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Methodology for Forming Calculation Skills in Pupils of Primary Class Through Interactive Methods

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Annotation. This article discusses the content and essence of using interactive methods in the formation of computing skills in elementary school students.

Key words: interactive method, primary education, computing skills, thought, idea

Today, a number of developed countries have accumulated a lot of experience in the use of pedagogical technologies that increase the educational and creative activities of students and guarantee the effectiveness of the educational process, the methods that form the basis of this experience are called interactive methods which conducted with Effective use of methods and tools that respond to modern students, solving the problems of forming students' independent and creative thinking skills is of great importance in the organization of elementary school mathematics lessons. Our state is paying special attention to this problem. The President of our country, Sh.M. Mirziyoyev, said: "We will mobilize all the strength and capabilities of our state and society so that our young people can become independent thinkers, have high intellectual and spiritual potential, become people who are not inferior to their peers in any field in the world, and become happy" - His appeals to the quality of education and its effective organization, especially educating pupils from primary grades as independent thinkers, with high intellectual and spiritual potential, is one of the urgent issues of today. This requires that the future elementary school teacher should have deep knowledge, high skills, and be able to use new pedagogical and information technologies in education.

Mathematical literacy of a primary school pupil depends on the level of calculation skills he has developed. If the pupil's calculation skills are well formed, the qualities of mastering mathematical concepts, quickly and correctly completing educational tasks, and the ability to apply the learned knowledge in practical life situations will be found in the pupil.

Computational competence is understood as a high level of mastery of the calculation methods encountered in the pupil's activity. The fact that the pupil's calculation skills are shaped is explained by the fact that he knows which operations to perform in which order and quickly enough to find the result of an arithmetic operation specific to each method of calculation. Full-fledged computing skills are characterized by such qualities as accuracy, comprehensibility, rationality, generalization, automaticity and consistency.

The teacher can use various interactive methods to develop full-fledged computing skills in the pupil. Below we will talk about the essence and use of some of the interactive methods used in practice.

"Brainstorming" method

This method is widely used in solving problems on a specific topic, and it encourages participants to develop certain skills and abilities to think broadly and comprehensively about the problem and to use their imaginations and ideas in a positive way. In the course of training organized using this method, it is possible to find several original solutions to arbitrary problems. The

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"Brainstorming" method creates conditions for identifying certain concepts and choosing alternative ideas within the selected topics.

When using the "Brainstorming" method during the lesson, the following rules must be followed:

1. Encouraging learners to think broadly within the framework of the problem, to get them to express logical thoughts.
2. The opinions expressed by each pupils are encouraged. The most appropriate ones are selected from the opinions expressed. Stimulation of ideas leads to the birth of new ideas.
3. Each learner can base their own opinions and change them. Summarizing, categorizing, or changing previously expressed opinions prepares the ground for the formation of scientifically based opinions.
4. During training, it is not allowed to control the learners' activities based on standard requirements, to evaluate the opinions expressed by them. When their opinions are evaluated, pupils focus on defending their personal opinions. As a result, new ideas are not presented. Keeping in mind that the main goal of using the method is to encourage learners to think broadly about the problem, it is appropriate to refrain from evaluating their activities.

There is an opportunity to use this method in the performance of educational tasks related to calculation.

In the 3rd grade, pupils are familiar with all calculation methods studied in the primary grade. The pupil knows four arithmetic operations, their properties, and all calculation methods in practice.

The teacher hangs a poster with the following task on the blackboard in order to make the pupils find the values of numerical expressions correctly.

Assignment. Put the parentheses so that the numerical equations are correct:

1) 180 : 20 + 10 *4 = 49
2) 180 : 20 + 10 *4 = 24
3) 180 : 20 + 10 *4 = 3

The purpose of this assignment is to determine whether pupils can perform arithmetic operations correctly and quickly, use the properties of arithmetic operations and calculation methods correctly, and correctly apply the rules for performing operations in parentheses.

Pupils think independently about this task and look for possible solutions. Learners' opinions are listened to and comments are made, each solution option is interpreted.

As a result, the correct solution of the task will be announced to the class.

1) 180 : 20 + 10 *4 = 9 + 40 = 49 (Here, the rules for performing actions without using parentheses are used)
2) 180 : (20 + 10) *4 = 180 : 30 * 4 = 6 * 4 = 24
3) 180 : (20 + 10 *4) = 180 : (20 + 40) = 180 : 60 = 3

Using this method, it is possible to conduct oral calculation exercises with the pupils of the class at the beginning of the lesson. It is possible to organize in several options.

Version 1. Examples are selected in rows. It is recommended to select "Circular examples" for easy teacher control. Depending on the number of pupils in each row, 10-12 examples are selected in such a way that each pupil should complete one example. It is good that it is within the scope of the subjects mastered by the pupils of this class. Then the teacher will have the opportunity to check whether the pupils of the whole class have learned some calculation methods in 5-8 minutes.

For example, in order to check the calculation skills of pupils in 2nd grade out of 100, the following "circular" examples can be given:

1) 7 * 8 2) 56 – 6 3) 50 + 10 4) 60:10
5) 6 + 14 6) 90 + 4 7) 24: 3 8) 8 * 5
9) 40 – 26 10) 14: 2

The starting number in each subsequent example is the calculation of the previous example, and the last example answer represents the first given number in example 1.

2 version. The teacher prepares tasks related to calculation methods. Frantically conducts "quick questions and answers". The questions should not be too difficult, and the answers

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should be short and clear. The question is asked to the class team, whoever raises his hand first is asked.

- Increase the largest two-digit number by 1. What number will be formed? (number of 100)
- When will the difference be zero? (If the denominator is equal to the denominator)
- When is the difference equal to the decrement? (If the denominator is zero)
- If the denominator is increased by 20, and the denominator is increased by 20, what will be the change in the difference? (Difference will not change)
- If we multiply the number 4 four times and add 4 to the result, how many results will be obtained?(20)
- How much more is the largest two-digit number than the smallest two-digit number? (89)
- How does the denominator change if we increase the divisor by 2 times and decrease the divisor by 2 times? (increases by 4 times)
- How many more than the largest even 2-digit number, the smallest odd 2-digit number? (87)
- A rectangle is 8 cm wide and 12 cm tall. What is the perimeter (40 cm)

3 version. Educational games that help to develop the pupils' calculation skills also increase the learners' interests. In games such as "Quick calculator", "Who is quick?", "Stairs by strairs", "Knowledgeable", "Finder", the teacher can choose educational tasks in order to strengthen pupils' calculation methods. As an example, we describe the method of playing the game "Quick Calculator". This game can be played in every elementary school. It can be organized in different ways. Assignments are written on the board corresponding to 3 rows in rows. One person from the line goes out and completes examples of counting. The row that completes the given examples correctly and quickly is the winner. This game is divided into teams (for example, 5-6) and the winners of the team are determined. This game is also held among the winners of the team, and it is possible to determine the prize winner of the class.

"Fifth (sixth, seventh, ...) plus" method

This method is particularly important for pupils to acquire the skills of logical thinking. When using it, the following actions are performed:

- formation of a system of concepts that serves to reveal the essence of the subject being studied;
- achieving the placement of four (five, six, ...) concepts related to the topic and one unrelated concept from the created system;
- assign pupils the task of identifying a concept that does not apply to the topic and removing it from the system;
- encourage pupils to comment on the essence of their actions (in order to strengthen the topic, pupils should be asked to comment on the concepts preserved in the system and justify the logical connection between them).

Being able to show and justify the logical connection between the concepts that illuminate the essence of the subject forms in pupils the skills of independent thinking, the ability to justify their personal approaches, as well as the ability to compare their personal opinions with the opinions of their peers.

Using this method, pupils have the opportunity to improve their calculation skills.

In the 3rd grade mathematics classes, pupils use arithmetic operations, their properties, and calculation methods to complete educational tasks. In this place, mathematic concepts specific to arithmetic operations are strengthened. The teacher writes 4 words related to arithmetic operations on the board. Addressing the pupils, he says that 1 of these words is redundant. Pupils find out which word it is and try to clarify the meaning of these 4 words.

For example, 4 words written on the board: addition, subtraction, multiplication, triangle.

Among these words, pupils say that "more" is a triangle. "Why is it redundant?" to the question, pupils express their opinions. Addition, subtraction, multiplication are arithmetic operations, and "triangle" is a geometric concept. The content of each term is clarified during pupil activity. The properties of each term - for example, arithmetic operations, addition, subtraction, multiplication

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operations can be asked. It is determined that the operations of addition, multiplication have the properties of substitution, grouping, zero absorption, and are explained with examples.
Add a sum to a number, add a number to a sum, subtract a sum from a number, subtract a number from a sum, add a sum to a sum. The properties of subtracting the sum from the sum are also determined, and examples of methods of calculation related to them are considered.
This method helps to attract the attention of the pupils and to find the content of such qualities as comparison and conclusion.
In order to strengthen pupils' knowledge of finding the sum of a number, to develop the skills of practical application of calculation methods, we will review the following assignments.
Assignment. Look carefully at the following examples. Which example is redundant? What for?

1) 12 +(8+ 4)
2) 16 + (8 + 4)
3) 20 +(10+2)
4) 24 – (4 + 3)

When the pupil performs this task based on the method mentioned above, examples 1, 2, and 3 are similar to each other, that is, about adding a sum to a number.
Example 4 is different; it is about subtracting a sum from a number. The teacher asks how the above examples can be done. The pupils say that the examples can be done in different ways. 3 ways to add a sum to a number, sum from a number They can explain that there are 3 ways of subtracting the end and convenient calculation methods in these examples:
A convenient calculation method for solving example 1:
12 + (8+ 4) = (12 + 8)+ 4 = 20 + 4 = 24
A convenient calculation method for solving example 2:
16 + (8 + 4) = (16 + 4) + 8 = 20 + 8 = 28
A convenient calculation method for solving example 3:
20 +(10+2) = (20 + 10) + 2 = 30 + 2 = 32
A convenient calculation method for solving example 4:
24 – (4 + 3) = (24 – 4) – 3 = 20 – 3 = 17
In the process of completing the last example 4, some pupils may make a typical mistake, relying on the method of analogy, that is, using the calculation method of the property "adding a sum to a number":
24 – (4 + 3) = 24 – 4 + 3 = 20 + 3 = 23
The main reason for the error in solving this example is that the reader is mistakenly thought that there is a "+" sign in front of the number 3 in the parentheses in the example. In order to avoid such typical mistakes, the teacher should thoroughly explain the property of "subtracting the sum from a number" to the pupils, and give pupils examples that illustrate a number of calculation methods related to this calculation property.

The "Venn diagram" method serves to compare two or more concepts and objects and to depict the result in a drawing. It was named after the English scientist John Venna (1834-1923), who was involved in the theory of logic.

It usually consists of two circles, each circle defining a set of properties of an object. If two objects have similar, identical properties, the circles depicting these objects intersect. If they do not have the same, similar properties, these circles do not intersect. In the intersection area common to two circles, they have the same similar properties, and in the other areas, the properties of the objects are different from each other. When more than two objects are compared, more than two circles are used, respectively. The purpose of using the "Venn diagram" method is to form pupils' skills in comparing two or more subjects and concepts, identifying their differences and common aspects.

Steps to implement the method:

Step 1. Pupils are divided into two groups and each group is given one object (concept or subject).

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Step 2. Two intersecting circles are drawn on the board and divided into groups.

Step 3. Groups take turns writing the characteristics of their objects in their circles.

Step 4. After writing down the properties, it is determined whether these two objects have common properties or not. The records of common features in the circles are deleted and they are written as one in the common field.

Step 5. Pupils will analyze a Venn diagram created by comparing two objects. The common and different aspects of these objects are once again paid attention to.

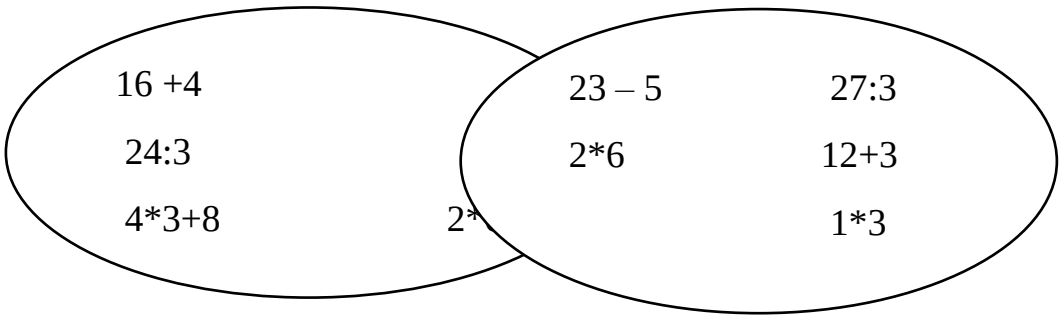
This method can be used to determine the formation of pupils' calculation skills. The use of Venn diagrams in order to strengthen pupils' understanding of the order of performing arithmetic operations, correct and quick answers to examples, and the ability to classify equal numbers of expressions according to their values is effective. This method can be used in all classes of primary education. As an example, in the 2nd grade, we will look at the following tasks on comparing the results of arithmetic operations and dividing them into categories (classes).

The teacher writes examples of row counting on the board. He says that among these examples, those whose answer is divisible by 2 are divided into one class, and those whose answer is divisible by 3 are divided into the second class. Then there are examples where his answer is divisible by both 2 and 3. They apply to both classes. Theoretically speaking, those divisible by 2 form a set A, and those divisible by 3 form a set B, and those divisible by 2 and 3 belong to the intersection of sets A and B.

Assignment. According to the example answer, divide them into 2 classes. Show the results in a Venn diagram.

16 +4; 23 – 5 ; 2*6; 24 : 3; 4*3 +8; 27: 3; 12+3; 1*3

When giving this task to the pupils, the teacher should give the following instructions. Solve the examples and enter those whose answer is divisible by 2 in column 1, those whose answer is divisible by 3 in column 3, and those whose answer is divisible by both 2 and 3 in column 2. Circle them with a pencil. The result is a Venn diagram.



Primary school pupils have the opportunity to use many interactive methods in the educational process in order to develop computing skills. The appropriate use of such methods in elementary school mathematics lessons has a good effect on the growth of pupils' calculation skills.

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