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The technology of forming the student's ecological thinking in the teaching of "Natural Science" in the 4th grade

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Abstract: In the article, recommendations are given that the application of the principle of coherence and continuity in the teaching of "Natural Science" serves as a mechanism for increasing the effectiveness of education.

Key words: IV class, continuous education, coherence, natural science, teaching methodology, interdisciplinary connection, continuity, educational effectiveness, didactics, special methodology

INTRODUCTION

The last 20th century was the century of scientific and technical achievements. In addition to using the achievements of scientific and technical progress, the current unfavorable environmental situation has created a global environmental risk in terms of scope. The causes of environmental risk - coordination of relations between nature, society, people and technology and prevention of environmental risk have become urgent issues of today. This unfavorable environmental situation has a negative impact on a factor that is important for a person - his health. In this regard, global and regional environmental risk, its causes, coordination of relations between man and nature, society and nature, prevention of environmental destruction are the urgent problems of today. There is a need to search for optimal ways to solve environmental problems. Pedagogical orientation is important for this necessity. Because environmental problems arise as a result of human influence on nature. Ultimately, these environmental issues find expression in constitutions and laws. In fact, in order to find a solution to ecological problems, ecological disaster or ecological situation, first of all, it is necessary to form the concepts of ecological education in a person. Ecological education has theoretical, practical and educational importance in terms of content and direction. Ecological education is carried out in preschool age, school period, after school, neighborhood, working group and old age in different content, forms, methods and approaches.

Knowledge about the nature around us is acquired as follows:

- interrelationship and difference of animate and inanimate nature;
- natural objects and their characteristics;
- components of nature and their interrelation;
- natural phenomena and their effects;
- the universe and its relationship with the planet Earth;
- Nature of Uzbekistan and its protection;
- formation of reasonable attitudes to the nature around us;
- solving exercises with the participation of animals and plants, processing pictures and sculptures, solving creative tasks and problematic questions. Knowledge of the surrounding

nature has an impact on the student's all-round development and upbringing. By learning this knowledge, young people analyze the relationship between nature and man, the essence of their interrelationship and unity, their attitude to the environment, the actions taken in the way of nature protection, and try to determine the factors that caused the origin of environmental problems. This situation creates a foundation for the formation of ecological knowledge and concepts in young people. In addition, the formation of ecological culture among young people is one of the important issues of today. The basis of ecological culture, without a doubt, covers all links of the ecological education system, that is, from pre-school educational institutions to higher education levels. Because as a result of environmental education aimed at specific, specific goals, it is possible to increase the ecological knowledge of young people, to develop in them the skills of a conscious attitude towards nature, and to educate the qualities of a sincere attitude to work. It should be assumed that ecological education is carried out systematically and consistently.

The essence of ecological education consists in the definition and implementation of its main tasks. The interaction of animate and inanimate nature, ecological problems and ways to solve them, the formation of scientific and practical skills about the environment surrounding the place where we live, values in ecological description, ecological behavior and activities, willpower and success in achieving ecological goals, surrounded scientific abilities to educate the desire to actively protect the environment in practical activities. To understand the relationship of people to the natural and socio-cultural environment, their characters and behavior, to understand the good, satisfactory and unsatisfactory, necessary confirmation of the necessary opportunities to solve environmental problems, to form confidence in their views, to protect the surrounding environment, to develop a desire to be a personal participant in their practical work. Environmental education is not limited to the classroom. It is continued in the process of educational activities outside the classroom and school. It is known that "Natural Science" lessons are the main subject of education in elementary grades. These educational subjects are very important in the formation of ecological culture. It is extremely important to organize lessons in non-traditional methods in order to familiarize students with nature, to regularly inform them about various environmental events. Emphasizing that the task of promoting ecological knowledge and forming ecological culture among young people in cooperation with educational institutions, family, neighborhood, and the general public will give good results, the main responsibility rests with pedagogues. In order to successfully solve the above tasks, in addition to providing solid knowledge of the basics of science in schools, in the process of teaching various subjects, students are provided with knowledge that reveals the nature of environmental problems in the current era.

LITERATURE ANALYSIS AND METHODOLOGY

Materials studied in environmental education for elementary school students directly 1 Ismailov A., Akhadov R. Ecological education. - T.: "Teacher", 1997. - p. 18. becomes important in the process of familiarization with nature. Nature is composed of the material world that surrounds man in its various forms. Interdisciplinary environmental education is an important pedagogical problem. Many scientists have conducted scientific research in this field. For example, M.A. Yuldashev2, G. Sultonova3, N. Ashurova4 studied various aspects of environmental problems in primary education, N.H. Egamberdieva5 studied the aspects of moral education of students under the influence of the environment, M. Rahmatullaeva6

studied students' interest in natural aesthetics in class and outside of school. conducted scientific research on formation. However, the development of the theoretical and practical foundations of the formation of students' ecological thinking in extracurricular activities in primary classes, and their wide promotion among primary school students, has not been fully implemented. The purpose of the interdisciplinary explanation of environmental education to elementary school students is to teach them to know nature and protect it, to form interdisciplinary theoretical knowledge, practical skills and competencies related to environmental education. Choosing the forms and methods of teaching in each lesson, taking into account the purpose, content, age and individual characteristics of the students, paying attention to the activity of the students during the lesson is the basis for raising the educational process to higher levels. A successful solution to such a responsible and complex task requires a teacher to have deep knowledge in this field, pedagogical skills, high environmental culture, tireless research, learning, creativity and generosity.

Only a teacher with such qualities can educate a person who has deep theoretical knowledge and competence of ecological education, knows the secrets of natural processes, understands its socio-economic and spiritual importance, and has a conscious attitude towards it. In fact, elementary school students acquire knowledge about living organisms, their structure and function, their diversity, life, mutual and external environment dependence, the nature and laws of the complex interrelationship of things and events in nature, and on this basis, their ecological knowledge in natural science lessons, extracurricular and extracurricular activities. is collected, generalized and systematized. However, in order to form a conscious attitude of students towards nature, it is not enough to master the system of knowledge about ecology, for this, it is necessary to establish sufficient activities of students in the heart of nature, that is, organizing excursions, conducting observations, growing and caring for plants and animals, completing various summer assignments, among them is the large-scale organization of independent work on environmental protection. Proper implementation of these activities will form the skills of students to treat nature responsibly. Analyzing elementary school natural science curriculums in terms of content and purpose, determining their interdiscipline ecological education, and using them in the educational process is of great importance in activating students' cognitive activity.

Table 1. Comparative analysis of the program of the educational subject "Natural science and its teaching methodology".

The content of the inter-subject connection in the curriculum of the subject "Natural science and its teaching methodology"	
The content of the available subjects in the current curriculum is as follows 96 hours	The content of the topics proposed in the new curriculum is as follows: 152 hours
General didactic content of science and its teaching methodology	The content of special concepts of the basics of natural science

The methodology of teaching natural science is a pedagogical science. Formation and development of science teaching methodology Educational and educational tasks of elementary school science Methods, forms and means of teaching science Monitoring and evaluation of student knowledge in science Material technique base in introduction to nature. The content of science in primary schools, education principles of program planning	Solar system. Universe. Galaxy, its types and structure. Star system. Solar system and planets. Mercury. Venus. Mars. Jupiter. Neptune. Saturn. Uranus. The level of exploration of the planets in the solar system. Shells of the planets. The distance between the planets and the Sun. Stars, asteroids and meteorites. Earth, its shape and movement Er. The shape of the earth. The rotation of the Earth around its axis and around the Sun. Alternation of day and night. Change of seasons. Equator. Meridian and parallel lines. Globe. Map. Moon. Its phases. Lithosphere. Earth's age and geologic dates are the topography of the earth's surface. The main processes that create relief, internal and external forces that change the surface of the earth, plains, mountains and minerals. Hydrosphere. World Ocean, Earth's water cycle, seas, rivers, lakes, underground waters, glaciers, internal waters of Uzbekistan. Water protection. Atmosphere. General understanding of the atmosphere, solar radiation, temperature, weather, climate regions, climate of Uzbekistan. Protecting the atmosphere. Biosphere. Signs of life, cell nutrition, development and growth. Physiology of plants. Importance of flora in human life. Organs of plants. Generative and vegetative organs. Reproduction of flowering plants. Their types, families, characteristics. Life forms of plants. Understory plants. Tall plants. The diversity of the animal world. He studies the diversity, structure, behavior of animals, reproduction, development, geographical distribution and origin of animals, as well as their importance in nature and human life. Animal world. Unicellular organisms. Class, species and genera in the animal kingdom. Fish. Reptiles. Birds. Mammals. Animal world of Uzbekistan.
The content of special concepts of the basics of natural science	General didactic content of science and its teaching methodology

Universe. Basic chemicals. Galaxy, its types and structure. Star system. Solar system and planets. Earth, its shape and movement. Flora and fauna.	Science and teaching methodology - modern problems in the field of science teaching methodology as a pedagogical subject. The formation and development of the teaching of natural science and its teaching methodology Educational and educational tasks of elementary school science. Principles and law of science teaching. Formation of imagination and concepts of science in elementary school students methodological foundations. Methods of teaching science Forms of organization of educational work in natural science. Monitoring and evaluation of student knowledge in science. Science teaching tools Material and technical base for introduction to nature The content of science in elementary schools, principles of curriculum planning

The integration of subjects in the teaching of science, that is, the implementation of interdisciplinary connections, is an important didactic condition of the educational process, which performs the following tasks:

1. The scientificity and consistency of the educational material, which is the main source of knowledge for students, ensures the didactic connection of the concepts learned from other natural sciences.

2. Students' interest in acquiring knowledge increases and mental development accelerates.

3. Integrating natural sciences, i.e., through the gradual and consistent implementation of interdisciplinary connection in teaching, makes it possible to expand the scientific outlook of students. It is possible to understand the interdependent development of various events that occur in nature and society, and the relationships between them, only on the basis of interdisciplinarity. Studying nature and society separately leads to the formation of scattered knowledge about them. This kind of knowledge does not allow us to create ideas about the unity of nature and society, the role of humanity in nature, the need for a systematic approach to the correct understanding of the essence of the global problems facing humanity and its rational solution. Effective implementation of interdisciplinary environmental education in elementary school science classes requires deep and thorough preparation from the teacher, preparation of students to accept new educational materials, implementation of interdisciplinary connections, creation of problem situations, as well as planning and skillful conduct of each lesson.

The growing volume of information in the world requires the creation of new technological processes that allow them to absorb this information. The educational process is also radically changing, namely:

ISSN 2515-8260 Volume 10 Issue 01, 2023

● innovative technologies that speed up the lesson process are used to achieve lesson efficiency in the allotted time;

● new information technologies are being introduced into the educational process for effective use of the allocated time;

● electronic multimedia resources are being developed for students to have quick information for efficient use of their time. (e-textbooks, etc.).

● Students and listeners use the world's information resources through the Internet and the press. For this purpose, it is appropriate to deeply analyze inter-types of education and inter-discipline connections in mastering subjects, and ensure their coherence and continuity. Integration is an important quality that expresses the organization of the educational process based on a certain sequence, and at a certain stage, it ensures the consolidation, expansion and deepening of the knowledge, skills and competencies that make up the content of the educational activities of the previous stage. The concept of unity has philosophical, psychological and pedagogical aspects. In pedagogy, coherence is used in two different ways. First of all, coherence between the types (joints) of education. Secondly, coherence between academic subjects. This is usually done through interdisciplinary or cross-curricular connections. Based on these, there is another situation, which means that the content of education is placed in a certain sequence, in a systematic way, relying on the existing knowledge in learning a new topic, using the educational material in the next stages to a certain extent, and represents the continuity of the stages of the educational process. . Nowadays, there is a need to find a solution to the problem of continuity from the point of view of the continuous education system, to develop effective methods and tools for its implementation. In this case, it is important to choose educational content that matches the characteristics of the age and outlook of learners, to place the selected educational content based on the principle of coherence, and to justify it pedagogically.

Based on the possibilities of the selected educational content and taking into account the level of knowledge of the students, the systematic and organic formation of existing and new knowledge, skills, and competencies ensures the complete assimilation of the students. Placement of educational content on the basis of coherence affects not only the structure of the curriculum and plan of a particular subject, but also increases the effectiveness of education by adapting it to the curriculum of related subjects. The concept of continuity means the unity, interconnection and interdependence of knowledge in the educational structure and is based on its stability and indivisibility. That is, the continuity gradually implements the educational system between the types of education. It is known that the teaching of natural sciences begins with the world around us and natural sciences. "The world around us" in 1st-2nd grade, "Natural science" in 3rd-4th grade. Specialists of primary education are trained in the 5111700-primary education and sports educational direction of higher education. These specialists teach the world around us in grades 1-2 and "Natural Science" in grades 3-4, as well as all other subjects in elementary grades of general secondary education (mathematics, mother tongue, reading, cooking, etiquette subjects).

ISSN 2515-8260 Volume 10 Issue 01, 2023

DISCUSSION AND RESULTS

Below is the lesson plan prepared by the authors of the article on establishing interdisciplinary environmental education in elementary science classes. Lesson topic: "Nature protection" (Natural science, 3rd grade). Educational goal of the lesson: formation of interdisciplinary ecological knowledge during the lesson. Educational purpose of the lesson: providing interdisciplinary environmental education in the lesson. Developmental goal of the lesson: to develop interdisciplinary logical thinking in the lesson. Method: "Working in small groups". The course of the lesson:

I. Organizational part: greeting, duty information, preparing students for the lesson.

II. Reviewing homework requests and assessments. III. New topic: "Nature protection". Teacher: "Dear students! Today's topic is related to the subjects of "Natural Science" and "Reading". We will study this topic using the "Working in small groups" method. Students of the class are divided into groups of 4-5 people, and the problem set before them takes the following tasks in the context of "Protection of Nature": - man-nature; - what is ecology? - human impact on nature; - the husband loves - he loves! Each group completes the task for five minutes, finds materials related to the problem, cuts out pictures, pastes them on a poster, and interprets the text. Each group reports. Other students ask questions and evaluate the work. The topic is summarized as follows.

Teacher: "All things in nature are interconnected. Man is a part of nature. Man cannot live without nature's air, water, soil, plants, animals, minerals. Negative changes are observed as a result of human influence on nature. The science of ecology was created in order to deal with the problems of prevention of negative changes in nature, protection of nature and its preservation. The word "ecology" is derived from the Greek words "oikos" - house, place of residence and "logos" - science. Ecology is the science of preservation and protection of nature, which is the common home of all living beings. Ecology also studies the relationship of man to nature. Man lives in the lap of nature. He uses natural resources to satisfy his needs. In ancient times, people used ready-made products of nature. He plucked fruits and roots of edible plants and hunted animals. They lived completely dependent on nature. People's intelligence has increased. He created tools and developed technology. As a result, man's influence on nature increased. Such a large human influence on nature can have bad consequences.

Therefore, scientists in the field of ecology are working to regulate the relationship of man with nature, to restore lost natural resources. Mother-husband is a wonderful gift of nature. Earth is the mother of all wealth and blessings. To love nature, to protect it, to make the surroundings green, and to turn them into gardens means to love Mother Earth.

The educational subject of natural science also requires the knowledge, skills and competence of the teacher. This is the development of the scientific-methodical and organizational-methodical foundations of the introduction of effective forms of teacher training, advanced forms and methods of education, retraining of modern education and information and communication technologies, and professional knowledge, skills and qualifications in the process of training. depends on getting. It was considered important to determine what kind of knowledge, skills, and what skills should be developed in the process of improving the qualifications of a primary school teacher in the science subject. The analysis of the science course should take into account the existence of two

directions: inductive and deductive. When creating new programs at the level of modern requirements, a position that takes into account the "public" and "private" relations specific to natural objects is adopted. That is why knowledge of problems, objects, "general" and "specific" features of events and phenomena allows to draw reasonable conclusions. Therefore, the structure of the natural science curriculum based on the principles of deductive and inductive is of great scientific and educational importance. In understanding the general laws of certain natural objects, it is important to know the properties that indicate which general concept this object belongs to.

CONCLUSION

In the course of natural science, students' thinking activity, analysis and synthesis, comparison, generalizing concepts are further increased during their studies. Therefore, as natural objects, events and phenomena are described on the basis of play and observation, students are first required to master natural term concepts. When creating an understanding of the components, it is necessary to analyze them according to their internal characteristics and reasons, in some cases from their natural or historical connections, and draw a conclusion. This methodological approach ensures the study of "parts" at the first stage of natural science education. In the teaching of natural science, the following characteristic of teaching in a coherent and continuous manner is that the specific aspects of the first academic subject are studied, and then the general aspects are studied. Because in primary education, other educational subjects (mathematics, mother tongue, labor, humanities, etc.) are closely related to general teaching methods and complement each other.

The socio-economic reforms implemented in our republic require the development of spiritual and moral directions on a large scale. Because this democratic humanism is an important factor in building a society. Discontinuity has occurred in the system of public education in our country. Especially today's global ecological problem is not only among adults, but it is important to form and explain it in elementary school, for the spiritual and moral education of the students, as well as for the development of a well-rounded generation. Recommendations:

1. To pay special attention to the formation of interdisciplinary ecological thinking in raising interest in learning about nature in elementary school students. For this, in order to establish interdisciplinary ecological thinking, it is necessary to know not only the natural science curriculum, but also other educational subjects, including reading, mother tongue, mathematics, and their horizontal and vertical connections.

2. Development of the theoretical basis of formation of ecological thinking of students in extracurricular activities in primary classes and wide promotion of them among primary school students.

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ISSN 2515-8260 Volume 10 Issue 01, 2023

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