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FORMATION OF NON-STANDARD THINKING IN THE LESSONS OF MATHEMATICS IN JUNIOR SCHOOLCHILDREN

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A B S T R A C T

The article is devoted to an important and significant topic for primary general education - the formation of non-standard thinking in mathematics lessons for younger students. Approaches to the formation of creative thinking of primary school students are analyzed, the main types of non-standard arithmetic problems are described, and solutions to these issues are given.

K E Y W O R D S

non-standard tasks, logical thinking, extracurricular activities, creative thinking.

Introduction

For the modern school, the problem of developing the creative abilities of students is extremely important. In this regard, the role of the school in the education of active, enterprising, non-standard-minded people is increasing. The development of creative abilities of students is important at all stages of schooling, but the formation of non-standard thinking in primary school age is of particular importance. Currently, there is an acute social need for creativity and creative individuals. The development of non-standard thinking among schoolchildren is one of the most important tasks in today's school. The desire to realize oneself, to show one's capabilities is the guiding principle that manifests itself in all forms of human life - the desire for development, expansion, improvement, maturity, the tendency to express and manifest all the abilities of the organism and the "I".

It is clear that the foundations of creative thinking are only being laid in the primary grades, but it is during this period that the first steps in this direction must be taken. Younger schoolchildren are most receptive to new information and new ways of acting; children show a need and desire for learning, and here, the main thing is to reinforce their desire with something new, non-standard. For the formation of creative thinking, it is important that the relationship between the processes of thinking and speech is not constant, but variable, that is, thinking and speech do not develop in parallel and not evenly, so the teacher needs to use such teaching methods and techniques in which these processes go almost level, as it all depends on the teacher.

At present, the Ministry of Public Education pays great attention to the development of mathematical abilities of younger students. Developing math skills is very important. That is why the teacher needs to create an atmosphere in which each child could show his own initiative, independence to reveal his opinion, as well as his knowledge, skills, and creative possibilities. But mathematics is a complex

subject, and in order to form students' creative thinking, it is necessary to go beyond the educational material and use non-standard tasks in the learning process.

The systematic use in mathematics lessons and extracurricular activities of special tasks and tasks aimed at developing logical thinking expands the mathematical horizons of younger students and allows them to more confidently navigate the simplest patterns of the reality around them and more actively use mathematical knowledge in everyday life. Non-standard tasks require increased attention to the analysis of the condition and the construction of a chain of interrelated logical reasoning. They allow you to carry out a thought process that is associated with the use of concepts, with their operation, as well as with various mathematical constructions. The child must understand and accept the learning task, that is, it must be correlated with the need-motivational sphere of the personality. That is, non-standard tasks should be understandable to the child, but at the same time cause difficulty, which is important for the formation of creative thinking.

The concept of "non-standard task" was most precisely formulated by A.Z. Zak: "Non-standard problems are those for which there are no general rules and regulations in the course of mathematics that determine the exact program for solving them." YES. Sergeeva clarifies this concept, introduces a definition of a non-standard arithmetic problem: "this is a text problem in which it is required to calculate the value of a certain quantity using arithmetic operations on numbers, and for which there are no general rules and regulations in the course of mathematics that define the exact solution program."

The main work for the development of logical thinking should be carried out with the task. Indeed, in any task there are great opportunities for the development of logical thinking.

Non-standard logical tasks are a great tool for such development. The greatest effect in this case can be achieved as a result of applying different forms of work on the task:

1. Work on the solved problem. Many students only after repeated analysis realize the plan for solving the problem. This is the way to develop a solid knowledge of mathematics. Of course, repeating the analysis takes time, but it pays off.
2. Solving problems in different ways. Little attention is paid to solving problems in different ways, mainly due to lack of time. But this skill indicates a fairly high mathematical development. In addition, the habit of finding another way to solve will play a big role in the future. But I believe that this is not available to all students, but only to those who love mathematics, have special mathematical abilities.
3. Correctly organized way of analyzing the problem - by question or from data to question.
4. Representation of the situation described in the task (draw a "picture"). The teacher draws the attention of the children to the details that must be presented, and which can be omitted. Imaginary participation in this situation. Breaking down the text of the task into meaningful parts. Modeling the situation with the help of a drawing, drawing.
5. Self-compilation of tasks by students.
6. Problems with missing data that contribute to the development of non-template analysis.
7. The task of defining patterns aimed at developing the ability to independently analyze the situation and formulate hypotheses for the transformation of this situation.
8. The task for the formation of the ability to conduct deductive reasoning (when solving them, students must be smart, guess that the problem is not solved at all or that there is extra data in the problem or there is not enough data).

As a result of repeated changing increasingly complex tasks, the mind of the child becomes sharper, and he himself becomes more resourceful and quick-witted. Children change their approach to solving problems, it becomes more flexible, especially the skill of solving problems that have several solutions, tasks for combined actions develops. Students' reasoning becomes consistent, evidentiary, logical. Interest in the subject increases, originality of thinking is formed, the ability to analyze, compare, generalize and apply knowledge in non-standard situations.

Thus, it was concluded that if a teacher systematically and purposefully uses non-standard tasks in mathematics lessons, this contributes to the development of logical thinking of younger students.

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