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## **THE DEVELOPMENT OF LOGICAL THINKING OF PRIMARY SCHOOLCHILDREN AT THE LESSONS OF MATHEMATICS BY MEANS OF GAME TECHNOLOGIES**

At the stage of reforming the education system, the main goal of a comprehensive school is the harmonious development of the individual. One of the aspects of the process of forming the personal qualities of a schoolchild is to ensure the appropriate level of development of their logical thinking, which is a necessary prerequisite for the adaptation of pupils to social, professional, and cultural life in society. The problem of formation and development of logical thinking of primary schoolchildren has recently been the main task of the school and is becoming more and more relevant. In primary school, pupils have significant reserves of development. When a child enters school under the influence of education, the restructuring of all his cognitive processes begins. Primary school age is productive in the development of logical thinking. This is due to the fact that pupils are included in activities and systems of interpersonal relations that are new to them, which require them to have new psychological qualities. Helping pupils to fully demonstrate their abilities, to develop initiative, independence, and creative potential is one of the main tasks of a modern school.

A child's thinking is developed in one way or another by every general education subject taught in primary school. However, mathematics has a special place among other subjects. The logical thinking of primary schoolchildren is based on the solution of non-standard tasks in their unity: learning, education and development. This thinking is characterized by the superiority of conceptual content, it includes such operations as comparison, analysis, synthesis, abstraction and generalization.

V. Sukhomlynsky observed the progress of children's thinking, and the observations confirmed that, first of all, it is necessary to teach children to comprehend a number of objects, phenomena, events, and to understand the connections between them [1, p. 208]. The process of cultivating a culture of thinking is quite long. Therefore, it should begin with the first years of a child's education at school at the level corresponding to his age, since not only the mathematical culture of students is formed, but also the skills to solve vital and necessary tasks are developed [2, p. 21].

Child-oriented primary education strives to purposefully use pedagogical technologies, especially games, in the educational process, as they have great pedagogical potential and to the greatest extent create a comfortable atmosphere for students at school. The game is necessarily built on interest and pleasure, and therefore, learning in the game, she does not suspect that she is learning something. In the game, the child does not feel tired and is in a positive emotional state [5, p.83].

Many scientists of Ukrainian and foreign pedagogy were engaged in the study of the problem of the game and its use in the educational process, in particular, such

scientists as: Plato, H. Spencer, F. Schiller, J. Dewey, J. Piaget, S. Rubinstein, J. AT. Dekroli, K. Ushinskyi, D. Elkonin, O. Leontiev, L. Vygotskyi, A. Makarenko, V. Sukhomlynskyi, O. Savchenko, L. Horuzha, N. Bibik, N. Kudykina and others.

For the development of children's logical thinking, logical-mathematical games with objects, with pictures and models, and verbal games are held. When organizing children's play activities, one should be guided by the words of the famous psychologist O.V. Zaporizhzhia: "We need to ensure that the didactic game is not only a form of learning individual knowledge and skills, but also contributes to the overall development of the child, serves the formation of his abilities".

To develop the flexibility of logical thinking and maintain children's interest in knowledge, you can give tasks from different sections in one lesson. It is desirable to use the game form of classes as often as possible, to alternate individual work of children with collective work in groups. It is advisable to encourage children to create similar tasks and games on their own, as this helps to deepen the understanding of the material being studied.

#### Didactic games for the development of logical thinking:

- *Magic squares* (Find a regularity in the arrangement of numbers and shapes, and then fill an empty cell or several cells.)
- The game "*Magic transformations*". (Turn the geometric shapes into some objects - little men, animals, fantastic creatures and other funny shapes.)
- *Labyrinth*. (Find moves between tangled lines.)
- *Crafty beads*. (Having established the regularity of the arrangement of numbers in a line, add a few more.)
- *Numerical puzzles*. (Decipher the examples written using letters (the same letters indicate the same numbers.))
- *Interesting figures*. (Find a point on the figure from which you can circle the entire figure without taking your hands off and without repeating any line twice.)
- *Logical chains*. (Trace how the numbers change in the first picture; use this pattern when filling in the empty chain rings in the following pictures.)
- *Bubbles*. (Find the relationship between the numbers in the circles and the number of dots. Write the corresponding numbers in the following pictures.)
- *The sixth is redundant*. (One of the numbers does not contain the signs by which the rest of the numbers can be combined. Find this number and indicate the sign that unites the rest of the numbers.)
- *Logical colouring*. (Yellow, blue, green, and red pencils are needed to paint these beautiful pyramids. Only very clever children paint pyramids: there are four colors everywhere, and the rings must be different.)

The systematic use in mathematics lessons and extracurricular activities of special game tasks aimed at the development of logical thinking expands the mathematical horizons of younger schoolchildren and allows them to more confidently navigate the simplest laws of life, as well as to more actively use mathematical knowledge in everyday life.

Therefore, the most important task of mathematical education is to arm students with general methods of thinking, spatial imagination, development of the ability to

understand the content of the given task, the ability to think logically, learn the skills of logical thinking.

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