

DEVELOPMENT OF STUDENTS' RESEARCH ACTIVITIES IN THE PROCESS OF BIOLOGICAL EDUCATION

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Annotation. Recently, the idea of actively influencing the student by including him in the learning process has been recognized and developed in didactic and subject methods. This idea arose in connection with ensuring the harmonious development of personality in the educational process of secondary schools. The idea based on theoretical ideas about the general structure of personality is considered primarily in the works of leading psychologists. A systematic approach to the learning process involves the inclusion of students in a multi-faceted research activity characterized by a system of cognitive methods, types of educational activities organized by the purposeful activity of the teacher. At the same time, personality development is formed through the internal qualities of the individual, the attitude to educational activities, including the content of the information received, to the methodological conditions in which the learning process takes place. All this knowledge of the secondary school subject is combined with scientific concepts and fundamental ideas of science, the main basis of which is the historical development of wildlife, its biological diversity, and the scientific-level organization of living matter. On these foundations, a school subject should form a scientific worldview, an emotional and value-based attitude to the living world, develop an ecological culture of personality and prepare students for life.

Keywords: pedagogical process, education, students, research, activity, skills.

Introduction. The humanistic paradigm of modern education considers the development of research abilities in the educational process, including when studying a biology course. Along with this, the pedagogic society considers this problem as the most important task of a modern school, which confirms the relevance of our research. The historical analysis of the formation and development of the problem of the development of research activities in biological education at school has proved the importance and relevance of the research. The importance of including the younger generation in research activities in order to achieve the strategic goal of reforming education in a country focused on the individual implies the development of their creative abilities, independence, initiative, the desire for self-knowledge and self-determination [1]. Currently, the basis for constructing the content of education in a general education school is "the assumed image of a student corresponding to certain types of educational activities and cognitive reality, manifested in the form of his personal qualities" [2]. All this is clarified by a variety of targeted guidelines, including the guiding principles of a specific educational field with the content of general education and its individual disciplines. Consequently, in the theory of the content of school education, based on the image of the student, the main parameters determining the basis of the content are the structure of personality, the structure of the studied area of reality. Thus, the social order, the humanistic paradigm of education and the specifics of the biology course determine the development of research abilities as the most important task of a modern school, which confirms the relevance of the problem under study. After conducting a comparative historical analysis of the problem of the formation and development of research abilities in biological education at school, we decided to study the current state of this problem and clarify the definitions of the main categories of our research. At the present stage of school education development, it is especially

important to involve students of various levels in research activities, which not only develop the ability to work, but also form personal qualities. The Law of the Republic of Kazakhstan "On Education" emphasizes that the content of education should be aimed at ensuring the self-determination of the individual, creating conditions for the implementation of his self-development [3]. The basis of this development is the intellectual development of a person. Consideration of methods for self-clarification and solving research goals and objectives in the educational process becomes the main problem of education. In this aspect, a number of methodologists M.B. Vakjira, B.G. Yudin, I.A. Zimnaya, G.E. Samashova, S.L. Rubinstein, A. I. Savenkov and other research teachers expressed their opinion on the development of students' research activities [4, 5, 6, 7, 8, 9]. The works of a number of scientists reflect the content components, levels and stages of students' research activities, methods of forming research abilities. In their research, methodologists generally considered ways to develop research skills and abilities of schoolchildren in the process of teaching biology and the composition of research activities. In addition, it allows us to conclude that the methodology of developing research skills and abilities as an independent discipline of scientific research requires more detailed study in pedagogical works.

Research methods. Theoretical study and analysis of scientific, philosophical, psychological, pedagogical, and educational literature in general, conceptual analysis, generalization, and comparison of previously performed dissertation research on this issue.

Results and recommendations. The intellectual development of students is provided for by many domestic and foreign psychological and pedagogical developments carried out by including them in the research process. Natural science education as an integral part of secondary education ensures that students master the basics of academic subjects and develop their thinking and creative abilities. Humanistic and environmental aspects should become an integral part of all natural science knowledge in school. In this regard, the purpose of natural science education can be called: the formation of a comprehensively developed personality; the development of personal qualities that ensure self-awareness, self-improvement of personality, readiness to continue knowledge, participation in strengthening civil society; mastering the basics of academic disciplines in the field of natural sciences; the study of the main components of the natural science picture of the world; the study of the applied component of natural sciences providing training for students to perform directed and constructive activities in the environment; to master the basic concepts of the scientific method of research and its place in the system of universal cultural values; the formation and development of cognitive abilities of students; mastering the methodology of scientific knowledge and scientific knowledge, which forms the basis of a holistic and scientific worldview of students; awareness of life as the highest value, the ability to communicate with nature and society based on a humane attitude to all living things; knowledge methods, concepts, theories, concepts, models; comprehensive development of students' personality: memory, control, sustained cognitive interest, creativity, theoretical thinking, the desire to apply their knowledge in practice; formation of an understanding of the scientific world, healthy lifestyle, hygienic norms and rules, environmental and genetic literacy; preparation of young people for work in the field of medicine, agriculture, biotechnology, rational environmental management and protection [3, 24 p.]. The purpose and objectives of modern natural science education is a socially grounded phenomenon accompanied by the updating of the learning content. The purpose of the training shows why this subject should be taught, and also determines what functions this subject performs in general education, and is an example of the expected learning outcome of students [5, 26 p.]. The main goals of school biology education at the present stage of secondary school development show the important role of biology in the development of students' research activities, an important role in their upbringing as a fully developed and creative personality, in understanding their responsibility to society for the preservation of life on earth, in preparing for the choice of a future profession, taking into account personal interests, inclinations and abilities. Currently, as part of updating the content of secondary education in the Republic of Kazakhstan, in accordance with the standard education plan, the subject of Biology is studied by secondary school students. According to the standard plan, the purpose of the Biology discipline is to provide students with a system of knowledge and ideas about

the diversity of the organic world and the patterns of phenomena and processes occurring in it, as well as the fact that humans are an integral part of it. The objectives of the academic discipline include: 1) the implementation of a system of knowledge about the structural, functional and genetic foundations of life, reproduction and development of organisms of the main pathogens of wildlife, ecosystems, biodiversity, evolution to understand the value of all living organisms on earth; 2) the formation of norms and rules of environmental ethics, responsible attitude to nature; 3) the formation of genetic literacy as the basis of a healthy lifestyle life, mental, physical and moral health; 4) the development of personal qualities of students, the desire to apply biological knowledge in practice, participation in practical activities in the field of medicine, agriculture, biotechnology, environmental management and environmental protection [5,32 p.].

The nature of the target positions of school biology varied at different stages of school development. However, the main goal of the general education of the Russian schools of the XX and early XXI centuries was the comprehensive development of the student's personality. The formation of a comprehensively developed personality of students by means of biological education implies the improvement of the mental, moral and physical form of students. In this process, biology as an academic subject is considered one of the most important components of general education in the upbringing of the younger generation. The main purpose of biology education at school is to develop the student's personality and research skills. Accordingly, based on the understanding and development of the student's personality, the content of the Biology subject is created in the updated content. From N.B. Vakdjira's point of view, the content of education is a system of knowledge that reveals the picture of the world, the experience of implementing the methods of activity known to man, including the experience of creative activity, the experience of valuable communication with the world, ensuring the development of human abilities [4, 56 p.]. The content of the educational subject, according to N. B. Vakdjira, is "the most valuable educational material from the point of view of education and upbringing among school subjects, is the acquisition of scientific information on biology" [4, 76 p.]. For example, the most valuable educational materials on a school subject from the point of view of education and upbringing are selected from extensive scientific material. At the same time, the school subject is not a "small science" or an abbreviated summary of various fields of biological science and related fields of knowledge. It has been systematized and didactically reworked into an integrated system of teaching content, taking into account the age of students, and combines their methodically selected elements. The selected content is distributed according to the school's academic subject in a special order, the logic of which is determined by the program [8, 34 p.].

The main focus in the content of biological education is on the fundamental foundations of science, established facts, theories and patterns of wildlife. In addition, the content of biology in secondary schools does not reflect the content of scientific subjects in Higher Education. In secondary school, students study the basics of science in a scientifically reliable, simple form and with varying degrees of difficulty at different stages of education. For example, on the topic of photosynthesis in school biology, it can be concluded that this process takes place in nature, but without a complete understanding of chemistry, light and dark periods. Although information about some reactions, such as the components of light, water, oxygen, hydrogen, and other photosynthetic components, is schematically presented, however, the full manifestation of chemical reactions occurring during the synthesis of carbohydrates is not disclosed [10, 18 p.]. The content of school biology includes concepts, terms, laws, laws of living matter, and areas of their application that everyone should know. The mentality of a modern educated person allows you to navigate the environment, in the surrounding wildlife, to learn about plants, animals, fungi, bacteria, viruses, about your body (structure, functions, patterns of development), about the values of life, about the history of wildlife, the ecosystem nature of life, the biosphere, the role of living organisms in nature, about biological processes, and also obliges to have an idea of the essence of diversity and the role of man in the biosphere [11, 14 p.]. In the theory of educational development, I.V. Leontovich argues that the development of students occurs in the process of mastering certain types of activities, one of which is "quasi-eruption"-not a genuine scientific study, but a type of its

educational model. In his opinion, "a scientist conducts research in order to obtain data related to the relevant presentation, and during which students begin to acquire knowledge based on such a presentation and distinguish between these elements, conditions, and origins" [12]. Due to the uneven development of personal qualities and the emerging contradictions, flexible management of the educational process is necessary, the use of various methods of influencing the complex inner world of students to ensure compatibility of personality development, its integrity and individuality. In general, personal qualities, interests and desires manifest themselves in various personal actions of students. A person's action is carried out through his purposeful vision, aspirations and individual characteristics. The child's development takes place in various types of activities.

Personality is formed in activity. Depending on what a person does (i.e., what is the content of his activity), how he does it (methods of action), certain inclinations, abilities and behavioral features, consciousness is formed from the organization and situation of this activity, from knowledge. Therefore, research activity has become an important part of the educational content of schoolchildren. The main differences between scientific research and all other types of human research practice usually include at least three main features: firstly, in scientific research there is always a desire to determine the quality of the unknown by a known method; secondly, to measure everything that can be measured, it is necessary to indicate the quantitative ratio of the studied to the known; thirdly, it is always defines the object under study in a known system. In accordance with this, research training will be aimed at developing students' research skills and abilities; at improving students' own knowledge in a process that mimics scientific research as much as possible. The student's analysis makes it possible to define research as clarifying any facts, processes, or phenomena based on existing knowledge. According to the research methodologists, in the learning process, work should be carried out to develop the student's research abilities. The issues of developing students' research activities and developing their research abilities have been considered by many methodologists and biologists. A number of well-known methodologists such as A. S. Obukhov, A.I. Savenkov, M.A. Gorodilova, L.Z. Elekenova, E.A. Ostrikova and others. We turned to the study of the research activities of students considered in the educational process, in the whole pedagogical system as a promising tool for the development of research potential. [13, 14,15, 16, 17]. By studying a specific object, the student acquires the ability to find and create knowledge about it, as well as does deeper work on learning other concepts and patterns. Thus, by implementing the acquired knowledge and the methods of cognition themselves, the student consolidates them in the form of an individual educational product, and then gets the opportunity to use them to learn about the real world in the future. When students try to creatively understand real objects, then they can show and develop their individual abilities. Therefore, in the theory and methodology of biology teaching, without excluding the possibility of obtaining knowledge about wildlife through individual observations and various practical work, it is considered as an integral system of basic biological concepts, as well as a certain intellectual system, practical and general educational methods of activity as the content of knowledge. Among the general academic skills are the following skills: to identify the main content of a research problem, to find answers to questions in the text, to use pictures, to independently read individual questions of the school curriculum according to the textbook. Many of the skills formed in the process of biological education are formed in the process of studying the subject. These include, for example, the ability to compare the structure of amphibian and fish larvae, the structure of flowers of plants pollinated by wind and insects, to analyze and simulate the structure of the brain of birds or mammals. food chains, monitoring of cytoplasm movement, etc. It should be noted that the requirements for the level of education of graduates of secondary schools establish a number of subject skills that students must master. In this regard, students should understand a number of points and have an idea of a number of important points of biological science.

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Among them, the following can be noted: give the main provisions of the cellular theory, the general characteristics of a living organism, the main system categories, the characteristics of a species, the kingdom of nature, the causes and results of evolution, patterns of heredity, examples of natural and artificial communities; variability, heredity and adaptation of plants and animals to their habitat; description of the structure, function and chemical composition of bacterial, fungal, plant and animal cells, cell division, metabolism and energy circulation, the role of enzymes and vitamins in the body, immunity and its importance in human life, reproduction; growth and development of organisms, structural features of viruses, habitat of organisms, environmental factors (abiotic biotic and anthropogenic), natural associations and food connections in them; to substantiate (explain, compile, apply, draw conclusions, generalize) the relationship between the structure and functions of cells, organs and systems, the body and the environment as the basis of the integrity of the body; kinship of mammals, animals and humans, human races, their genetic unity, features related to human posture and work; features of vital activity in the role of neuro-humoral regulation of processes, especially higher nervous activity, in the human body; the influence of environmental and social factors, mental and physical labor, physical culture and sports on human health, the harmful effects of alcohol, drugs, smoking on the human body and its offspring; the role of biological diversity and maintaining balance in the biosphere, the impact of human economic activity on the environment, the consequences of this activity, the influence of plants, animals, natural conservation measures for species associations; respect for organisms, species, and natural associations; the leading role of society in increasing productivity; - identification (recognition, comparison) of bacteria, fungi, plants, animals and humans, cells, organs, organ systems, plants, animals and humans, the most common and endangered plant and animal species in their region, and various plant species. genera, classes and divisions, animals of different classes and types, edible and poisonous mushrooms; observe the rules for conducting elementary experiments on plant life, animal behavior, habitat changes under the influence of human activity, respect for organisms, species, and natural associations; human behavior in nature, healthy lifestyle, personal and public hygiene, prevention of poisoning by poisonous mushrooms and plants, cultivation of cultivated plants, care of domestic and agricultural animals. In addition, many of the above skills, in our opinion, can be considered elementary skills included in the operational component of research skills. Let's consider the opinions of methodologists on the formation of skills that contribute to the development of personal qualities of students in the process of teaching biology. N. A. Semenova [18] notes that the skills related to biological education are defined by special concepts. Based on this, the author suggests the following classification of skills, combining them into groups: morphological skills - analysis and determination of organ shapes; systemic skills - identification of plants and animals; anatomical skills - working with a magnifying glass, microscope, preparation of drugs; physiological skills-observation of life processes, establishment of experiment; environmental skills – establishment of the form of fitness organisms, environmental characteristics. Thus, for each biology course, the author identifies naturalistic skills related to concepts and having a specific character: morphological, systemic, ecological, anatomical, physiological, agronomic, and others. N. A. Semenova also noted that skill development occurs due to the gradual development of concepts from simple methods to complex ones. In some cases, concepts and skills are transferred from one to the other. Morphological concepts and skills also become concepts and skills in taxonomy; concepts and skills in morphology and physiology pass into agronomy. N. A. Semenova cites that all laboratory and practical work in biology provided by the school curriculum is related to general and special biological concepts, gradually developing naturalistic skills and at the same time applying knowledge in practice, and all this leads to the

formation of research abilities [18, 17 p.]. The practice of concepts, the ability to apply them in solving practical tasks and exercises that ensure the development of skills, as well as this research has an impact on the development of abilities. In addition, the system of skills shows that it consists of techniques for mastering the methods of scientific knowledge related to both direct action and mental actions with an object, a source of knowledge. In accordance with this, the author identifies educational, practical and axiological skills. The latter, in turn, includes a system of valuable opinions about nature and knowledge about the importance of science, its application in the life of society and man. They form the basis of communication, motivation of activity and deeply cover the intellectual and emotional-volitional sphere of the student. Educational and practical skills include: recognizing and identifying organisms and their systems, comparing studied objects according to their important characteristics, identifying signs of similarity and difference, distinguishing the causal relationship between body condition and external influences, conducting observations, internal control, setting up experiments, focusing on text and non-textual information in a textbook., the use of additional tools on the subject of information. The author has shown that educational, practical and axiological skills are necessary for the organization of research activities of schoolchildren in biology lessons, the development of research abilities. P.V. Seredenko [19] considers the formation of a system of relations focused on reality as the most important goal of biological education. This is reflected in the educational, developmental and educational tasks defined by the author for the educational process in biology. Not only is the system of basic knowledge and skills selected based on the tasks that students must learn in a particular lesson, but also the possibility of using it for the education and development of students. P.V. Seredenko notes that in the practice of teaching biology, not enough attention is paid to the formation of skills and the formation of research abilities. Considering the importance of skill formation for the personal development of schoolchildren, the author defines the importance of forming a certain range of practical, intellectual and general educational skills among schoolchildren as a mandatory requirement of the educational process and content. Practical skills according to P.V. Seredenko contribute to the development of students' research abilities and are an important part of the content of biological knowledge.

Among them, the author includes the following skills: the ability to work with magnifying devices, for example, the possibility of using a school microscope; the ability to prepare temporary preparations and examine them under a microscope; the ability to use identifiers to identify plant and animal species; the ability to conduct simple experiments (germination of seeds, detection of changes in heart rate during exercise, etc.); the ability to conduct observations and self-monitoring; be able to recognize plant species, fungi and animals by their descriptions, images and in nature, according to the main organs of the studied plants and animals; be able to build food chains; growing plants indoors and outdoors, caring for them, the ability to dry plants and make herbariums from them; the ability to observe the rules of behavior in nature, etc. [19, 54 p.]. In addition, intellectual or mental skills are widely represented in the content of biological education. These include skills aimed at improving the learning process. Among them, the author names the following skills: to name, describe, justify, define, compare, generalize, systematize, control, identify the main features, formulate a definition of a concept, determine cause-effect relationships, model, investigate, experiment, design experimental results, analyze knowledge, act, prove, describe the properties of the studied object, explanation and so on. P.V. Seredenko shows that general education skills allow students to work with the text of a textbook (drawings, questions, content), visual aids, workbooks, and apply their knowledge in judgments in all types of educational activities. In his research, P.V. Seredenko defines many subject, intellectual and general educational skills necessary for the development of research abilities of schoolchildren [19, 61 pages]. To solve the problem of organizing students' research activities in biology lessons, it is important to identify the main stages of the development of research skills, as well as the conditions for their formation.

A.B. Myrzabaev [20] identifies two main stages of the formation of general educational skills: goal setting (motivational) and organization of activities. According to the author, first of all, children have a special goal – to master a certain skill. Only intellectually developed students

independently determine and implement the operational side of learning activities, while the rest remain at the level of intuitive and practical skills. In addition to realizing the goal, the student needs to know the connection with the motive of his activity. Motivation to read is always individual: Every child has their own motivation system that motivates them to read and gives meaning to reading. It is known that the informal acquisition of high intellectual skills is possible only with cognitive motivation. However, even if cognitive motivation prevails, the child has other motives - social, success, success, etc. Setting the goal of learning a skill, he should allow each student to understand what individual meaning he has in this work, what this skill is for (after mastering it, he can perform more complex tasks, much more interesting in comparison with them; he can quickly and correctly solve problems of a certain type; at the same time, he gets higher grades scores, etc. According to K.A. Sarbasova, in order to set a specific goal for students, a biology teacher must first have an appropriate skill development program [21]. With a planned thematic system of organizing the educational process, this program is a list of basic knowledge, skills and abilities that must be acquired by all students while studying each educational minimum - academic topic. The minimum knowledge covers only the most important issues, without which it is impossible to study the curriculum later. It also involves the development of educational skills and research abilities provided for in the curriculum and not provided for in it, without mastering which the activities of students become insufficiently rational and effective. After the motivational formation of skills, the stage of organizing joint activities of students and teachers begins. In this joint activity, the student must first receive a sample or a rule of work, an algorithm. When receiving a ready-made sample, it is desirable that the students themselves, but under the guidance of the teacher, develop a system of rules according to which they act.

Conclusion. The content of biology education for secondary schools is closely related to the development of biological science, also characterizes the current level of its development, reflects the fundamentals of wildlife science in the academic discipline. The principle of science in close connection with the principle of accessibility plays an important role in selecting the content of biological knowledge and in determining the depth of disclosure of scientific material in an academic discipline. The level of development of biological science is constantly taken into account when improving the content of education. Along with subject and research skills, general skills should be developed, such as skills for comparison, description, definition, proof, disassembly, analysis, integration, additional training, and the application of a model that allows students to solve new problems and conduct research. In addition, the more general the acquired skills are, the wider the range of problems they can be applied to. An analysis of the requirements of the biology curriculum showed that the formation of research abilities at the level of a special educational assignment was not highlighted. The reform of secondary schools requires improvement of the biology teaching process. For this, the greatest opportunities are the direct study of biological objects using cognitive methods and the creation of independently acquired knowledge.

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БИОЛОГИЯЛЫҚ БІЛІМ БЕРУ ПРОЦЕСІНДЕ БІЛІМ АЛУШЫЛАРДЫҢ ЗЕРТТЕУ ҚЫЗМЕТІН ДАМУ

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Аңдатпа. Соңғы кезде дидактикалық және пәндік әдістерді оқу процесіне қосу арқылы, маңызды болып оқушыларға белсенді әсер ету идеясы танылады. Бұл идея жалпы білім беретін мектептің оқу процесінде тұлғаның үйлесімді дамуын қамтамасыз етуге байланысты пайда болды. Тұлғаның жалпы құрылымы туралы теориялық идеяларға негізделген ой, ең алдымен, жетекші психологтардың еңбектерінде қарастырылады. Оқыту процесіне жүйелі көзқарас оқушыларды танымдық әдістер жүйесімен, мұғалімнің мақсатты қызметімен ұйымдастырылатын оқу іс-әрекетінің түрлерімен сипатталатын көпжақты зерттеу қызметіне қосуды қамтиды. Бұл ретте тұлғаның дамуы тұлғаның ішкі қасиеттері, білім беру қызметіне, оның ішінде алынған ақпараттың мазмұнына, оқу процесі жүретін әдістемелік жағдайларға қатынасы арқылы қалыптасады. Орта мектептің оқу пәндері бойынша білімдердің барлығы ғылыми ұғымдармен және ғылымның негізгі идеяларымен үйлеседі, олардың негізі тірі табиғаттың тарихи дамуы, оның биологиялық әртүрлілігі, тірі материяның ғылыми-деңгейлік ұйымдастырылуы болып табылады. Осы негіздерде мектеп пәні ғылыми дүниетанымды, тірі әлемге эмоционалды-құндылық қатынасты қалыптастыруы, тұлғаның экологиялық мәдениетін дамытып, оқушыларды өмірге дайындауы керек. Сонымен қатар "Биология" пәні биологиялық зерттеулердің әртүрлі әдістерін, бақылау, сипаттау, объектілерді анықтау және оқу іс-әрекетінің әртүрлі әдістерін, соның ішінде салыстыру, дәлелдеу, түсіндіру және т. б. игеру бойынша материалдарды қамтиды. Бұл «Биология» пәнін оқыту процесінде игерілуі керек жалпы

оқу және пәндік дағдылар жүйесін қалыптастыра отырып, білім алушылардың зерттеу қызметін дамытуға мүмкіндіктер бар екенін көрсетеді.

Тірек сөздер: педагогикалық үдеріс, білім беру, білім алушылар, зерттеу қызметі, іскерліктер.

РАЗВИТИЕ ИССЛЕДОВАТЕЛЬСКОЙ ДЕЯТЕЛЬНОСТИ ОБУЧАЮЩИХСЯ В ПРОЦЕССЕ БИОЛОГИЧЕСКОГО ОБРАЗОВАНИЯ

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Аннотация. В последнее время в дидактических и предметных методиках признается и развивается идея активного воздействия на ученика путем включения его в учебный процесс. Эта идея возникла в связи с обеспечением гармоничного развития личности в учебном процессе общеобразовательной школы. Мысль, основанная на теоретических представлениях об общей структуре личности, рассматривается прежде всего в трудах ведущих психологов. Системный подход к процессу обучения предполагает включение учащихся в многостороннюю исследовательскую деятельность, характеризующуюся системой познавательных методов, видов учебной деятельности, организуемых целенаправленной деятельностью учителя. При этом развитие личности формируется через внутренние качества личности, отношение к образовательной деятельности, в том числе к содержанию полученной информации, к методическим условиям, в которых происходит процесс обучения. Все эти знания по учебному предмету средней школы сочетаются с научными понятиями и основополагающими идеями науки, главной основой которых является историческое развитие живой природы, ее биологическое разнообразие, научно-уровневая организация живой материи. На этих основах школьный предмет должен формировать научное мировоззрение, эмоционально-ценностное отношение к живому миру, развивать экологическую культуру личности и осуществлять подготовку учащихся к жизни. Дисциплина «Биология» включает также материалы по освоению различных методов биологических исследований (наблюдение, описание, определение объектов и т.д.) и различных способов учебной деятельности (сравнение, доказательство, объяснение и т. д.). Это система общих учебных и предметных навыков, которые необходимо освоить в процессе преподавания биологии.

Ключевые слова: педагогический процесс, образование, обучающиеся, исследовательская деятельность, умения.