

DEVELOPMENT OF THE TEACHING METHODOLOGY OF NATURAL SCIENCE IN PRIMARY GRADES

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Abstract. *In this article, the methodology of teaching natural sciences includes all teaching processes, from the preparation of the teacher to the results of mastering the learning material, including taking into account classroom, home, extracurricular activities. Based on comprehensive teaching of teaching practice and creative generalization of the results, certain laws of teaching are determined and measures are developed to further improve it. The methodology of teaching natural sciences covers all issues related to the teaching of natural sciences at school: the ideological orientation of teaching, the unity of teaching content and methods, consistency between the forms of educational work; the educator considers the integrity and development of elementary education. The content of the teaching system, ensuring that the knowledge of students is thorough and reaching their minds, the coherence and integration of knowledge of various academic subjects, is explained using modern educational technologies.*

Keywords: *natural science methodology, practical methods, receptor, experience, object, operation, excursion.*

INTRODUCTION

Teaching of natural sciences as a separate subject starts from the 1st grade. In the textbooks, which are considered as educational material, books combining the topics of "Natural objects", "Plant and animal world", "Keeping our health" and "Ecology" are taught. The program on natural sciences allows young schoolchildren to learn not only the beauty and riches of nature, but also the nature of our republic. In teaching thinking, attention is paid to explaining the topic of each lesson. In the process of individual performance of tasks, students' mental activity is engaged, confidence in their knowledge, strength and abilities increases. As a result, each person develops at the level of their potential. Time is effectively used in cognitive activities organized in this way. As a result, the effectiveness of education increases. In the classes held using modern pedagogical technologies, students' cognitive activity is organized individually. If students are taught using modern methods, the students' acceptance of learning increases significantly, which has been tested by many researchers. Along with theoretical knowledge, practice also plays an important role in the formation of future professional qualities of students. Natural scientific knowledge has been acquired through practical activities for many years. Knowledge does not appear in people's brains by itself, but is formed in certain work activities. Practice is the main factor in the relationship between man and nature, which, in turn, plays an important role in the system of human relations and social production. The main types of practice are material production and scientific experience. Scientific-natural practice performs the following tasks. For example, the knowledge taught in practice will allow students to understand more than theoretical lessons. At the same time, it is important to improve the synergistic learning environment, aimed at teaching students natural sciences on the basis of a competent approach, the formation of holistic ideas about the universe and man. The Action Strategy for the further development of the Republic of Uzbekistan identifies the tasks of "stimulating research and innovation, creating effective

mechanisms for the implementation of scientific and innovative achievements". This shows the importance of improving the methodology of teaching science to primary school students on the basis of a competent approach.

LITERATURE ANALYSIS AND METHODS

In the system of natural science teaching methods, practical work plays a major role in acquiring knowledge about nature. Practical work is a method of training students in various labor operations in the course of their work. Practical work includes activities such as collecting natural materials during the excursion, taking care of plants in the area in front of the school and in the corner of living nature, creating a herbarium and collections, preparing mock-ups, models, and visual aids. Visual aids include natural or real objects. Natural aids are objects of nature. They allow children to form concepts about the studied topics and nature. Because the classroom can have various indoor plants and branches, leaves, flowers, fruits and seeds specific to the trees of their place to study living nature. Natural science lessons use plants grown in the nature corner, as well as plants brought from the herbarium and excursions. Natural objects can also be used to study animals. Although many animals can be shown to children in the classroom (in the corner of living nature), it is necessary to give preference to excursions, because students will have the opportunity to get acquainted not only with their appearance, but also with their behavior. In the absence of live animals, their chuchelas (suits), puppets or photos and pictures of them can be used. In the study of inanimate nature, natural distribution material, for example, granite of various colors, quartz, feldspar, clay, sand, calcite (chalk, marble, lime, samples of various coal, iron, copper ores, as well as metals and alloys) can be iron, cast iron, steel, aluminum, soil samples, etc. Shown tools are used to create clear and correct ideas about natural objects and phenomena that cannot be directly perceived by students. It is possible to use wall pictures of local history in natural science. They help to form ideas and concepts about local history objects of nature. In classes, it is necessary to use "Observation diaries" with printed pictures, texts representing them, questions and assignments for students. Drawing maps and diagrams has a great place in the practical mastering of science materials. In order to use them (determining the sides of the horizon), the first step is to draw a simple picture of the location of objects in the schoolyard. It is convenient to use map-schemes to check students' mastery of cartographic images.

The analysis shows that, even though researches have been conducted on the development of knowledge, skills and abilities in students, the psychological basis of the formation of natural-scientific concepts and scientific worldviews, the development of self-awareness and self-concept, the issue of improving the methodology of teaching subjects "The world around us" and "Natural Science" to pupils on the basis of a competency-based approach to teaching has not been sufficiently studied yet.

DISCUSSION

Going to compare and contrast develops the student's ability to identify. The work on differentiation and identification is not carried out only in the classes, the teacher also helps the students to find and collect plants, collect samples, their age, vegetative methods, soil cross sections, adaptations, variability during nature excursions. should be selected based on their ability to learn. Pupils do work on learning the shape of plants and their parts as homework. The age of plants can be determined in nature not only by annual rings, but also by annual branching of plants. The plant has a growth period from spring to autumn, and a rest period from autumn to spring. This means one year of growth, in the second year there will be growth and branching again. The

distance between branches is the age of the plant, which should be explained to students in nature. Students will get practical knowledge, they will learn that it is possible to determine the age of trees even without cutting them. It forms ecological and scientific concepts. When designing the process of teaching science to primary school pupils on the basis of a competency approach, attention should be paid to: Clearly indicate what knowledge should be provided to pupils in the process of teaching science on the basis of a competency approach; To take into account the interest of students in the study of natural sciences and their tendency to apply it in practice; clear expression of natural sciences and teaching methods based on the interests and needs of primary school pupils; Selection and methodological substantiation of pedagogical technologies used in the process of teaching natural sciences on the basis of a competency-based approach to primary school pupils; Expanding the opportunities for methodological services based on the primary school teacher to provide students with a deeper mastery of teaching methods and technologies based on a competent approach to natural sciences. The process of teaching natural sciences on the basis of a competent approach has the following objectives: To choose educational materials, questions, games, multimedia tools for students in the lessons "The world around us", "Natural sciences" aimed at teaching natural sciences;

Clear consideration of interests, learning tendencies, desires and needs; to control the ability of students to apply the knowledge learned by themselves and their classmates in practice, to evaluate the results of their own and their peers' activities, to form the experience of caring for the environment;

Protection from adverse events related to natural disasters, the development of skills to protect their health, the ability to comply with hygienic requirements; Selection and presentation of educational materials to the pupils, that serve to expand the cognitive activity related to the study of natural sciences;

To teach students to use cognitive methods related to the acquisition and application of natural science knowledge;

To accustom students to the use of methods of conscious communication with nature;

To develop the experience of independent study of natural sciences in primary school students and their application in their practical activities, and others. The following table describes the process of teaching natural sciences to primary school pupils on the basis of a competency-based approach.

The main criterion for choosing the content of education based on a competency approach is the individualization of the student, the ability to apply their knowledge in solving problems of a practical nature.

RESULTS

In order to test students' practical knowledge, the following problematic questions can be asked in the 4th grade. You are standing in the desert in the heat of summer. Based on your practical knowledge of observation, take a landmark from where you stand and determine the south direction. As a result of practical observation of nature, it is possible to determine the south based on the following factors: 1) reptiles always face the entrance to their nest to the south; 2) birds always place their nests in the south direction; 3) the branches of plants are always bent towards the south; 4) the south side of the plant stem is always fertile; 5) one end of the sand bar lies in the north and the other end lies in the south. He gives various objects to the students, takes out pictures, photos and matchboxes, cubes, glasses, and asks them to find the similarities and differences, then

distributes geometric figures, which the students put on a sheet of notebook and circle around them with a pencil. they draw on paper. After completing the task, it leads to the conclusion that the top view of the object is called a plan. After that, the plan of the table is drawn. If the students have difficulty with the size of the objects, he explains that the depicted object can be conditionally reduced in size. (For example, 10, 20 times) Programmed teaching requires the following: - a careful analysis of the educational material, its strict selection and division according to a logical sequence; - leadership in checking students' learning activities. In programmed teaching, the activity and independence of students in the use of educational material increases, the possibility of individualizing the teaching process appears, teaching with technical tools is widely used, rational organization of teaching and student work is achieved.

The accuracy of knowledge is confirmed by the truth of information about a specific object. At the same time, if the circumstances are different, the reality may be different. For example, water boils at 100C under normal conditions and pressure. But if the pressure changes or there is heavy water, it is concrete. The reality in a given system may change completely in other conditions. Confirmation of the idea in practice is the main factor of truth. It is advisable to start training for practical work from primary grades. Practical methods are organized and guided by the teacher, and are aimed at developing students' thinking, showing that there is a complex connection between speech, demonstration and practical work. The use of practical methods is related to the intensive activity of receptors and effectors of students. Practical methods provide an opportunity to deeply understand the studied material, to develop skills and competencies. The activity of students is the source of knowledge for the application of practical methods. Such methods include oral and written exercises, laboratory work, activities performed outside the classroom, on the school grounds, in the corner of living nature. The types of practical methods include: 1. Pupils making different things with distributed didactic material. 2. Drawing. 3. Work on recognition and identification of natural objects. 4. Observation and recording of incidents. 5. Experiments (experimental problem-solving) are included. Pupils should answer the question, problem, issue with its results before the beginning of the practical work. Natural science classes are a type of practical methods of recognition and identification, teaching the characteristics of distinguishing and recognizing common plants or their parts.

CONCLUSION

Students' scientific knowledge of nature is important in the formation of their worldviews, in the development of their thinking, in substantiating the laws of nature, in the study subjects of biology, nature and geography, physics, chemistry, the basics of economic knowledge and the basics of entrepreneurship.

The pedagogical activity and professional competencies of the teacher play an important role in providing students with natural sciences on the basis of a competent approach in the lessons "The world around us" and "Natural sciences".

First of all, the teacher should have a good knowledge of natural phenomena, to arouse students' interest in it, to give them the opportunity to perform practical actions based on the knowledge acquired in the lessons of nature, to engage in creative collaboration with students. The teacher should make effective use of project technology when performing practical activities with students in nature, because this technology helps students to research, create herbariums, express their creative attitude towards birds and wildlife.

REFERENCES

1. M. Nuriddinova. "Methodology of teaching science" Tashkent, Teacher 2005
2. Muhammadiyev K.B. Theory and practice of preparing students to be careful with the environment. Tashkent, "Science and Technology", 2014.
3. Aidarov Ye.B. Providing students with environmental education by protecting the natural area.-T: SCIENCE-INTELLIGENCE-ZAKOVAT.2019
4. Suyarov K. and others. Natural sciences. Textbook for 2nd grade. - Tashkent: Republican Education Center, 2021.- 120 p.
5. Sharipova D. et al. Science and its teaching methodology. Tashkent 2018.-126 b
6. Уматалиева, Камила Тахировна, and Мусурмон Пирназарович Имомов. "Взаимосвязь профессионально компетентностного педагога и формирования профессиональной культуры учащегося профессионального колледжа." *Теория и практика образования в современном мире*. 2012.
7. Imomov Musurmon Pirnazarovich./ xoriyda ta`lim tizimi./ "Fan va texnologiyalar nashriyot-matbaa uyi"/ 2023.
8. Имомов, Мусурмон Пирназарович. "КОМПЕТЕНЦИЯВИЙ ЁНДАШУВ АСОСИДА ПРОФЕССИОНАЛ ТАЪЛИМ МУАССАСАЛАРИ ЎҚУВЧИЛАРИДА КАСБИЙ МАДАНИЯТНИ РИВОЖЛАНТИРИШДА АХБОРОТ-КОММУНИКАЦИОН ТЕХНОЛОГИЯЛАРИДАН ФОЙДАЛАНИШ." *Science and innovation 2.Special Issue 3* (2023): 1037-1042.
9. Pirnazarovich, Imomov Musurmon. "METHODOLOGY OF DEVELOPING PROFESSIONAL CULTURE OF COLLEGE STUDENTS ON THE BASIS OF COMPETENCY APPROACH." *Ilkogretim Online* 20.4 (2021).