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| Research Article / Araştırma Makalesi |

Investigation of Environmental Related Course Gains at the First Level of Primary Education in Terms of Interdisciplinary Approach

İlköğretim Birinci Kademe Düzeyinde Çevre İçerikli Ders Kazanımlarının Disiplinler Arası Yaklaşım Açısından İncelenmesi

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Abstract

Purpose: Environment is an interdisciplinary research field related to many social, cultural, psychological, economic and social fields. Therefore, the success of a study to be planned in environmental education requires directing the study by considering these disciplines. Since environment and environmental problems affect many areas in our lives, environmental education in education programs should be handled with an interdisciplinary approach. In the research, environmental related gains in primary education curriculum were examined in the context of associating with other disciplines based on integrated interdisciplinary approach.

Design/Methodology/Approach: The study is qualitative research and document analysis method was used in the analysis of the data.

Findings: The number of environmental related gains at primary level was determined to be 96. It has been determined that the environmental related gains in primary education curriculum are concentrated in some courses such as Life Science, Science and Social Studies, and these gains are not included in the curriculum of some courses. It has been observed that the level of association of the determined gains with other disciplines is weak. In addition, no clear explanation has been found in the curriculum about the necessity of handling environmental related gains with an interdisciplinary approach.

Highlights: The research shows that environmental gains in primary education curriculum are insufficient in terms of integrated interdisciplinary approach.

Öz

Çalışmanın amacı: Çevre; sosyal, kültürel, psikolojik, ekonomik ve toplumsal pek çok alanla ilgili disiplinler arası bir çalışma alanıdır. Dolayısıyla çevre eğitiminde planlanacak bir çalışmanın başarısı bu disiplinleri de göz önüne alarak çalışmaya yön verilmesini gerektirir. Çevre ve çevre sorunlarının hayatımızdaki birçok alanı etkilemesi sebebiyle, eğitim programlarındaki çevre eğitiminin disiplinler arası bir yaklaşımla ele alınması gerekmektedir. Araştırmada ilköğretim birinci kademe ders öğretim programlarındaki çevre temalı kazanımlar, bütünleştirilmiş disiplinler arası yaklaşıma dayalı olarak diğer disiplinlerle ilişkilendirme bağlamında incelenmiştir.

Materyal ve Yöntem: Çalışma nitel araştırma olup verilerin analizinde doküman analizi yöntemi kullanılmıştır.

Bulgular: İlköğretim birinci kademe seviyesinde çevre temalı kazanımların sayısı 96 olarak tespit edilmiştir. İlköğretim birinci kademe ders öğretim programlarındaki çevre temalı kazanımların Hayat Bilgisi, Fen Bilimleri, Sosyal Bilgiler gibi bazı derslerde yoğunlaştığı, bu kazanımların bazı derslerin öğretim programında ise hiç yer almadığı tespit edilmiştir. Tespit edilen kazanımların diğer disiplinlerdeki kazanımlarla ilişkilendirilme düzeyinin zayıf olduğu görülmüştür. Ayrıca öğretim programında çevre temalı kazanımların disiplinler arası bir yaklaşımla ele alınması gerekliliği konusunda net bir açıklamaya rastlanmamıştır.

Önemli Vurgular: Araştırma ilköğretim birinci kademe seviyesinde öğretim programlarındaki çevre temalı kazanımların bütünleştirilmiş disiplinler arası yaklaşım açısından yetersiz olduğunu göstermektedir.

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INTRODUCTION

The environment is broadly defined as the environment in which living and non-living beings interact, where cultural and social elements of the environment are evaluated together (Keleş, 2015). Basically, the medium in which living and non-living beings are in mutual relationship is called the environment. When the environment is examined as artificial and natural, the natural environment can be defined as areas where human do not interfere, and the artificial environment can be defined as environments where people reshape (houses, bridges, industrial facilities, etc.) the natural environment to serve their own purposes. The world's rapid population growth, urbanization, industrialization and with efforts to achieve better living standards of people brings various environmental problems, especially the destruction of the natural environment. Air pollution, water pollution, excessive and unconscious consumption of resources, leaving harmful waste to the environment is some of the most important environmental problems. It is known that the effect of these problems causes deterioration and changes in the natural environment and, according to a general approach, also includes dissolutions in the structures of society and their negative effects on nature (Çoban, 2014). It is necessary to look for the basis of environmental problems in the moral, institutional structure of human communities, because the more social rules in society value the environment, the more motivation and environmental ethics of individuals develop (Serim, 2016). Issues such as sustainable development, environmental protection, and fighting hunger and poverty, preventing terrorism and anarchy, and efficient energy supply are among the main issues of the modern world and society (Aydınlı, 2019). Environment, the area where living things are connected by vital bonds, affect and affected by various reasons; influences the individual and society in terms of physical, biological, social-psychological, economic and cultural aspects (Güney, 2003). It is necessary to teach and develop information about the environment, attitude towards the environment and behavior that is beneficial to the environment, as well as instill existing environmental awareness in all segments of society (Erten, 2004). The environment, which is the medium in which people are directly or indirectly affected, is essential for maintaining their living life. For this reason, humanity must be sensitive to the environment and consciously consume resources, thinking about future generations. Raising individuals that have environmental awareness is only possible with the education that given in early ages.

In environmental education, the basis of which is the protection of nature and natural resources, it is aimed to provide information to the individual, as well as to create positive and permanent changes in the behavior of the individual and to ensure the active participation of the individual in the solution of environmental problems (Şimşekli, 2004). It also aims to develop the environmental management skills of society through environmental education (Ünal & Dımışkı, 1999). Erten (2004), stating that the main goal of environmental education is to transfer ecological information to individuals, as well as to develop their attitudes towards the environment and convert these attitudes to behavior. It is known that environmental education aimed at protecting nature and natural resources is given in primary schools at first (Stevenson, 2007). However, it is understood that environmental education is more comprehensive than nature and natural resources conservation education; it is assumed that the purpose of environmental education is to develop and protect natural resources such as soil, water, forest and air, as well as to improve the environment by protecting the biosphere, biomes and ecosystem.

It is known that environmental education has functioned global value with the United Nations Human Environment Conference in 1972, which was held to prevent and solve environmental problems at the international level (Ünal & Dımışkı, 1999). Environmental education requires lifelong learning, starting from the family and following school life; in this context, the lack of environmental education in the family is tried to be eliminated by environmental gains in school programs (Akınoğlu & Sarı, 2009). In this context, environmental education programs are developed and developed in many countries (Akınoğlu & Sarı, 2009). It is known that Bulgaria organizes curriculum to students from five grades to eight grades to develop a positive attitude to where they live, to take on roles in protecting nature with a change in the curriculum in 2003 (Revised School Programs, 2003). In Finland, where environmental education is mandatory for all students at primary level, students are taken to nature parks and botanical gardens at an early age. In Germany, environmental education is considered as interdisciplinary education, and primary school students are initiated into environmental education in their environment. Spain and Turkey similarly distribute environmental education to all levels (Stokes, Edge & West, 2001). It is suggested that the solution of vital problems such as hunger, high unemployment rates, rapid population growth and the onset of ecological irregularities in India will be overcome by sustainable development. Indian educators have stated that environmental education is the first stage of sustainable development and have made various initiatives related to environmental education in their country. All of the course books at all levels in this country are edited to include themes related to environmental gains (Ravindranath, 2007).

The fact that the environment is related to areas like social, cultural, psychological, economic, social etc. requires considering various disciplines at the same time while environmental education to be planned. Because environment and environmental problems affect many areas in our lives, environmental education in educational programs needs to be addressed with an interdisciplinary approach. At the Tbilisi conference, it is also reported that the issue of the environment is discussed inter-governmental and that it is in accordance with an interdisciplinary approach that ensures that environmental education is holistic (Intergovernmental Conference on Environmental Education-Final Report, 1978). Accordingly, Dımışkı and Ünal (1998) emphasizes that environmental education in formal education-related goals to achieve on its own and as a course in the curriculum of Science, Mathematics, Social Sciences, or in the course of only a portion of the model that are being widely applied in Science, Math, Social, Visual Arts, Turkish courses in related topics, along with the environmental issues, as explained in a common model (multi-disciplinary) can be applied (Ünal & Dımışkı, 1999).

Disciplines also associate the knowledge they produce with different disciplines using their own methods and techniques. A phenomenon in nature cannot be explained only by one discipline, healthy results cannot be achieved in solving complex issues and problems with one discipline. A single discipline considers a fact in nature only in the context of its own terminology. For this reason, Ackoff (1973) who supports this opinion likens disciplines to interrelated filing and argues that the facts of nature cannot be evaluated in a single discipline or in such a sequential form. However, many things in nature are not that simple and plain. In order to explain events in nature and to solve complex problems, it should also be looked at from the point of view of different disciplines (Ulusoy, 2007; as cited in Gürkan).

Although the interdisciplinary approach cannot be a new field of study, it is estimated that the change of society and the different problems arising with the growing population lead to the inclusion of this field of study in research more effectively and quickly (Stein, 2007). In literature, disciplines are mostly integrated and classified as multidisciplinary, multidisciplinary, trans-disciplinary, cross-disciplinary and interdisciplinary (Piaget, 1972; Meeth, 1978; as cited in Jacobs, 1989; Drake, 2007; as cited in Gürkan, 2015). Multidisciplinary approach, a model of interdisciplinary teaching in which there is little interdisciplinary relationship (Grady, 1994). In this approach, the aim of direct combination of different disciplines is to focus on a problem without teachers in different disciplines being motivated around a common theme from the point of view of teaching. An example of this approach is that the topic of environmental cleanliness is processed both in the course of religious culture and ethics and in the course of natural sciences, but there is no connection between these disciplines. The multi-participation interdisciplinary approach is the recognition that courses such as mathematics and physics are interrelated (Piaget, 1972; as cited in Jacobs, 1989). In a curriculum based on a cross-disciplinary approach, teaching is created around student problems, interests and starts with a problem and different disciplines are employed in its solution (Meeth, 1978; as cited in Jacobs, 1989). In a cross-disciplinary curriculum, one discipline is examined from another discipline area (Meeth, 1978; as cited in Jacobs, 1989). In the interdisciplinary approach, techniques and methods of multiple disciplines are used by associating the aspect of different disciplines related to the subject in understanding a situation (Yıldırım, 1999). Fogarty (1991) models the curriculum as fragmented, connected, nested, and then sequential, shared, structured, connected, threaded, integrated, embedded, networked in terms of an interdisciplinary approach (as cited in Gürkan, 2015). In the integrated model between these models, various disciplines arise in the understanding of a subject, and the teacher establishes an interdisciplinary relationship between these similarities. For example, the relationship of concepts such as discussion and proof with the fields of Science, Social Sciences and literature is also addressed, explaining how they are used in these fields (Fogarty, 1991).

There are different studies on creating the teaching process based on an interdisciplinary approach and developing the curriculum (D'Hainaut, 1986; Lattuca, Voight & Fath, 2004; Jacobs & Borland, 1986 as cited in Jacobs, 1989). Jacobs and Borland (1986) proposes 4 stages in the curriculum based on the interdisciplinary approach it has developed:

1. Editing Center Selection: A topic, event, or problem to be explained is selected.
2. Brainstorming: Disciplines related to the Editing Center are identified.
3. Preparation of Guide Questions: Questions are prepared for research in the Editing Center.
4. Writing Activities for Applications: Activities are prepared by teachers and students that address the interdisciplinary relationship related to the subject to be investigated in the Editing Center.

Jocobs (1986) defines an interdisciplinary approach as the study of a theme, problem, and life using methods and knowledge of multiple disciplines (as cited in Yıldırım, 1996). According to Jocobs and Borland, the first stage of a program development model according to the interdisciplinary approach is the selection of the theme. The theme should not be too far-reaching and too narrow-reaching when determining. For example, a very comprehensive topic such as 'country' or very narrow scope topics such as 'cell' are not suitable for teaching with an interdisciplinary approach. The teaching of subjects such as energy, revolution, inflation, management, equality, environment and climate as subjects is well suited to the interdisciplinary approach and the result will be positive when applied effectively (Jacobs & Borland, 1986). The interdisciplinary approach aims to learn the knowledge and skills of a particular discipline, as well as to organize and teach them in a meaningful way with the knowledge and skills of other disciplines to which they are associated (Yıldırım, 1996). In this context, it is necessary to choose the themes that will be taught with an interdisciplinary approach, taking into account that they are conceptual and related to other disciplines. From this point of view, it is considered that the topic of the environment is suitable for interdisciplinary teaching (Yıldırım, 1996). Giving environmental gains with an interdisciplinary approach is more effective in developing attitudes and behaviors towards the environment compared to teaching with a traditional approach (Hamalosmanoğlu & Güven, 2014). In some studies it is proposed that interdisciplinary students participating in gardening activities showed a positive development in their attitude towards the environment; positive advantages interdisciplinary approach in environmental education environmental engineering; the interdisciplinary approach will ensure sustainable solutions to complex problems through the interdisciplinary synthesis of different sciences (Skelly & Zajicek, 1998; Semerijan, El-Fadel, Zurayk & Nuwayhid, 2004; Focht & Abramson, 2009).

In the program applied in Turkey, environmental themes are included in courses such as Life Science, Science, and Social Sciences. In other words, these themes are given by taking into account a multidisciplinary model. In addition, the gains in the content of this course are given to students without being related to each other and without ensuring integrity (Akınoğlu & Sarı, 2009). Güven and Hamasoğlu (2012) state that 17 gains in environmental education in the seventh grade course curriculum are included in the Science course and Social Sciences course, and that environmental education in the seventh grade course

curriculum is not suitable for an interdisciplinary approach. In another study that same year, they emphasize that environmental activities in fourth-grade Science textbooks are not suitable for an interdisciplinary approach. In many studies in Turkey, educational programs are examined in terms of environmental education (Gülay & Ekici, 2010; Akınoğlu & Sarı, 2009; Harman, 2011; Tanrıverdi, 2009). However, the number of studies in which educational programs are studied in terms of an interdisciplinary approach in the context of environmental education is quite limited (Güven & Hamasoğlu, 2012). In order to contribute to the elimination of this limitation in the literature, in this study, environmental related gains given at the first level (basic education) level of primary education in the curriculum of the Ministry of National Education (MoNE) in terms of an integrated interdisciplinary approach. For this purpose, answers to the following research problems were sought:

1. In what disciplines are environmental related gains associated with educational programs at the first level of primary education?
2. Is primary education in accordance with an integrated interdisciplinary approach in terms of environmental education curriculum at the first level?

METHOD

This research is qualitative research. Document analysis was used as a method of data collection and analysis. Document analysis can be used as a complement to other research methods or as a stand-alone method. Systematic examination of both written and electronic documents is called document analysis (Bowen, 2009). In the process of collecting and analyzing data, environmental related gains in Primary Education first-tier (1^{st}, 2^{nd}, 3^{rd}, 4^{th} grade) courses were determined within the framework of the MoNE's 2018 curriculum. In the process of determining environmental gains, previous studies (Güven & Hamalosmanoğlu, 2012; Gülay & Ekici, 2010; Akınoğlu & Sarı, 2009; Harman, 2011; Tanrıverdi, 2009) and the opinions of two field experts other than researchers were used. At the next stage, the gains determined were examined with an interdisciplinary approach, and during these reviews, the *'program development model according to an interdisciplinary approach'* developed by Jacobs and Borland (1986) was taken into account. In this study, the first two stages of the model were used. The reason that the last two stages are not used is because they are related to the application of the teaching process. The availability of gains in the program in accordance with an interdisciplinary approach is related to the first two stages of the model (Güven & Hamalosmanoğlu, 2012). In this context, environmental related gains in different disciplines at the same class level were compared in this study; similar coinciding gains were determined and clearly shown in the tables given in the results section.

Unlike quantitative research the validity and reliability of the analysis was achieved by taking into account the concepts of plausibility (internal validity), transferability (external validity), consistency (internal reliability) and confirmability (external reliability) (Yıldırım & Şimşek, 2013). The credibility of research findings was provided by taking expert opinion, by detailed description of the findings, by comparing independent analyses conducted by the researchers during the analysis and adopting a common opinion at points where adaptation could not be achieved and by comparing the results with raw data by a field specialist (confirmation review). Based on the findings, comments were made on the level at which environmental related gains are involved in accordance with the interdisciplinary approach at different class levels.

FINDINGS

In the study, the primary first-tier course curriculum was examined in terms of environmental topics within all courses and it was found that there were 18 gains at first-grade level, 21 gains at second-grade level, 28 gains at third-grade level and 28 gains at fourth-grade level. There are a total of 95 environmental related gains in the primary education first-tier curriculum.

At the first- grade level, Life Sciences, Turkish, Mathematics, Physical Education and Playing, Visual Arts, Music courses were examined in terms of environmental related gains. In the first grade course curriculum, it was determined that there were 15 environmental related gains in the Life Sciences, 2 in the Music course, and 1 in the Turkish course. In Mathematics, Physical Education and Playing, and in Visual Arts, there were no environmental related gains (Table 1).

Table 1. Availability of environmental related gains in primary school curriculum according to an integrated interdisciplinary approach

Course	Total gains	Environmental related gains		Gains that can be associated with gains in other disciplines	
		f	%	f	%
Life Science	53	15	28,3	3	20
Turkish	64	1	1,6	1	100
Music	11	2	18,2	2	100
Mathematics	36	0	0	0	0
Physical Education and Playing	24	0	0	0	0
Visual Arts	15	0	0	0	0

As can be seen from Table 1, it was found that the proportion of environmental related gains in the Turkish course was below ten percent. Looking at the gain status that can be associated with gains in other disciplines, only 3 (20%) of the 15 environmental related gains in Life Science courses could be linked to environmental related gains in other courses. All existing environmental related gains in Turkish and Music courses can be associated with other disciplines that contain environmental related gains (Appendix: Table 5).

At the second grade level, the curriculum was studied in terms of the environmental related gains of the English, Turkish, Mathematics, Physical Education and Playing, Visual Arts and Music courses. In the study, it was determined that 10 gains in Life Science course, 1 in Physical Education and Playing course, 1 in Visual Arts course and 9 in English course were environmental related. When Table 2 is examined it was observed that the environmental related gains were associated with some gains in Life Science, Physical Education and Playing, English, Visual Arts, Turkish courses. It has also been found that some gains cannot be associated with any other gains. In Mathematics and Turkish courses, there were no environmental related gains.

Tablo 2. Availability of environmental related gains in primary school second grade curriculum according to an integrated interdisciplinary approach

Course	Total gains	Environmental related gains		Gains that can be associated with gains in other disciplines	
		f	%	f	f
Life Science	50	10	20	6	60
Turkish	46	0	0	0	0
Mathematics	50	0	0	0	0
Physical Education and Playing	28	1	3,6	1	100
Visual Arts	17	1	5,9	1	100
English	39	9	23,1	0	0
Music	7	0	0	0	0

As can be seen from Table 2, it was found that the proportion of environmental related gains in Visual Arts and Physical Education and Playing classes was below ten percent. Given the state of gain that can be associated with gains in other disciplines, none of the 9 environmental related gains in the English course were found to be suitable for an integrated interdisciplinary association. Sixty percent of the 10 environmental related gains in Life Science courses could be linked to environmental related gains in other courses. All of the existing environmental related gains in Visual Arts, Physical Education and Playing courses can be associated with some of the gains in other courses that contain environmental related gains (Appendix: Table 6).

At the third-grade level curriculum Life Science, Science, Turkish, Mathematics, Physical Education and Playing, English, Visual Arts and Music courses are examined in terms of environmental related gains. In the study, it was determined that 10 gains on environmental themes were in Life Science, 12 gains were in Science and 6 gains were in English curriculum. When Table 3 is examined, the environmental related gains of Life science, Science, English, Turkish course associated with it has been seen that some gains, moreover, some gains cannot also be associated with any gains. In Mathematics, Turkish, Physical Education, Visual Arts, and Music courses, there were no environmental related gains.

Tablo 3. Availability of environmental related gains in primary school third grade curriculum according to an integrated interdisciplinary approach

Course	Total gains	Environmental related gains		Gains that can be associated with gains in other disciplines	
		f	%	f	%
Life Science	45	10	22,2	7	70
Turkish	64	0	0	0	0
Mathematics	72	0	0	0	0
Physical Education and Playing	29	0	0	0	0
Visual Arts	17	0	0	0	0
English	46	6	13	5	83,3
Music	7	0	0	0	0
Science	36	12	33,3	5	41,7

Looking at the state of gain that can be associated with gains in other disciplines 5 (83.3%) of the 6 environmental related gains in the English course were found to be suitable for integrated interdisciplinary association. Seventy percent of the 10 environmental related gains in Life Science courses could be linked to environmental related gains in other courses. Less than half of the environmental related gains in the Science course were found to be suitable for integrated interdisciplinary association (Table 3, Appendix**:** Table 7).

At the level of the fourth-grade curriculum Social Sciences, Science, Turkish, Mathematics, Physical Education and Playing, English, Visual Arts, Music, Religion and Ethics, Human Rights Citizenship and Democracy, Traffic Safety courses are examined in terms of environmental related gains. In the study, it was determined that 9 gains with environmental themes were Social Sciences, 12 gains were science, 5 gains were English, 1 gain was human rights, citizenship and democracy, 1 gain was Religion and Ethics, 1 gain was Traffic Safety in the curriculum.

Tablo 4. Availability of environmental related gains in primary school fourth grade curriculum according to an integrated interdisciplinary approach

Course	Total gains	Environmental related gains		Gains that can be associated with gains in other disciplines	
		f	%	f	%
Social Sciences	33	9	27,3	4	44,4
Turkish	78	0	0	0	0
Mathematics	71	0	0	0	0
Physical Education and Playing	25	0	0	0	0
Visual Arts	16	0	0	0	0
English	47	5	10,6	0	0
Music	5	0	0	0	0
Science	46	12	26,1	8	66,7
Religion and Ethics	19	1	5,3	1	100
Human Rights, Citizenship and Democracy	29	1	3,5	1	100
Traffic Safety	21	1	4,8	1	100

As can be seen from Table 4, there were no environmental related gains in Mathematics, Turkish, Physical Education and Playing, Visual Arts, and Music courses. Less than half of the environmental related gains in the Social Sciences course were found to be suitable for integrated interdisciplinary association. None of the environmental related gains in the English course could be associated with environmental related gains in other courses. More than half of the environmental related gains in the Science course were found to be suitable for integrated interdisciplinary association. All of the existing environmental related gains in Religion and Ethics, Traffic Safety, Human Rights, Citizenship and Democracy courses could be associated with some of the gains in other environmental related courses (Appendix: Table 8). In addition, when examined in terms of an integrated interdisciplinary approach, it was found that environmental related gains in fourth-grade curriculum can be associated with gains in more types of courses than in the other three classes (Appendix: Table 8). This can be explained by adding more types of courses to the curriculum as the class level increases.

CONCLUSION AND DISCUSSION

In the research, a total of 95 environmental related gains were determined in the primary education first level curriculum and it was observed that these gains were concentrated in the Life Sciences, Social Sciences and Science course. Akınoğlu and Sarı (2009) handled the 2004 primary education Life Sciences, Social Sciences and Science curriculum with document analysis and determined the total number of environmental related gains at the primary education level as 76. In this study, the number of environmental related gains in the Life Sciences, Social Sciences and Science courses in primary education was determined as 68. When the two studies were compared, it was seen that there was a decrease in the total number of environmental related gains in these three courses, in which environmental related gains were concentrated.

According to the research conducted, it was observed that the environmental related gains were mostly collected in the Life Sciences lesson in the first year curriculum, 2 in the Music lesson and 1 in the Turkish lesson. In their study, Akınoğlu and Sarı (2009) found the number of environmental related gains as 7 within the scope of the first year Life Science course in the 2004 curriculum. When the two studies are compared, it is seen that there is an increase in environmental related gains within the scope of Life Sciences course, but it is thought that the number of environmental related gains in the first year curriculum is still insufficient. In addition, the fact that the environmental related gains in the program are in the curriculum of only 3 courses will make it difficult to associate the environmental issue, which is closely related to many disciplines, with other courses. Themes are mandatory, but other themes are optional (ME, 2018). Considering that the teaching of the 'Nature and the Universe' gains, which is one of these themes, is directly related to the 'Life in Nature' unit gains of the Life Science course, it is thought that it is necessary to clearly include environmental related gains in the Turkish course gains for lesson teaching in accordance with the integrated interdisciplinary approach. Only 3 (20%) of the 15 environmental related gains in Life Sciences courses could be linked with the environmental related gains in other courses. In this context, it can be said that the Life Science course curriculum given at the 1st grade is not suitable in terms of integrated interdisciplinary environmental education. Considering that when environmental education is taught at a very young age, the positive behavior and attitude of the individual towards the environment will develop, it can be concluded that the environmental related gains and distribution of the curriculum examined in the study are quite limited.

When the environmental related gains in the second-grade curriculum were examined in the study, it was seen that the most environmental related gains were in Life Sciences and English course. 10 gains in Life Science, 9 gains in English course, 1 gain in Physical Education and Playing, 1 gain in Visual Arts were determined as environmental related. It can be said that the distribution of the lectures is not sufficient in giving environmental related gains in accordance with the interdisciplinary approach. Some environmental related gains are associated with each other, as can be seen in Table 6 (Appendix), while some are not. The environmental related gains in the 2nd grade curriculum are superior to the 1st grade curriculum in terms of numbers and associations with other courses (Table 1 and Table 2). When the findings of the research are compared with the findings of the study in which Akınoğlu and Sarı (2009) examined the curriculum dated 2004, it is seen that the number of environmental related gains within the scope of the Life Sciences course increased, but it is still thought that the program is inadequate in terms of the variety of courses that environmental related gains can be associated with.

Examining the environmental related gains in the curriculum at the 3rd grade level, it was determined that 10 gains were in the Life Sciences, 12 in the Science and 6 in the English curriculum. The 3rd grade curriculum has superiority in terms of number and association with the courses in the 1st and 2nd grade curricula according to the environmental subjects (Table 1, Table 2 and Table 3). However, it is considered that environmental education in 3rd grade curricula is not suitable in terms of an integrated interdisciplinary approach, since it is collected only in Life Sciences, Science and English courses and there are no environmental related gains in other courses. Akınoğlu and Sarı (2009) identified a total of 20 environment related gains under the Life Sciences lesson in the primary education 3rd grade gains of the 2004 curriculum. When the research conducted is compared with the studies of Akınoğlu and Sarı (2009), it is seen that the number of environmental related gains in the Life Sciences course has decreased. This decrease can be attributed to the environmental related organization of 12 gains in the Science curriculum of 2018.

There are a total of 29 environmental related gains in the 4th grade curriculum. These gains are in Social Sciences, Science, English, Human Rights Citizenship and Democracy, Traffic Safety and Religion and Ethics. However, looking at Table 8, it is seen that these gains are not proportional in number, some gains are associated with other courses, but some are not. Afunction, according to the research, 4th grade environment related gains were not encountered in other courses in the program and examined. According to the study, it is thought that the environmental issues in the 4th grade curriculum are not suitable for the integrated interdisciplinary approach. Especially, the fact that none of the environmental related gains in the English course curriculum can be associated with the environmental related gains in other course suggests that the 4th grade English course curriculum is not suitable for an integrated interdisciplinary approach. Güven and Hamalosmanoğlu (2012) stated in a study they conducted that the environmental activities in the 4th grade Science textbook were not suitable for the interdisciplinary approach and that the activities were not clearly expressed with which disciplines.

Karakuş and Aslan (2016) observed the course activities personally in their study titled "Examination of the current situation for interdisciplinary teaching in primary school" and emphasized that the curriculum is not suitable for applying the interdisciplinary approach. Afunction, Güven and Hamalosmanoğlu (2012) examined the 7th grade environmental education in terms of interdisciplinary approach in their study, and claimed that the program was not suitable for using the interdisciplinary approach at the 7th grade in environmental education. In our current study, when we look at all grade levels from a general perspective, it has been concluded that as the grade level increases, the association of environmental related gains increases in number, but considering the diversity of courses in which these gains are distributed, the curriculum is not sufficient in terms of an integrated interdisciplinary approach.

RECOMMENDATIONS

In the study, the following suggestions can be made according to the findings and results of the study in order to apply the interdisciplinary approach in teaching the environmental related gains at the primary education level of the 2018 curriculum.

1. Increasing the number of environmental related gains that can be associated with gains in other disciplines in the curriculum,
2. Providing more opportunities for integrated interdisciplinary association by including the environmental related gains included in the curriculum of each grade under the curriculum of different disciplines,
3. It is necessary to express more clearly and clearly how the gains related to the environment can be associated with the gains in different disciplines.

This study was conducted at the primary education level. In order to provide environmental education with an interdisciplinary approach, the appropriateness of the program can be evaluated at other grade levels.

Declaration of Conflicting Interests

We declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

Since this study was a document analysis, it was not necessary to obtain an ethics committee approval document.

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Attachments

Table 5. Environmental related gains in primary education first curriculum

	Unit number	Unit name	Environmental related gains	Gains belonging to other disciplines with which the gains are related
Life Science	1	Life in our school	1.1.8. Students will be able to improve toilet use and cleaning habits.	
			1.1.11. Students will be able to participate in the process of determining in-class rules (The subject is explained from the necessity of rules such as keeping the class clean, keeping themselves and their environment clean).	
			1.1.12. Students will be able to follow the school rules (emphasis on using the trash can).	
	2	Life in our home	1.2.5. Students will be able to use resources in the house efficiently (emphasis is on the economical use of electricity, water and personal cleaning materials).	
	3	Healthy life	1.3.1. Students will be able to do their personal care regularly (it is mentioned that resources should be used efficiently when performing their personal care).	
	5	Life in our country	1.5.1. Students will be able to know where they live (recognizes the products that grow in their places of residence)	
			1.5.2. Students will be able to notice the historical, natural and touristic places in their vicinity.	
	6	Life in the nature	1.6.1. Students will be able to observe the animals in the immediate vicinity (The animals in the immediate vicinity, what they feed on and where they shelter. Security measures are taken if observed).	**Association with other disciplines:** 1.6.1. gain has been associated with the basic skills of the listening/ monitoring of the Turkish course.
			1.6.2. Students will be able to observe the plants in the immediate vicinity (garden plants, wild plants and trees in the immediate vicinity, observes how the plants change (growth, shedding, bloom) over time.	**Association with other disciplines:** 1.6.2. gain has been associated with the basic skills of listening/monitoring of the Turkish course
			1.6.3. Students will be able to take care to protect the animals and plants in their vicinity.	
			1.6.4. Students will be able to be sensitive about keeping nature and its environment clean (It is emphasized to do what is necessary to keep nature and the environment clean and to warn the people around in this regard within the framework of courtesy rules).	
			1.6.5. Students will be able to distinguish the materials that can be recycled (Plastics, paper, batteries, vegetable oil and glass are emphasized).	
			1.6.6. Students will be able to observe the sun, moon, earth and stars (the shapes and sizes of the sun, moon, earth and stars are emphasized).	**Association with other disciplines:** 1.6.2. gain has been associated with the basic skills of listening/monitoring of the Turkish course
			1.6.7. Students will be able to research the seasons and their characteristics.	
			1.6.8. Students will be able to understand the changes in nature according to the seasons (The changes in nature according to the seasons and the effects of these changes on plants, animals and humans are emphasized).	
Music	1	Listening - speaking	Mu.1.A.3. Students will be able to distinguishe the sound sources around them (These are classified as natural sounds(sounds in nature, animal sounds, etc.) and artificial sounds(radio-television-motor vehicle-scissors, etc.)).	**Association with other disciplines:** Mu.1.A.3. gain and Mu.1.A.4. gain has been associated with 'T.1.1.1. Students will be able to distinguish sounds from

	Unit number	Unit name	Environmental related gains	Gains belonging to other disciplines with which the gains are related
Life Science	1	Life in our school	1.1.8. Students will be able to improve toilet use and cleaning habits.	
			1.1.11. Students will be able to participate in the process of determining in-class rules (The subject is explained from the necessity of rules such as keeping the class clean, keeping themselves and their environment clean).	
			1.1.12. Students will be able to follow the school rules (emphasis on using the trash can).	
	2	Life in our home	1.2.5. Students will be able to use resources in the house efficiently (emphasis is on the economical use of electricity, water and personal cleaning materials).	
	3	Healthy life	1.3.1. Students will be able to do their personal care regularly (it is mentioned that resources should be used efficiently when performing their personal care).	
	5	Life in our country	1.5.1. Students will be able to know where they live (recognizes the products that grow in their places of residence)	
			1.5.2. Students will be able to notice the historical, natural and touristic places in their vicinity.	
	6	Life in the nature	1.6.1. Students will be able to observe the animals in the immediate vicinity (The animals in the immediate vicinity, what they feed on and where they shelter. Security measures are taken if observed).	**Association with other disciplines:** 1.6.1. gain has been associated with the basic skills of the listening/ monitoring of the Turkish course.
			1.6.2. Students will be able to observe the plants in the immediate vicinity (garden plants, wild plants and trees in the immediate vicinity, observes how the plants change (growth, shedding, bloom) over time.	**Association with other disciplines:** 1.6.2. gain has been associated with the basic skills of listening/monitoring of the Turkish course
			1.6.3. Students will be able to take care to protect the animals and plants in their vicinity.	
			1.6.4. Students will be able to be sensitive about keeping nature and its environment clean (It is emphasized to do what is necessary to keep nature and the environment clean and to warn the people around in this regard within the framework of courtesy rules).	
			1.6.5. Students will be able to distinguish the materials that can be recycled (Plastics, paper, batteries, vegetable oil and glass are emphasized).	
			1.6.6. Students will be able to observe the sun, moon, earth and stars (the shapes and sizes of the sun, moon, earth and stars are emphasized).	**Association with other disciplines:** 1.6.2. gain has been associated with the basic skills of listening/monitoring of the Turkish course
			1.6.7. Students will be able to research the seasons and their characteristics.	
			1.6.8. Students will be able to understand the changes in nature according to the seasons (The changes in nature according to the seasons and the effects of these changes on plants, animals and humans are emphasized).	
			Mu.1.A.4. Students will be able to mimic the sounds they hear around them (sounds in nature, animal sounds, etc. are emphasized).	natural and artificial sound sources' gain of Turkish course.

	Unit number	Unit name	Environmental related gains	Gains belonging to other disciplines with which the gains are related
Life Science	1	Life in our school	1.1.8. Students will be able to improve toilet use and cleaning habits.	
			1.1.11. Students will be able to participate in the process of determining in-class rules (The subject is explained from the necessity of rules such as keeping the class clean, keeping themselves and their environment clean).	
			1.1.12. Students will be able to follow the school rules (emphasis on using the trash can).	
	2	Life in our home	1.2.5. Students will be able to use resources in the house efficiently (emphasis is on the economical use of electricity, water and personal cleaning materials).	
	3	Healthy life	1.3.1. Students will be able to do their personal care regularly (it is mentioned that resources should be used efficiently when performing their personal care).	
	5	Life in our country	1.5.1. Students will be able to know where they live (recognizes the products that grow in their places of residence)	
			1.5.2. Students will be able to notice the historical, natural and touristic places in their vicinity.	
	6	Life in the nature	1.6.1. Students will be able to observe the animals in the immediate vicinity (The animals in the immediate vicinity, what they feed on and where they shelter. Security measures are taken if observed).	**Association with other disciplines:** 1.6.1. gain has been associated with the basic skills of the listening/ monitoring of the Turkish course.
			1.6.2. Students will be able to observe the plants in the immediate vicinity (garden plants, wild plants and trees in the immediate vicinity, observes how the plants change (growth, shedding, bloom) over time.	**Association with other disciplines:** 1.6.2. gain has been associated with the basic skills of listening/monitoring of the Turkish course
			1.6.3. Students will be able to take care to protect the animals and plants in their vicinity.	
			1.6.4. Students will be able to be sensitive about keeping nature and its environment clean (It is emphasized to do what is necessary to keep nature and the environment clean and to warn the people around in this regard within the framework of courtesy rules).	
			1.6.5. Students will be able to distinguish the materials that can be recycled (Plastics, paper, batteries, vegetable oil and glass are emphasized).	
			1.6.6. Students will be able to observe the sun, moon, earth and stars (the shapes and sizes of the sun, moon, earth and stars are emphasized).	**Association with other disciplines:** 1.6.2. gain has been associated with the basic skills of listening/monitoring of the Turkish course
			1.6.7. Students will be able to research the seasons and their characteristics.	
			1.6.8. Students will be able to understand the changes in nature according to the seasons (The changes in nature according to the seasons and the effects of these changes on plants, animals and humans are emphasized).	
Turkish	1	Listening and monitoring	T.1.1.1. Students will be able to distinguish sounds from natural and artificial sound sources. Information about natural and artificial sound sources is not provided.	**Association with other disciplines:** T.1.1.1 gain has been associated with '1.A.3. Students will be able to distinguish the sound sources around' and 'Mu.1.A.4. Studnets will be able to mimic the sounds they hears around them' gains of the Music course.

Table 6. Environmental related gains in primary school second grade curriculum

	Unit number	Unit name	Environmental related gains	Gains belonging to other disciplines with which the gains are related
Life Science	1	Life in our school	2.1.6. Students will be able to take care when using school resources and belongings (emphasis is placed on issues such as electricity, water, cleaning materials and taking care of saving in the use of school course tools and equipment).	**Association with other disciplines:** 2.1.6. gain has been associated with 'BO.2.2.2.10. Students will be able to exhibit sensitivity to the environment when participating in games and physical activities in nature' and 'E2.4.L1. Students will be able to identify and understand the names of some classroom objects', 'E2.4.S1. Students will be able to express the correct names of the classroom objects' gain of Physical Education and Playing course .
	3	Helathty Life	2.3.4. Students will be able to explain the necessity of cleaning for a healthy life (focuses on environmental cleaning)	**Association with other disciplines:** 2.3.4. gain has been associated with 'T.2.2.3. Students will be able to talk about a specific topic in the framework' gain of Turkish course.
	5	Life in our country	2.5.8. Students will be able to observe the production activities carried out in the immediate vicinity (the subject is explained based on business lines such as industry, agriculture and animal husbandry).	
	6	Life in the nature	2.6.1. Students will be able to compare the conditions necessary for plants and animals to live.	**Association with other disciplines:** 2.6.1. gain has been associated with 'E2.8.L1. Students will be able to identify certain pet animals', 'E2.8.L2. Students will be able to follow short and simple oral instructions about the names and locations of pet animals', 'E2.8.S1. Students will be able to say the names of certain pet animals', 'Students will be able to recognize the names of certain animals' and 'E2.8.S2. Students will be able to say where the animals are by pointing out them' gain of English course.
			2.6.2. Students will be able to realize the importance of plant growing and animal feeding (within the scope of opportunities, students are provided to practically grow plants, plant saplings and feed animals).	**Association with other disciplines:** 2.6.2. gain has been associated with 'E2.8.L1. Students will be able to identify certain pet animals', 'E2.8.L2. Students will be able to follow short and simple oral instructions about the names and locations of pet animals', 'E2.8.S1. Students will be able to say the names of certain pet animals', Students will be able to recognize the names of certain animals' and 'E2.8.S2. Students will be able to say where the animals are by pointing out them' gain of English course.
			2.6.3. Students will be able to give examples of the impact of natural elements in its immediate vicinity on human life (the positive and negative effects of natural elements in its immediate vicinity on humans are discussed).	
			2.6.4. Students will be able to contribute to the recycling of consumed substances (examples of areas where substances such as plastic, paper, batteries and glass are reused. It draws attention to the damages that may occur in nature and everyday life by sampling the situations of improper disposal/destruction of vegetable oil).	**Association with other disciplines:** 2.6.4. gain has been associated with 'G.2.1.8.Students will be able to create visual art works based on daily life' gain of Visual Arts course.
			2.6.5. Students will be able to recognize natural events (natural events focus on rain, hail, snow, fog and wind. It focuses on measures that can be taken to ensure that natural events are not harmful).	

			2.6.6. Students will be able to give examples of natural disasters (natural disasters such as floods, landslides, avalanches, storms, tornadoes and earthquakes are emphasized. Organizations such as the Kızılay and AFAD that help during natural disasters are introduced). 2.6.7. Students will be able to explain the measures that can be taken afunctionst natural events and natural disasters.	**Association with other disciplines:** 2.6.7. gain has been associated with 'T.2.2.3. Students will be able to talk about a specific topic' gain of Turkish course.
Physical Education	2	Active and healthy life learning area	BO.2.2.2.10. Students will be able to exhibit conscious consumer sensitivity to the environment when participating in games and physical activities in nature (in nature, in the schoolyard, etc. all activities performed should be used. Values related to gain should be emphasized).	**Association with other disciplines:** BO.2.2.2.10 gain has been associated with '2.1.6. Students will be able to take care when using school resources and belongings', 'E2.5.L1. Students will be able to identify colors of things' and 'E2.5.S1. Students will be able to name the colors of things' gain of Life Science course.
Visual Arts	1	Visual communication and formatting	G.2.1.8. Based on daily life, students will be able to create visual art works (it can be focused on phenomena that disrupt and destroy the natural environment. It can be explained what the banner is and why it was made. They may be asked to give examples of these phenomena around them and then make banners on environmental sensitivity).	**Association with other disciplines:** G.2.1.8. gain has been associated with '2.6.4. Students will be able to contribute to the recycling of consumed substances' gain of Life Science course, 'E2.5.L1. Students will be able to identify colors of things' and 'E2.5.S1.Students will be able to name the colors of things' gains of English course.
English	8	Pets	E2.8.L1. Students will be able to identify certain pet animals. E2.8.L2. Students will be able to follow short and simple oral instructions about the names and locations of pet animals. E2.8.S1. Students will be able to say the names of certain pet animals**.** E2.8.S2. Students will be able to say where the animals are by pointing out them.	
	9	Fruits	E2.9.L1. Students will be able to recognize the names of fruits. E2.9.S1. Students will be able to talk about the fruit they like. E2.9.S2. Students will be able to tell others to do things with fruit by pointing out them.	
	10	Animals	E2.10.L1. Students will be able to recognize the names of certain animals. E2.10.S1.Students will be able to talk about the animals they like / dislike.	

Table 7. Environmental related gains in primary school third grade curriculum

	Unit number	Unit name	Environmental related gains	Gains belonging to other disciplines with which the gians are related
Life Science	2	Life in your home	3.2.6. Students will be able to make original recommendations for effective and efficient use of resources in the home (electricity, water use is handled).	**Association with other disciplines:** 3.2.6 gain has been associated with the 'E3.6.L2. Students will be able to recognize the names of the parts of a house', 'E3.6.S2. Students will be able to ask about and say the parts of a house', 'E3.6.S3. Students will be able to ask about and tell the location of things in a house' gains of English course.
	3	Healthy Life	3.3.2. Students will be able to exhibit conscious consumer behavior when buying food and beverages (shopping is focused on paying attention to the place where food is purchased, the color, shape, smell, expiration date and content of the product).	
			3.3.5. Students will be able to compile with the rules of cleanliness and hygiene in public areas to protect the health of themselves and the community (emphasis is placed on the importance of using public places, toilets and sinks clean, in accordance with hygiene rules).	**Association with other disciplines:** 3.3.5. gain has been associated with '3.6.2.2. Takes active duty in the cleaning of the environment in which s/he lives' gain of Science course.
	5	Life in our country	3.5.3. Students will be able to introduce the characteristics of historical, natural and tourist places located in the immediate vicinity (mosque, Fountain, Inn, bath, Museum, Castle, historical bazaars, bridges, national parks, etc.in the immediate vicinity. allows them to share it with their friends in class by doing research on places).	**Association with other disciplines:** 3.5.3. gain has been associated with '3.6.2.1. Recognizes the environment in which s/he lives', '3.6.2.3. Explains the differences between natural and artificial environment' gains of Science course, ' E3.7.L1. Students will be able to recognize the types of buildings and parts of a city' gain of English course and 'T.3.2.3. The framework speaks about a specific topic' gain of Turkish course.
	6	Life in the nature	3.6.1. Students will be able to understand the importance of plants and animals in terms of human life.	
			3.6.2. Students will be able to explore the growing conditions of fruits and vegetables (the topic is explained on a sample of fruits or vegetables grown in their immediate vicinity).	**Association with other disciplines:** 3.6.2. gain has been associated with '3.6.1.2. It presents the observation results of a plant's life cycle' gain of Science course.
			3.6.3. Students will be able to find directions using nature (focusing on natural direction finding methods such as observing the Sun, ant nests, and mosses)	
			3.6.4. Students will be able to give examples of the impact of humans on natural elements from their immediate environment (emphasis is placed on the positive and negative effects of humans on the natural environment. Care is also taken to give examples of their positive effects. Examples of endangered species are given).	**Association with other disciplines:** 3.6.4. gain has been associated with '3.6.2.6. Students will be able to recommend solutions by conducting research to protect the natural environment' gain of Science course, 'E3.9.L1. Students will be able to identify various weather conditions', 'E3.9.S1. Students will be able to talk about the weather conditions', 'E3.10.S1. Students will be able to talk about nature and animals', 'E3.10.S2. Students will be able to talk about the animals they like or dislike and have been associated with the nature' gain of the English course.
			3.6.5. Students will be able to take responsibility for protecting nature and the environment (emphasis is placed on the importance of keeping natural resources such as water, air and soil clean, proper use and planting trees for a better livable environment. Also, non-governmental organizations interested in the subject are introduced at the basic level).	**Association with other disciplines:** 3.6.5. gain has been associated with '3.6.2.2. Students will be able to take active part in the cleaning of the environment in which they live' and '3.6.2.6. Students will be able to propose solutions by conducting research to protect the natural environment' gains of Science course, and 'E3.10.L2. Students will be able to follow short and simple oral instructions about nature and animals' gain of English course.

			3.6.6. Students will be able to give examples of the contribution of recycling to themselves and the environment in which they lives (examples are the collection methods of substances such as plastic, paper, batteries and glass, as well as the areas where they are reused. The contributions of this process to the environment are emphasized. It is realized that they can play a role in sustainability by using one of the counted substances and providing different gains).	**Association with other disciplines:** 3.6.6. gain has been associated with '3.6.2.6. Students will be able to propose solutions by doing research to protect the natural environment' gain of Science course.
Science	1	Get to know our planet/Earth	3.1.2.1. Students will be able to understand that land and water are located on the surface of the earth.	
			3.1.2.3. Students will be able to explain that there is a layer of air around us on earth.	
	5	Light and sounds around us	3.5.2.1. Students will be able to classify the surrounding light sources as natural and artificial light sources.	
			3.5.3.3. Students will be able to classify surrounding sound sources as natural and artificial sound sources.	
	6	Journey to the world of living things/Living things and life	3.6.1.1. Students will be able to classify entities as living and inanimate using examples around them.	
			3.6.1.2. Students will be able to present the observation results of a plant's life cycle.	**Association with other disciplines:** 3.6.1.2. gain has been associated with '3.6.2. Students will be able to explore the growing conditions of fruits and vegetables' gain of Life Science course.
			3.6.2.1. Students will be able to recognize the environment in which they live.	**Association with other disciplines:** 3.6.2.1. gain has been associated with '3.5.3. Students will be able to introduce the features of historical, natural and tourist places in their vicinity' gain of Life Science course.
			3.6.2.2. Students will be able to take an active role in cleaning the environment in which they live.	**Association with other disciplines:** 3.6.2.2. gain has been associated with '3.3.5. Students will be able to follow the rules of cleanliness and hygiene in public use areas in order to protect the health of themselves and the community' and '3.6.5. Students will be able to take responsibility for protecting nature and the environment' gains of Life Science course.
			3.6.2.3. Students will be able to explain the differences between natural and artificial environment.	**Association with other disciplines:** 3.6.2.3. gain has been associated with '3.5.3.Students will be able to introduce the features of historical, natural and tourist places in their vicinity' gain of Life Science course.
			3.6.2.4. Students will be able to design an artificial environment.	
			3.6.2.5. Realizes the importance of natural environment for living things (national parks and natural monuments are mentioned)	
			3.6.2.6. Students will be able to propose solutions by conducting research to protect the natural environment.	**Association with other disciplines:** 3.6.2.6. gain has been associated with '3.6.4. Students will be able to give examples of the impact of humans on natural elements from their immediate environment', '3.6.6. Students will be able to give examples of the contribution of recycling to themselves and the environment in which they live' and '3.6.5. Students will be able to take responsibility for protecting nature and the environment' gains of Life Science course.

English	9	Weather	E3.9.L1. Students will be able to identify various weather conditions.	**Association with other disciplines:** E3.9.L1. gain has been associated with '3.6.4. Students will be able to give examples of the impact of humans on natural elements from its immediate environment (Emphasis is placed on the positive and negative effects of humans on the natural environment. It is also taken care to give examples of their positive effects. Examples of endangered species are given) gain of Life Science course.
			E3.9.S1. Students will be able to talk about the weather conditions.	**Association with other disciplines:** E3.9.S1. gain has been associated with '3.6.4. Students will be able to give examples of the impact of humans on natural elements from its immediate environment (emphasis is placed on the positive and negative effects of humans on the natural environment. It is also taken care to give examples of their positive effects. Examples of endangered creatures are given)' gain of the Life Science course.
	10	Nature	E3.10.L1. Students will be able to recognize nature and the names of animals.	**Association with other disciplines:** E3.10.L1. gain has been associated with '3.6.4. Students will be able to give examples of the impact of humans on natural elements from their immediate environment (emphasis is placed on the positive and negative effects of humans on the natural environment. Care is also taken to give examples of their positive effects. Examples of endangered species are given)' gain of Life Science course.
		Nature	E3.10.L2. Students will be able to follow short and simple oral instructions about nature and animals.	
		Nature	E3.10.S1. Students will be able to talk about nature and animals.	**Association with other disciplines:** E3.10.S1. gain has been associated with '3.6.4. Students will be able to give examples of the impact of humans on natural elements from their immediate environment (emphasis is placed on the positive and negative effects of humans on the natural environment. Care is also taken to give examples of their positive effects. Examples of endangered species are given)' gain of Life Science course.
		Nature	E3.10.S2. Students will be able to talk about the animals they like or dislike and the nature.	**Association with other disciplines:** E3.10.S2. gain has been associated with '3.6.4. Students will be able to give examples of the impact of humans on natural elements from their immediate environment (emphasis is placed on the positive and negative effects of humans on the natural environment. Care is also taken to give examples of their positive effects. Examples of endangered species are given)' gain of Life Science

Table 8. Environmental related gains in primary school fourth grade curriculum

	Unit No	Unit Name	Environmental related gains	Gains in other disciplines with which gains are related
Science	1	Structure of the earth's crust	4.1.1.1. Students will be able to indicate that the land layer of the Earth's crust is composed of rocks.	**Association to other disciplines: ‘**4.1.1.3.’, ‘4.1.1.2.’, ‘4.1.1.3.’ gains have been associated with ‘T.4.2.3. Makes prepared speeches.’ gain of Turkish course.
			4.1.1.2. Students will be able to associate rocks with mines and discusses the importance of rocks as raw materials. Important rocks and mines in Turkey are mentioned; gold, boron, marble, lignite, copper, coal, silver, etc. an example is given.	
			4.1.1.3. Students will be able to explain the formation of fossils.	
	4	Properties of matter	4.4.5.3 Students will be able to discuss the separation of mixtures in terms of its contribution to the country's economy and the effective use of resources.	**Association to other disciplines:** 4.4.8.3. gain has been associated with ‘4.2.2. Explains ways to bear the responsibility of being human’ gain of Human Rights, Citizenship and Democracy course, ‘TG.4.1.10. ‘Recognizes the importance of using public transport in traffic’ gain of Traffic Safety course and ‘4.5.1. Makes informed choices between the two by distinguishing their desires and needs’, ‘4.5.3. Exhibits conscious consumer behavior as a responsible individual’, ‘4.5.5. Uses the surrounding resources without wasting them’ gains of Social Sciences.
	5	Lighting and sound technologies	4.5.3.1. Students will be able to question the causes of light pollution. 4.5.3.2. Students will be able to explain the negative effects of light pollution on natural life and the observation of celestial bodies. 4.5.3.3. Students will be able to produce solutions to reduce light pollution.	**Association to other disciplines:** 4.5.3.2. gain has been associated with ‘T.4.2.3. Makes prepared speeches’ gain of Turkish course.
			4.5.5.1. Students will be able to question the causes of sound pollution. 4.5.5.2. Students will be able to explain the negative effects of sound pollution on human health and environment. 4.5.5.3. Students will be able to produce solutions to reduce sound pollution.	**Association to other disciplines:** 4.5.5.2. gain has been associated with ‘T.4.2.3. Makes prepared speeches’ gain of Turkish course.
	6	Human and environment	4.6.1.1. Students will be able to take care to be economical in the use of resources (emphasizes the importance of efficient use of resources such as electricity, water, nutrients, and focuses on the importance of reuse).	**Association to other disciplines:** 4.6.1.1 gain has been associated with 4.2.2. Explains ways to bear the responsibility of being human’ gain of Human Rights, Citizenship and Democracy course, ‘TG.4.1.10. Recognizes the importance of using public transport in traffic’ gain of Traffic Safety course and ‘4.5.1. Makes informed choices between the two by distinguishing their desires and needs’, ‘4.5.3. Exhibits conscious consumer behavior as a responsible individual’, ‘4.5.5. Uses the surrounding resources without wasting them’ gains of Social Sciences.

			4.6.1.2. Students will be able to understand the importance of resources and recycling necessary for life (water, nutrients, electricity, etc.).	**Association to other disciplines:** 4.6.1.2. gain has been associated with '4.2.2. Explains ways to bear the responsibility of being human' gain of Human Rights, Citizenship and Democracy course, 'TG.4.1.10. Recognizes the importance of using public transport in traffic' gain of Traffic Safety course and '4.5.1. Makes informed choices between the two by distinguishing their desires and needs', '4.5.3. Exhibits conscious consumer behavior as a responsible individual', '4.5.5. Uses the surrounding resources without wasting them' gains of Social Sciences.
Social Sciences	3	People and palces	4.3.3. Students will be able to distinguish the natural and human elements in the environment in which it lives.	
			4.3.4. Students will be able to transfer his findings to Illustrated graphs by observing the weather events occurring around it.	
			4.3.5. Students will be able to make inferences about the place where he lives and the landforms and population characteristics around them (the political and physical map of Turkey is studied together with students, while these gains are processed, literary products such as poetry, stories, epics are used).	
			4.3.6. Students will be able to make the necessary preparations for natural disasters (priority is given to natural disasters that are likely to encounter in the environment in which the student lives).	
	4	Science, technology and society	4.4.2. Students will be able to compare the past and present use of technological products (draws attention to the positive and negative effects of technology in our lives and environment) 4.4.5. Students will be able to use technological products without harming itself, others and nature.	**Association to other disciplines:** 4.4.5. gain has been associated with '4.2.2. Explain ways to bear the responsibility of being human' gain of Human Rights, Citizenship and Democracy course.
	5	Production, distribution and consumption	4.5.1. Students will be able to make informed choices between the two by distinguishing between its wants and needs (the limitation of resources, the balance of benefits and costs will be taken into account). 4.5.3. Students will be able to exhibit conscious consumer behavior as a responsible individual. 4.5.5. Students will be able to use surrounding resources without wasting them.	**Association to other disciplines:** 4.5.1., 4.5.3. and 4.5.5. gains have been associated with '4.6.1.1. Takes care to be efficient in the use of resources' gain of Science course.
Religion and Ethics	5	Religion and cleanliness	4.5.2. Students will be able to take care to be clean and tidy (it will improve students' self-care skills, as well as cleaning the home, school and environment; it will focus on issues such as hand-mouth cleaning, body cleaning, clothing cleaning before and after meals).	**Association to other disciplines:** 4.5.2. gain has been associated with '4.2.2. Explain ways to bear the responsibility of being human' gain of Human Rights, Citizenship and Democracy course.

Human Rights, Citizenship	2	Rights, freedom and responsibility	4.2.2. Students will be able to explain the ways of carrying the responsibility of being human (human responsibilities to themselves, their family, friends, other people, nature, the environment, animals and the common heritage of humanity are included).	**Association to other disciplines:** 4.2.2. gain has been associated with '4.6.1.1. Takes care to be efficient in the use of resources' gain of Science course, '4.4.5. Uses the surrounding resources without wasting them' gains of Social Sciences and '4.5.2. Takes care to be clean and tidy' gain of Religion and Ethics course. The Turkish course is associated with basic language skills in speech.
Traffic	1	Safety in traffic	TG.4.1.10. Students will be able to realize the importance of using public transport in traffic.	**Association to other disciplines:** TG.4.1.10. gain has been associated with '4.6.1.1. Takes care to be efficient in the use of resources' gain of Science course.
English	8	My clothes	E4.8.L1. Students will be able to understand short oral texts about weather conditions and clothing. E4.8.L2. Students will be able to recognize the names of the season sand clothes in short oral texts. E4.8.S1. Students will be able to describe the weather conditions. E4.8.S2. Students will be able to name the seasons. E4.8.S3. Students will be able to ask and answer simple questions about weather conditions and clothing items in simple conversations.	