# USE OF DIFFERENT METHODS IN SCIENTIFIC EDUCATION AND IMPLEMENTATION OF PROBLEM EDUCATION

Meliboyev Anvar Rashidovich,
Candidate of pedagogical sciences,
Associate professor Head of the department "Methodology of school,
Primary and special education"in Jizzakh region
Phone: +998 (94) 3077674

Ergasheva Nigora Erkinovna,
Senior Lecturer,"Methodology of school,
Primary and special education"in Jizzakh region
Phone: +998 (97) 5240075

**Annotations.**
The article examines the importance of problem learning technologies, methods and the process of their implementation in the cognitive activity of primary schoolchildren in natural science lessons.

**Key words:** problem learning, methods, imagination, didactic materials, information technology.

Stages of development of methods of teaching science in Uzbekistan and developed countries of the world, the content of science in the structure of modern lifelong education, basic concepts, laws, skills and competencies. They must have the skills, methods and forms of teaching science, their characteristics and didactic goals, advanced pedagogical and modern information technologies, exhibition and didactic materials used in the classroom, the content of students observations, and skills.

It should be noted that all methods use the same logical techniques: identifying features, comparing objects by similarity and difference, conclusions, generalization. This opens up important opportunities for all methods of developing the thinking and independence of students at work.

Organizational methods focus student attention, acceptance, and performance.

Technical methods include the use of various equipment, auxiliary tools and materials. Let's look at these examples to illustrate the place of methodology in the applied method.

This should be taken into account by the teacher when preparing for practical exercises.

The method is practical, for determining its type (for example, for determining the shape of the leaves of a plant).

The logical method is to identify signs of the shape of the leaves by comparing them with the images in the instruction table, drawing conclusions and determining the shape.

In organizational methods, for example, an individual job is selected to determine the shape of the leaves (the same for all students). The work is done according to the instructions, which is a technical skill.

It consists of filling out a registration sheet, drawing a picture and sticking the leaves into a herbarium notebook. A variety of teaching methods, especially their combination, enhances the teachers creative initiative and pedagogical skills. In particular, schooling is a necessary stage in preparing students for marriage and useful work in society. A number of student activities have also been developed in science teaching:

In primary grades, junior schoolchildren receive a clear understanding of the nature around them and receive structured knowledge on its basis.

These include: children's ability to distinguish between animals from an early age, know edible and poisonous plants (berries and mushrooms), identify aspects of the sun and compass, pay attention to weather signs, understand simple natural phenomena, maybe an example of their ability to distinguish between seasons.

When taught correctly, science instills in children a love of nature, an interest in plants and animals, and the development of observation, logical thinking, and meaningful speech.

Observations of natural phenomena provide students with a variety of specific material for comparison, generalization, and oral and written expression of their impressions.

The interaction of students with wildlife opens up wide opportunities for physical and aesthetic education. Consequently, the earlier students learn about nature, the more positive the influence of nature on their upbringing and mental development.

Of course, in order to achieve these goals, it is necessary to further improve the methods of teaching science.

Primary school teachers should focus on the exploratory method of working with students, since this method not only provides a wide range of knowledge, but can also teach children to learn on their own.

By using research methods to get to know nature, the teacher helps students understand their challenge.

The following tools play an important role in the cognitive activity of younger students in science lessons:

1. visual and object images;
2. demonstration of experiments;
3. Some situations from the life experience of students;
4. showing films, videos and slides;
5. work with geographical atlas maps, etc.

The development of students' cognitive activity in research activities is the basis of problem-based learning. This also applies to science lessons, as they are increasingly used to describe and explain off-the-shelf scientific knowledge, as well as problem-solving materials.

In problem-oriented learning, students are encouraged to solve problems containing new information. This means that students will be able to acquire knowledge and independently apply it in practice. Such questions are used in knowledge testing to determine the depth of learning and awareness.

In recent years, problem learning has become increasingly popular among psychologists, didactics, methodologists and creative teachers. Scientists propose to divide the problem lesson into the following stages:

1) The creation of a problem situation and its analysis;
2) Statement of the problem;
3) Search for a solution to the problem (emphasis on prior knowledge, hypotheses, selection and proof of the most appropriate hypothesis);
4) Problem solving;
5) Check the correctness of the solution.

Creating a problematic situation in the classroom is a difficult didactic task. Each lesson can and should be difficult.

The effectiveness of problem learning is known only when there is a real cognitive problem in the material. To conduct a problem lesson, the teacher must determine in advance the problem situations, determine the methodological tools that determine the progress of students in solving

the problem, and carefully consider all the details of the lesson.

The lesson should be structured in such a way that children are interested in the problem, its importance for the education system and the need to acquire new knowledge. In the first part of the problem lesson, it is important to determine what basic knowledge students can use to solve the problem. At this stage, the teacher's job should be to help students, focus their activities on working with educational material and focus on choosing the right methods of mental activity. Students, under the guidance of a teacher, analyze a problem situation, define cognitive tasks and use their knowledge and life experience to solve them.

The next step in a task-based lesson is self-guided student work.

In the process of research, a common problem can be divided into a number of tasks associated with observing certain important characteristics of an object (object) or event, or identifying important and insignificant characteristics of the object under study. Thinking actions such as comparison, analysis, synthesis and generalization are widely used in research.

Achieving the ability of students to independently solve learning problems is one of the most important characteristics of problem-based learning, and this is a much more difficult task for the teacher. In this case, the teacher should only direct the work of the students, help them only when necessary, but never take their place, not solve complex problems for them. In grade 2 we give an example of a problematic lesson on plants in early spring. The class follows a spring tour in which students observe how the Sun's height changes throughout the day, how the length of the day increases, and how warming affects plants and animals.

During the introductory speech, students are invited to talk about the changes taking place in wildlife and inanimate nature in early spring. They find that the trees in the alley are bare, the ground is covered with a layer of rotten leaves, but some plants (daisies, violets, chrysanthemums, tulips, etc.) are in bloom. The concept of "early flowering plants" is introduced into the conversation, its meaning is explained, and then it is explained why the listed plants are called early flowering plants.

These plants are now familiar to children on a field trip, so the teacher asks questions to make sure the students notice the difference. To do this, write on the board the names of the plants: purple, chrysanthemum, chamomile, tulip. Students read the names, point to the plant from the herbarium or visual, and pronounce the name.

You will then be asked to review and describe each of the listed plants. By comparing plant structure, the teacher uses a task-based learning approach to determine why tulips, daisies, violets, and daisies bloom early. Students should be able to draw conclusions about the similarities and differences in the appearance of plants.

This knowledge will form the basis for learning new material in the classroom and a complete problem solution.

Completing the assignments before the introductory story, the teacher determines the similarity of plants not only in the above-ground, but also in the underground parts, and ends his story by showing the roots of purple, chrysanthemum, chamomile and tulip.

Taking into account the age characteristics of second graders, their lack of the necessary botanical knowledge and the complexity of the task, the teacher invites students to make various comments about the early maturing plants shown. Draws attention to the fact that with all early flowering in plants, the underground parts are thickened. Looking and comparing the underground parts, children notice that they differ in chamomile and lilac shades. The teacher points out that the underground part of the violet is called the rhizome, the tulip, and the tulip is called the bulb. Bulbs and rhizomes store nutrients in the fall that help plants grow and flower earlier. Then the teacher

cuts off the rhizomes with onions and offers to see their internal structure.

Based on student observations during the field trip, the teacher will determine where they saw early flowering plants (where the sun shines the most). Summarizing the answers, the teacher leads the students to the conclusion that early flowering plants accumulate nutrients in the underground parts during the year, which plants use in spring. This type of nutrient accumulation helps speed up the growth process in the spring. Students should explain early flowering by food supplies and rising temperatures in spring.

Thus, the problematic presentation of educational material ensures its validation and conscious assimilation of the required amount of knowledge, increases interest in them and activates the thinking of children.

In addition, problem solving allows students to express their personal assumptions and choose from them only those that are correct, that is, teach logical thinking. It is also important to note that problem solving is more emotional and therefore increases interest in learning.

There are also those who argue that problematic knowledge can only be used in high school, making it difficult for younger students. The experience of advanced teachers shows that this is not the case. Obviously, in elementary grades there should be only elements of problem learning, and the entire lesson should not be devoted to research and solving problems that tire children and reduce their cognitive activity. On the other hand, problem-based learning activates them in the classroom and in practice.

Problem solving and independent problem solving stimulate children's interest in learning, that is, their desire to acquire knowledge and learn to solve problems.

**Refrences:**

1. Nuritdinova M. "Methods of teaching science", -T.: Teacher, 2005.
2. Natural sciences: Textbook for 4 grades of secondary schools. 5th edition / A. Bakhromov, Sh. Sharipov, M. Nabieva. - T .: "Shark", 2020. - 120 p.
3. Natural sciences: Textbook for 3 grades. / A.Bakhromov, Sh.Sharipov, M.Nabieva. Chief editor A. Nigmatov. Edition 6 revised and enlarged. - T .: NMIU them. Cholpona, 2019 . - 128 p.
4. E-learning resources: 1. www. Ziyonet.uz 2.www.edu.uz