

"BIOLOGY" SCIENCE TEACHING METHODOLOGY IN THE EDUCATIONAL SYSTEM

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Abstract

The goal of biological education at the current stage is the preparation of a biologically and environmentally literate person who must understand the meaning of life as the highest value. He must have an ecological culture and be well versed not only in the biological, but also in the fields of knowledge bordering on it. To do this, it is necessary to know biological terms, concepts, and theories and be sure to have the skills of their practical application in various fields.

Keywords: Learning, Biology, Modern Technologies, Problems of Teaching, Learning Patterns, Rational Methods. Education, Education, Nature, Ecology, Ecosystem, Technology, Natural Ecosystem, Artificial Ecosystem, Biomes, Freshwater Ecosystem, Marine Ecosystem, Forest Ecosystem, Tropical Forest.

In today's developing general secondary education system, the problem of training biology teachers is relevant at the level of education. The development of biology and its achievements are applied to the life of society. Therefore, the importance of biological education in school is increasing. In the process of training a young specialist, the student under the direct guidance of the teacher, with the help of educational content, methods, tools and forms, learns the laws of the organic world, the essence and characteristics of events and events, and acquires knowledge and skills. It can be seen that the learning process for students is a cognitive process, and its activity is a cognitive activity. During the educational process, the teacher organizes, manages, controls, evaluates the students' cognitive activities and creates a basis for the comprehensive development of the individual through the implementation of educational, educational and developmental goals. For the teacher, the educational process is inextricably linked with the activity of the students, and it is considered a work process, a professional pedagogical activity that analyzes this process, summarizes it and makes changes in appropriate cases. It is possible to achieve the intended goals of teaching only when the students' cognitive activity and the teacher's pedagogical activity are harmoniously organized in the lesson. Organization and management of students' cognitive activity is the basis of the lesson structure. Therefore, it is desirable to study this issue in depth.

The methodology of teaching biology as an academic subject is of paramount importance for the preparation of teaching biology. In the learning process, professional knowledge and skills of students are formed, they master the ability to teach or teach. The academic subject does not contain all the knowledge accumulated by science in the course of research, but only their foundations. They are specially selected taking into account the learning objectives, age and preparation of students. Unlike science, the main function of any subject is educational. Each subject of study integrates everything that is productive, revises individual problems [1, 3]. The professional training of a future specialist is built in accordance with the teacher's

professionogram, which characterizes his main functions (information, development, orientation, mobilization, constructive, communicative, organizational and research), which is a model of qualification training of a specialist [2,4]. The methodology of teaching biology explores the content of the educational process in this subject and the patterns of assimilation of biological material by students.

The methodology of teaching biology determines the goals of education, the content of the subject "Biology" and the principles of its selection. Methodists believe that the formation of a whole component of modern biological education in the field of medicine depends on the value system, which is determined by: - the level of education, that is, the mastery of biological knowledge, skills and abilities that contribute to the active and full inclusion of students in educational, labor, social activities; - the level of upbringing, characterizing the system of worldviews, beliefs, attitude to the world around, nature, society, personality; - the level of development of the student, which determines his abilities, the need for self-development and improvement of physical and mental qualities. The goal of general higher biological education is determined taking into account the named values and such factors as: - the integrity of the human personality; - predictability, that is, the orientation of the goals of biological education to modern and future biological and educational values; - continuity in the system of continuous education. The biology teaching methodology also notes that one of the most important goals of biological education is the formation of a scientific worldview among students based on the integrity and unity of nature, its systemic and level construction, diversity, and the unity of man and nature.

The subject "Biology" at the level of higher medical education is focused on the formation of knowledge about the structure and functioning of biological systems, about the sustainable development of nature and society in their interaction. Among the main tasks of the methodology of teaching biology as a science, the following can be distinguished: - determining the role of the subject of biology in the general system of teaching and educating students; - development of proposals for the preparation and improvement of curricula and textbooks and verification of these proposals in practice; - determination of the content of the subject, the sequence of its study in accordance with the age of the student and the program for different systems of higher education; - development of methods and techniques, as well as organizational forms of teaching students, taking into account the specific features of the biological sciences; - development and testing in practice of the equipment of the educational process: organization of a training room, laboratory, educational visual aids, etc. The object of study of the methodology of teaching biology is the educational process associated with the subject "Biology". Science includes knowledge about the subject of study. The subject of the study of the methodology is the goals and content of the educational process, methods, means and forms of training, education and development of the student. In the development of science, a fairly significant role belongs to the methods of scientific research. The leading methods of teaching biology are as follows: 1) empirical - observation, pedagogical experiment, modeling, forecasting, testing, qualitative and quantitative analysis of pedagogical achievements; 2) theoretical knowledge - systematization, integration, differentiation, abstraction, idealization, system analysis, comparison, generalization. Building a theory of teaching biology in the

system of higher medical education requires the combination of empirical and theoretical knowledge. The general methodology for teaching biology considers: - the main concepts of biological education, goals, objectives, principles, methods, means, forms, implementation models, content and structures, stages, continuity, history of the formation and development of biological education in the country and the world; - worldview, moral and eco-cultural education in the learning process; - the unity of the content and teaching methods; the relationship between the forms of educational work; - integrity and development of all elements of the biological education system, which ensures the strength and awareness of knowledge, skills and abilities. Private methods explore specific learning issues for each course, depending on the content of the educational material and the age of the students. They present the methodology of lessons, excursions, extracurricular activities, extracurricular activities, that is, the system of teaching a particular course in biology. The general methodology of biology is closely related to very particular biological methods. Conclusions Based on the foregoing, I believe that: - it is unacceptable to reduce hours in biology; - biology should be integrated with special subjects or with other theoretical subjects, such as normal anatomy, normal physiology, histology, biomedical physics, pathological anatomy, pathological physiology, etc. - the teaching of the subject should be progressive, qualitative, higher, modern level; - the transfer of knowledge must be carried out with the active participation of students, this requires the creation of clear, unified textbooks, teaching aids, the development of programs, laboratory work and seminars.

In accordance with the Law "On Education" and the national program of personnel training, students of continuing education acquire certain knowledge in academic subjects, their need for learning, independent and creative thinking, organization it is noted that it should include the development of abilities, practical experience and work skills, spiritual and moral qualities based on national and universal values, and a conscious attitude to the environment. Also, it is shown to develop effective forms and methods of spiritual and moral upbringing of students and to put them into practice. Implementation of these tasks is entrusted to teachers who perform pedagogical activities in the continuous education system [2]. It is connected with plants and animals, but plants are a source of organic raw materials and energy on Earth. The animal world, in turn, serves as a source of various food and industrial raw materials. The skillful use of natural resources and their increase serves to increase the well-being of the people and the state. Pupils, having biological education, learn to understand the facts and phenomena of nature in relation to each other, in the state of movement, change and development [4]. This, in turn, requires the creation of a modern, informed direction of education. Organization of the lesson process using new, modern informational pedagogical technologies has a positive effect on the student's learning rate. Biology in educational institutions serves to form a scientific worldview in students, that is, the system of the most general views about the relations between the world and man, man and the universe. In addition, it determines a person's life program, beliefs, and interests. Development of a scientific worldview in accordance with the current state of natural sciences in the course of teaching biology is of particular importance for high school students who have increased interest in philosophical problems in connection with the natural need for a holistic perception

of reality. School biology, unlike other subjects, helps to demonstrate the power of knowledge through a systematic and historical approach to natural phenomena. In the process of teaching biology, together with the development of dialect thinking of schoolchildren, the scientific landscape of the organic world, the historicity of life and its place in the movement system, are revealed to them with contrasting ways of knowing. Biology is one of the leading subjects of the natural science cycle in the school system, because it is of great importance in the formation and development of a person. Fish skeleton method. This model of problem setting and solution allows to describe and solve a number of problems. Problem solving the problem Strategy: Draw a fish skeleton (head, cartilage, ribs) on a sheet of white paper (watman or A-3 sheet).

A problem is placed on the "bone" above, and facts proving the existence of this problem (or ways to solve it, depending on the goal set by the teacher) are written down in the lower part. Presentation of the completed scheme. Areas of use in natural and concrete sciences, when using the problem-based teaching method. Advantages this scheme reflects the interdependence of problems, their complex features. Difficulties Problems may face difficulties in expression. The second method is an aquarium. 5-6 participants sit in a circle along with the leader. They are "fish". The rest of the group sit (or stand) around them. They are "fish hunters". Members of the inner circle ("fish") actively discuss the question proposed by the teacher. "Fish hunters" are watching and when they are interested in the idea of a student discussing a question, they enter the process: they add, ask questions, and clarify. Then the thought of the "fisherman" should stand next to the "fish" that interests him. After the discussion of a problem (issue), the participants exchange their places (those who were outside the circle now sit around the circle). It is desirable that all participants sit in a circle. Scopes of use. It is used in learning processes of natural and exact sciences. Advantages. It provides an opportunity for participants to exchange ideas in an informal setting, to express their views on solving a given problem (problem). Allows you to freely join and leave the discussion process. Develops analytical thinking, concentration and observation. Develops speech and feedback techniques. Difficulties. Arguments and disputes may arise during the active participation of all students in the discussion of the problem. Therefore, the teacher should be well prepared and know the methods that do not allow strong contradictions to arise. It requires precise control. During the process, some students may drop out (not participate in the process). The teacher should think of ways to involve all students in the discussion of the problem. In conclusion, first of all, it is necessary to consider the different aspects of the interactive method from the traditional method. First, all topics are used in the lesson in the form of lesson types that are convenient for the student. Interactive is used in the form of convenient types of interactive lessons on some topics. Secondly, the formation of knowledge, skills, qualifications on the subject of the lesson, if strengthened, independent thinking on the subject of the lesson in an active method, to the conclusion they are taught to come, to describe them, to defend them. Thirdly, if the teacher's duties are to explain, strengthen, control, assign tasks to a new topic, non-traditional ones are given to organize, manage, control, and base the final conclusions on students' independent work and presentations. Fourthly, if there are requirements such as preparation of a lesson plan, synopsis and didactic tools for the preparation of the lesson, interactive lesson development, and tasks for independent work,

handouts, and other necessary tools are prepared in the interactive method. As for student preparation, if the requirements for completing the tasks of the previous lesson are given, the new method requires knowledge of basic concepts and preliminary information on the topic of the new lesson. In interactive methods, the time requirement is determined by the fact that most of the class time is spent on students completing independent tasks, exchanging ideas, observing, explaining and defending their conclusions, while in traditional, most of the class time is spent on the teacher explaining a new topic. , is spent on analysis, explanation of tasks, control of mastering. While each teacher uses the modules and algorithms of the lesson in the traditional way according to the method he uses, in the non-traditional way, each lesson is conducted according to the modules and algorithms prepared in advance, as well as projects. Fifth, the main methods of acquiring knowledge are traditional communication, discussion, discussion, debate, discussion, reflection, analysis, observation, reading, non-traditional communication, reading, observation, discussion, negotiation, debate, discussion, reflection, analysis appears. Methods in the educational process determine the activity of the teacher. In order to activate the cognitive activity of students in the study of biology, it is necessary to identify and systematize the knowledge, skills and competences acquired by the students in relation to the previous topic of the lesson, and to control the knowledge, skills and competence acquired in relation to the new topic. And assessment, as well as the use of local technologies in the process of learning a new subject is appropriate. Keys, "Insert", "Waster", Venn diagram, "Brainstorming ", " Working in small groups", "Terminal chain", "Terminal sheet", quick games and it is recommended to use different forms of game training.

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