

## THE IMPORTANCE OF INTERSUBJECT INTEGRATION IN “BIOLOGY AND GEOGRAPHY” LESSONS.

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**Annotation.** The article discusses the role of biology and geography, which are part of the natural sciences block, in preparing educated students with scientific worldviews that meet world standards; integrated study of subjects gives good results in forming a scientific worldview and interest of students in science; the views of ancient thinkers and modern scientists on the ideas of the unity of scientific knowledge and the concept of integration are considered.

**Key words:** *general education institutions, professional competence of natural science teachers, motivation, scientific worldview, sciences, integration, research method, interdisciplinary connections, idea of materiality, scientific worldview.*

**Introduction.** Nowadays, in the era of rapidly accelerating development, the world is changing every minute, the thinking and outlook of the young generation are different, and this process requires every teacher working in the education system to constantly search, apply new ideas, use modern innovative technologies in education, and pay attention to interdisciplinarity. They will pay more and more attention to the organization of classes and become more responsible.

Nowadays, it is becoming difficult for a teacher with a low level of knowledge to teach students, because in the advanced era of information flow (data) distribution technologies, students are getting multifaceted information through the Internet, television and various gadgets. We can see this especially in the teaching of science related to nature. This, in turn, requires science teachers to keep up with the times, work tirelessly on their own, and be in constant search.

The associate degree of contemporary education (mutahassisning) is a special competence in the field of science, technology and education. Professional competence is the knowledge, skills and knowledge necessary for the implementation of the professional skills of the student, and the ability to practice them at a high level.

**Methodology. Literature review.** The cycle of natural sciences includes several sciences (subjects): physics, chemistry, biology, geography, astronomy and ecology. Each of these sciences has its own subject content, structure, research methods, describes one side of nature, builds its own model. While studying one of these subjects, we should not forget that the world is a whole and a whole. The subjects of the cycle of natural sciences are designed to reveal the modern scientific landscape of the world to the student.

By teaching natural sciences, the changes of the earth from ancient times to the present, the world's gradual change from simple to complex, its increasing diversity, and the scientific understanding of the ongoing processes create an opportunity to reveal the ideas of the worldview. When studying biology and geography, chemistry and physics, students study the signs, structure, functions, development, dynamics of interaction of objects and phenomena, they show their ideas about the laws of dialectics, and form worldview ideas.

The use of interdisciplinary integration in the teaching of the cycle of natural sciences, while being a factor that increases the effectiveness of teaching, provides an opportunity to improve its quality and achieve good results in the formation of students' views of the scientific world. Forming a scientific worldview in students is one of the most important tasks of general education institutions

and one of the main goals of the pedagogical process. Undoubtedly, the worldview determines the behavior and activity of a person in society. The rapid development of science and technology requires students to have certain scientific concepts in natural directions.

It is necessary to follow the principle of consistency of interdisciplinarity in the formation of a scientific outlook. Interdisciplinarity allows students to see a certain phenomenon from different points of view and get a complete picture of the event. Interdisciplinarity, which allows to fully cover all the characteristics and connections of the studied event or phenomenon, is of great importance in the formation of a scientific worldview. For example, on the basis of interdisciplinarity, methodological ideas about the unity of living and dead nature, society and nature are formed in students.

The content of natural sciences taught at school is rich in life concepts and has great potential for forming a scientific outlook. Because these sciences are distinguished by the dialectical unity of natural objects and phenomena and their mutual interdependence. The connection between geography and biology can be seen perhaps most clearly in the teaching of these subjects. Both sciences study nature. But biology focuses on living organisms (plants, animals, fungi, and microorganisms), while geography focuses on its abiotic components (rocks, rivers, lakes, climate, etc.). I'm interested in biology, I'm interested in geography, and I'm interested in other sciences. The purpose of the association, which was in the past, was to generalize the knowledge of the students, to strengthen their knowledge and to expand their worldview.

One of the leading trends in the development of modern education is the integration of its content. Forming a holistic view of the world in students as an interconnected whole.

Integration as an educational tool should provide students with knowledge that reflects the connection of individual parts of the world as a system, should teach a person to perceive the world as a single whole, all elements of which are interconnected.

One of the founders of the scientific methodology of the study of natural fans A.Ya.Gerd emphasized the importance of biology for the education of the scientific worldview. A.N.Beketov, K.A.Timiryazev, K.F.Roulier, A.P.Bogdanov, K.Baer, Kabiologists. The content of natural sciences allows to reveal worldview ideas for the scientific understanding of the processes taking place in the Earth's biosphere and geographical envelope.

When studying the sciences of biology and geography, students study the characteristics, structure, functions, development, dynamics of interaction of objects and events, and the laws of dialectics expressed in the ideas of the worldview are manifested in them. Scientists A. Ya. Gerd, I. D. Zverev, N. M. Verzilin, V. M. Korsunsky, T. N. Gerasimov, M. K. Kovalevsky, P. M. Pancheshnikov thoroughly studied the ideas of the scientific outlook for school subjects. those who came out. The study of natural sciences gives an understanding of the materiality of nature, its objectively real character.

The idea of the unity of scientific knowledge is reflected in the works of ancient thinkers: Aristotle, Democritus, Epicurus, and Plato. G. Haeckel and I. Kant, I. G. Pestalozzi also emphasized this problem: the educational process should be structured in such a way that, on the one hand, subjects are separated from each other, on the other hand, similar and interrelated events and processes are combined in our minds. leads to great clarity, and once they are fully understood, clear concepts are formed.

K.D.Ushinsky developed and implemented the analytical-synthetic method of teaching literacy by combining writing and reading. In addition, the novelty and essence of this method was initially integration, because according to the author, it allowed to harmonize and combine the separate elements of two types of speech activity - writing and reading.

The concept of "**integration**" was introduced to science by the English scientist G.Spencer. In the dictionaries, the concept of "**integration**" is interpreted in different ways, and integration is considered as the Latin "**integratio**" — aggregation, generalization, "**integer**", whole concept. It is understood that previously separated parts, elements, components are united into a whole, which is said to happen with the complication and strengthening of connections and relations between them. Philosophers see it as a holistic process.

The concept of "**integration**" is defined in the "Pedagogical Dictionary" as follows: integration means the Latin "**integer**" — totality, "**integera**" — filling, creating, restoring the totality. The problems of ensuring harmony in the educational content are considered the field of integration and teach the generalization of concepts. Generalizes the formation of knowledge, concepts, skills and qualifications in education and training, and makes them appear as laws.

The concept of integration in the educational process is interpreted differently by different researchers: S.I.Arkhangel'sky focuses on the interdependence of the content, methods and types of education; G.I.Baturina understands integration as the creation of a scientifically based system of purposeful management of the holistic educational process and the process of personality formation; O.I.Bugaev explains the integration of educational content with the need to establish interdisciplinary connections in order to form a holistic vision of the world in students. I.D.Zverev accepted the title of associative sign of integration of the educational system; V.R.Ilchenko considered the integration of sciences as a necessary condition for the formation of the natural history and scientific worldview of the scientists, and made it possible to associate the fundamental laws of nature, which are common to all subjects of this cycle. L.M.Momot and V.G.Glomozda believe that integration in the content of education is carried out by combining elements of different disciplines into one synthesized subject, course, topic based on a broad interdisciplinary scientific approach. G.F.Fedoret's sees integration in various connections between the components of the pedagogical system.

Integration in the educational process serves to expand and deepen the body of knowledge. It was created as a general method of the object of various general knowledge. The main goal of integrated education is to provide comprehensive knowledge to children. But it should also be noted that it is impossible to generalize regular lessons, because they lose their individuality. Therefore, it is recommended to take integrated lessons at the end of the chapter or at the end of the sections. Because such lessons are conducted in order to show students the relevance of the acquired knowledge, to facilitate understanding. These lessons are effective regardless of whether the student is learning new material or summarizing previously learned material.

In integrated lessons, multidimensional objects that are the subject of study of various academic subjects are considered. In addition, since recently the hours devoted to the study of natural sciences, which are the basis of the entire educational process, have been reduced, integrated lessons make a great contribution to solving this problem. For example: In geography lessons, it is said that all the components of the earth's geographical crust do not exist separately from each other, but form a single complex system, for example, the natural complexes of the Earth (geographical zones, natural zones). In biology, the integrity of an organism's life is considered on the example of plant and animal organisms, which represent a single system of interconnected organ systems and their functions. And it is this interaction and interdependence that gives further impetus to development. The idea of wholeness finds its expression in the constant movement and change of the natural components of living and inanimate nature, their interaction and interdependence, which are visible in the circulation of matter and energy: water circulation, air, biological circulation, and others.

Acquainting students with the history of the formation of the geographical crust allows to reveal the natural essence of the development of nature. When studying living organisms in biology courses, schoolchildren gain knowledge about the evolution of the organic world, the reasons and laws of the historical development of organisms.

In evolutionary development, all laws of dialectics are visible: unity of matter, constant movement, diversity and interdependence of nature's components. Opposite events in development, for example, the variability and heredity of signs in living nature, in the formation of relief in inanimate nature, occur in the struggle of exogenous and endogenous factors. Thus, the biosphere and the geographic crust of the Earth are self-developing systems that are constantly in motion and change in space and time under the influence of endogenous and exogenous processes.

Integrated lessons teach children to naturally understand the unity of events in their worldview. It should be noted that the integration of subjects in school education is one of the controversial issues among our scientists due to the fact that different opinions and views are contradictory and incoherent from a scientific point of view. Integration is necessary in the modern education system. The fact is that in the modern school, academic subjects have a "competitive" character: each subject competes with others, claiming greater importance than others.

In addition, each of the school subjects by itself represents a collection of information in a certain field of knowledge, so it cannot claim to be a systematic description of reality. In such conditions, schoolchildren cannot talk about a holistic perception of the world, and a number of problems arise:

- Schoolchildren learn piecemeal information, have an idea about the world and its laws, and cannot summarize the information received;
- Pupils do not know how to use the knowledge gained in other subjects in the lesson, to connect them when learning new material;
- Teachers find it difficult to apply their knowledge from other subjects:

So the acquired knowledge does not always develop the idea as needed. Pupils cannot get new information about the achievements of border sciences, this is due to the lack of methodological experience in making connections between disciplines.

For example, during the study of the structure, distribution and metabolic processes of plants in biology, the structure of the earth, reliefs and the rotation of the earth around the sun in geography lessons, their influence on living organisms, leads to the understanding of the interdependence of living and non-living nature. Therefore, when using interdisciplinary integration, the teacher should be interested not only in his own subject, but also in the lessons of other subjects. It will be necessary to determine the areas related to his subject and apply this knowledge in passing integrated lessons while making a calendar-subject plan.

When organizing integrated lessons, it is necessary to specify the materials studied in different subjects and coordinate them logically. There are various options for integrated lessons. In one lesson, you can combine not only two, but several topics at the same time. The forms of conducting classes are very diverse: seminars, conferences, debates, lectures, excursions (trips), etc.

Integrated lessons must meet the following requirements: first, the lesson should provide the student with various knowledge; secondly, the teacher increases the interest of schoolchildren in knowledge; thirdly, the lesson should activate the intellectual activity of the students, and finally, fourthly, the children's creative abilities, intelligence and understanding should be developed.

Based on the above, analyzing the existing literature and the experience of teachers on the research problem, it is possible to come to the following conclusions:

1. The current level of development of science and society requires the use of a systematic approach aimed at the integration of knowledge and the formation of systematic thinking in the theory and practice of teaching.
2. Integration - provides a natural interconnection of subjects, academic subjects, departments, subjects of various academic subjects, based on the leading idea and leading rules, with a deep, coherent and multifaceted disclosure of the studied processes and phenomena.
3. When developing an integrated lesson system, the teacher should determine his goal, revise the content of the studied material, choose the methods, means and forms of organizing educational activities that are adequate for the purpose, and be able to predict the results that will be achieved.
4. The system of integrated lessons should occupy a large part of the annual program of academic subjects.
5. The multifaceted unfolding of events and processes based on the interaction of natural sciences, humanities, and artistic-aesthetic knowledge helps to form the child's ability to think, feel, empathize, and act in the environment.
6. It helps to contribute to the improvement of knowledge, skills and abilities.

Thus, interdisciplinary connections help students to form a complete understanding of natural phenomena, help to use the knowledge gained in studying different subjects. After all, the world around us interests schoolchildren, prompting them to answer the questions that life puts before them.

**Conclusion.** The use of interdisciplinary integration is one of the most complex methodological tasks of natural science teachers. This requires knowledge of the content of the syllabus and textbooks in other subjects. The implementation of interdisciplinary integration in teaching practice implies the cooperation of a biology teacher with a geography teacher, a physics teacher with a chemistry teacher; i.e. visiting open classes, planning joint lessons, etc. One of the methods of effective implementation of interdisciplinary integration is continuous cooperation of teachers. A modern teacher should have the ability to organize each lesson at a high level in accordance with the requirements of the current developing society, taking into account the psychological and individual characteristics of students, using the methods and means of organizing the educational process.

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