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STUDY OF THE ORGANIZATION'S AND CONTENT'S FEATURES OF EXTRACURRICULAR WORK IN 6–8 GRADES BIOLOGY

Abstract. This article examines the importance of extracurricular work of pupils in grades 6–8 in the formation of a scientific worldview based on knowledge about wildlife and its inherent laws, biological systems, assimilation of knowledge about the structure, existence, diversity and ecological role of living organisms. The features of the organization of extracurricular work in general biology, botany, zoology, human anatomy and physiology are described. During the research in the course there were used methods of testing and observing plants and animals in nature, creating visual aids, reports, abstracts, organizing circles of young biologists, exhibitions of pupils' works, biological excursions, biological conferences, and making observation diaries.

In order to determine the effectiveness of the work carried out, a survey of pupils of experimental and control groups was conducted. During the survey, it was revealed that extracurricular lessons influenced the content of the material and increased interest in the subject, the study of various biological literature, the desire to get more additional information about plants and animals. In the organization and content of extracurricular activities in biology, there has always been an independent activity of pupils of a research nature, corresponding to the age characteristics of them. These included independent experiments and observations, performing extracurricular activities, working with reference books, journals, scientific literature.

As a result of the research, this technique can be used by biology teachers as an auxiliary tool in the organization of extracurricular activities.

Keywords: extracurricular work, schoolchildren, biological excursions, types of extracurricular work, method, methodology.

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6–8 сыныптардағы биологиядан сыныптан тыс жұмыстарды ұйымдастыру ерекшеліктері мен мазмұнын зерттеу

Аңдатпа. Бұл мақалада тірі табиғат және оған тән заңдылықтар, биологиялық жүйелер туралы білімге, тірі организмдердің құрылымы, алуантүрлілігі және экологиялық рөлі туралы білімді игеруге негізделген ғылыми дүниетанымды қалыптастырудағы 6–8 сынып оқушыларының сыныптан тыс жұмысының маңызы қарастырылады. Жалпы биология, ботаника, зоология, анатомия және адам физиологиясы бойынша сыныптан тыс жұмыстарды ұйымдастырудың ерекшеліктері сипатталған. Зерттеу барысында табиғаттағы өсімдіктер мен жануарларды сынау және бақылау әдістері, көрнекі құралдар, баяндамалар, рефераттар жасау, жас биологтар үйірмелерін, оқушылар жұмыстарының көрмелерін, биологиялық экскурсияларды, биологиялық конференцияларды ұйымдастыру, бақылау күнделіктерін енгізу қолданылды.

Жүргізілген жұмыстың тиімділігін анықтау мақсатында эксперименттік және бақылау топтарының оқушыларына зерттеу жүргізілді. Сауалнама барысында сыныптан тыс сабақтарға арналған материалдардың мазмұнына және пәнге деген қызығушылықтың артуына, әр түрлі биологиялық әдебиеттерді зерттеуге, өсімдіктер мен жануарлар туралы көбірек ақпарат алуға деген ұмтылысқа әсер еткені анықталды. Биология бойынша сыныптан тыс жұмыстарды ұйымдастыру және мазмұны әрдайым оқушылардың жас ерекшеліктеріне сай бақылайтын зерттеу сипатындағы оқушылардың өзіндік іс-әрекеті болуы бақыланды. Оларға өздігінен орындалатын тәжірибелер мен бақылаулар, анықтамалық кітаптармен, журналдармен, ғылыми әдебиеттермен жұмыс жасай отырып сыныптан тыс жұмыстардың орындалуы жатты. Зерттеу нәтижесінде бұл әдісті биология мұғалімдері сабақтан тыс жұмыстарды ұйымдастыруда көмекші құрал ретінде қолдана алады деп есептейміз.

Кілт сөздер: сыныптан тыс жұмыстар, білімгер, биологиялық экскурсиялар, сыныптан тыс жұмыстардың түрлері, тәсіл, әдістеме.

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Изучение особенностей организации и содержания внеклассной работы по биологии в 6–8 классах

Аннотация. В данной статье рассматривается значение внеклассной работы учащихся 6–8 классов в формировании научного мировоззрения, основанного на знаниях о живой природе и присущих ей закономерностях, биологических системах, усвоении знаний о строении, существовании, многообразии и экологической роли живых организмов. Описаны особенности организации внеклассной работы по общей биологии, ботанике, зоологии, анатомии и физиологии человека. В ходе исследования были использованы методы испытаний и наблюдений за растениями и животными в природе, создания наглядных пособий, докладов, рефератов, организации кружков юных биологов, выставок работ учащихся, биологических экскурсий, биологических конференций, введения дневников наблюдений.

С целью определения эффективности проведенной работы был проведен опрос учащихся экспериментальной и контрольной групп. В ходе опроса было выявлено, что уроки внеклассных занятий повлияли на содержание материала и на повышение интереса к

предмету, изучению различной биологической литературы, стремлению получить больше дополнительной информации о растениях и животных. В организации и содержании внеурочной деятельности по биологии всегда наблюдалось наличие самостоятельной деятельности учащихся исследовательского характера, соответствующей возрастным особенностям учащихся. К ним относились самостоятельные опыты и наблюдения, выполнение внеклассных работ, работа со справочными книгами, журналами, научной литературой. Как результат исследования данная методика может быть использована учителями биологии в качестве вспомогательного средства при организации внеурочной деятельности.

Ключевые слова: внеклассная работа, школьники, биологические экскурсии, виды внеклассной работы, метод, методика.

Introduction

The educational tasks of the school biology course are fully solved on the basis of the close connection of the system of extracurricular and classroom work. To develop a responsible attitude to nature and the environment, it is necessary to give children the opportunity to observe and learn about the environment through research [1]. The knowledge and skills in biology acquired by pupils in lessons, laboratory classes, excursions and other types of educational work are significantly deepened and expanded in extracurricular activities, which has a great impact on increasing their interest in the subject.

Analysis of biology textbooks shows that they do not fully meet modern requirements. Many textbooks are characterized by a weak connection of the studied material with practice, without setting a clear goal in managing pupils' independent work, overloading with secondary facts and details, which ultimately hinders the development of pupils' cognitive interests. Therefore, the formation of scientific knowledge of pupils in biology lessons is impossible without further extension of work in the form of extracurricular activities. Today, not only the problem of high-quality teaching of academic subjects is relevant, but also the issues of activating extracurricular activities.

Extracurricular work is an integral part of the educational process at school, one of the forms of organizing leisure time for pupils. In extracurricular classes, participants do not receive grades, although the teacher carefully takes into account the work done by each of them. The results of extracurricular work can be evaluated during school competitions, meetings, amateur performances, entertainment evenings, preparation of wall newspapers, etc. [2]. But this is optional for all pupils and includes those who are interested in biology. The content of extracurricular work in biology is not limited to the scope of the school curriculum, goes beyond it, is determined by the interests of pupils and is supervised by a biology teacher.

Proper organization and training of extracurricular activities in biology is of great educational importance. This will expand the horizons of pupils, consolidate and deepen the knowledge gained in the lesson, and the possibility of conducting observations and experiments will form research inclinations, reveal the talents of pupils and help choose a future profession. Extracurricular work in biology from the point of view of the Russian scientist A. I. Nikishova makes it possible to closely link theory with practice, where schoolchildren learn to do all kinds of work: preparing the soil for experiments and observing plants, caring for them, planting trees and shrubs, caring for farm animals, which, in turn, awakens in them a sense of responsibility for the task assigned to them, promotes the development of a sense of collectivism, the ability to finish what they started [3].

As in all disciplines, improving the quality of biology teaching is associated with improving the quality of extracurricular work. Extracurricular activities are of great importance in teaching pupils and expanding their knowledge. In addition to ideas and emotions, pupils' formal knowledge expands and replenishes, individual talents develop, independence increases and practical skills are

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instilled. This helps to increase pupils' interest in studying biology and has a great influence on knowledge [4].

In the methodology of teaching biology Yu.V. Brykin, N.V. Lukyanova, Zh. Kozhentaeva, K. Kaim, R. Satimbekov, A. Ametov, N. Tormanov, B. Ursheeva, N.Ablaykhanova [5–9] and other well-known methodologists they attached great importance to the organization and application of extracurricular reading.

Domestic authors in their research considered the differences between extracurricular activities and everyday activities. According to their assumption, extracurricular activities contribute to the formation of activity, interaction of pupils, further improvement of the acquired knowledge. They also touched upon the problem of increasing pupils' interest in biology, the organization of extracurricular activities [10]. To form pupils' worldview through extracurricular activities, it is advisable to show them both the good and the shadow sides of life. Worldview consciousness affects feelings, fixing consciousness, stimulating the will of the child [11].

There is no state standard or plan for extracurricular activities and no assessment is given. Pupils participate on their own. Extracurricular and extracurricular activities are of great importance, contributing to the development, formation of creative qualities of pupils, increasing pupils' motivation for independent and collective work. Consequently, the work carried out by the teacher, awakening pupils' enthusiasm for the organization of extracurricular and extracurricular activities, will not only be successful, but will also be firmly assimilated and used by pupils in practice.

Extracurricular work is related to the main form of the lesson and has feedback when pupils report experiments and observations conducted in the lesson. This makes it possible to direct pupils from individual work to work in a team, and the latter acquire a social orientation that has great educational significance. The success of extracurricular work in biology depends on its content and organization. Extracurricular activities should arouse the naturalistic interest of pupils, activate their creative abilities and at the same time contribute to their recreation. Therefore, extracurricular work should be diverse, versatile and not duplicate academic work at school.

The purpose of the study: to study the methodology of organizing extracurricular biology classes at school.

Research objectives:

- Give a general description of extracurricular biology classes at school;
- To study the effects of extracurricular activities on the knowledge and skills acquired by pupils in biology;
- Review the works of foreign and domestic authors on the methodology of organizing extracurricular activities;
- To study the types of extracurricular work in biology.

Research methods

During the research work, the methods of excursions, equipment of the biology room, organization of a biological evening, exhibitions of pupils' works were used.

Biological excursions are one of the types of extracurricular activities used in the study of biology. On excursions, pupils learn to see, observe, compare the objects they need, find examples of the connection of organisms with each other and with environmental conditions. Each excursion is a powerful means of developing pupils' critical thinking and research abilities [12]. The subject of excursions is very diverse. The place of the excursion can be a forest, a pond, a park, and even an educational and practical playground at school. Live communication with nature awakens pupils' interest in studying it and contributes to the assimilation of knowledge by schoolchildren.

The method was conducted to familiarize pupils of the 6th grade with the surrounding world of flowering plants, to understand the reasons for their diversity when explaining the topic «Flowering plants». Before the tour, a conversation was held with pupils about the rules of behavior

in nature, about careful attitude to plants. And for pupils of the 7th grade, the excursion was held on the theme «Diversity of animals in nature».

Creation of exhibitions of pupils' works. It is advisable to organize the exhibition on any biological evening, holiday, for the final lesson of the circle or in accordance with the beginning of the school year. The exhibition will feature observation diaries created by pupils, collections and herbariums, as well as photographs taken in nature. Labels with the name of the work and its performer must be attached to the selected works at the exhibition.

Biological evening. It was organized in honor of the «Day of Birds» among pupils of grades 6, 7, 8. At the biological evening, each class read out their prepared reports on the diversity of birds, their protection and presented wall newspapers.

Equipment of the biology room. The work on equipping the biology classroom is carried out under the guidance of a teacher and is complemented by the efforts of pupils. Pupils prepare herbariums, photographs, handouts, plant racks from materials collected during the tour, take a direct part in the manufacture of devices, tools, maintain order during storage, etc.

Research methods were used to systematize, expand theoretical and practical knowledge, develop skills of independent work and setting up an experiment and mastering the methodology of its research.

Results and discussion

The organization and content of extracurricular work in biology should always take into account the age characteristics of pupils. On their basis, there should be independent activity of pupils of a research nature carried out by an observer teacher: independent experiments and observations, work with reference books, determinants, journals, popular science literature.

The textbook provides methodological recommendations on the organization and content of excursions, school zoological conventions, a living corner, brief definitions for some groups of animals are given, the topics of research papers of schoolchildren are given [13]. It has been established that informal natural science education affects the acquisition of scientific knowledge by pupils. Using secondary data from the national student assessment center of 7,410 secondary schools in China, the relationship between five types of extracurricular research activities, academic interests, academic self-esteem and academic achievements was investigated [14].

Extracurricular activities should arouse the interest of pupils and attract them to various activities. The content of extracurricular work in biology should include the study of the surrounding wildlife, its protection and environmental education of pupils.

Extracurricular work in botany, as a rule, is carried out with pupils of grades V–VI. It includes knowledge and experience in studying the structure and physiology of plants, seasonal phenomena in plant life, studying the diversity of the plant world, growing indoor flowers, etc.

Extracurricular activities in zoology, as a rule, include the study of the species composition of the animal world of the area, the identification of animals related to agriculture and forestry, and measures to combat them, acquaintance with red animals and ways to protect them. Of great interest is the creation of a zoological corner of wildlife, the maintenance and observation of their inhabitants. Of particular interest to pupils is the work on the protection of birds, as well as the protection of ant nests.

Extracurricular work on human anatomy, physiology and hygiene is carried out by pupils mainly in the eighth grade. It includes: experiments and self-control explaining the essence of exercises for the development of organs; experiments determining the influence of various environmental factors on the activity of organs; promotion of a healthy lifestyle of schoolchildren and the population; explanation of the emergence and spread of various superstitions.

Extracurricular work in general biology is based on the study of heredity and variability, the struggle for existence in plants and animals, the relationship of organisms of specific habitats, etc. [15–17].

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In the process of organizing extracurricular work in biology, the teacher-teacher should, first of all, take into account that its content should be accessible to every age group of pupils. The main forms and types of extracurricular work carried out by a teacher – teacher should link theory with practice and the principle of research [18–21].

The empirical study involved 62 pupils from grades 6-7-8. And 12 pupils of the 6th grade and 10 pupils of the 7th grade were taken as an experimental group.

During the excursion with pupils of the 6th grade on the topic «Flowering plants», pupils got acquainted with the structure of plants in the school yard, in the recreation park and by the water, disassembled them into classes «Monocotyledonous» and «Dicotyledonous». Each observer photographed and recorded the formula of the flower, the area of distribution (Table 1). Also collected materials for the manufacture of herbarium. During the excursion, a blitz quiz about flowering plants was organized with the pupils, the pupils answered questions, listened to the answers of others, and sought to determine the correct ones.

Blitz Quiz Questions: - What forms in flowering plants instead of a flower? (Germ)

- The second name of flowering plants (angiosperms)
- How do flowering plants reproduce? (seeds)
- Name 3 life forms of flowering plants? (Grasses, shrubs, trees)
- Are peas an annual or biennial plant? Explain your answer
- Give an example of a perennial plant (apple trees, birches, tulips, etc.)
- The fruits of which plant are used as a cure for scurvy? (Lemon)
- Where can I find a plant called «Dragon Berry»? (Cacti in America)
- The name of which plant translates from Arabic as «patience» (sibur)? (Aloe)

In which part of the plant does the seed develop? (fruit, flower)

How to distinguish a perennial from an annual? (if a plant blooms once during its lifetime, and once produces fruits and seeds, it means that it is annual)

Table 1 – Classification of flowering plants and their characteristics

	Name of the plant	Class (monocotyledonous, dicotyledonous)	Plant life form (tree, shrub, grass)	Flower Formula	Distribution area

An excursion on the theme «Diversity of animals in nature» was conducted with pupils of the 7th grade. Before the tour, the teacher introduced the safety rules and divided the pupils into groups. During the excursion, pupils studied animals in the park, by the water, and performed the following tasks:

*Task 1.*Conduct phenological observations: date, air temperature, wind, cloud cover*:*

Task 2. Study the composition of water and soil in the designated place, determine the species composition and indicate the number of animals encountered. Name the animals you know.

Task 3. Listen to the voices that you heard during the tour. Distinguish the voices of birds among them. Determine which birds these voices belong to. Explain why some birds fly away to warmer climes, while others stay for the winter.

Task 4. Make a food chain using the names of animals and plants that you met during the tour.

During the tour on the theme "Flowering plants", pupils studied flowering plants in the school yard, recreation park and near the water, divided them into classes «monocotyledonous» and «dicotyledonous» plants, got acquainted with the construction of plants. Each observed plant was photographed, recorded the formula of the hum, the area of distribution. He also accumulated materials for creating a herbarium. During the tour, pupils organized a blitz quiz about flowering plants, where pupils answered questions, listened to the answers of others, and tried to determine the correct ones.

Blitz quiz questions:

- What is formed on flowering plants instead of flowers? (Fruit)
- Second name of flowering plants (indoor genera)
- How do flowering plants reproduce? (By breed)
- What are the 3 life forms of flowering plants? (Grass, shrubs, trees)
- Is peas an annual or two-year-old plant? Explain your answer
- Give an example of a perennial plant (Apple, Birch, Tulip, etc.)
- What fruits of the plant are used as a remedy for scurvy? (Lemon)
- «Where can I find a plant called dragon fruit?» (Cacti in America)
- What is the name of the plant translated from Arabic as "patience" (Sibur, Aloe)
- In what part of the plant does the seed develop? (In fruit, in flower)
- How to distinguish a perennial from a perennial? (if a plant blooms once during its lifetime and produces fruit and seeds once, it means that it is annual)

Thus, control and experimental classes in the educational experiment on the model of organization and use of extracurricular learning were distinguished by the fact that training in experimental classes was carried out taking into account all these methodological conditions. Pupils of this class used the texts developed by us and books for extracurricular reading when performing tasks related to preparing for extracurricular reading lessons – repeating the texts they read, asking questions for upcoming quizzes, contests, games, etc. Pupils of the control classes were able to use both the texts developed by us and the proposed scientific books in extracurricular reading, which corresponded to the level of biological training of pupils, but there were no extracurricular reading classes in these classes.

To take into account the results of the experiment: registration of lessons, oral and written verification work, teachers ' diaries to determine the activity of pupils who are visible during the preparation and participation in the lesson. The survey revealed the dynamics of pupils' interest and interest in reading scientific and popular literature, and the development of interest in the subject.

In order to determine the indicator of the level of knowledge acquisition, the study of the topic «root system» was conducted as follows:

1. What type does the root system of plantain and wheat belong to?
2. What type of root system does the plantain belong to?
3. What are the features of the root system of wheat?
4. Where Do indirect roots come from?
5. Where does the main root come from?
6. Indirect Root features.
7. What is a root, a fringe Root, and what functions do they perform?
8. What minerals are needed for plant growth and development
9. Why are organic fertilizers applied to the soil when growing plants?
10. What types of rhizomes are formed in plants with altered species and what functions do they perform?

When answering questions, it was shown that the overall indicators of the answers of students in the experimental group were much higher than those of students in the control class. They have formed a complete understanding of the root system and mineral nutrition of plants, agrotechnical methods that contribute to the formation of root systems, root changes and their significance in plant life. So, answering the first question, most of the students of the experimental class wrote about all the types of roots that make up the root system of wheat and plantain, about the differences in roots in their origin.

In the answers to the question about mineral nutrition of plants, students of experimental classes, unlike students of control classes, often not only mentioned the salts necessary for the growth and development of plants, but also showed what organs each of them affects the development (students of control classes were usually limited to the words: without mineral and

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organic fertilizers, plants grow poorly). Students of experimental classes wrote about the importance of the agricultural method used in the cultivation of a number of cultivated plants.

In order to identify the impact of extracurricular activities on the further expansion of pupils' knowledge and interest in the subject of biology, a survey of experimental and control groups was conducted. According to the results of the survey, it was found that the pupils of the experimental group on assimilation and memorization of topics showed the greatest interest in biology than the pupils of the control group.

When studying the section «plants», pupils should first of all be able to identify common features of a plant organism, describe its structure, vital processes, and apply their knowledge of the structure and vital activity of plants when growing them. Therefore, in the content of materials for extracurricular reading, it was based on the consideration of concepts that are difficult to learn, learn about the structure of plants and their individual members.

The formation of knowledge about the bud as a changed shoot was provided by the use of similarities that convinced students that there are many signs of similarity in the structure of the cabbage head and lilac bud and that it is a changed shoot. In order not to form a stereotype of thinking about the internal structure of organs, students contributed to expanding their understanding of the diversity of the internal structure of stems on the example of the structure of stems of woody and herbaceous plants.

The vital process of the body is nutrition. In teaching the topic «root», the concept of «root nutrition» is used. In order to expand the understanding of the mineral composition of the soil and root nutrition, the question «What does the root get from the soil?» in addition to nitrogen, potassium, phosphorus salts, the soil contains boron, copper, iron, magnesium and many other elements, and in plants that live in soil with poor trace elements, the destruction of leaves, the death of upper tissues in beet roots (with a lack of boron), the appearance of small fruits in citrus fruits (with a lack of zinc) were supplemented with explanations.

Since it is difficult for schoolchildren to understand the role of organic matter in plant life, specific examples of humus content, soil formation processes, and the role of microorganisms in humus mineralization are given. To master knowledge about the importance of humus and its mineralization, we added materials for extracurricular reading of the importance of farm animals, plant residues, and rot. Information on the composition and fertility of the soil, mineral nutrition of plants and depletion of fertility was aimed at students to understand the need to apply fertilizers, replace crops for proper agricultural work, and increase plant productivity.

The basis of the section about plants is the structure of the Leaf, its role in plant life. When studying the topic «leaf», an important concept is formed the concept of photosynthesis. In the materials presented in connection with the study of photosynthesis, information about other types of plant nutrition was given. Taking into account that the material in the lesson plan is not enough to form students' understanding of predatory plants, it was included in the materials for extracurricular reading. As well as information about the soil and aquatic predators in which they grow, in particular pemphigus.

Based on the fact that the biology course does not pay enough attention to the formation of the concept of «parasitic plants», schoolchildren often confuse parasitic plants with weeds, the content of extracurricular training included information about the so-called «parasitic plant» and «semi-parasitic plant» about parasitic plants.

From the works of several authors in the educational process, pupils' extracurricular activities are evaluated as the highest activity in the formation of their search and cognitive abilities (E.A. Nikishova, 2001; M. LaForce, E. Noble, C. Blackwell, 2017; T.V. Briones, A.C. Stay, I.S. Torres, H.M. Aviles, J.G. Romero, V.B. Kusactay, 2020).

In the formation of the concept of «parasitic plants» from school practice, the differences in the members of plants belonging to this group, the absence of leaves and roots, adaptation to the absorption of ready-made organic substances, the study of their relationship with the host plant, as

well as the formation of knowledge about the direction of evolution – general degeneration. Therefore, these materials were included in the content of extracurricular reading.

Conclusion

The purpose of the study was to study the methods of extracurricular work in biology, to analyze the impact on the expansion of competencies and worldview of schoolchildren, their interest in the subject based on empirical methods. The intended goal was achieved through the optimal conduct of research work. In the course of the study, the peculiarities of the organization of extracurricular work in botany, zoology, general biology, anatomy and physiology were considered, a review of the literature of domestic and foreign authors was conducted. In the course of the literary review, the ways of effective organization of extracurricular work were identified.

During the research work, the method of biological excursions for pupils of grades 6–7 on the topic «Flowering plants» and «Diversity of animals in nature» was used. It also organized the equipping of the biology room, the creation of an exhibition of pupils' works and a biological evening dedicated to the «Day of Birds».

The analysis is carried out using empirical methods based on accumulated theoretical and practical foundations. A survey was organized as a basis for the analysis. A total of 62 pupils took part in the survey. Of these, 30 are pupils of the experimental group, and 32 are pupils of the control group. During the analysis of the survey results, it was revealed that extracurricular work had a positive impact on the expansion of pupils' horizons, the formation of skills, and the upbringing of a careful attitude to nature. In addition, extracurricular activities involve pupils in various useful types of labor training: preparing the soil for conducting experiments and observations of plants, caring for them, planting trees and shrubs, preparing feed for birds, caring for farmed animals, which, in turn, educates them a sense of responsibility, the ability to finish what they started, contributes to the development of a sense of collectivism.

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