THE USE OF INTEGRATIVE TECHNOLOGIES IN TEACHING BIOLOGY IN HIGHER EDUCATION.

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ANNOTATION The article describes methods of using integrative technologies in teaching biology in academic lyceums, the methodological feasibility of providing integrative knowledge. in the development of special competencies related to biology among students, and recommendations are given aimed at improving its implementation.

Key words: biology, integrative approach, didactics, modern pedagogy, curriculum, competence, teaching methods.

АННОТАЦИЯ В данной статье описаны методы использования интегра тивных технологий при преподавании биологических наук в академических лицеях, методическая целесообразность обеспечения интегративных знаний при развитии у учащихся специальных компетенций, связанных с биологи ческой наукой, а также рекомендации, направленные на совершенствование ее реализации.

Ключевые слова: биология, интегративный подход, дидактика, современная педагогика, учебная программа, компетентность, методика обучения.

Humanity has entered the 21st century - the century of highly developed technologies and information technologies. These technologies can only be

effectively managed by a mature generation with intellectual and comprehensive knowledge. The current generation also has the responsibility to carefully protect, ecologically balance and preserve the unique planet Earth, which is like a point in the Universe and endowed with life, like the apple of an eye, and to rationally use its material and natural resources. and economically, to make it a spiritually honorable task for a person to become aware and aware of the responsibility of contributing to the solution of problems of world importance, such as promotion. Raising intellectual youth capable of performing these tasks is one of the most pressing issues of our time.

Modern world pedagogy in the education of young people requires them to put an end to their acquisition of narrow professional knowledge in the profession, and in the system of continuing education, including the need to acquire broad integrative knowledge in general education subjects.

The term “Integration” is new in name, but has a common history in content and essence.In the Universe, in society, in life, in life and production, in education, that is, from the microworld to the macroworld, integration is important. Until today, humanity is aware that it is necessary to solve important environmental problems. our planet and saving lives can only be achieved as a result of a better understanding of the essence of the integration process and the practical application of its developmental functions. In solving these problems, the importance of pedagogy and the integration process in education is analyzed by the majority of scientists in the country.

The 21st century has become an era of profound reforms in didactics, including teaching methods. The goals of lifelong education have changed, new educational concepts and curriculum standards have been created. It is proposed to

approach the description of the content of education on the basis of a new integrated education, and not through individual academic subjects. The increase in the number of subjects taught in the school curriculum has led to a reduction in the time allocated for studying some subjects, including natural sciences such as biology, geography and chemistry. This, in turn, created the problem of finding a solution to integrate the system of natural science knowledge, updating organizational forms, methods and means of teaching it. The solution to this problem is closely related to the effective use of new pedagogical technologies in the educational process.

Modernization of education requires the use of non-traditional organizational forms and methods, including an integrative approach to it. Integration should be understood not only as the interconnection of knowledge acquired in different subjects, but also as the integration of technologies, methods and forms of teaching. Their correct implementation ensures the effectiveness of education. The term "technology" is borrowed from foreign methods and is used to refer to the educational process organized in various forms.

In the process of solving didactic problems, educational technologies are effectively used in order to improve methods of influencing students. There are many types of pedagogical technologies, and they are interpreted differently. In didactics, technologies are divided into three main groups. It is necessary to use technology in accordance with the purpose of the lesson, based on the possibility, as an integrative technology.

This can be illustrated by the following "Integrative technologies in didactics": Integrative technologies in didactics.

1. Illustrative and explanatory teaching technologies are aimed at developing

students' general educational activities, knowledge and skills related to special subjects.

2. Personality-oriented educational technologies are aimed at personal self-development.

3. Developmental learning technologies are education aimed at using internal mechanisms in the personal development of each student. Each of these groups embodies a number of pedagogical technologies. For example, individually oriented technologies are used to differentiate teaching and learning as a mutual team, technologies for complete knowledge acquisition, modular educational technologies that take into account the individual characteristics of each student and teacher and allow improving methods of student interaction. Currently, in the comprehensive teaching of natural science subjects, prof. I.V. The technologies described by Dushina are widely used.

Technology of formation of methods of educational work.

It is expressed in the form of rules, patterns, algorithms, formulations of plans and descriptions of something. This technology is sufficiently reflected in the methodological apparatus of a number of textbooks, and many teachers have mastered it well through work experience. For a teacher just beginning his teaching career, it is advisable to first pay attention to and master this technology. N. N. Baransky says that "schemes teach you to distinguish the most basic things, find and establish logical connections, and help students learn the lesson well." They are always used by teachers.

Technology of formation of students' educational activities. The essence of this technology is that educational activities are considered by students as a separate type of educational activity. It aims to acquire knowledge through

learning tasks. At the beginning of the lesson, students in the class are offered learning tasks and they are solved during the lesson. At the end of the lesson, according to the assignments, the acquired knowledge is tested using tests. The teacher creates a system of educational tasks for the course (department, topic), develops projects for his activities and the activities of students interconnected with them.

Differentiated educational technology.

In this technology, students are divided into groups according to their typological characteristics. When dividing into groups, students' personal attitude to learning, interest in studying the subject, etc. are taken into account. Multi-level programs and teaching materials are created that differ in content, volume and complexity. To assess educational results, methods for their implementation, as well as special materials, have been prepared.

Technology of educational game activities.

This technology is very close and inextricably linked with the technology of differentiated learning. An educational game gives its positive results only when the teacher and students are active. In this case, you should develop a game scenario in advance and plan methods for evaluating the results. Well-designed gameplay is important. It should clearly define educational objectives and identify the possibilities of methodological ways out of a difficult situation. There are many types of games, and their effective use will allow you to achieve your goal.

Technology of communicative and discussion activities.

This method also depends on the ideal organization of the educational process by the teacher. This requires the teacher to have a creative approach to

organizing the educational process. The teacher must master the techniques of heuristic conversation and be able to create conditions for organizing student interaction.

Modular learning technology.

A module is a separate functional unit. At the same time, the teacher improves the content of educational material and the technology for its assimilation by students. The teacher develops special instructions for students' independent work.

It clearly states the purpose of mastering this educational material, gives clear instructions on the use of information sources, and explains how to obtain this information. These instructions provide examples of knowledge tests.

Activity design technology. The content of this technology is the organization of research activities. Activity design technologies can be creative, informative, artistic, research, etc. Thus, as a result of using these technologies in the integrated educational process, the teacher provides a more complete, interesting and meaningful process. Integration at the intersection of subject areas of natural science is very important for the formation of a holistic worldview and understanding of the world as a whole.

It is advisable to implement modular learning technology using a computer. To do this, for example: enter the computer program "Physics", find the materials presented in Figure 5 of the application, and go through topics such as "Biological and chemical action of light" "Photoeffect" of the 9th grade physics course. , "Photosynthesis" course in biology, physics, biology, computer science. It is effective if teachers teach integratively, in collaboration.

At the same time, the skills of the teacher and students in working with a computer will increase, time will be saved and the effectiveness of the lesson will be achieved, which is a means of not only educating students, but also intensifying their cognitive activity. increase their interest in learning and socially useful work. Most of the practical work of teachers in this area has shown that competition has a positive role and significance in the educational process.

The purpose of organizing and conducting a competition for the completion of educational tasks connecting biology with other subjects is not quantitative indicators, but qualitative indicators, that is, more precisely, the activation of students' educational activities. Each student feels the responsibility to keep up with their peers, to try to bring their class team to the forefront, combining interdisciplinary technologies, reading more literature, and doing research. As a result, the scope of their knowledge, practical skills and qualifications expands, and their content deepens. Mass and individual forms of organizing Olympiads, aimed at combining biology with other subjects, enrich the content of the educational process, increase students' responsibility and interest in learning.

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