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METHODS AND METHODS OF TEACHING ALGEBRAIC MATERIALS IN PRIMARY GRADES

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ABOUT ARTICLE

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Abstract: This article aims to develop the content, forms and methods of increasing the effectiveness of lessons on methods of teaching equations in teaching mathematics in primary grades, and to study its entire system.

INTRODUCTION

In order to implement the requirements of the state standard of primary education, it is an urgent issue to develop methods for teaching mathematics in primary grades, including methods for developing the teaching of equations.

Today, knowledge of mathematics, which is the key to all subjects, requires a teaching style that incorporates logical skills from the teacher when explaining this subject to students. Mathematics taught in primary grades is a component of secondary school mathematics.

Primary mathematics consists of arithmetic of natural numbers and basic quantities. In addition to the teaching tasks of a number of major topics, teaching the concept of equations also plays an important role in primary mathematics. The concept of an equation is used not only in primary grades, but this concept is the main concept studied in mathematics.

The concepts of equalities, inequalities and equations are revealed in an interconnected manner. Work on them is carried out in an integral way with the study of arithmetic material from the first grades.

The initial stage of developing the concepts of equality and inequality is to teach the relations of comparing sets of objects by their quantity (larger, smaller, equal).

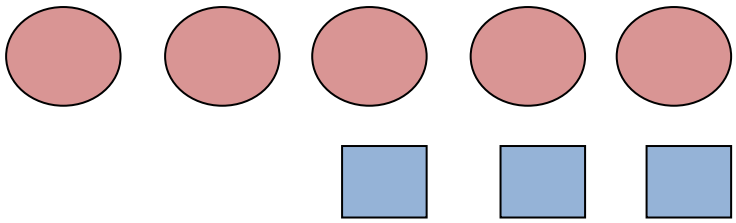
In grades I-II, initial ideas about numerical equations and inequalities are formed. Children receive their first ideas about equality and inequalities already in the preparatory period.

In the third grade, along with repeating the topics of the first and second grades, more complex cases can be considered with students.

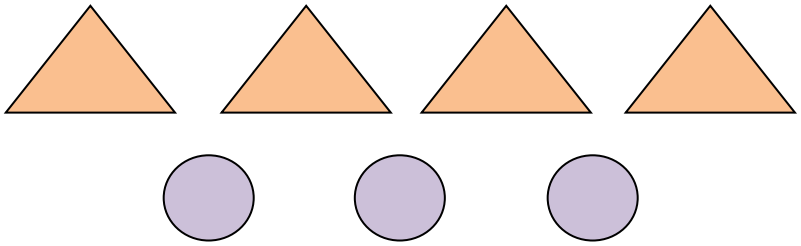
The consciousness of the third and fourth grades, in accordance with the breadth of the thinking horizon of the first and second grade students, requires the teaching of complex equations and inequalities.

It can be scientifically hypothesized that if equations and inequalities are presented in various forms in elementary mathematics lessons, along with solving them, and the solutions are discussed and explained, the quality of students' mathematical calculations related to equations will be higher.

The elementary mathematics course does not provide a clear definition of the concept of "Equation". Students understand this concept in the process of performing specially selected exercises.
If students are thinking about complex things, it can be said that the lesson goal has been achieved.
The concepts of equalities, inequalities and equations are revealed in their interrelationships. Work on them is carried out starting from the 1st grade, in an integral way with the study of arithmetic material. In grades I-II, initial ideas about numerical equality and inequality are formed. Children receive the first ideas about equality and inequality already in the preparatory period. The concepts of “large”, “small”, “equal” are strengthened by establishing a one-valued correspondence between two sets, transforming groups of objects of different quantities into groups of objects of the same quantity (in two ways) and transforming groups of objects of the same quantity into groups of objects of different quantities (in two ways). The work is carried out in this way. The teacher prepares 5 circles on a checkered board.
The teacher . “I will now put squares under the circles, will I put more or less squares?” puts a square under each circle. Children visually match the circle to each square and determine which squares are smaller than the circles (the concepts of "greater" and "equal" are also formed in a similar way).

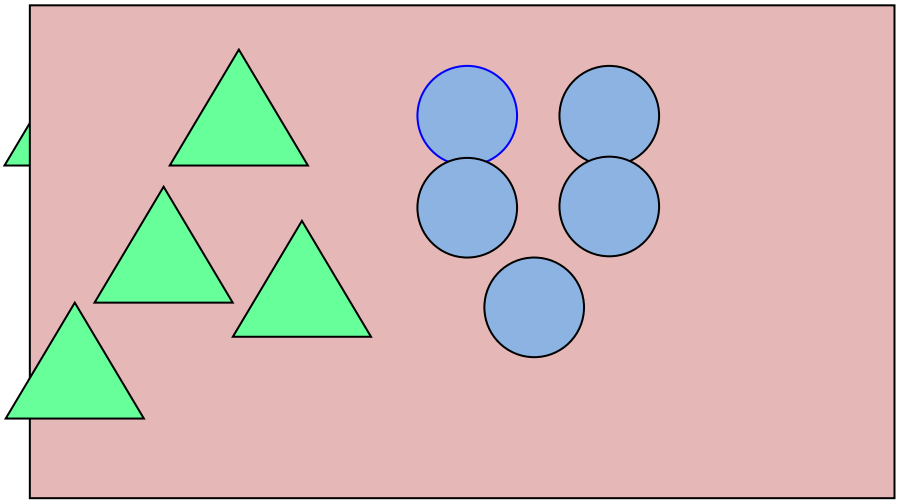


- What should be done so that there are as many squares as there are circles (They quickly find the first method)?
- You need to put more squares. There is a square under each circle, which means they are equal.
- How else can you make circles and squares equal?
The teacher leads the children to the idea that the extra square circles need to be removed.
In the next task, the figures are arranged in any order.



Students find out which figures can be moved under each other and draw conclusions.
The teacher places two vases with flowers. There are white flowers in one vase, and red flowers in the other. Which vase has more flowers? The student takes one flower from each vase and pairs them, and whichever vase has more flowers, that vase has more flowers.
Finally, a situation is created in which it is impossible to move the figures. Red triangles and blue circles are placed on different parts of the poster. Which figures have more? Children connect the figures using threads with plasticine glued to the ends and conclude: “the figures are equal.” At this stage, we explain

to the teacher that comparing sets is not done by counting. Seeing things helps to understand the concepts of “big”, “small”, and “equal” more deeply.



Working with geometric figures greatly helps in the development of spatial imagination, the consolidation of the properties of objects, the formation of the relationships of "large", "small", "equal". Pictures are prepared on posters. Tasks for individual work are distributed in a package. Having established a one-valued correspondence between them, children find the correct answer.

When numbering the first decimal numbers, the signs >, <, = are introduced. The teacher teaches children this way: the tip of the ">" sign always points towards the object with the smallest number. When learning to count objects, the task of comparing numbers is also carried out at the same time (five circles are more than four triangles, therefore, 5 > 4). When studying the formation of a series of natural numbers, such a law is revealed: the further a number is in a natural series, the greater it is. Later, when comparing numbers, children rely on this property. 5 < 7, because in counting, the number 5 is said before the number 7, 9 > 8, because in counting, the number 9 is said after the number 8.

By writing the relations using the signs «>», «<», «=», children practice reading and writing equalities and inequalities.

It is useful to ask such additional questions as: 6 < 7.

1. Name the left and right sides of the inequality.
2. Read the text from right to left, from left to right.
3. Erase the incorrect entries. Why are they incorrect?

9 > 7, 4 > 3, 8 < 9, 7 < 5, 5 > 3, 0 > 4.

4. What numbers can be written instead of 7 to form the correct entry in 7 < 5?
5. What numbers can be put in the boxes□< 7 to form the correct record?

At this stage, the “Arithmetic Scale” is useful. We put 6 identical balls in the left bowl of the balance scale, and 7 such balls in the right bowl. How many balls have a heavier or lighter mass? What should be done to make their masses equal (add one ball or take an extra ball)? Then the bowls are removed. The numbers 6 and 7 are hung on the scale. The number 7 will overtake the number 6. We add 1 to the number 6 to bring it into balance. The masses of the numbers on the scale are chosen so that the sum of the numbers is equal to the sum of the corresponding masses.

Later, when learning to number within 100, 1000, as well as when numbering multi-digit numbers, the comparison of numbers is carried out on the basis of comparing their positions in the natural series, or on the basis of replacing the number with the sum of the additions of the place, or on the basis of

comparing the numbers by the corresponding place: 857 > 785, because 8 hundredths is greater than 7 hundredths.

Comparison of quantities is first carried out based on the comparison of the objects themselves by a given property, and then on the basis of comparing the numerical values of the quantities, for which the given quantities are expressed in the same units.

In conclusion, if equations are combined with the teaching and reinforcement of mathematics in primary grades, the effectiveness of the lesson will increase if:

– students' knowledge of mathematics is ensured to be interesting, conscious and accurate;

–if the content, forms and methods of strengthening students' mathematical imagination and worldview in teaching equations in primary grades are improved;

–if the didactic basis for creating criteria that determine the level of mathematical reinforcement and the level of students' activity in understanding examples and problems and the relationships between them in learning mathematics in primary grades is successfully provided.

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