



FORMS OF THINKING IN THE PROCESS OF STUDYING MATHEMATICS

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ABSTRACT: - The article defines the possibilities, highlights the levels of formation and characterizes the main stages of the methodology for the formation of thinking techniques in the process of teaching mathematics.

KEYWORDS: Mental operations, methods of thinking, levels of formation, methods of formation, teaching mathematics

INTRODUCTION

Strong assimilation of mathematical knowledge is impossible without purposeful development of thinking. Therefore, the development of students' thinking is one of the main tasks of modern school education. In psychology, thinking is defined as the selection in the mind of a person of certain aspects and

properties of the displayed object and putting them into appropriate relationships with other objects in order to obtain new knowledge. Thinking is an active process of reflecting the objective world in the human mind.

The structure of individual thoughts and their special combinations are called forms of

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thinking. All forms of thinking reflect the forms of existence of real objects. The correctness of the forms of thinking provides a correct objective study of objects and phenomena of reality by a person, provides a solid and reliable system of knowledge about the world around us. It is clear what a great role for a teacher of mathematics is the study of the forms of thinking, their manifestation in students in the learning process.

From the point of view of formal logic, thinking is characterized by three main forms: concepts, judgments, conclusions.

Let us explain the manifestations of these basic forms of thinking with some examples. Consider the following sentences expressing a certain thought:

Bisector of an angle - a ray emanating from the vertex of an angle and dividing this angle into two equal angles.

Quadrilateral - This is a geometric figure consisting of four points, no three of which lie on the same straight line, and four segments connecting these points in series.

The common feature of the above sentences is that they characterize some semantic arrangement. These sentences express what are called concepts.

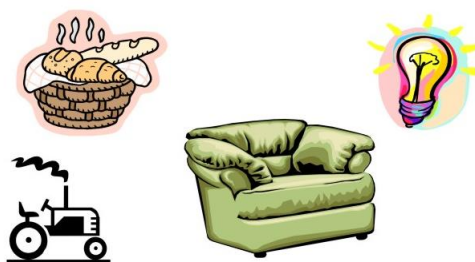
Number is one of the basic concepts of mathematics used for quantitative characteristics, comparison, numbering of objects and their parts.

Oral and written numbering of numbers from 1 to 10 is studied jointly. The study of each number is carried out in a certain sequence:

1. Number formation.
2. Finding single objects and groups that are characterized by a given number.
3. Exercises in counting in order to consolidate the quantitative and ordinal relations of numbers in the natural series.
4. Comparison of numbers by size.
5. Familiarization with printed and written figures.
6. Work on correlating the number and the number of objects.

These proposals are characterized by some of the statements contained in them, which may also need to be substantiated. These sentences express a product of thought called a judgment.

Task 1. From the objects shown in the figure, choose an object that belongs to a set of furniture.



Task 2.3 Write down the numbers in digits and write the neighbors of this number:

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five hundred forty-two - _____
 one hundred and seventy one - _____
 three hundred and twelve - _____
 nine hundred - _____
 eight hundred two - _____
 six hundred thirty- _____

A first-grader has visual-figurative thinking, his analysis skills are elementary, the content of generalizations and concepts includes only external and often insignificant signs, so I began to introduce special tasks for working with numbers aimed at developing the cognitive abilities and abilities of children.

For instance:

Find and cross out the extra number. Explain your choice.

a) 1.2, 15.4.5. b) 13.15.18, 5.19. c) 20,13,50,60,10.

-arrange the action signs so that you get the correct answers

a) $1*2*3*4*5=5$. b) $1*2*3*4*5=7$. c) $1*2*3*4*5=9$.

Didactic game "Who can do it?"

In front of each student are cards with numbers from 0 to 10. I write a number on the board (for example, 9). Each student shows two cards with numbers written on them, the sum of which should equal the number written on the board (1 and 8, 2 and 7, 3 and 6). After discussing the options proposed by the children, I write them down on the board, then collectively check and, if necessary, add more possible options).

"Guess what the number is."

1. From the number 9, I subtracted the intended number and got 4. What number did I think?

2. I added 2 to the planned number and got 8. What number did I think?

3. I subtracted 3 from the planned number and got 8. What number did I think?

MATHEMATICAL THINKING

"Mathematical thinking is a definitely abstract theoretical thinking, the objects of which are devoid of any materiality and can be interpreted in the most arbitrary way, provided that the relations given between them are preserved."

Mathematical thinking is not only one of the important components of the process of students' cognitive activity, but also such a component, without the purposeful development of which it is impossible to achieve effective results in teaching the system of mathematical knowledge, skills and abilities.

"The development of mathematical thinking presupposes the ability to discover new connections, mastery of general techniques that can lead to the solution of new problems, to the acquisition of new knowledge. Schoolchildren should form general methods of thinking, and not methods of thinking in a specific situation.

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