



Chapter V. PROBLEMS OF EDUCATION AND UPBRINGING OF CHILDREN IN EDUCATIONAL INSTITUTIONS OF MOUNTAIN REGIONS

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ФОРМУВАННЯ ЕЛЕМЕНТАРНИХ МІКОЛОГІЧНИХ УЯВЛЕНЬ ТА ПОНЯТЬ У МОЛОДШИХ ШКОЛЯРІВ НА УРОКАХ «Я ДОСЛІДЖУЮ СВІТ»

Анотація. Стаття присвячена формуванню елементарних мікологічних уявлень та понять в учнів початкової школи на уроках «Я досліджую світ». Наголошено, що природничі уявлення та поняття в учнів формуються під час вивчення природничої освітньої галузі, в контексті інтегрованого курсу «Я досліджую світ». Початкова школа – важливий етап становлення особистості, формування природничих уявлень та понять, багатогранних взаємин школяра з природничим і суспільним середовищами. Тому вчителів початкових класів важливо сформувати в молодших школярів уявлення про гриби за їх особливі характеристики, виокремлюючи й узагальнюючи разом з дітьми основні ознаки, спільні для всієї групи цих організмів. Проаналізовано педагогічні умови добору методів та прийомів навчання під час формування елементарних мікологічних уявлень та понять в учнів початкової школи на уроках «Я досліджую світ». Зроблено висновок, що система наочних методів навчання безпосередньо пов'язана з системою засобів навчання, зокрема засобів наочності, комплексний підхід до використання яких у поєднанні зі словом учителя дає необхідний навчально-виховний ефект. Особливе значення відведено практичним методам, які являють собою складну взаємодію слова, наочності й практичної роботи. В її основі лежить практична діяльність учнів, яка здійснюється за участю керівного слова вчителя і засобів наочності. Практичні методи навчання відіграють важливу роль у формуванні навичок і вмінь як застосовувати здобуті знання про гриби. Під час формування мікологічних уявлень і понять, основна практична діяльність учнів полягає у виконанні різноманітних практичних завдань, вправ, дидактичних ігор. На основі аналізу психолого-педагогічної та методичної літератури, урахування вікових особливостей молодших школярів, змісту природничого матеріалу, загальнонавчальних умов формування знань встановлено, що ефективність процесу формування у молодших школярів знань про гриби залежить від сукупності таких дидактичних умов: здійснення системно-структурного аналізу змісту природничого матеріалу; дотримання поетапності формування природничих уявлень і понять; добір та поєднання різних методів та засобів навчання під час формування знань про гриби; використання пізнавальних завдань для застосування сформованих знань.

Ключові слова: мікологічні уявлення і поняття, учні початкових класів, природознавство, предмет «Я досліджую світ», гриби, методи навчання.

FORMATION OF JUNIOR SCHOOLCHILDREN'S ELEMENTAL MYCOLOGICAL REPRESENTATIONS AND CONCEPTS IN AT THE LESSONS "I EXPLORE THE WORLD"

Abstract. The article is devoted to the formation of elementary mycological ideas and concepts in primary schoolchildren at the lessons "I explore the world". It is emphasized that natural ideas and concepts in schoolchildren are formed during the study of natural education, in the context of the integrated course "I explore the world". There are analyzed the pedagogical conditions for the selection of teaching methods and techniques during the formation of elementary mycological ideas and concepts in primary schoolchildren at the lessons "I explore the world". It is concluded that the system of visual teaching methods is directly related to the system of teaching aids, in particular visual aids, a comprehensive approach to the use of which in combination with the teacher's word gives the necessary educational effect. The particular importance is given to practical methods, which are a complex interaction of word, clarity and practical work. Practical teaching methods play an important role in the formation of skills and abilities how to apply the acquired knowledge about mushrooms. During the formation of mycological ideas and concepts, the main practical activity of students is to perform a variety of practical tasks, exercises, didactic games. Based on the analysis of psychological, pedagogical and methodological literature, taking into



account the age characteristics of primary schoolchildren, the content of natural material, generally accepted conditions of knowledge formation, it is established that the effectiveness of the process of knowledge formation of primary schoolchildren depends on material; observance of step-by-step formation of natural ideas and concepts; selection and combination of different methods and means of teaching during the formation of knowledge.

Keywords: mycological ideas and concepts, elementary school students, science, subject "I explore the world", mushrooms, teaching methods.

INTRODUCTION

Formulation of the problem. In the system of general secondary education, primary school occupies an important place: it is the basis on which all other parts of this system are built. Primary education is the first, and therefore especially responsible period: it is the time of formation of the child's educational activity, the period in which the basis of the scientific worldview are formed. Natural ideas and concepts are formed during the study of the natural education field, in the context of the integrated course "I explore the world". Primary school is an important stage in the formation of personality, the formation of natural ideas and concepts, the multifaceted relationship of the pupil with the natural and social environments. The formation of natural knowledge in younger schoolchildren is extremely important, because they are necessary for everyone to ensure its harmony with nature.

Analysis of recent research and publications. The problem of formation and development of knowledge in the theory and practice of teaching is one of the most relevant and complex. That is why during the long history of primary science education this problem has been the focus of many scientists. In particular, the researches of teachers T. Baibara, O. Bida, O. Varakuta, T. Hilberg, I. Hrushchynska, L. Narochna, O. Savchenko, M. Skatkin, K. Yagodovsky and others are devoted to it.

AIM AND TASKS RESEARCH

The purpose of the article is to analyze the process of formation of elementary mycological ideas and concepts in primary schoolchildren at the lessons "I explore the world".

RESEARCH METHODS

To achieve this goal, theoretical research methods are used, including analysis and synthesis research results on the research problem, generalization – to formulate conclusions, forecasting – to determine the prospects for further research.

RESEARCH RESULTS

The knowledge of fungi is important in the development of young pupils' perceptions of the integrity and relationship of animate and inanimate nature. After all, mushrooms are an integral component of nature, without which life on Earth is impossible, and is an accessible object for learning and research by younger pupils. In the process of mastering the basic mycological ideas and concepts of the younger schoolchildren there is formed the need to learn about the world around us, communicate with nature, the skills of environmentally sound behavior.

Elementary mycological ideas are formed by observation in the children at the preschool age. Therefore, it is important for primary school teachers to form in younger schoolchildren an idea of mushrooms by their special characteristics, highlighting and summarizing with the children the main features common to the whole group of these organisms. At the same time, the schoolchildren observe, describe, research, analyze, generalize and draw conclusions about natural objects.

According to the scientist O. Bida, "through the senses a person is connected with the environment. The effect of objects and phenomena of the environment on the human senses is reflected in the sensations. They seem to photograph, copy the phenomena in our consciousness. Thus, based on sensations, a sensory perception of the object as a whole is formed (Bida, 2000).

One of the most important tasks in the formation of mycological concepts in junior schoolchildren is to work on understanding the meaning of such concepts: "mushrooms", "mycelium", "edible mushrooms", "poisonous mushrooms" and others. Each concept at a certain stage of the learning process (mastering the content of the topic, section, course of primary school) has its initial and final level of formation, defined in the curriculum and textbooks.

After analyzing the current standard educational programs (Typical educational programs, 2019) and textbooks from the course "I explore the world", it is determined what knowledge about mushrooms is expected to form in primary schoolchildren in primary school: mushrooms are part of wildlife, organisms; fungi are a separate group of living organisms that have common features with flora and fauna; knowledge of the signs of wildlife inherent in fungi; knowledge of natural groups; knowledge of edible and poisonous mushrooms; knowledge of the structure of the mushroom, knowledge of the rules of mushroom picking; recognition of poisonous and edible mushrooms of the locality; understanding how to reserve mushrooms in nature; knowledge of the diversity of fungi in nature; knowledge of the signs of wildlife inherent in fungi.

Textbooks of the integrated course "I explore the world" provide scientific content, accuracy, simplicity and accessibility of its presentation, clarity of definitions, rules, laws, ideas, accurate and accessible language of the text, the correct distribution of educational material by sections and paragraphs. The most important material is illustrated with diagrams, drawings, structured and decorated with fonts.

First-formers first get acquainted with the concept of "mushrooms" while studying the topic "Inanimate and animate nature". Younger schoolchildren realize that fungi are bodies of living nature and they have all the properties of living



organisms, that is, they feed, breathe, grow, reproduce, die. Schoolchildren also get acquainted with different types of mushrooms. Particular attention is paid to edible and poisonous mushrooms in the study of natural communities of their region. The teacher reports that, in addition to plants, forests are rich in mushrooms. Schoolchildren look at the illustration, get acquainted with different types of mushrooms, think about the questions in the textbook.

In the second form, mycological ideas and concepts of primary schoolchildren are expanded and deepened and combined into the following topics: "Are all mushrooms edible?" (Hilberh, 2019), "Distinguish mushrooms", "Edible and poisonous mushrooms" (Vashulenko, 2019), "Is it safe for health to pick up mushrooms?" (Hrushchynska, 2019), "Autumn is a mushroom season" (Budna, 2019). The main texts of the textbooks contain information about the structure of the mushroom, the rules of mushroom picking, types of poisonous and edible mushrooms, their descriptions. In addition to the main textbook, it contains additional texts (riddles, poems, proverbs), the purpose of which is to expand and deepen pupils' knowledge about mushrooms. The illustrative apparatus of textbooks, which helps younger schoolchildren to form the correct mycological ideas and concepts, to reveal the main content of certain elements of the curriculum, is bright and interesting.

Taking into account the principles of selection of educational material, accessibility, systematicity and consistency of knowledge about mushrooms in third form students expand and deepen. In the main texts of the textbook the information is repeated, generalized: properties of mushrooms as organisms, structure of a mushroom, and also contains new in subjects "I define variety of mushrooms" (Vashulenko, 2020), "What is the value of mushrooms for the nature" (Hilberh, 2020), "What is the mystery of the world of mushrooms?" (Hrushchynska, 2019). Illustrative material successfully complements the textual component of the textbook, and questions and tasks increase schoolchildren's thinking.

The organization of the study of science in primary school depends on the volume and content of educational material, as well as on the correct choice of methods of its teaching. It is known that only properly selected methods and techniques of teaching that correspond to the content of educational material and age of schoolchildren, ensure the effective acquisition of knowledge, improve their quality, strengthen its educational function.

Among teachers and methodologists the simplest and most widely known is the classification of methods by sources of knowledge. Given the source of knowledge, the actions of teachers and schoolchildren in the study of science, all teaching methods are divided into three groups: verbal, visual and practical. In the first group of methods the source of knowledge is the word, in the second - demonstration, and in the third - practical work.

During the formation of mycological ideas and concepts, verbal methods are most often used at the stage of perception and awareness of new material by schoolchildren during its presentation in order to develop cognitive activity, logical thinking of schoolchildren and their assimilation of information taught by the teacher. By nature, the presentation of the material can be descriptive, explanatory, problematic. In practice, it is realized in the form of conversation, story, description, explanation within the general methods of teaching - explanatory-illustrative or partial-search.

Visual teaching methods involve the use of various visual aids in the educational process in combination with the teacher's word, they involve the use of illustrations and demonstrations in order to achieve clarity and provability of the verbal explanations given by the teacher. While studying the topic "Mushrooms", schoolchildren are visually acquainted with different types of mushrooms, their use in life etc. A specific feature of visual teaching methods is the development of schoolchildren's observation.

Visual teaching methods are used for various didactic purposes: as a means of learning and as methodological techniques that enhance the cognitive capabilities of verbal methods. In the application of visual methods the main role in the transfer of knowledge is played by the teacher's demonstration of the objects and phenomena, and the teacher's word acquires a different meaning. In verbal methods, clarity is often only an illustration of the teacher's words. So, talking about mushrooms, the teacher demonstrates models, pictures, tables, photos. But the source of information is the teacher's word - his/her story, explanation. When using visual teaching methods, the source of information is living objects, movies, tables. Thus, the main source of knowledge that schoolchildren acquire through the application of visual methods is observation, not the teacher's word, although he/she controls the entire cognitive process. The purpose of the application of visual methods is to stimulate and develop the activity of perception and thinking of schoolchildren. The clarity used at the lesson can be natural and pictorial. These visual aids can be used at different stages of the lesson and for any didactic purpose to explain new material, consolidate, improve and test knowledge. At the same time, schoolchildren have an effective visual perception, which in combination with the teacher's word gives a high educational effect.

Tables, handouts give an idea of the structure, shape, color of mushrooms. At the same time, it is more difficult to give schoolchildren a correct idea of their size, because the table is usually depicted in an enlarged form or, conversely, in a reduced form. It is recommended to use the teacher's pictures on the board together with the tables at the lessons "I explore the world". The drawing on the board allows the teacher to present the material more consistently and completely, and it is easier for the schoolchildren to follow the teacher's opinion, focusing at the right moment on the perception of only the detail in question. This method can be used to introduce schoolchildren to the structure of the mushroom and compare it with the structure of the herb. In this case, schoolchildren can conclude that the structure of these organisms is different. So mushrooms are not plants.



The schematic drawing in combination with other visual aids keeps schoolchildren's attention on the studied object longer. As a result, conditions are created not only for a better understanding of the program material, but also for the development of schoolchildren's observation, arbitrary attention, which they still lack.

These visual aids contribute to the formation of younger schoolchildren's mycological ideas and concepts. However, they do not give images of their dynamic picture. It is better to use educational films for this purpose. An educational film is of great importance for the formation of ideas at the initial stage of studying educational material. However, the film can be used not only at the initial stage of studying the material. How do mushrooms reproduce? How to distinguish poisonous mushrooms from edible ones? How to pick up mushrooms properly? Here are some examples of questions that an educational film can answer. Demonstration of films helps to establish logical connections in the educational material, helps schoolchildren to systematize the facts, to highlight the essentials.

Thus, the system of visual teaching methods is directly related to the system of teaching aids, in particular visual aids, a comprehensive approach to the use of which in combination with the teacher's word gives the necessary educational effect. In this case, the demonstration of visual aids acts as a source of knowledge, and the teacher uses the word to control the schoolchildren's observation and accompanies the demonstration of visual aids with explanations.

Practical methods are a complex interaction of words, visuals and practical work, which is organized by the teacher in order to develop schoolchildren's thoughts. It is based on the schoolchildren's practical activities, which is carried out with the participation of the teacher's guidance and visual aids. Schoolchildren should be taught to observe natural phenomena and objects, to determine their essential features. Practical teaching methods play an important role in the formation of skills and abilities how to apply the acquired knowledge about mushrooms.

Depending on the nature of schoolchildren's cognitive activity, the practical method of teaching can be carried out within the general pedagogical method - explanatory-illustrative, partial-search or research. To organize junior schoolchildren's independent work in the classroom, it is necessary to have didactic cards, notebooks with a printed base, collections, handouts etc. The observations give an idea of the subject. They are used at lessons during the teacher's story when demonstrating various manuals. The teacher must organize observations and conduct them, directing students' attention to certain aspects of subjects etc. In autumn, students should be offered observation tasks. For example: "What mushrooms did you pick in autumn? Observe where chanterelles, buttercups, boletuses, grasshoppers, boletus, honeysuckle are more common? Where and when can you see honeysuckle?" (Hrushchynska, 2009).

Picking up mushrooms in the forest, observing their development, conducting phenological observations and a calendar of fungi, schoolchildren will not only enjoy the knowledge of nature, but also discover interesting touches from the life of this fascinating group of organisms. Methods of studying fungi in nature are diverse and are determined by the goal set by the teacher. One of the most common lessons in nature is an excursion. During the excursion lessons, the teacher acquaints the younger schoolchildren in detail with the peculiarities of the life of mushrooms, their importance in nature and human life. The teacher pays attention to the connection of fungi with different tree species, with the peculiarities of their development in different plant groups and ecological conditions. Many interesting things about the life of mushrooms can be observed in autumn: to learn how to find mushroom places in the forest; to get acquainted with the diversity of mushroom species in pine, birch, spruce forests; to try to trace what natural phenomenon is associated with the appearance of different species of fungi in different areas, to learn to pick up mushrooms properly and process them before eating; to determine the mushrooms. Interesting experiments are conducted with mushrooms as natural means of visualization, which the teacher and students choose during the lesson-excursion. For example, a creative, long-term experiment proposed by scientist I. Hrushchynska, aims to determine which animals inhabit wormy mushrooms: put in a small container (such as a half-liter or liter jar), pre-poured on the bottom of the sand, an old worm mushroom. Close the jar tightly with a cloth to allow air access. After a while, the mushrooms will begin to decompose. Therefore, the larvae of insects that were in it, will begin to pupate in the sand. Carefully monitor their development. It is likely that after a while adult insects will fly out of the pupae. Try to draw all the stages of insects that you have observed, and establish the name of the inhabitants of the mushrooms. It turns out that most of them are various species of flies, including flower flies, and fungal mosquitoes, which make long moves in the flesh of the mushrooms. In one mushroom, despite its small size, several species of insects are able to develop simultaneously (Hilberh, 2020). Thus, during the formation of mycological ideas and concepts, the main schoolchildren's practical activity is to perform a variety of practical tasks, exercises, didactic games.

None of the methods mentioned above can be considered universal and suitable for solving all the problems facing the teaching of science. Therefore, in the process of preparation for science classes, the teacher must remember that the choice and optimal combination of methods, techniques and tools should solve the problem: learning, development and formation schoolchildren's personal qualities.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Based on the analysis of psychological, pedagogical and methodological literature, taking into account the primary schoolchildren's age characteristics, the content of natural material, generally accepted conditions of knowledge formation, we found that the effectiveness of the process of primary schoolchildren's knowledge formation depends on a set of natural material; observance of step-by-step formation of natural ideas and concepts; selection and



combination of different methods and teaching aids during the formation of knowledge about mushrooms; the use of cognitive tasks for application of the formed knowledge.

Further research requires the formation of elementary junior schoolchildren's mycological ideas and concepts in the process of integrated learning.

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