AMERICAN UNIVERSITY OF ARMENIA PRESS

College of Humanities and Social Sciences

A Research Report

Learning about Environmental Issues through English: A Course for Middle-School Children of Elementary English Proficiency

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August 2, 2019

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Abstract

This project is an environmental course based on content-based instruction and content and language integrated learning approaches. The designed course aims at raising awareness of environmental issues among middle-school children and encourage their active participation in environmental citizenship activities in order to develop their responsibility to protect and strengthen the environment. Along with raising awareness of core environmental issues, the course aims at improving learners` English language skills.

The course was piloted in Hatsik Secondary School after Avetis Baghdasaryan and Karakert Secondary School N1 and N2. Forty-two middle-school children participated in the course.

Keywords: English, EFL, environmental citizenship, CLIL, CBI, elementary, A1

CHAPTER ONE: INTRODUCTION

Introduction

Environmental education started to have a crucial role when human impact on the environment increased in course of time. Environmental education nowadays is viewed as a means for educating and informing people about the undesirable and irrecoverable effects of the destruction of the environment. The overall goal of environmental education is to develop environmentally responsible behavior among individuals and communities in order to protect the environment.

This project is an environmental course based on content-based instruction (CBI) and content and language integrated learning (CLIL) approaches. CLIL and CBI are innovative educational approaches that have been developed in response to the demands of the modern age. According to Coyle, et al. (2010), “in this teaching process there is a focus not only on content, and not only on language. Each is interwoven, even if the emphasize is greater on one or the other at a given time” (p.1). These approaches foster not only linguistic competence but also advance learners` cognitive development and personalized learning.

The purpose of the environmental course is to improve students` English language skills while raising students' awareness of key environmental issues such as global warming, destruction of ecosystems, overuse of natural resources etc. It aims at teaching school children that everyone is locally responsible for the environment. Starting from local problems, the course comes to global issues. It explains to school children *why* they need to protect the environment and what negative impact indifference towards it may bring to. The course is based on the 4Cs framework (Coyle, et al., 2010) and the language Triptych, which are important for a successful CLIL/CBI course.

CHAPTER TWO: LITERATURE REVIEW

2.1. Content-Based Instruction and Content and Language Integrated Learning

Content-based instruction (CBI) and content and language integrated learning (CLIL) are language programs that enable learners to acquire not only a foreign or second language but also to learn specific content (Richards & Rodgers, 2001). The origins of CBI go back to 1965 when language immersion programs started to develop in Canada. Later, in mid-1990s content and language integrated learning developed in Europe (Tedick & Cammarata, 2012).

Even though Tedick and Cammarata (2012) state that CBI and CLIL share the main pedagogical properties and can be perceived as "synonymous" terms, there are other practitioners who claim that CLIL and CBI are different as during their observations CLIL suggested "stronger integration between language and content" rather than CBI (p.29). However, Cenoz (2015) states CBI and CLIL have the same instructional characteristics and both have the same goal in terms of utilization of the target language. Cenoz (2015) mentions that "specific classroom activities and specific research studies can be innovative and even unique but this does not imply that CBI is different from CLIL" (p.21). Tedick and Cammarata (2012) also suggest that CBI and CLIL, as curricular approaches, are not different and CLIL is "clearly rooted" in CBI. They state that one of the reasons that CBI and CLIL are perceived as different approaches is because CBI and CLIL scholars rarely compare their research findings.

Both CBI and CLIL refer to teaching and learning programs in which the content is transferred through an additional language:

> "Content-based instruction (CBI) is an umbrella term that refers to instructional approaches that make a dual, though not necessarily equal, commitment to language and content-learning objectives" (Stoller. 2008, p.59).

> "Content and language integrated learning (CLIL) is a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language. In this teaching process, there is a focus not only on content, and not only on language. Each is interwoven, even if the emphasize is greater on one or the other at a given time" (Coyle, et al., 2010, p.1).

2.2. Developing a Successful CBI/CLIL course

One way to design a successful CLIL/CBI course is to rely on the 4Cs Framework (Coyle et al., 2010, p. 41). The 4Cs Framework comprises *content,* which refers to the subject matter, *communication,* which is about learning and using the language, *cognition,* which is about critical thinking and problem solving by accepting challenges and addressing them, and *culture,* which concerns understanding different cultures, citizenship and identity (Coyle et al., 2010, p. 54-55).

Coyle et al. (2010) also suggest that when developing communication (language) component, it is crucial to use the Language Triptych because it analyzes language needs across different CLIL/CBI contexts. The Language Triptych suggests using a language from three interrelated perspectives:

- language ***of*** learning – learning basic concepts about the subject matter
- language ***for*** learning – the language that learners need to operate in a learning environment
- language ***through*** learning - spontaneous and planned opportunities to promote learning

The following mind map depicts the course based on the 4Cs Framework and the Language Triptych:

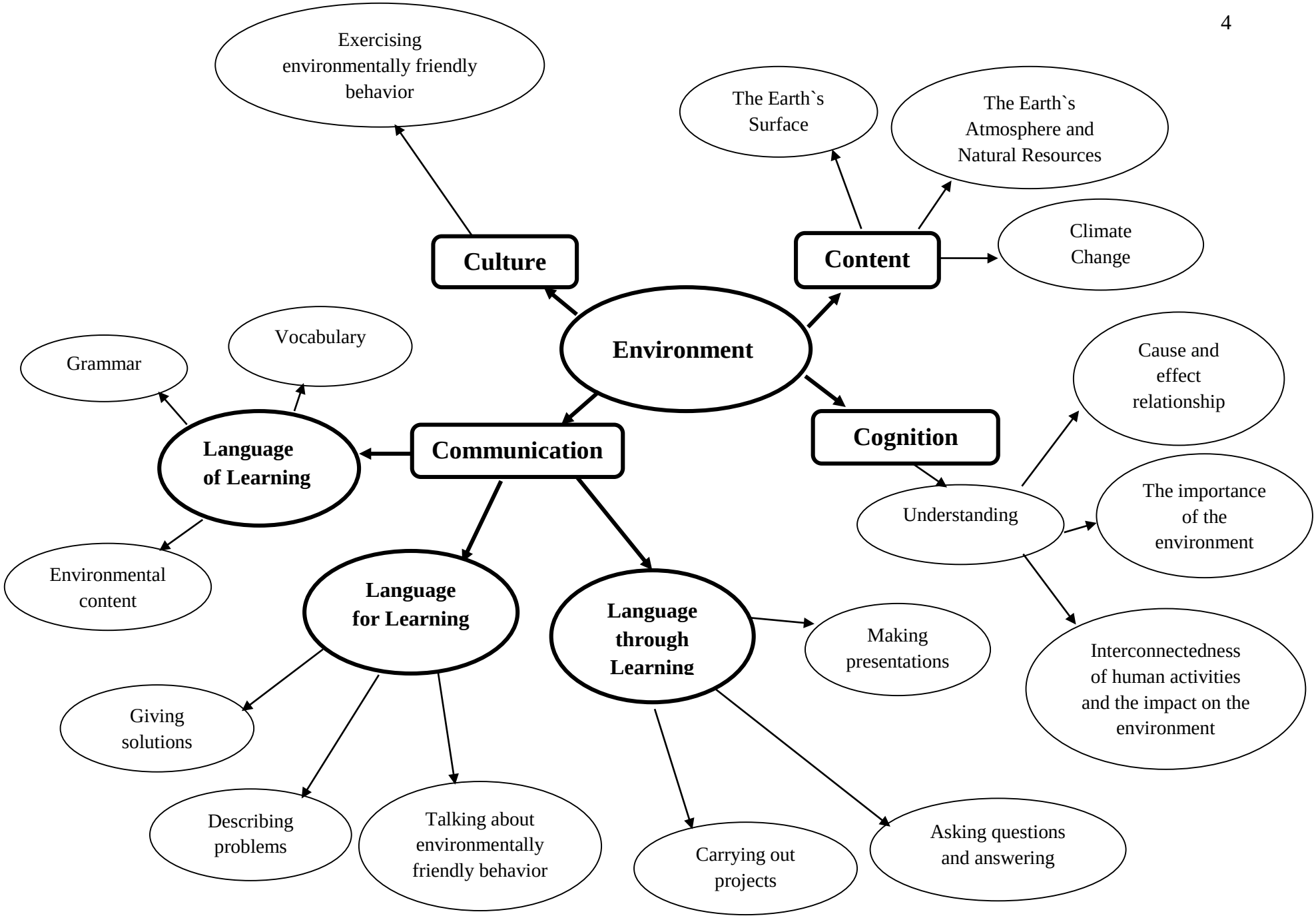

Figure 1. Mind map of the course based on 4Cs Framework and the Language Triptych (Coyle et al., 2010, p. 41-55)

2.3. Environmental Education

International Union for Conservation of Nature and Natural Resources (IUCN), which is an international organization advocating nature conservation and sustainable use of natural resources, has given one of the earliest definitions of what environmental education (EE) is. It states that:

> Environmental education is a process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also includes practice in decision-making and self-formulating of a code of behavior about issues concerning environmental quality (IUCN, 1970).

Starting from 1972 the United Nations Education Scientific and Cultural Organization (UNESCO) and the United Nations Environment Program (UNEP) initiated three major declarations about the protection of the environment. The third one was the Tbilisi Declaration of 1977 that the first time ever highlighted the importance of environmental education and set forth the three main goals of EE. The first goal of the declaration is to enhance knowledge and consciousness about social, economic and ecological codependency. Second goal refers to creating conditions for everybody to obtain knowledge and commitment necessary for protecting and improving the environment. The last goal is about creating *individual, group* and *public behavior leading to protected environment* (UNESCO, 1975).

EE will be of current interest until human destructive impact on the environment decreases. Some of the most discussed environmental issues that are always in the center of public attention are the depletion of natural resources and climate change. Intergovernmental

Panel on Climate Change (IPCC, 2014), which is one of the leading international organizations that provides scientific standpoint about climate change, states that climate change is the result of human-made emission of greenhouse gasses such as carbon dioxide, methane, water vapor etc. (U.S. EPA, 2009, IPCC, 2014, NASA, n.d.). IPCC (2007) report warns that climate change can bring to extinction of species, drought risk, food supplies shortage and health problems. At this point, the role of EE becomes more crucial. As Bamberg and Moeser (2007) and Stevenson et al. (2013) state nowadays EE concentrates on processes to promote critical thinking while making judgments about environmental issues and responsibility to act individually and unitedly to protect and strengthen the environment.

In order EE achieves the effective implementation of EE courses, UNESCO (1975) suggests specific guidelines referring to secondary school children. According to the guidelines while implementing an environmental course, it is important to present students *why* they need to be concerned about the environment. Another important aspect is the content. UNESCO (1975) suggests that secondary school children do not need to learn too technical and scientific concepts or terminology. Students need to understand that environmental education is all about the survival of human beings as species. Moreover, students will acquire content better if it is based on “student-initiated activities and involvements” (p. 5) not forgetting to keep the course structured. UNESCO (1975) also sets forth the situational differences among rural and urban school and school children by emphasizing that all the differences should be neglected and children from rural areas should be “sociologically” and children from urban areas “ecologically” educated (p. 6).

CHAPTER THREE: PROPOSED PLAN

3.1. Needs and Environment Analysis

The needs and environment analysis was carried out in Hatsik Secondary School after Avetis Baghdasaryan and Karakert Secondary School N1 and N2 in Armavir Province. The purpose of the analysis was to gather information about students` English language proficiency and the books used to teach both English and about the environment. The **instruments** used for collecting data were:

1. **face-to-face** and **telephone interviews** with three school principals and seven parents (Appendix A)

Due to the interviews, it was found out that “Natural Sciences” book was used to give school children general knowledge about the environment. Topics such as the gases and layers of the atmosphere were included in the book. However, the book did not provide any information about reduce, reuse, and recycle, climate change, ecological footprint etc. The book did not include any hands-on projects.

The books used to teach English mostly provided basic knowledge of English. Interview results with parents showed that they were not satisfied with the knowledge of English of their children even though they had already been studying it for 3-4 years. Both parents and headmasters viewed this course an opportunity mainly to improve students` English skills.

2. a **questionnaire** consisting of nine questions (Appendix B)

The aim of the questionnaire was to assess students` English language skills and find out who is eligible in terms of the language to take the course. The questionnaire consisted of nine

questions. Students had to answer the questions in English. Seven questions were closed-ended and two of them were open-ended. Closed-ended questions asked for personal information about students while the open-ended questions aimed at assessing students` general language skills and knowledge about the environment.

Sixty-three school children from two schools of Karakert and one school of Hatsik filled in the questionnaire. Forty-two students took the course because of their English language skills.

3.2. Context

The course was piloted in Hatsik Secondary School after Avetis Baghdasaryan and Karakert Secondary School N1 and N2. Twenty-two school children from Karakert and nineteen students from Hatsik participated in the project. The students both in Hatsik and Karakert villages were selected based on their answers of open-ended questions of the questionnaire.

The classroom in Hatsik, was one of the laboratories of Children of Armenia Fund (COAF). It was equipped with movable chairs, tables, a projector, computer, and it had internet connection. The classrooms in Karakert were equipped with movable chairs, and tables, however, there was no projector. The teacher had to use her own laptop to use the Teacher`s Slides.

3.3. Course Description

The course is based on CLIL/CBI approaches and aims at promoting both the English language and environmental content. The course consists of three units and each of them comprises four sub-unites. The three unites cover “The Earth`s Surface”, “The Earth`s Natural

Resources” and “The Earth`s Atmosphere” themes. Sub-unites cover topics such as biomes, living and non-living things, natural resources, overuse of natural resources, reduce, reuse and recycle, air pollution, ecological footprint, climate change etc. The course also includes six hands-on projects: tree planting, conducting a survey, saving water, creating air pollution catcher, recycling paper, cleaning the streets. The appendix provides more information about the course goals, outcomes and assessment. (Appendix C)

3.4. Learning Plan

As the course is based on the principles of CBI/CLIL approaches, it focuses on both the language and content. The course includes three main approaches to the language:

Language of learning

Students will learn key vocabulary and specific grammar patterns. This is the planned language.

Language for Learning

After getting the input, students start to work on the productive skills. They will describe environmental problems, suggest solutions, and have presentations.

Language through Learning

This stage is more spontaneous and students may need explanation for unplanned vocabulary and concepts. Students will learn through raising questions and answering them. Presentations and hands-on projects will provide them opportunities for creative thinking and language use.

CHAPTER FOUR: REFLECTIONS AND RECOMMONDATIONS

During the piloting of the course, the teacher and researcher took open-ended reflective notes of shortly after each class. The resulting notes were then analyzed qualitatively for main themes with a focus on specific recommendations for teachers.

4.1. Reflections on the Course

Successes

One of the success of this course was to introduce new concepts and behaviors to school children. Students were surprised and interested to learn about their ecological footprint, natural resources, watch the visualizations about climate change etc. Students` enthusiasm towards making presentations, working in groups and carrying out hands-on projects was inspiring.

Challenges

The absence of a projector and the internet in the school of Karakert was a challenge. Using a laptop to show the visuals to twenty-two students was not as effective as it was with a projector.

4.2. Recommendations for Teachers

In order to conduct this course effectively, the teacher should:

- make sure the classroom is equipped with necessary instruments such as a projector, computer, moveable chairs.
- select eligible students carefully. If there are beginner students, it may be a challenge. It may also affect the natural flow of classes.

- cover the units slowly and speak slowly. The teacher should use scaffolding strategies to make both the language and the content more comprehensible. The teacher should speak slowly and use repetitions. This will help students better understand both the language and concepts.
- be patient when introducing group work activities. Students may not know how to work in groups. If group work activities are a challenge, the teacher should take some time to explain to students how they need to work in a group.
- consider identifying the fit of the course for your students in terms of students' language proficiency. One simple way to do that is to give them a text in the first unit and have them underline all the words they do not know. If the number of unknown words exceeds 30%, this course may be too challenging for the students. Research suggests that known words should not exceed 10% for comfortable reading. However, note that all texts in this course come with pre-reading activities that teach students new words. Students who find the text very easy could still benefit from it because it includes a lot of communicative practice in English and discusses environmental topics in addition to language learning.
- provided that the students are well-placed for this course in terms of their language proficiency, the total time for this course is approximately 30 academic hours.

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Appendices

Appendix A1

Հարցազրույցի հարցեր

1. Ի՞նչ գրքեր եք օգտագործում աշակերտներին շրջակա միջավայրի մասին ուսուցանելու համար։
2. Ին՞չ գրքեր եք օգտագործում անգլերեն դասավանդելու համար։
3. Ինչպե՞ս կգնահատեք Ձեր երեխայի/աշակերտների անգալերեն լեզվի իմացության մակարդակը՝ գերազանց, լավ, բավարար, վատ։
4. Ձեր երեխան մասնակցե՞լ է շրջակա միջավայրի վերաբերյալ որևէ արտադասարանային դասընթացի և գիտելիք ձեռք բերել շրջակա միջավայրի խնդիրների և դրանց լուծումների մասին։

Appendix A2

Interview questions

1. What books do you use to teach school children about the environment?
2. What books do you use to teach English?
3. Please assess your students`/child’s English language proficiency? (Excellent, good, satisfactory, poor)
4. Did your child participate in any after school program where she gained more information about the environment, environmental issues and the solutions?

Appendix B1

Հարցաթերթիկ

1. Անուն/Ազգանուն_____
2. Տարիք_____
3. Դասարան_____
4. Մարզ/գյուղ_____
5. Ինչքա՞ն ժամանակ է, որ անգլերեն եք սովորում_____
6. Խնդրում ենք գնահատել Ձեր անգլերեն լեզվի իմացության մակարդակը.

Գերազանց Լավ Բավարար Վատ

7. Երբևէ՞ մասնակցել եք շրջակա միջավայրի վերաբերյալ դասընթացների: Եթե՝ այո, ի՞նչ գիտելիք եք ստացել այդ դասընթացին մասնակցելու շնորհիվ:

_____

_____

_____

_____

_____

_____

8. Կցանկանա՞ք մասնակցել այս դասընթացին՝ միևնույն ժամանակ սովորելով և՛ անգլերեն, և՛ գիտելիքներ ստանալ Ձեզ շրջապատող աշխարհի մասին:

Այո Ոչ

9. Խնդրում ենք գրել էսսե. «Ինչու՞ պետք է մարդիկ հոգ տանեն շրջակա միջավայրի մասին»:

_____

_____

_____

_____

_____

_____

_____

_____

Appendix B2

1. Name, Surname_____
2. Age_____
3. Grade_____
4. Marz/village_____
5. How long have you been studying English?_____
6. Assess your English language proficiency.

Excellent Good Satisfactory Poor

7. Have you ever participated in an environmental course? What have you learned from it?

_____

_____

_____

_____

_____

_____

8. Would you like to participate in this course, learn English and get more information about the environment?

Yes No

9. Please write an essay by answering the question. “Why do people need to save the environment?”

_____

_____

_____

_____

_____

_____

_____

_____

Appendix C

Course goals, outcomes and assessment

GOALS	OUTCOMES	ASSESSMENT		
		Projects	Presentations	Participation
GOAL 1: Raise children's understanding of environmental issues at global and local levels.	1.1. Demonstrate understanding of specific environmental problems threatening the world	X	X	X
	1.2. Acknowledge specific environmental problems currently present in their region	X	X	X
	1.3. Understanding the cause and effect relationship between global and local environmental issues	X	X	X
GOAL 2: Foster children's sense of environmental citizenship through hands-on projects that capitalize on creative thinking and problem solving skills.	1.1. Analyze and rate their impact on the environment in terms of resource consumption and pollution	X	X	X
	1.2. Exhibit environmentally responsible behavior in their daily lives	X	X	
	1.3. Suggest solutions to specific environmental problems that can be used locally	X	X	X
	1.4. Develop environmentally positive attitude among their community members through different activities	X	X	
GOAL 3: Develop children`s receptive and productive skills in English related to environmental topics.	3.1. Apply target grammatical patterns mostly accurately in speech and writing	X	X	X
	3.2. Use target vocabulary in speech and writing	X	X	X
	3.3. Engage in short and scaffolded reading and listening activities about the environment		X	X
	3.4. Produce creative and accurate writing on the level of words and short sentences.		X	X

Rubric for assessing participation, presentations and daily activities

	Rating	Excellent (5) Good (4) Satisfactory (3) Poor (1)
Content • Shows understanding about the content		**Comments**
• Responds to questions with appropriate answers on the topic		
• Is active and motivated as a local environment protector		
• Demonstrates critical and creative thinking in terms of protecting the environment		
• Demonstrate environmentally friendly behavior		
Language Skills • Actively tries to use oral and written English		
• Shows good understanding of listening and reading texts		
Grammar and Vocabulary • Shows comprehension about covered vocabulary		
• Shows understanding about covered grammar points		
• Integrates covered grammar patterns and vocabulary in speaking and writing tasks		