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METHODS AND TOOLS FOR FORMING CALCULATION SKILLS IN STUDENTS THROUGH INTERACTIVE METHODS IN PRIMARY CLASS MATHEMATICS EDUCATION

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Abstract:

In this article, methods and means of forming students' calculation skills through interactive methods in primary grade mathematics education, and how to use them in the course of the lesson are described through examples.

Keywords:

interactive education, calculation skills, calculation method, tool, arithmetic operation.

Introduction

Primary education is the foundation of general education.In primary education, the student is formed the skills of reading, writing, counting, reasoning, thinking. One of the important tasks facing primary education is the formation of computational skills in the student. This huge task is now also considered one of the main tasks of a primary school teacher.

Currently, when conducting classes, teachers use interactive methods at the limit of the possibility. In the future, these methods require to some extent the organization of Education based on interactive technology. This is how the differences between the two concepts, namely the interactive method and the concepts of technology, can be explained in our opinion.

Interactive learning method-is carried out by each teacher at the level of available tools and their own capabilities. In this, each student assimilates to a different extent in accordance with their motives and intellectual level.

Interactive learning technology-ensures that each teacher conducts a training that they master as provided for by all students. In doing so, each student assimilates the training to the extent foreseen in advance, with their motives and intellectual level.

Literature analysis. Below we will try to interpret the methods of verbal accounting, their theoretical-methodological aspects, which are studied in elementary grades.

Calculation methods studied in the 1st grade mathematics course

Chapter 3 of the textbook “Mathematics”, published in 2021, was called “ add and subtract in 10”.

Methods of addition and subtraction calculation within 10 are envisaged to be wrapped in the following steps:

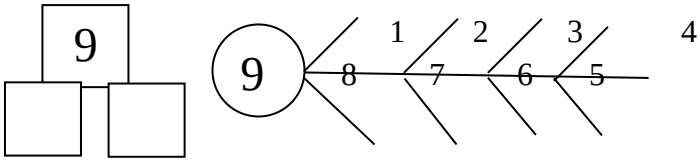
Stage 1. The methods of adding and subtracting 1 are based on the principle of generating numbers within these 10.Each number is formed by adding 1 to the number preceding it, or by subtracting 1 from the number after itself.

Stage 2. Introducing methods for adding and subtracting 2, 3, 4 to a number within 10. These calculation methods are given in the textbook the addition and subtraction within 10 in the way of increasing and decreasing the number by several units.

Stage 3. The cases of adding the numbers 5, 6, 7, 8, 9 to the number based on the property of the addition to the displacement and subtracting the numbers 5, 6, 7, 8, 9 from the number are studied. An important task of this period is to thoroughly study the composition of numbers within 10.

Various tools occupy an important place in the study of the decimal composition of a number. As an example, we will give some tools for the composition of the number 9:

9	1	2	3	4	5
	8	7	6	5	4



An important place in the addition and subtraction of numbers in 10 is occupied by the methods of adding and subtracting partitions.

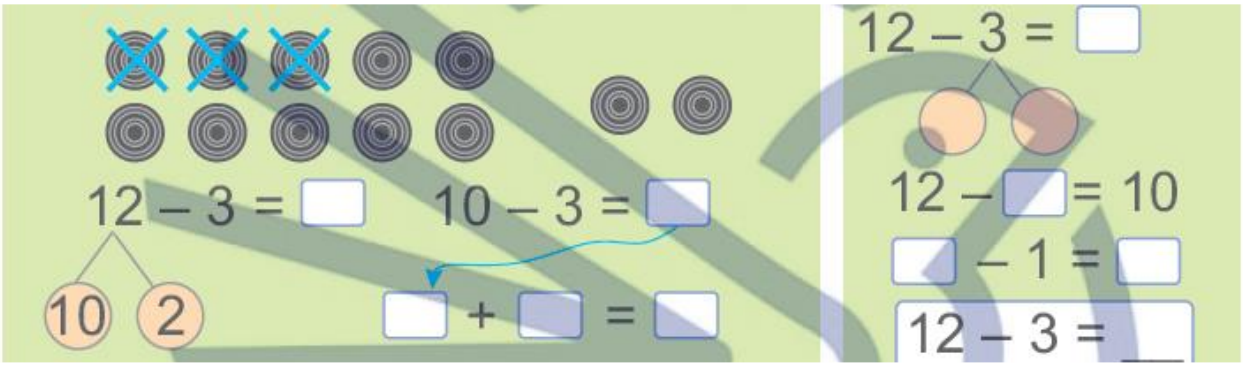
For example: 1) 5 +2 = 5 +1 +1 2) 7 – 2 = 7 - 1 – 1

1)3 + 4 = 3+ 2 +2 4) 6 – 4 = 6 – 2 – 2

The method of adding and subtracting a fraction is based on the properties of adding a sum to a number , subtracting a sum from a number.

Subtraction through decimal in calculation methods, the 2nd type is used: subtracting the sum from the number and subtracting the sum from the sum (the names of the exponents are not told to readers).

We will comment on the method of calculating the expression number ” 12-3".Statement of the calculation method presented in the textbook of Mathematics Grade 1 (p. 93)



12 – 3 = 12 – 2 – 1 = 10 – 1 = 9

2 1

In this method of calculation, the composition of the number, the knowledge of readers regarding the property of subtracting the sum from the number were used.

Method 2. . 12 – 3 = 9 + 3 – 3 = 9
9/\3

In this method, the two-digit number within 20 is subtracted using the knowledge of the students regarding the composition and subtraction of the sum from the sum.

Method 3. This calculation method is not included in the school program, but provides a quick and convenient solution of the value of the expression. It is required to know the composition of the number 12. 2 units of equality are then transferred and subtracted from 10 to 3, adding the result to 2.

12 – 3 = 2 + 7 = 9

10 – 3 = 7

Research methodology.As a result of the interactive method, thanks to interaction between the teacher and students, the effectiveness of the lesson increases, the student learns the new lesson through independent action, reflection, discussion, independently of the set goal himself tries to find answers in small groups with the active participation of the student in the lesson.Indeed, in the process of applying such techniques, readers think, both evaluate, write, speak and listen, the most important thing is that they themselves are actively involved.

In the formation of full-fledged computing skills in a student, the teacher can use various interactive techniques.Below we will talk about the essence and use of several of the interactive techniques used in practice.

Method "brainstorming"

Within the framework of the topics selected from this method, it creates conditions for identifying certain concepts and choosing ideas that are an alternative to them.

When using the method of "brainstorming" in the course of the lesson, it is required to follow the following rules:

1. Encourage students to think widely within the problem, to achieve their logical reasoning.

2. The opinions expressed by each student are encouraged. Among the expressed opinions, the most optimal ones are selected. The stimulation of thoughts leads to the birth of the next new thoughts.

3. Each student can be based on his personal thoughts and change them. Generalizing, categorizing or changing the previously expressed thoughts sets the stage for the formation of scientifically based thoughts.

4. In the process of training, it is not allowed to control the activities of students on the basis of standard requirements, to evaluate the opinions expressed by them. When their opinions are evaluated, the students focus their attention on protecting their personal opinions. As a result, new thoughts are not put forward. It is advisable to abandon the assessment of their activities, keeping in mind that the main goal pursued by the use of the method is to motivate students to think widely about the problem.

There is an opportunity to use this method when performing educational tasks on the calculation.

In the 3rd grade, tudent are familiar with all calculation method that are learned in elementary chool. ladi.To ' RT arithmetic applies, their properties and all calculation methods the reader knows support in practice.

The teacher hangs a poster on the board with the following assignment in order to find out if the students correctly find the values of the numerical expressions.

Assignment. Place the brackets 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 giving this task is to determine whether students can correctly and quickly perform arithmetic operations, correctly use the properties of arithmetic operations and calculation methods, correctly apply the rules for performing actions in parentheses expressions in practice. On this task, students themselves think independently and look for options for its possible solution. Reader's opinions are listened to feedback is maintained, each solution option is commented. As a result, the correct solution option of the assignment is declared to the class.

1) 180 : 20 + 10 *4 = 9 + 40 = 49 (Here the rules for performing actions without using braces are relied on)
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 at the beginning of the lesson with students in the form of oghzaki account exercises. It has the possibility of organizing in several options.

Option 1. Examples by rows are given selectively. In order for the teacher's supervision to be easy, it is preferable to choose "Circle examples". 10-12 examples are selected according to the number of readers in each time they are read in such a way that each reader must follow one example. It is good that it is within the framework of the topics that the students of this class have mastered. Then the teacher will have the opportunity to check whether the students of the entire class have learned some calculation methods in 5-8 minutes.

For example, the following "circular" examples can be given for the purpose of checking the computational skills of students in the 2nd grade within 100:

1) 7* 6 2) 42 – 2 3) 40 + 10 4) 50:10
5) 5+ 15 6) 20 + 4 7) 24: 3 8) 8 * 5
9) 40 – 26 10) 14 : 2

The number that begins in each subsequent example consists of the previous example answer, and the last example answer represents the first given number in Example 1.

Option 2. The teacher draws up tasks for calculation methods. Frantally conducts "quick questions and answers". In this case, it is advisable that the questions are not too difficult, the answers are short clear. The question is asked to the class team, whoever raises the first hand is asked.For example, we give examples of questions and answers that are held with students in Grade 2:

- Make the largest two-digit number 1. What number is formed?
(Number of 100)
- When will the subtraction be zero? (If the divisor is equal to the diminutive)
- When is the subtraction equal to the diminutive? (When the divisor is zero)
- What is the change in the subtraction if the diminutive is increased by 20 and the divisor is also increased by 20? (The extract does not change)
- How many are formed we add 4 to the result, increasing the number of 4 times?(20)
- How many is the largest two-digit number more than the smallest 2-digit number?(89)
- How does the Division change if we increase the divisor by 2 times and reduce the divisor by 2 times? (Increases 4 times)
- The largest pair is a 2-digit number, the smallest odd is more than a 2-digit number? (87)
- Straight rectangle width 8 cm, height 12 cm. The perimeter is equal to what (40 cm)

Option 3. Educational games that contribute to the formation of students 'computational skills also increase students' interests. "Quick accountant", “who is nimble? In such games as “fornication”, “knowledgeable”, "Topagon", the teacher can choose educational assignments in order to strengthen the methods of calculation of students. As an example, we will describe the methodology for conducting the game “fast accountant”. This game can be played in every elementary grades. It is also possible to organize it in different options. Tasks are written on a board corresponding to 3 rows in rows. Leaving one person in the row, he follows examples of counting. Whichever series you complete the given examples correctly and quickly, is the winner of that series. It will be possible to divide this game into teams (for example, 5-6), determine the winners in the team, and among the winners of the team this game will also be played and determine the winner of the class “winner accountant”.

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

This method is of particular importance in the fact that students have the skills of logical thinking. When applying it, the following actions are performed:

- formation of a system of concepts that serve to reveal the essence of the subject being studied;
- four (five, six, which relate to the subject from the resulting system ...) and achieve the place of one concept that does not apply;
- assign students the task of identifying a concept that does not apply to the subject and removing it from the system;
- encourage students to comment on the nature of their actions (in order to strengthen the topic, it is necessary to demand that students also comment on the concepts preserved in the system and justify the logical connection between them).

Being able to show and substantiate the logical connection between concepts that cover the essence of the topic also forms in students the skills of independent thinking, the ability to substantiate their personal approaches, as well as the ability to compare personal judgments with the opinions of peers among themselves.

With this method, students have the opportunity to grow their account skills.

This technique, while attracting the attention of students, helps to make content such qualities as comparison, conclusion.

We comment on the following tasks in order to strengthen the knowledge of students about finding the addition of the sum to the number, to develop the skills of practical implementation of calculation methods related to it.

Assignment. Look carefully at the examples below. Which example is superfluous? Why?

1) 14 +(6+ 2)
2) 18 + (7+ 2)
3) 30 +(10+4)
4) 24 – (4 + 2)

As long as this assignment is performed by the reader based on the above-mentioned method, these examples are

1 -, 2 -, 3-are similar to each other, that is, to add the sum to the number, and Example 4 is different, which is about subtracting the sum from the number. The teacher asks in what ways the above examples can be done. Readers say that examples can be done in different ways. They can comment on the fact that there are 3 ways to add a sum to a number, 3 ways to subtract a sum from a number, and convenient calculation methods in these examples:

Convenient calculation method in Example 1 solution:

14+ (6+ 2) = (14 + 6)+ 2 = 20 + 2= 22

Convenient calculation method in Example 2 solution:

18 + (7 + 2) = (18 + 2) + 7 = 20 + 7 = 27

Convenient calculation method in Example 3 solution:

30 +(10+4) = (30 + 10) + 4 = 40 + 4 = 44

Convenient calculation method in Example 4 solution:

24 – (4 + 2) = (24 – 4) – 2= 20 – 2 = 18

In the process of performing the last example 4, Some readers may make a typical error, relying on the analogy method, that is, supporting the calculation method on the property of “adding a sum to a number:

24 – (4 + 2) = 24 – 4 + 2 = 20 + 2 = 22

The main reason for the error made when solving this example is that in the case of an example, the reader mistakenly thinks that there is a “+” sign in front of the number 2 in parentheses. To avoid such typical mistakes, the teacher must thoroughly explain to the students the property of “subtracting the sum from the number and solve the examples to the students that name a number of calculation methods related to this calculation property.

Method "working with red and green cards"

It is extremely convenient to apply this method when working with students in bulk and in Group form. The method can be used in the organization of a quick question and answer to strengthening the topic at the end of training. The method is used on the basis of the organization of the following actions:

- according to the number of students of the class, red and green cards are prepared for each student, as well as a questionnaire on the topic;
- from the questionnaire, the emphasis is on the place of questions that can be answered in the form of "yes" or "no" ;
- red and green cards are distributed to each student;
- students will be taught that red cards mean" confirmation "and green cards mean" denial;
- students respond to questions asked by the teacher based on the indication of cards that mean "confirmation" or "denial".

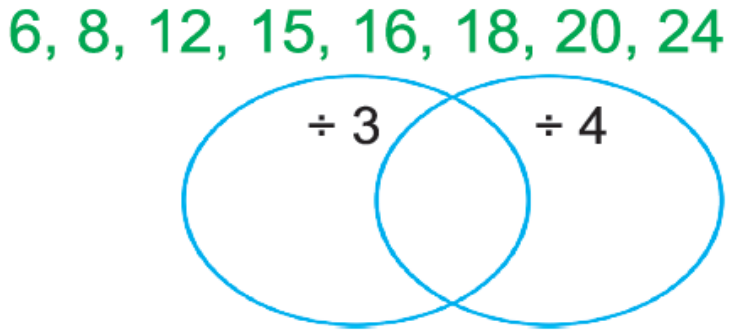
Analysis and results. There are specific differences between interactive methods and traditional methods of education, and it is necessary for each teacher to compare these differences, correctly take into account their advantages and disadvantages in relation to each other when planning a lesson and choosing methods for conducting it. It provides for the correct selection of interactive or other techniques that are most suitable for training on each topic, taking into account the features of the educational subject in the lessons of the issuance of new knowledge, the formation, development, consolidation of skills, repetition of knowledge, practical application. To the use of selected techniques will ensure that the training is fun and effective.

The purpose of using the method" Venn diagram": to form skills in students when comparing two or more subjects and concepts, to identify their differences and common sides.

This method can be used to determine the formation of students ' computational skills. It is good to use Venn diagrams in order to strengthen the students ' knowledge of the formation of dreamers of the procedure for performing arithmetic operations, correct and quick execution of example answers, and the classification of exactly equal numbers of expressions according to their values. This method can be used in all classes of primary education. As an example, we will look at the following assignment given in the 3rd chapter 3 lesson of the 3rd grade mathematics textbook. We place the corresponding one from the numbers given to each part of the Venn diagrams.

The teacher writes a series of numbers on the board. Of these numbers, those that divide by 3 say that they divide into one class and those that divide by 4 into the second class. There are numbers that are divided into both 3 and 4. They are attributed to both classes. In theoretical language, those that divide by 3 are a set, while those that divide by 4 B form a set, those that divide by both 3 and 4 belong to the intersection of Sets A and B.

When giving this assignment to students, it is better for the teacher to instruct as follows. Having solved the examples, enter those whose answer will be divided by 3 into Column 1, those whose answer will be divided by 4 into column 3, and those whose answer will be divided by both 3 and 4 into Column 2. Wrap them up using a pencil. As a result, a Venn diagram is formed.



Conclusions and suggestions. In conclusion, it can be said that interactive learning provides an opportunity to solve several issues at once. The main thing from these is that it develops the skills and abilities of students to conduct communication, helps to establish emotional ties among students, ensures the fulfillment of educational tasks by teaching them to work as part of a team, to listen to the opinion of their comrades.

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