማስተማር ስራዎ ምን ያህል የሚረዱ ይመስልዎታል?

ሀ. በከፍተኛ ደረጃ ጠቃሚ ናቸው

ሐ. ይህን ያህልም አይደሉም

ለ. ጠቃሚ ናቸው

መ. አጥቶቅሙም

1.3. መልስዎ ጠቃሚ አይደሉም ከሆነ ምክንያቱን ቢገልፁልን

1.4. በመርሃ ትምህርቱ ዝግጅት ወቅት የመሳተፍ እድል አግኝተዋል?

ሀ. አዎ

ለ. የለም

1.5. የ4ኛ ክፍልን የአካባቢ ሳይንስ መርሃ-ትምህርትን አስመልክቶ በሴሚናር፣ በወርክሾፕ ወይም በአጭር ማስተዋወቂያ ላይ ተካፍለዋል።

ሀ. አዎ

ለ. የለም

1.6. ለ1.10 ጥያቄ መልስዎ አዎ ከሆነ ለምን ያህል ጊዜ እንደሆነ ይግለጹልን።

ሀ. \_\_\_\_\_ ጊዜ ወርክሾፕ

ለ. \_\_\_\_\_ ጊዜ ሴሚናር

ሐ. \_\_\_\_\_ ጊዜ አጭር ስልጠና

### ክፍል ሁለት

2. በ4ኛ ክፍል የአካባቢ ሳይንስ መርሃ ትምህርት የተጠቀሙ የማስተማሪያ ዘዴዎች ከዚህ በታች ባለው ሰንጠረዥ ውስጥ ተዘርዝረዋል። እርስዎ በማስተማር ስራዎ እንዳጠቃቀምዎ ደረጃ ያወጡላቸው። ማለትም በብዛት የሚጠቀሙበትን 1፣ ቀጥሎ የሚጠቀሙበትን 2 ... እያሉ ደረጃ መስጠት ሲሆን ጨርሰው የማይጠቀሙበትን 0 በማለት መሙላት ነው።

ተ.ቁ	የማስተማሪያ ዘዴ	የአጠቃቀም ደረጃ
2.1	በቃል ማስረዳት /ገለጻ/	
2.2	ጥያቄና መልስ	
2.3	ውይይት	
2.4	በጥቁር ሰሌዳ ላይ መጻፍ /ኖት መጻፍ/	
2.5	ክርክር	
2.6	ሙከራ በመሥራትና በማሳየት	
2.7	በግልና በቡድን ተማሪዎችን በማሠራት	
2.8	የመስክ ጉብኝት በማድረግ	
2.9	በመዝሙር	
2.10	በሚና ጨዋታ /ሮል ፕሌይ/	
2.11	በድራማ	
2.12	ተጋባዥ እንግዳ በመጠቀም	
2.13	ተማሪዎች ምልክታ /ኦብዘርቪሽን/ እንዲያደርጉ በማድረግ	

### ክፍል ሦስት

3. ከላይ በክፍል ሁለት የተዘረዘሩት የማስተማሪያ ዘዴዎች ከዚህ በታች በድጋሚ ቀርበዋል። እርስዎ እነዚህን ዘዴዎች በምን ያህል ደረጃ እንደሚጠቀሙ "✓" ምልክት በአጠቃቀም ደረጃ ላይ በማስቀመጥ ይግለጹ።

ተ.ቁ	የማስተማሪያ ዘዴ	የአጠቃቀም ደረጃ			
		ከፍተኛ	መካከለኛ	ዝቅተኛ	ተጠቅሚ አላውቅም
3.1	በቃል ማስረዳት /ገለጻ/				
3.2	ጥያቄና መልስ				
3.3	ውይይት				
3.4	በጥቁር ሰሌዳ ላይ መጻፍ /ኖት መጻፍ/				
3.5	ክርክር				
3.6	ሙከራ በመሥራትና በማሳየት				
3.7	በግልና በቡድን ተማሪዎችን በማሠራት				
3.8	የመስክ ጉብኝት በማድረግ				
3.9	በመዝሙር				
3.10	በሚና ጨዋታ /ሮል ፕሌይ/				
3.11	በድራማ				
3.12	ተጋባዥ እንግዳ በመጠቀም				
3.13	ተማሪዎች ምልክታ /ኦብዘርቪሽን/ እንዲያደርጉ በማድረግ				

### ክፍል አራት

4. ከዚህ በታች ለ4ኛ ክፍል አካባቢ ሳይንስ መርሃ-ትምህርት ላይ የተጠቀሱ የማስተማሪያ መሣሪያዎች ተዘርዝረዋል። ስለሆነም እርስዎ በማስተማር ስራዎ ላይ በምን ያህል ደረጃ እንደሚጠቀሙ በአጠቃቀሙ ሁኔታ ላይ "✓" ምልክት በማድረግ ይግለጹልን።

ስለአጠቃቀሙ ምክንያት ካለዎት በምክንያት በሚለው ቦታ ዋናውን አንድ ምክንያት ይግለጹልን።

ተ.ቁ	የማስተማሪያ መሣሪያ	የአጠቃቀም ሁኔታ				ምክንያት
		ክፍተኛ	መሀከለኛ	ዝቅተኛ	ተጠቅሚ አላውቅም	
4.1	ቻርት					
4.2	ሞዴል					
4.3	ስዕል					
4.4	ሰንጠረዥ					
4.5	ካርታ					
4.6	ፎቶግራፍ					
4.7	ስላይድ					
4.8	ፊልም					
4.9	ጥቁር ሰሌዳ					
4.10	ናሙና					
4.11	የሙከራ ቁሳቁስ					

5. ከዚህ ቀጥሎ በመርሃ ትምህርቱ ወይም በመምህሩ መምሪያ ላይ የተዘረዘሩት 13 የማስተማሪያ ዘዴዎች የአጠቃቀም ሁኔታን በተመለከተ ጥያቄዎች ቀርበዋል። ለያንዳንዱ የማስተማር ዘዴ 2 ጥያቄዎች አሉ። ለሁሉም ጥያቄ ምርጫዎች ቀርበዋል። ለያንዳንዱ ዘዴ በተራ ቁጥር 1 ላይ ያለውን ጥያቄ የሚመልሱት በዘዴው የሚጠቀሙ ከሆነ ነው። በዘዴው የማይጠቀሙ ከሆነ በተራ ቁጥር 2 ላይ ያለውን ጥያቄ መመለስ ያለበት። ነገር ግን በምርጫዎቹ የርስዎን ሙሉ በሙሉ ሊገልጹ ካልቻሉ በምርጫ ፊደል "ሠ" ላይ ባለው ክፍት ቦታ ሀሳብዎን በጽሑፍ መግለጽ ይችላሉ።

I. ገለፃ

1. ገለፃን አዘውትራ እጠቀማለሁ። ምክንያቱም፡

- ሀ. ሰፊ ማብራሪያ ለመስጠት ስለሚያስችል
- ለ. በክፍል ያሉኝ ተማሪዎች ብዙ በመሆናቸው
- ሐ. የሰለጠንኩበት ዘዴ ስለሆነ
- መ. ጊዜ የሚቆጥብ ስለሆነ
- ሠ. \_\_\_\_\_

2. ገለጻን አዘውትራ አልጠቀምም። ምክንያቱን

- ሀ. ክህሎትን የሚያሰገኝ ባለመሆኑ
- ለ. የተማሪዎችን ተሳትፎ ስለሚገድብ
- ሐ. የተማሪዎችን መማር ለማወቅ ስለማይረዳ
- መ. ጥያቄ ለመጠየቅ ስለሚያስችል
- ሠ. \_\_\_\_\_

II አጫጭር ማስታወሻዎችን በጥቁር ሰሌዳ ላይ መጻፍ

1. አጫጭር ማስታወሻዎችን /ኖት/ በጥቁር ሰሌዳ ላይ መጻፍ አዘውትራ እጠቀምበታለሁ። ምክንያቱም፡-

- ሀ. ለተማሪዎች ጥናት ስለሚረዳ
- ለ. የበለጠ ዕውቀት ስለሚሰጣቸው
- ሐ. የመማሪያ መጽሐፍ ተማሪዎች ስለሌላቸው
- መ. የመማሪያ መጽሐፍ ትልቅ ስለሆነ
- ሠ. \_\_\_\_\_

2. አጫጭር ማስታወሻዎችን /ኖት/ በጥቁር ሰሌዳ ላይ መጻፍ አዘውትራ አልጠቀምም። ምክንያቱም፡-

- ሀ. የመማሪያ መጽሐፍ ተማሪዎች ስላላቸው
- ለ. የተማሪዎችን ተሳትፎ ስለሚገድብ
- ሐ. የእውቀት ማስተላለፊያ ዘዴ ባለመሆኑ
- መ. ጊዜ የሚፈጅ በመሆኑ
- ሠ. \_\_\_\_\_

III. ጥያቄና መልስ

1. ጥያቄና መልስን ብዙ ጊዜ እጠቀምበታለሁ። ምክንያቱም፡-

- ሀ. ተማሪዎችን የሚያሳትፍ በመሆኑ
- ለ. ስህተቶችን በተላላ ለማረም ስለሚረዳ
- ሐ. ተማሪዎች ምን ያህል እንደተማሩ ለማወቅ ስለሚረዳኝ
- መ. ተማሪዎችን ለማነቃቃት ስለሚረዳ
- ሠ. \_\_\_\_\_

2. ጥያቄና መልስን ብዙ ጊዜ አልጠቀምም። ምክንያቱም

- ሀ. ጊዜ የሚፈጅ በመሆኑ
- ለ. ተማሪዎች ለሚጠይቁት ጥያቄ ወዲያው መልስ ለመስጠት ስለሚቸግር
- ሐ. ብዙ ተማሪዎች ስለማያሳትፍ

መ. በቅድሚያ ጥያቄ ማዘጋጀት ስለሚጠይቅ

ሠ. \_\_\_\_\_

IV ውይይት

1. ውይይትን ብዙ ጊዜ እጠቀምበታለሁ። ምክንያቱም

ሀ. ብዙ ተማሪዎችን ስለሚያሳትፍ

ለ. ከገለፃ በኋላ በግድ መወያየት ስለሚያስፈልግ

ሐ. የተማሪዎችን አመለካከት ስለሚቀይር

መ. የተማሪዎችን የመናገር ችሎታ ስለሚያዳብር

ሠ. \_\_\_\_\_

2. ውይይትን ብዙ ጊዜ አልጠቀምም። ምክንያቱም፡-

ሀ. ብዙ ጊዜ ስለሚወስድ

ለ. በክፍሉ ውስጥ ያሉ ተማሪዎች ብዙ ስለሆኑ

ሐ. ሁሉንም ተማሪዎች ስለማያሳትፍ

መ. የማወያየት ክህሎት ስለሌለኝ

ሠ. \_\_\_\_\_

V በቡድንና የተናጠል ሥራን ማሠራት ማሠራት

1. በቡድን እና በተናጠል ተማሪዎችን ማሠራትን ብዙ ጊዜ እጠቀምበታለሁ።

ምክንያቱም፡-

ሀ. በቡድን መሠራት ያለባቸው ብዙ ሥራዎች ስላሉ

ለ. ቀና የማስተማር ስልት ስለሆነ

ሐ. ተማሪዎችን ለጥናትና ለምርምር ስለሚጋብዝ

መ. በክፍል ውስጥ ያሉ ተማሪዎቼን በቀላሉ በቡድን መክፈል ስለምችል

ሠ. \_\_\_\_\_

2. በቡድን እና በተናጠል ተማሪዎችን ማሠራትን ብዙ ጊዜ አልጠቀምበትም።

ምክንያቱም፡-

ሀ. ተማሪዎቼ ብዙ ስለሆኑ

ለ. ጊዜ የሚፈጅ ስለሆነ

ሐ. በቡድን የሚሠራ ሥራ በትምህርት ውስጥ ስለማይገኝ

መ. ተማሪዎች በቡድን ለመሥራት ፈቃደኛ ስላልሆኑ

ሠ. \_\_\_\_\_

VI የተናጠል ሥራ

1. ተማሪዎችን በተናጠል ሥራ እንዲሠሩ ብዙ ጊዜ አደርጋለሁ። ምክንያቱም፡-

- ሀ. በቂ መሣሪያዎች ስላሉኝ
- ለ. ተማሪዎች በግል ለመሥራት ደስተኛ ስለሆኑ
- ሐ. ጥቂት ተማሪዎች ስላሉኝ
- መ. በተማሪዎቹ መሀከል ያለውን ልዩነት በቀላሉ ለመረዳት ስለሚያስችል
- ሠ. \_\_\_\_\_

2. ተማሪዎችን በተናጠል ሥራ እንዲሠሩ ብዙ ጊዜ አላደርግም። ምክንያቱም

- ሀ. ትምህርቱን ለመጨረስ ጊዜ ስለሌለኝ
- ለ. በክፍል ውስጥ ያሉት ተማሪዎች ብዙ ስለሆኑ
- ሐ. የያንዳንዱን ሥራ ለመገምገም ስለማልችል
- መ. የትምህርቱ ይዘት ሰፊ ስለሆነ
- ሠ. \_\_\_\_\_

**VI ሠርቶ ማሳየት**

1. ሠርቶ በማሳየት ብዙ ጊዜ አስተምራለሁ። ምክንያቱም፡-

- ሀ. በቂ የማስተማሪያ መርጃ ስላለኝ
- ለ. በክፍል ውስጥ ያሉ ተማሪዎች ብዙ ስለሆኑ
- ሐ. ተማሪዎችን ስለሚያስደስታቸው
- መ. በቂ ጊዜ ስላለኝ
- ሠ. \_\_\_\_\_

2. ሠርቶ በማሳየት ብዙ ጊዜ አላስተምርም። ምክንያቱም፡-

- ሀ. በቂ የማስተማሪያ መርጃ ስለሌለኝ
- ለ. የጊዜ እጥረት ስላለብኝ
- ሐ. በዚህ የማስተማር ዘዴ ስልጠና ስለሌለኝ
- መ. በክፍል ውስጥ ብዙ ተማሪዎች ስላሉ
- ሠ. \_\_\_\_\_

**VII ክርክር**

1. ክርክርን ብዙ ጊዜ ለማስተማሪያነት እጠቀምበታለሁ። ምክንያቱም፡-

- ሀ. ተማሪዎችን ስለሚያሳትፍ
- ለ. የተማሪዎችን የመጠየቅ ችሎታ ስለሚጨምር
- ሐ. በቂ ጊዜ ስላለኝ
- መ. በትምህርቱ ውስጥ ለመከራከሪያ የሚሆኑ ይዘቶች ስላሉ
- ሠ. \_\_\_\_\_

2. ክርክርን ብዙ ጊዜ ለማስተማሪያነት አልጠቀምበትም። ምክንያቱም፡-

- ሀ. ሰፊ ጊዜ የሚፈጅ በመሆኑ
- ለ. በዚህ የማስተማሪያ ዘዴ ባለመሰልጠኔ
- ሐ. ለዚህ የሚሆን ይዘት ስለሌለ
- መ. ብዙ ተማሪዎችን ስለሚያሳትፍ
- ሠ. \_\_\_\_\_

VIII ድራማ

1. ድራማን በማስተማሪያነት ብዙ ጊዜ አልጠቀምበታለሁ። ምክንያቱም፡-

- ሀ. ተማሪዎችን ስለሚያሳትፍ
- ለ. በዚህ ዘዴ ብቻ ማስተማር ያለብኝ ይዘት ስላለ
- ሐ. በክፍል ያሉ ተማሪዎች ጥቂት ስለሆኑ
- መ. በቂ ጊዜ ስላለኝ
- ሠ. \_\_\_\_\_

2. ድራማን በማስተማሪያነት ብዙ ጊዜ አልጠቀምበትም። ምክንያቱም፡-

- ሀ. በቂ ጊዜ ስለሌለኝ
- ለ. ለድራማ የሚሆን ይዘት ስለሌለ
- ሐ. በዚህ የማስተማሪያ ስልት በቂ ስልጠና ስለሌለኝ
- መ. ከዚህ በፊት ተጠቅሜበት ስለማላውቅ
- ሠ. \_\_\_\_\_

IX ሚና ጨዋታ /ሮል ፕሌይንግ/

1. ሚና ጨዋታን በማስተማሪያነት ብዙ ጊዜ አልጠቀምበታለሁ። ምክንያቱም፡-

- ሀ. ተማሪዎችን በብዛት ስለሚያሳትፍ
- ለ. ተማሪዎች ጓደኞቻቸውን እንዲያስተምሩ ስለሚረዳ
- ሐ. በቂ ጊዜ ስላለኝ
- መ. እንድጠቀምበት ስለተገደድኩ
- ሠ. \_\_\_\_\_

2. ሚና ጨዋታን በማስተማሪያነት ብዙ ጊዜ አልጠቀምበትም። ምክንያቱም፡-

- ሀ. ዘዴውን ስለማላውቀው
- ለ. በዚህ ዘዴ ባለመሰልጠኔ
- ሐ. ዘዴው ጊዜ የሚፈጅ በመሆኑ
- መ. ልዩ ዝግጅት የሚሻ በመሆኑ
- ሠ. \_\_\_\_\_



2. የመስክ ጉብኝት በመጠቀም ብዙ ጊዜ አላስተምርም:: ምክንያቱም:-

ሀ. ተማሪዎችን ለመቆጣጠር ስለሚያስቸግር

ለ. ወጪው ከፍተኛ ስለሆነ

ሐ. ብዙ ጊዜ ስለሚፈጅ

መ. የሚገቡበት ነገር በቀላሉ ስለማይገኝ

ሠ. \_\_\_\_\_



በአዲስ አበባ ዩኒቨርሲቲ  
የድህረ ምረቃ ት/ቤት  
የትምህርት ፋኩሊቲ

የካሪክለምና ኢንስትራክሽን የትምህርት ክፍል

የር/መምህር፣ የም/ር/መምህር እና የዲፓርትመንት ተጠሪ መጠይቅ

የመጠይቁ ዓላማ፡- ይህ መጠይቅ የ4ኛ ክፍል የአካባቢ ሳይንስ መርሃ ትምህርት የክፍል ውስጥ የአፈጻጸም ሂደትን ለማጥናት የተዘጋጀ ነው። ይህ ጥናት በካሪክለምና ኢንስትራክሽን የኤም ኤዲ ዲግሪ ማሟያ ወረቀት ለማዘጋጀት ነው። የጥናቱ መሳካት በናንተ የትምህርት ሰዎች ቅን ተሳትፎ ላይ የተመረከዘ በመሆኑ የሁኔታዎችን ትክክለኛ ገጽታ በእጅጉ የሚሻ ነው። ስለዚህ ለጥናቱ መሳካት ሲባል ብቻ ቅን ተሳትፎአችሁን እንጠይቃለን። የትኛውም ምላሽ ሚስጥረነቱ የተጠቀበ ነው። ለምታደርጉልን ቅን ትብብር በቅድሚያ እናመሰግናለን።

1.0 ቀን \_\_\_\_\_

1.1. የት/ቤቱ ስም \_\_\_\_\_

1.1.1. ዞን \_\_\_\_\_

1.1.2. ወረዳ \_\_\_\_\_

1.2. የት/ደረጃ \_\_\_\_\_

1.3. የታ ወንድ  ሴት

1.4. የአገልግሎት ዘመን \_\_\_\_\_

1.4.1. በመምህርነት \_\_\_\_\_

1.4.2. በዲፓርትመንት ተጠሪነት \_\_\_\_\_

1.4.3. በዩኒቲ መሪነት \_\_\_\_\_

1.4.4. በም/ር/መምህርነት \_\_\_\_\_

1.4.5. በር/መምህርነት \_\_\_\_\_

1.5. አሁን ያለዎት ሀላፊነት፣ "✓" ምልክት በማድረግ ይመልሱ

1.5.1. ር/መምህር  1.5.3 ዩኒቲ መሪ

1.5.2. ም/ር/መምህር  1.5.4 የዲፓርትመንት ተጠሪ

1.6. በትምህርት አስተዳደር ስልጠና አለዎት? "✓" በማድረግ ይመልሱ

ሀ. የለኝም  ለ. አለኝ

1.7. ለጥያቄ 1.6 አለኝ ካሉ የሥልጠናዎን ደረጃ ይግለጹልን።

\_\_\_\_\_
\_\_\_\_\_
\_\_\_\_\_

1.8. የአካባቢ ሳይንስ የተማሪዎች መጽሐፍ ት/ቤት ከመከፈቱ በፊት ነው የደረሰው?

ሀ. አዎ ለ. አይደለም

1.9. ለጥያቄ 1.6 መልስዎ አይደለም ከሆነ ከሚከተሉት በመቼ ጊዜ ውስጥ ነው የደረሰው?

- ሀ. ትምህርት ከተጀመረ ከግምንት በኋላ
ለ. ትምህርት ከተጀመረ ከወር በኋላ
ሐ. ትምህርት ከተጀመረ ከ2 ወር በኋላ
መ. ሌላ ካለ ይግለጹ \_\_\_\_\_

1.10. የ4ኛ ክፍል አካባቢ ሳይንስ የተማሪው መጽሐፍ ስርጭት እንዴት ነው?

- ሀ. 1:1 /አንድ መጽሐፍ ለአንድ ተማሪ/
ለ. 1:2 /አንድ መጽሐፍ ለሁለት ተማሪ/
ሐ. 1:3 /አንድ መጽሐፍ ለሦስት ተማሪ/
መ. ከዚህ ውጪ ከሆነ ይግለጹልን \_\_\_\_\_

1.11. የ4ኛ ክፍል አካባቢ ሳይንስ የመምህሩ መምሪያ በት/ቤቱ ይገኛል?

ሀ. አዎ ለ. አይገኝም

1.12. ለ1.11 የሰጡት መልስ አዎ ከሆነ ስርጭቱ እንዴት ነው?

- ሀ. 1:1 /አንድ መምሪያ ለአንድ መምህር/
ለ. 1:2 /አንድ መምሪያ ለሁለት መምህር/
ሐ 1:3 /አንድ መምሪያ ለሦስት መምህር/
መ. 1 መምሪያ ለሁሉም መምህር
ሠ. ከዚህ ውጪ ከሆነ ይግለጹልን \_\_\_\_\_

1.13. የ4ኛ ክፍል የአካባቢ ሳይንስ መርሃ ትምህርት /ሲለበስ/ በት/ቤቱ ይገኛል?

ሀ. አዎ ለ. አይገኝም

1.14. ለ1.13 የሰጡት መልስ አዎ ከሆነ ስርጭቱ እንዴት ነው?

- ሀ. 1:1 /አንድ መርሃ ትምህርት ለአንድ መምህር/
ለ. 1:2 /አንድ መርሃ ትምህርት ለሁለት መምህር/

ሐ. 1:3 /አንድ መርሃ ትምህርት ለሦስት መምህር/

መ. 1 መርሃ ትምህርት ላሉት የ4ኛ ክፍል መምህራን

ሠ. ከዚህ ውጪ ከሆነ ይግለጹልን። \_\_\_\_\_

1.15. በት/ቤቱ የሳይንስ ሙከራ ክፍል አለ?

ሀ. የለም                      ለ. አለ

1.16. ለ1.15 መልስዎ አለ ከሆነ የአገልግሎት ደረጃው ምን ያህል ነው?

ሀ. የተሟላ                      ለ. በመጠኑ የተሟላ                      ሐ. ያልተሟላ

1.17. የት/ቤቱ የ4ኛ ክፍል መምህራን ለአካባቢ ሳይንስ ትምህርት ብለው የሳይንስ ሙከራ ክፍሉን ምን ያህል ይጠቀሙበታል?

ሀ. ብዙ ጊዜ                      ለ. አንዳንድ ጊዜ                      ሐ. በፍጹም አይጠቀሙም

1.18. በት/ቤቱ የትምህርት ማበልጸጊያ አለ?

ሀ. አዎ አለ                      ለ. የለም

1.19. ለ1.18 መልስዎ አዎ አለ ከሆነ አደረጃጀቱ እንዴት ነው?

ሀ. የተሟላ ነው                      ለ. በመጠኑ የተሟላ ነው

ሐ. የተሟላ አይደለም

1.20. የት/ቤትዎ የትምህርት ማበልጸጊያ ሥራ ማስኬጃ በጀት አለው?

ሀ. አዎ አለው                      ለ. የለውም

1.21. የት/ቤትዎ የትምህርት ማበልጸጊያ የሥራ ማስኬጃ በጀት ካለው የተመደበው በጀት እንዴት ይገምቱታል?

ሀ. በቂ ነው                      ለ. በመጠኑ ሊያሠራ የሚችል ነው

ሐ. በቂ አይደለም

1.22. የት/ቤቱን የትምህርት ማበልጸጊያ መምህራን ምን ያህል ይጠቀሙበታል

ሀ. በበቂ ሁኔታ ይጠቀሙበታል                      ለ. አንዳንድ ጊዜ ይጠቀማሉ

ሐ. በመጠኑ ይጠቀማሉ

1.23. በት/ቤቱ የትምህርት በማበልጸጊያ የተማሪዎች ተሳትፎ እንዴት ነው?

ሀ. የትምህርት መሣሪያዎችን በማምረት ሂደት ይሳተፋሉ

ለ. በማበልጸጊያው ባሉ የትምህርት መሣሪያዎች በመጠቀም ይሳተፋሉ

ሐ. ምንም ተሳትፎ የላቸውም

1.24. በት/ቤቱ ቤተመጻሕፍት አለ?

ሀ. የለም                      ለ. አለ

- 1.25. በት/ቤቱ ቤተመጻሕፍት ካለ ይዞታው እንዴት ነው?  
 ሀ. በቂ የማንበቢያ ቦታ አለው  
 ለ. አነስተኛ የማንበቢያ ቦታ አለው  
 ሐ. የማንበቢያ ቦታ የለውም
- 1.26. በት/ቤቱ በሚገኘው ቤተመጻሕፍት ያሉት መጽሐፍት ለ4ኛ ክፍል ያካባቢ ሳይንስ ተማሪዎች የሚረዱ መጻሕፍት፡-  
 ሀ. በበቂ ሁኔታ አለው  
 ለ. አነስተኛ ቢሆንም አለው  
 ሐ. ምንም የለውም
- 1.27. የ4ኛ ክፍል ተማሪዎች በቤተ መጽሐፍቱ  
 ሀ. ብዙ ጊዜ ይጠቀማሉ  
 ለ. አንዳንድ ጊዜ ይጠቀማሉ  
 ሐ. አይጠቀሙም
- 1.28. የ4ኛ ክፍል የአካባቢ ሳይንስ መምህራን በአመት ውስጥ ለምን ያህል ጊዜ ተማሪዎቻቸውን ለትምህርታዊ ጉብኝት ወደ ውጭ ይዘው ሄደዋል?  
 ሀ. ይዘው ሄደው አያውቁም  
 ለ. ለአንድ ጊዜ  
 ሐ. ለሁለት ጊዜ  
 መ. ከዚህ ውጪ ከሆነ ይጥቀሱልን \_\_\_\_\_
- 1.29. የ4ኛ ክፍል የአካባቢ ሳይንስ መምህራን በአመት ውስጥ ለምን ያህል ጊዜ ተጋባዥ እንግዳ እንዲመጣላቸው አድርገዋል?  
 ሀ. አስመጥተው አያውቁም  
 ለ. ለአንድ ጊዜ  
 ሐ. ለሁለት ጊዜ  
 መ. ከዚህ ውጪ ከሆነ ይጥቀሱልን \_\_\_\_\_
2. ከዚህ በታች በ4ኛ ክፍል የአካባቢ ሳይንስ መርሃ ትምህርት ውስጥ የተጠቀሱ የማስተማሪያ ዘዴዎች ተዘርዝረዋል። እርስዎ እንደ ትምህርት ሀላፊነቱ መምህራኑ የሚጠቀሙበትን የማስተማሪያ ዘዴዎች እንደ አጠቃቀማቸው "✓" በማድረግ በደረጃ ይመድቡልን። ማለትም በብዛት የሚጠቀሙበትን "1" የሚቀጥለውን "2" ከዚያ የሚቀጥለው "3" እያሉ እስከ 13 ድረስ ደረጃ መስጠት ነው።

ተ.ቁ	የማስተማሪያ ዘዴ	የአጠቃቀም ደረጃ			
		ክፍተኛ	መካከለኛ	ዝቅተኛ	ተጠቅማው አያውቁም
2.1	ገለፃ				
2.2	ጥያቄና መልስ				
2.3	ውይይት				
2.4	በጥቁር ሰሌዳ መጻፍ				
2.5	በክርክር				
2.6	ሙከራ መሥራትና ማጥናት				
2.7	በግልና በቡድን ተማሪዎችን ማሠራት				
2.8	የመስክ ጉብኝት				
2.9	መዝሙር				
2.10	ሚና ጨዋታ				
2.11	ድራማ				
2.12	ተጋባዥ እንግዳ መጠቀም				
2.13	የተማሪዎች ምልከታ				

3. ከዚህ በታች በ4ኛ ክፍል የአካባቢ ሳይንስ መርሃ ትምህርት ውስጥ የተጠቀሱ የማስተማሪያ መሣሪያዎች ተዘርዝረዋል። እርስዎ እንደ ትምህርት ሀላፊነትዎ መምህራን አዘውትረው የሚጠቀሙበትን የመማሪያ ማስተማሪያ መሣሪያ ከላይ እንደ ተራ ቁጥር 2 ደረጃ ይስጡልን። እዚህ ደረጃ የሚሰጠው ከ1 እስከ 7 ብቻ ነው።

ተ.ቁ	የማስተማሪያ ዘዴ	የአጠቃቀም ደረጃ			
		ክፍተኛ	መካከለኛ	ዝቅተኛ	ተጠቅመው አያውቁም
3.1	ቻርት				
3.2	ሞዴል				
3.3	ስዕል				
3.4	የሙከራ ቁሳቁስ				
3.5	ካርታ				
3.6	ናሙና				
3.7	ሰንጠረዥ				

ለቀና ትብብርዎ በእጅጉ እናመሰግናለን።

ከመምህራን ጋር የሚደረግ ውይይት የመነሻ ጥያቄዎች

ከዚህ በታች የተመለከቱት ዋና ዋና የውይይት መነሻ የሆኑ ጥያቄዎች ብቻ ናቸው። በየንግግሩ ጥያቄ ሥራ እንደውይይቱ ሂደት ተጨማሪ ጥያቄዎች ሊነሱ ይችላሉ።

1. ከመርሃ ትምህርት፣ ከመምህሩ መምሪያ እና ከተማሪው መጽሐፍ መሀከል የትኞቹ ናቸው በእጃችሁ የሚገኙት?
2. በአመቱ መጀመሪያ የትምህርት መርሃ ግብር ስታዘጋጁ ለ4ኛ ክፍል አካባቢ ሳይነስ የሳምንት ክፍለጊዜ በስንት አስባችሁ ነበር?
3. በመምህሩ መምሪያ ላይ ከተጠቀሱት የማስተማሪያ ዘዴዎች መሀል የትኞቹን ነው በብዛት የምትጠቀሙት?
4. በብዛት ለምትጠቀሙባቸው የማስተማሪያ ዘዴዎች እነርሱን ብቻ እንድትጠቀሙ ያስገደዱዎችሁ ሁኔታዎች ምንድን ናቸው?
5. በመምህሩ መምሪያ ላይ ከጠቀሱት የማስተማሪያ ዘዴዎች አግባብ አይደሉም የምትሉዎቸው ዘዴዎች አሉ ካሉስ የትኞቹ ናቸው? ለምንስ አግባብ አይደሉም ብላችሁ ታምናላችሁ ?
6. በመምህሩ መምሪያ ላይ ከተጠቀሱት የማስተማሪያ መሣሪያዎች መሀል የትኞቹን ነው በብዛት የምትጠቀሙት?
7. በብዛት ለምትጠቀሙባቸው የማስተማሪያ ዘዴዎች እነርሱን ብቻ እንድትጠቀሙ ያስገደዱዎችሁ ሁኔታዎች ምንድን ናቸው?
8. ከተጠቀሙት የማስተማሪያ መሣሪያዎች በብዛት የማትጠቀሙባቸው የትኞቹን ነው? ለምን?
9. ተማሪዎች ትምህርቱን መከታተላቸውን የምትገመግሙት እንዴት ነው?
10. በክፍል ውስጥ ያሉ ተማሪዎቹ በመማር ማስተማር ሂደት ውስጥ እንዲሳተፉ የምታደርጉት እንዴት ነው ?

ከተማሪዎች ጋር ለሚደረግ ውይይት የማነሻ ጥያቄዎች።

1. መምህሮቻችሁ ብዙ ጊዜ እንዴት ነው የሚያስተምሯችሁ ?
2. ክክፍል ወጥታችሁ የአካባቢ ሳይንስ ትምህርት ተምራችሁ ታውቃላችሁ ?
3. መምህሮቻችሁ ሙከራ እየሠሩ በማሳየት ያስተምሯችኋል ?
4. በአካባቢ ሳይንስ ክፍል ጊዜ ድራማ እየሠራችሁ ተምራችሁ ታውቃላችሁ ?
5. በአካባቢ ሳይንስ ክፍል ጊዜ እራሳችሁ ሙከራ እየሠራችሁ ተምራችሁ ታውቃላችሁ?
6. ከመምህራችሁ ውጪ የትምህር ቤቱ አባል ያልሆነ ሰው ተጋብዞ መጥቶ አስተምሯችሁ ያውቃል?
7. ከመምህራችሁ ጋር በመሆን ትምህርታዊ ጉብኝት አድርጋችሁ ታውቃላችሁ?
8. በአካባቢ ሳይንስ ክፍል ጊዜ መዝሙር በመዘመር ተምራችሁ ታውቃላችሁ ?
9. በአካባቢ ሳይንስ ክፍል ጊዜ በመከራከር ተምራችሁ ታውቃላችሁ ?
10. በአካባቢ ሳይንስ ትምህርት የሚሆን እቃዎች አምጦ ተብላችሁ ታውቃላችሁ ?
11. መምህሮቻችሁ በግሩፕ እየከፋፈሉ አስተምረዎችሁ ያሉቃሉ ?
12. መምህሮቻችሁ በግላችሁ በአካባቢ ሳይንስ ውስጥ የሚገኙ ሥራዎችን እንድሠሩ ያበረታቷችኋል?
13. በክፍል ውስጥ ጥያቄ መጠየቅ ትፈራላችሁ ?
14. በክፍል ውስጥ ለሚነሱ ጥያቄዎች መልስ ለመስጠት ትፈራላችሁ ?
15. ዳክም ላሉ ተማሪዎች መምህሮቻችሁ ድጋፍ ይሰጣሉ ?
16. መምህሮቻችሁ በየጊዜው ሙከራዎች፣ ጥያቄዎች፣ የክፍል ሥራ፣ የቤት ሥራ ይሰጡዎችኋል ?

## Appendix G

## Schools Visiting Schedule

School Name	Zone	Wereda	Date
Belay Zeleke No. 1	5	10	12,13,14/3/2001
Addis Birhan	5	10	12, 15, 16/3/2001
Tesfa Kokeb	1	4	19,20,21/3/2001
Balcha Abanefso	1	4	19,22,23.3/2001
Hizbawi Serawit	14	12	26,27,28/3/2001
Mekane Hiwot	4	12	26/4/2001, 1,5/4/2001
Misrak Ber No. 1	3	17	7,8,9/4/2001
Birhaneh Zarie	3	17	7,12,13/4/2001
Abune Basiliyos	2	23	14,15,16/2001
Biruh Tesfa	2	23	14,19,20/2001
Akaki Cherka-Cherk	6	27	21,22,23/2001
Gelan No. 1	6	27	21,26,27/2001

## Appendix H

### Inter -Observer agreement

Teacher	Observation - 1					Observation - 2				
	Observer-1 (x <sub>1</sub> )	Observer-1 (Y <sub>1</sub> )	(x <sub>1</sub> <sup>2</sup> )	(Y <sub>1</sub> <sup>2</sup> )	(X <sub>1</sub> Y <sub>1</sub> )	Observer-1 (x <sub>2</sub> )	Observer-1 (x <sub>2</sub> )	(x <sub>2</sub> <sup>2</sup> )	(x <sub>2</sub> <sup>2</sup> )	(X <sub>2</sub> Y <sub>2</sub> )
1	50	46	2500	2116	2300	26	25	676	625	650
2	36	34	1296	1156	1224	31	30	961	900	930
3	40	43	1600	1849	1720	26	28	676	784	728
4	38	40	1444	1600	1520	24	30	1156	900	1020

$$\sum x_1^2 = 164 \quad \sum Y_1^2 = 6721 \quad \sum X_2 = 117 \quad \sum Y_2 = 113 \quad \sum X_2 Y_2 = 3328$$

$$\sum x_1^2 = 6840 \quad \sum Y_1^2 = 6721 \quad \sum X_2^2 = 5469 \quad \sum Y_2^2 = 3209$$

$$(\sum x_1)^2 = 26896 \quad (\sum y_1)^2 = 26569 \quad (\sum x_2)^2 = 13689 \quad (\sum y_2)^2 = 12769$$

$$r_1 = \frac{\sum x_1 y_1 - \sum x_1 \sum y_1}{\sqrt{[\sum x_1^2 - (\sum x_1)^2][\sum y_1^2 - (\sum y_1)^2]}} = \frac{6764 - 164 \times 163}{\sqrt{6840 - 26896][6721 - 26569]}} = 0.86$$

$$r_2 = \frac{3328 - 117 \times 113}{\sqrt{5469 - 13689][3209 - 12769]}} = 0.86$$