

THE EFFECTS OF INSTRUCTIONAL AIDS ON THE SCIENCE ACHIEVEMENT OF MIDDLE SCHOOL LEVEL STUDENTS

Htet Htet Aung¹ and Ma Kyi Swe²

Abstract

The major purpose of this research was to study the effects of Instructional aids on the science achievement of middle school level students. This study was conducted with both quantitative and descriptive research methods. For quantitative research, an experimental study was used to investigate the effects of instructional aids. In this experimental study, the subjects were Grade Seven students selected from BEHS-B Kyauk Chet and No (1) BEHS Pynmana. The experimental design adopted in this study was a true experimental design, namely, posttest only control group design. For this study, (120) Grade Seven students were selected from both schools by random sampling method. These students were divided into two groups: experimental and control group. The experimental group was taught by using instructional aids and the control group was taught as formal instruction. After that, a posttest was administered to two groups. Independent samples *t*-test was used to test whether there was significant difference between these two groups. Examination of the means and *t*-test at BEHS-B Kyauk Chet ($t=13.85$, $df = 58$, $MD=16.84$, $p < .001$) and No (1) BEHS Pynmana ($t=7.47$, $df=58$, $MD=11.37$, $p < .001$) indicated that students who were taught by using instructional aids demonstrated significantly better than those who were taught as formal instruction. The descriptive data also supported the findings from the experimentation. For this research study, students from the experimental group from two selected schools were given a questionnaire. It consists of (16) items five-point Likert-scale. The results showed that the students expressed their willingness to learn science by using instructional aids and they had positive attitudes towards instruction by using instructional aids. Research findings proved that the use of instructional aids has positive contribution to the science teaching at the middle school level.

Keywords: instructional aids, achievement, science

Introduction

Education is a process which, changes, moves, is flexible and is infinitely varied. The most changes that are impinging in education are science and its application. So, everyone needs to understand the relationship between science and men. Science education is intended to prepare youth to assure future science-oriented carriers in business and industry. And also, science education is expected to contribute not only to the personal development of individual but also the national building. To give precedence to the teaching of science of strengthening and developing productive forces is one of the aims of Basic Education. The huge contribution of science teaching to the society leads to far higher. So, it is quite obvious that science education is highly important. Instructional aids make a lesson or a lecture more interesting and provide a memorable experience not only for students but for teachers as well. Moreover, instructional aids eliminate the abstract nature of science by concretizing the facts in the lesson content. Since instructional aids can help to bring a change in the atmosphere of the class, instructional aids can help students to develop scientific attitudes and get training in scientific methods. Thus, instructional aids play the vital role in teaching science.

¹ Senior Assistant Teacher, Basic Education High School, Shwe Kyin

² Dr, Associate Professor, Department of Methodology, Yangon University of Education

Purposes of the Study

The main purpose of this study is to investigate the effects of instructional aids on the science achievement of the middle school level students. The specific purposes are as follow:

- (1) To compare the science achievement between students who are taught by using instructional aids and those who are not.
- (2) To study the effects of instructional aids in teaching science.
- (3) To investigate students' attitudes towards the instruction by using instructional aids.
- (4) To give suggestions based on the data obtained from the study for the improvement of science teaching.

Research Hypotheses

The hypotheses of the study are as follows.

- (1) There is a significant difference between the science achievement of the Grade Seven students who learn science through the use of instructional aids and those who learn science without using instructional aids.
- (2) There is a significant difference between the science achievement of the Grade Seven students who learn science through the use of instructional aids and those who learn science without using instructional aids in answering knowledge level questions.
- (3) There is a significant difference between the science achievement of the Grade Seven students who learn science through the use of instructional aids and those who learn science without using instructional aids in answering comprehension level questions.
- (4) There is a significant difference between the science achievement of the Grade Seven students who learn science through the use of instructional aids and those who learn science without using instructional aids in answering application level questions.
- (5) The students will have positive attitude towards the instruction by using instructional aids.

Definition of Key Terms

Instructional Aids: Instructional aid has defined as "activity or illustrative materials by means of which the learning process may be encouraged or carried on; includes audio-visual aids as well as other sensory aids" (Good, 1959).

Instructional Aids: Instructional aids were devices that can be employed to aid in teaching process. (Bruner, 1960)

Achievement : Accomplishments or proficiency of performance in a given skill or body of knowledge (Good, 1959).

Science : Knowledge as of facts, phenomena, law and proximate causes, gained and verified by exact observation, organized experiment and correct thinking, also the sum of the universal knowledge (Good, 1959).

Review of Related Literature

In the process of education, a teacher required to make decision about what should be taught, what methods should be used in the instruction, what learning activities should be included in each lesson, whether learning should be by group activity or individual project, and what techniques should be applied to evaluate this learning. Thus, education involves the investigation of the multitude of problems and questions, and the possible answers to all of these questions are based on the teacher's beliefs about people, about the world, about how students learn, about how students think, and about values. Discipline and classroom control practices are especially dependent on the teacher's belief system and philosophy of education. Teaching without a philosophy would be analogous to building a house on sand instead of on a firm foundation, or to taking a trip without a road map (Hessong & Weeks, 1991).

Cognitivism is a cognitivist theory that based on thought process behind the behavior. It means that the theory occurs inside the learners mind consciously. A key focus of cognitive psychology is looking at how to communicate or transfer knowledge to students in the most effective and efficient way by looking at mental processes, and how the structure of the brain is changed during the course of learning. The cognitive orientation to learning focuses on how students manipulate information during learning, and how students make meaning out of information and experience. . One cognitive function that plays a key role in learning is memory. Memory is the active mental mechanisms that enable people to retain and retrieve information about past experience (Baddeley, 1999; cited in Sternberg & Willians, 2010). The three major components of memory are the sensory register, short-term or working memory, and long-term memory. During the communicative process, the sensory register of the memory acts as a filter. As stimuli are received, the individual's sensory register works to sort out the important bits of information from the routine or less significant bits. Within seconds, what is perceived as the most important information is passed to the working or short-term memory where it is processed for possible storage in the long-term memory. This complex process is enhanced by the use of instructional aids that highlight and emphasize the main points or concepts.

Objectives of Using Instructional Aids

Instructional aids are used in the teaching-learning process as described the following objectives:

- To reinforce what one is saying
- To ensure that one's point is understood
- To signal what is important/essential
- To support the lesson plan and support the learning
- To enhance the interest of students
- To enable the students to visualize or experience something that is impractical to see or do in real life
- To engage students' other senses in learning process
- To facilitate different learning styles (Babaria Institute of Technology, 2011)

Charactierstics of Good Instructional Aids

A few characteristics of good instructional aids are enlisted as follows:

- They are large enough to be seen by the students for whom they are used.
- They are meaningful and they always stand to serve a useful purpose.

- They are upto the mark and uptodate in every respect.
- They are simple, cheap, and may be improvised. They are not very costly.
- They are handy and easily portable.
- They are accurate.
- They are realistic.
- They are according to the mental level of the learners.
- Their purpose may be informative but it is not just entertainment.
- They motivate the learners. They capture the attention of the pupils.
- They help in the realization stipulated learning objectives.
- They are useful for supplementing the teaching process but they cannot replace the teacher. (Rather, 2004)

Principles for the Selection of Instructional Aids

A science teacher has to take care of the following principles while making a judicious selection of the proper teaching aids for teaching a particular topic in his subject.

- Relevancy. The aid used should be quite relevant to the topic in hand.
- Suitability. It should suit the topic as best as possible by making its study quite comprehensive, interesting, permanent and effective.
- Educative. The aid should have specific educational value besides being interesting and motivating. In no case it should be confined to mere entertainment.
- Best substitute for the first hand experience. The aid should be so chosen as to prove a best possible substitute in terms of reality, accuracy and truthful representation of the object or first hand experiences.
- Simplicity. The aid should be quite simple in its construction and use. It must also be able to convey its sense as simply as possible.
- Learner centered. The aid material selected should be such that it suites the age level, grade level, basic instincts, urges, interest and other unique characteristics of the students of the class.
- Environment centered. The aid material should suit the requirement of the physical, social, and cultural environment of the students.
- Practicability. The aid material should be selected in view of the prevailing circumstances, available resources and purposes to be served. It should not be too costly in its purchase and collection or in terms of its use and demonstration in the class. It should meet the available circumstances in terms of weather conditions, climatic requirements, handling by the teacher and students and other resources readily available in the institution and classroom.
- Objectives attainment. The aid material should be so selected as to help in the proper realization of the stipulated learning or instructional objectives of the topic in hand. (Sharama, 2009)

Advantages of Instructional Aids

The instructional aids as have many advantages which are explained as follows:

- The use of teaching aids by the teacher while teaching make the teaching learning process more interesting.

- The use of instructional aids gives reality to the learning situation.
- It gives vividness to the learning situation.
- It gives clarity to the learning situation.
- The aids motivate the child and arouse his feeling of curiosity.
- They make the abstract ideas concrete and thus help in making learning more effective.
- The different types of aids when use successfully in the classroom provide variety in the classroom situations.
- The different types of aids, thus, serve in different ways for meeting out the varied requirements of the students.
- The aids are good substitutes for the real objects as they make learning equally meaningful.
- The use of instructional aids help in the development of various skills among the students.

Types of Instructional Aids

In modern trends in Educational Technology, Mohanty (2007) classified teaching aids:

1. According to the Sense-Stimulation
2. According to the Projection Facilities Available
3. According to Kinds of Experiences
4. According to the Learner Control and
5. According to Their Reach

1. According to the sense stimulation

The teaching aids or instructional aids may be divided into three categories:

- Visual
- Audio, and
- Audio-visual

2. According to Projection Facilities Available

Audio-visual aids are divided into:

- Projected
- Non-projected and
- Activity aids

3. According to the Kinds of Experiences

- Real-Objects, Specimens
- Field Visits, Observations, Excursions
- Case Studies
- Demonstrations
- T.V., Films, Closed Circuit TV
- Slide, Film Strips
- Picture, Maps, Photographs
- Display Board, Radio, Audio Cassettes
- Chalkboard
- Abstract Word

4. According to the Learner's Control

(i)	(ii)	(iii)	(iv)
No control Radio TV	Projected Aids	Non-Projected Aids	High-Control Computer, Program Learning, Tape Recorder

5. According to Their Reach

- Computer-Assisted Instructional (CAI) Programme
- Non-Projected Aids
- Projected Aids and
- Mass Media

Method and Procedure

Sampling and procedure

The main purpose of this study is to investigate the effects of instructional aids on the science achievement of middle school level students. The research design for the study was an experimental research design. Quantitative research methodology was used to compare students' achievement between two groups: Experimental group and Control group. For descriptive study, a questionnaire was used to interpret the students' attitudes, feelings, satisfactions, experiences and opinions about instruction by using instructional aids. This study was geographically restricted to Naypyidaw Union Territory. The townships in Naypyidaw Union Territory are stratified into two districts: Ottara and Dekkhina. Two townships from those districts were randomly selected for this study; one township was from Ottara district and the other from Dekkhina. The required schools were selected by using simple random sampling method. The sample schools are Basic Education High School-Branch, Kyauk Chet and No. (3), Basic Education High School, Pyinmana. There were totally (86) students who were learning Science in Grade-Seven at BEHS-B, Kyauk Chet and (73) students who were learning Science in Grade-Seven at No. (3), BEHS, Pyinmana. Among them, (30) students for the experimental group and (30) students for the control group from each school were selected by using the simple random sampling method.

Results

After the treatment is given, posttest was administered to measure the science achievement of the students. The data were analyzed by using the independent samples *t*-test to compare the differences between the experimental and the control groups (See Table 1).

Table 1 *t*-Value for Posttest Science Achievement Scores

School	Group	N	M	SD	MD	<i>t</i>	<i>df</i>	Sig. (2-tailed)
S1	Experimental	30	35.57	4.79	16.84	13.85	58	.000***
	Control	30	18.73	4.95				
S2	Experimental	30	30.47	6.85	11.37	7.47	58	.000***
	Control	30	19.10	4.74				

Note: *** $p < .001$

S1=Basic Education High School- Branch, Kyauk Chet

S2=No. (3), Basic Education High School, Pyinmana

The mean scores of experimental groups were significantly higher than that of the control groups in each school. As shown in the table, there was a significant difference between the experimental and control group for the scores on the science achievement in each school.

Table 2 *t*-Value for Mean Scores on Knowledge Level Questions

School	Group	N	M	SD	MD	<i>t</i>	<i>df</i>	Sig. (2-tailed)
S1	Experimental	30	6.60	1.16	1.47	3.81	58	.001**
	Control	30	5.13	1.75				
S2	Experimental	30	5.50	1.73	1.40	3.61	58	.001**
	Control	30	4.10	1.21				

Note: ***p* < .01

S1=Basic Education High School- Branch, Kyauk Chet

S2=No. (3), Basic Education High School, Pyinmana

According to the scores on the knowledge level questions, the mean scores of the experimental groups were higher than the mean scores of the control groups in both selected schools. It showed that there was a significant difference between the experimental and control group for the scores on knowledge level questions in each school.

Table 3 *t*-Value for Mean Scores on Comprehension Level Questions

School	Group	N	M	SD	MD	<i>t</i>	<i>df</i>	Sig (2-tailed)
S1	Experimental	30	17.90	1.76	7.57	12.37	58	.000***
	Control	30	10.33	2.84				
S2	Experimental	30	14.03	3.46	2.83	3.34	58	.001**
	Control	30	11.20	3.07				

Note: ****p* < .001, ***p* < .01

S1=Basic Education High School- Branch, Kyauk Chet

S2=No. (3), Basic Education High School, Pyinmana

According to the scores on the comprehension level questions, the mean scores of the experimental groups were higher than the mean scores of the control groups in both selected schools. It showed that there was a significant difference between the experimental and control group for the scores on comprehension level questions in each school.

Table 4 *t*-Value for Mean Scores on Application Level Questions

School	Group	N	M	SD	MD	<i>t</i>	<i>df</i>	Sig. (2-tailed)
S1	Experimental	30	11.07	2.99	8.37	11.50	58	.000***
	Control	30	2.70	2.62				
S2	Experimental	30	10.93	3.74	7.00	9.18	58	.000***
	Control	30	3.93	1.85				

Note: ****p* < .001

S1=Basic Education High School- Branch, Kyauk Chet

S2=No. (3), Basic Education High School, Pyinmana

As shown in table (4), the mean scores of the experimental groups were significantly higher than that of the control groups in both schools. It showed that there were significant differences between the two groups for the selected schools on the scores of the application level questions.

Descriptive Research Findings

In order to find out the attitude of students who learned by using instructional aids, the questions concerned with their attitude on science learning through instructional aids were asked (See Figure 1).

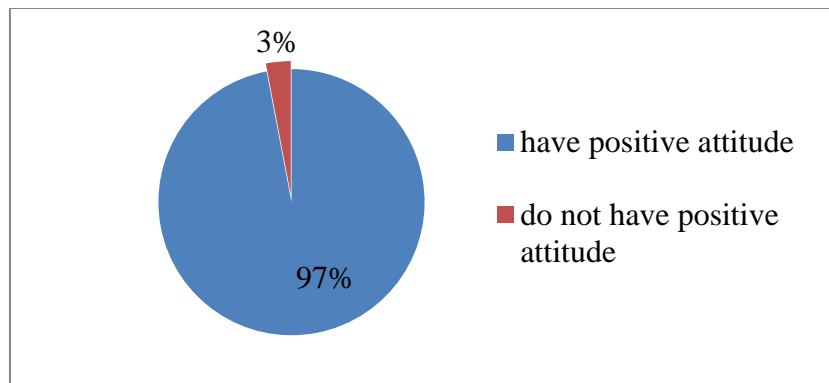


Figure 1 Overall Percentages of Students' Attitudes towards Instruction by Using

Instructional Aids

According to figure 1, (97%) of the students have positive attitudes and (3%) do not have positive attitudes towards instruction by using instructional aids. Some students do not have positive attitudes because they have had no experience in expressing that kind of questionnaire and in learning by using instructional aids.

Discussion

The main purpose of this study was to investigate the effects of instructional aids on the science achievement of middle school level students. Results from the study showed that the posttest mean scores of experimental groups were significantly higher than the mean scores of control groups in two selected schools. This result supports the research hypothesis. According to the comparison of mean scores on knowledge level questions for both selected schools, the findings showed that the achievement of experimental group was significantly higher than that of control group. It can be interpreted that the use of instructional aids could bring about the improvement of students' ability to remember the basic knowledge. According to the comparison of mean scores on comprehension level questions in two selected schools, the findings pointed out that there were significant differences between experimental and control groups. Experimental students had been given the opportunity to learn science in more than one form such as still pictures, real objects, charts and videos. Instructional aids develop the proper image when students see, hear, taste and smell properly (Nikky, 2010). Instructional aids help students to understand more about the content they were learning. According to the comparison of mean scores on application level questions in two selected schools, the result pointed out that there were significant differences between the experimental and control groups. Experimental students got high marks in application questions. This indicates that students' transfer of learning has improved. In this study, the experimental students were given to visualize the real world situations through videos, pictures, charts and real objects. So, they can understand the main concepts clearly and improve higher order thinking skills and can transfer what they have learned at school to real life situations.

Suggestions

The rapidly changing world needs many people to be equipped with sound foundation of knowledge of science to live safely and to contribute to the world they live in. Science is a subject that is needed to be explained systematically and to be presented with validate evidence so that the students can understand, amaze, believe and be more interested in science. In our country, especially during these years, most students in urban regions have access to the internet through their phones and now they are living in a world concentrated with colorful images, videos and texts. When they come to school, one-sided printed book may be something boring that cannot attract their attention. Without attending to something, they cannot be given any knowledge and skills. Thus, it is important to attain students' attention on the lesson, but it will not be enough to get the attention at the very start. Attention is something that is needed to be maintained throughout the lesson.

To be able to motivate students and keep their attention throughout the lesson depends on the teacher who designs and prepares instructional aids. The teachers should be able to use internet to be able to learn and prepare instructional aids. And science teachers should discuss and share experiences with each other about the instructional aids. Because commercial instructional aids available in market may not contribute well to students' learning since they are not designed according to the students' mind works and most of them are designed by those who are not educational professionals. Moreover, the teacher knows about the students' level of knowledge, skills and the difficulty level they can deal with. Moreover, the teachers are the ones who have studied how students' mind works. So, the teacher should prepare instructional aids for the respective topics.

According to the results of this research, the use of instructional aids has a positive contribution to students' science achievement. The teacher should understand the role of instructional aids in teaching learning process. Moreover, the teacher should prepare and use instructional aids in teaching science. While selecting and using instructional aids, some precautions should be used.

- The aids should be fully checked up before using them in the class.
- Aids should be used at the right time and in proper condition.
- The teacher should consider cognitive psychology related to how people mind works.
- Aids should not be allowed to become masters in the teaching learning process.
- In a lesson, too many aids should not be used.
- The aids should have specific educational value besides being interesting and motivating.

These are suggestions consequent upon the findings of the study. But, no study is perfect in an effort. Thus, a need for further research is quite necessary. This research was done at the middle school level. It provides useful results and many suggestions to improve science education at the middle school level. Therefore, a large number of researches should be carried out at all levels such as primary and high school levels. Instructional aids can be used to the other subject areas. So, further researches should also be carried out in other subjects. And this study was done in the Naypyitaw Union Territory. Therefore, further researches should be carried out in other States and Regions. Moreover, science education is very important to improve students' higher order thinking. Many researches can provide good suggestions and recommendations to improve science education. Therefore, further researches in this line are needed for the improvement of science teaching.

Conclusions

The main purpose of this research was to study the effects of instructional aids on the science achievement of middle school level students. Both quantitative and descriptive studies were conducted to obtain the required data. Firstly, an experimental design was used to study the effects of instructional aids on the science achievement of middle school level students. Generalization can be drawn on the basis of results. According to posttest results, the means of students who were taught with instructional aids were significantly higher than those who were taught without instructional aids. And students' performance has significant difference on overall science achievement and achievement of knowledge, comprehension and application level questions. It can be concluded that the use of instructional aids improves students' memorization, conceptual understanding and critical thinking skills. Moreover, it is also interpreted that students can apply learning materials in new situations. Thus, instructional aids should be created and used in teaching science.

Secondly, a descriptive research was done to study the students' feelings, attitudes, experiences and opinions about instruction with instructional aids. Students expressed that they were very happy and satisfied the learning with instructional aids. It also promoted their conceptual understanding. Moreover, students described that they get much knowledge without repetition. They also felt that they desired to learn science subject by using instructional aids. The strengthened interest in science may lead the students onto a science related carrier path and establish higher quality scientific literacy. Thus, students' interest and attitudes are very important for science learning. According to this research, the descriptive research findings indicated that the attitudes, values and opinions of students towards learning of science were positive. According to the results of this research, it is revealed that the use of instructional aids can significantly promote science achievement of middle school level students.

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Appendix A

A Lesson Plan for Experimental Group

- ၁။ အတန်း: - ဆဋ္ဌမတန်း
- ၂။ ဘာသာ: - အထွေထွေသိပ္ပံ
- ၃။ သင်ခန်းစာခေါင်းစဉ်: - အခန်း(၅) ကမ္ဘာမြေကြီးနှင့်အာကာသ
မြေကမ္ဘာပတ်ဝန်းကျင်ထိန်းသိမ်းကာကွယ်ခြင်း
လူကြောင့်ပတ်ဝန်းကျင်ပျက်စီးခြင်း
- လေညစ်ညမ်းမှုနှင့် ကမ္ဘာကြီးပူနွေးလာမှု
- ၄။ အချိန်: - ၄၅ မိနစ်
- ၅။ သင်ယူမှုဦးတည်ချက်များ:
 - (က) ယျေဘုယျဦးတည်ချက်: - လေညစ်ညမ်းမှုနှင့်ကမ္ဘာကြီးပူနွေးလာမှုအကြောင်း သိရှိနားလည်စေရန်။
 - (ခ) အသေးစိတ်ဦးတည်ချက်များ: - လေညစ်ညမ်းမှုကိုဖြစ်ပေါ်စေသော အကြောင်းအရင်းများ ကို ဖော်ပြတတ်စေရန်။
 - လေညစ်ညမ်းမှုနှင့်ကမ္ဘာကြီးပူနွေးလာမှုတို့၏ ဆက်စပ်မှု ကို ရှင်းပြတတ်ရန်။
 - ကမ္ဘာကြီးပူနွေးလာပုံကို ဆွေးနွေးတင်ပြတတ်စေရန်။
- ၆။ သင်ထောက်ကူပစ္စည်း:
 - photo (1) - မော်တော်ယာဉ်စီးနင်းမှု ပုံများလာပုံ
 - photo (2) - ရေခဲပြင်များ အရည်ပျော်နေပုံ
 - photo (3) - လေထုညစ်ညမ်းလာပုံ
 - photo (4) - ကမာကြီးပူနွေးလာပုံ
 - photo(5)- လေညစ်ညမ်းမှုနှင့် ကမ္ဘာကြီးပူနွေးလာမ ဆက်စပ်နေပုံ
 - photo (6) - ပိုလာဝက်ဝံများ၊ ပင်ဂွင်းများ
 - video file - လေထုညစ်ညမ်းမှုကိုဖော်ပြသော video file

၇။ သင်ကြားသင်ယူမှုလုပ်ငန်းစဉ်အဆင့်ဆင့်

Teaching Activities	Learning Activities	duration	T-L Materials	Important Points for T-L Process
<p>နိဒါန်း ဓာတ်ပုံများကိုပြ၍ အောက်ပါ မေးခွန်းများမေးပါမည်။ (၁) မြန်မာနိုင်ငံ၏ ရာသီဥတုသည် ယခင်ကထက်ပို၍ အေးလာသလား (သို့) ပို၍ပူနွေး လာသလား။ (၂) မြန်မာနိုင်ငံတွင်မော်တော် ယာဉ်စီးနင်းမှုနှုန်းမှာယခင်နှင့်ယခုမည်သို့ ကွာခြားလာသနည်း။ (၃) ဝင်ရိုးစွန်းဒေသများတွင် ရေခဲပြင်များ မည်သို့ဖြစ်လာသနည်း။ အဘယ့်ကြောင့်နည်း။</p>	<p>ဆရာမှမေးသောမေးခွန်းများကိုဖြေဆိုကြပါသည်။</p>	<p>၅ (မိနစ်)</p>	<p>Photo (1) Photo (2)</p>	<p>သင်ခန်းစာအပေါ်ကလေးများ၏ စိတ်ဝင်စားမှု၊ အာရုံစူးစိုက်မှုကို ရယူခြင်း။</p>
<p>သင်ကြားမှုသင်ယူမှုလုပ်ငန်းစဉ်အဆင့်ဆင့် ကလေးများကိုအုပ်စုဖွဲ့ပါမည် သင်ယူမှုလုပ်ငန်းစဉ်(၁)</p>	<p>အုပ်စုဖွဲ့ကြပါ သည်။ ဆရာဖွင့်ပြ သောဗီဒီယိုဖိုင်ကိုကြည့်ကြပါသည်။</p>	<p>၁၀ (မိနစ်)</p>	<p>Video</p>	<p>ကိုယ်တိုင်တွေ့ကြုံရသကဲ့သို့ခံစားရခြင်း</p>

Teaching Activities	Learning Activities	duration	T-L Materials	Important Points for T-L Process
<p>ဆရာမှစက်မှုလုပ်ငန်းများ၊ မော်တော်ယာဉ်များမှစာတ်ငွေ့များထွက်ပေါ်လာပုံ၊ တောမီးများလောင်ကျွမ်းရာမှ မီးခိုးငွေ့များ ထွက်ပေါ်လာပုံနှင့် သက်ဆိုင်သော ဗီဒီယိုဖိုင်ကို ဖွင့်ပြ ပါမည်။</p> <p>တွေ့ရှိချက်များကို ဆွေးနွေးပြီး အတန်းသို့ ပြန်လည်တင် ပြစေပါမည်။</p> <p>သင်ယူမှုလုပ်ငန်းစဉ် (၂) လေညစ်ညမ်းမှုနှင့်ကမ္ဘာကြီး ပူနွေးလာမှုတို့၏ဆက်စပ်ချက်ကိုဖော်ပြသောဓာတ်ပုံများဝေပေးပါမည်။</p> <p>ဓာတ်ပုံများကို အသုံးပြု၍ အောက်ပါမေးခွန်းကို ဆွေးနွေးတင်ပြစေပါမည်။</p> <p>(၁) လေညစ်ညမ်းမှုကြောင့် ကမ္ဘာကြီးမည်သို့ ဖြစ်လာရသနည်း။ ဆွေးနွေးတင်ပြပါ။</p> <p>လုပ်ငန်းစဉ် (၃) ဆရာမှကမ္ဘာကြီးပို၍ပူနွေးလာသဖြင့်ရရှိလာသော ဆိုးကျိုးများကိုဖော်ပြသည့်ဓာတ်ပုံ များကိုဝေပေးပါမည်။</p> <p>- ဓာတ်ပုံများကိုအသုံးပြု၍ သင်ခန်းစာကို အုပ်စုလိုက် ဆွေးနွေးတင်ပြစေပါမည်။</p>	<p>ဆရာမေးသော မေးခွန်းကိုသင်ထောက်ကူများ အသုံးပြု၍ အုပ်စုအလိုက် ဆွေးနွေးတင်ပြကြ ပါသည်။</p> <p>-လေညစ်ညမ်းမှုကြောင့်ကမ္ဘာကြီးပူနွေးလာသည် -အပူချိန်များ ပိုမိုမြင့်တက်လာသည်။</p> <p>တွေ့ရှိချက်များကို အုပ်စုလိုက်ဆွေးနွေးတင်ပြကြပါသည်။</p> <p>-ရေခဲပြင်များ အရည်ပျော်လာသောကြောင့် ပိုလာဝက်ဝံများ ပင်ဂွင်းများ အသက်ရှင်ရပ်တည်ရန်ခက်ခဲလာသည်။</p>	<p>၁၀ (မိနစ်)</p> <p>၁၀ (မိနစ်)</p>	<p>File</p> <p>Photo (1) Photo(3) Photo (4) Photo (5)</p> <p>Photo (2) Photo (6)</p>	<p>အုပ်စုတွင်ဆွေးနွေးမှုများ၊ အတန်းတွင်းဆွေးနွေးတင်ပြမှုများလုပ်ဆောင် ခွင့်ရကြသဖြင့် ကလေးများ၏ Communication skillsပိုမိုကောင်းမွန်လာခြင်း</p> <p>သင်ကြားသင်ယူမှုအကြောင်းအရာများကို ကောင်းစွာ စုစည်းမှုပြုလုပ်နိုင်ခြင်း။</p> <p>သင်ခန်းစာများကို ကောင်းစွာနားလည်၍ကြာရှည်စွာ မှတ်မိနိုင်ခြင်း။</p>
<p>နိဂုံးချုပ်ဆိုခြင်းနှင့်အကဲဖြတ်ခြင်း ဆရာနှင့်ကျောင်းသားများ အပြန်အလှန် ဆွေးနွေး၍ သင်ခန်းစာကိုနိဂုံးချုပ်ဆိုကြပါသည်။</p>	<p>ဆရာနှင့်အပြန်အလှန် ဆွေးနွေး၍ သင်ခန်းစာကိုနိဂုံးချုပ်ဆိုကြပါသည်။</p> <p>-စက်မှုလုပ်ငန်းနှင့်မော်တော်ယာဉ်တို့မှထွက်သောအန္တရာယ်ရှိသည့် ဓာတ်ငွေ့များနှင့်မီးခိုးမှုန်တို့ကြောင့်လေညစ်ညမ်းရသည်။</p> <p>-လေထု၏ အောက်ဆုံးအလွှာတွင် ၎င်းဓာတ်ငွေ့များ ပိုမိုပါဝင်လာသဖြင့်ကမ္ဘာပေါ်သို့ကျရောက်သော အပူ၏ အချို့အဝက်</p>	<p>၅ (မိနစ်)</p>	<p>Photos, charts, white board</p>	<p>သင်ခန်းစာမှ ပေးလိုသော အသိသညာများကို မှန်ကန်စွာ မှတ်သားနိုင်ခြင်း။</p>

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<p>ဆရာမှအောက်ပါမေးခွန်းများမေး၍သင်ယူမှုဖြစ်စဉ်ကိုအကဲဖြတ်ပါမည်။</p> <p>(၁)စက်မှုလုပ်ငန်းများ၊ မော်တော်ယာဉ်များမှ လေထုထဲ သို့မည်သည့်အရာများစွန့်ထုတ်သနည်း။</p> <p>(၂) ကမ္ဘာပေါ်သို့ကျရောက်သော အပူအချို့ အဝက်သည် လေထုအထက်ပိုင်းသို့အဘယ်ကြောင့်ပြန်မထွက်နိုင်သနည်း။</p> <p>(၃)ကမ္ဘာကြီး ပူနွေးလာပုံကို ဆွေးနွေးတင်ပြပါ။</p>	<p>ကိုလေထု အထက်ပိုင်းသို့ပြန် မထွက်နိုင်အောင်ကာထားသကဲ့သို့ဖြစ်သွားသည်။</p> <p>-ထိုအကြောင်းရင်းများကြောင့်ကမ္ဘာကြီးမှာပို၍ပူနွေးလာရသည်။</p> <p>ဆရာမေးသောမေးခွန်းများကိုဖြေဆိုကြပါသည်။</p> <p>အန္တရာယ်ရှိသောဓာတ်ငွေ့၊ မီးခိုးမှုန်များ</p> <p>-လေထု၏အောက်ဆုံးအလွှာတွင် ၎င်းဓာတ်ငွေ့များပိုမိုပါဝင်လာသဖြင့်</p> <p>- ကမ္ဘာပေါ်သို့ ကျရောက်သော အပူအချို့အဝက် လေထုအထက်ပိုင်းသို့ပြန်မထွက်နိုင် သဖြင့်</p>	<p>၅ (မိနစ်)</p>	<p>Photos, charts, white board</p>	<p>ကလေးများ၏ တတ်မြောက်မှုကို စစ်ဆေးခြင်း။</p>

Note: T-L= Teaching –Learning