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# Significance of Problems in Primary Mathematics Course

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A B S T R A C T
*In this article, the ways of formation of qualities such as searching for different solutions, choosing rational methods and drawing conclusions in students are reflected in teaching students to solve the problem by discussing it.*

A R T I C L E I N F O
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**Enter.** In the general system of teaching mathematics, solving problems is one of the types of effective exercises. Solving problems is important for the formation of perfect mathematical concepts in children, as well as for their mastery of the theoretical knowledge specified in the program. The term "problem" is defined differently in different sources: Solving a problem is to reveal the connection between the numbers given in the condition of the problem and the desired number, and on this basis means choosing arithmetic operations, then performing them and answering the question of the problem.

Solving a problem is fulfilling the requirements of the problem through a logical sequence of operations on the numbers, quantities, and relationships that exist directly and indirectly in this problem.

**Methods:** As we know, while working on the problem, it is advisable to follow the steps of introducing the content of the problem, creating a brief summary of the problem, discussing the problem, writing the solution to the problem, and working on the solved problem. As for the discussion of the problem, it is noted in the methodical literature that each problem can be solved by discussing it in 3 ways. These are analytical, synthetic and analytical-synthetic methods. The way to go from the question of the problem to the given is the way of analysis, and the way to go from the given in the problem to the question of the problem is the way of synthesis. Often in practice we discuss issues using a combination of both methods. This is an analytical-synthetic method. As a result of teaching to discuss the issue starting from the 1st grade, students develop the ability to consciously discuss the issue. Especially during the introduction to simple problems, they look for a solution to the problem, while listening to the action, the student should learn to think correctly.

The process of discussing and solving the problem serves as a means of expanding and improving the child's experience, because the child can hypothesize and imagine something that is not in his direct experience.

We will consider the process of discussion of the issue in detail. The term "problem solving" is used in psychological and pedagogical literature in different senses. Solving a problem is understood differently in different sources:

- The result obtained when the goal of the problem is reached;
- A sequence of logically connected actions leading to the same result; in which the sequence is as "parsimonious" as possible and assumed without any guiding considerations (a logical unfinished solution): the process from the person's acceptance of the problem to the completion of the result. In this case, the result is the goal of the problem (solving process).

Thus, solving a problem in methodological literature means all activities related to this problem, from accepting this problem to moving to another problem or to another type of work.

Only when you fully understand the term "problem solving" does it make sense to divide work on the problem into four known stages. We will briefly describe these stages.

The first stage is expressed in receiving information, understanding the conditions and goals of the issue. This stage is also called the problem analysis stage.

The second stage - finding a solution involves a lot of complexity, finding a plan to solve the problem verbally. Often, the activity of finding a solution takes over the verbal solution process and is divided into several groups: analysis of the situation, emergence of a solution plan, striving to fulfill the plan, determining the cause of failure.

The process of finding a solution to a problem is complete, or finding several specific solutions to accomplish, is not complete in finding a single plan, but in finding a plan that leads to the goal. This stage is involved when working on every issue. But in many cases, this step is not understood by the problem solver, because this step is hidden.

The third stage is the formation of the solution, the implementation of the plan, which is the most cost-effective in the person's opinion, and the sequence of actions that leads to the goal from the conditions of the problem.

Although the boundaries of the second and third, first and second stages are approximate, these boundaries are clearly visible when solving the problem. This stage can be abbreviated; the last action is appropriate only when all the actions leading to the result have been performed in the previous stage, the third stage in educational practice is manifested in the process of solving the problem verbally by the child. Thus, at this stage, a "completed", "last", "clean copy" objectified solution is created by one method or another.

The fourth, last stage. This stage of working on the problem includes checking and estimating the correctness of the resulting result (but checking is not an integral part of the solution), finding other solution options, comparing them, determining the advantages and disadvantages of the found solution, used in the process of solving the problem and analyzes methods and techniques that can be used in the future and their retention in the child's memory, the determination of results of a mathematical nature that support the found result.

A child who has just entered school has different mathematical ideas. Some children develop an imagination to find a solution to simple problems related to numbers, geometric shapes, time. Addition and subtraction problems in 10 are made with the help of demonstrations and objects. Although in this period the terms "problem" and "problem solution" are not used, answers and solutions to problems are found. In this case, they determine the answers to the problem by performing operations such as combining (adding) the elements of the sets, subtracting (subtracting) the elements of the sets, and dividing them. "There were 3 children playing. Another boy joined them. How many children were there in total?" or "4 children were playing. 1 child went home. How many children are left?" while solving the problems of the form, they first find the values of addition and subtraction of 3+1, 4-1 on the example of a student, then on the example of subject toys, then on the example of conditional geometric shapes, counting sticks. At this point, why "1 added to 3?", "why 1 subtracted from 4?" they learn to find logically correct answers to such questions. It serves as a preparation for discussing complex issues in two ways. Therefore, the conscious choice of action in simple problems related to finding the "sum" and "remainder" is the first step in the discussion of the problem. Gradually, students learn to analyze and solve simple problems related to "increase" and "decrease". Working on simple problems, a student who

has learned to correctly solve simple addition and subtraction problems will learn to solve two-action problems by reasoning in the first grade.

In the methodological literature, several recommendations are given for introducing students to two-action problems. Here are some recommendations:

1. 2 simple problems are recommended to the student. A condition is derived from the first problem. One 2-step problem is created by taking a question from the 2nd problem.

For example, problem: There are 5 flowers in vase 1. The 2nd vase has 2 less flowers. How many flowers are in the second vase?

This problem is related to "reducing ta", students will immediately find that 5-2=3(ta). Then students are advised to solve the second problem.

Problem: There are 5 flowers in the 1st vase and 3 flowers in the 2nd vase. How many flowers are in both vases?

This problem is also a simple problem, it is a problem about "finding the sum". Students will solve this problem immediately. Now 2 practical problems are made from these two simple problems.

Problem: There are 5 flowers in the 1st vase, and 2 less flowers in the 2nd. How many flowers are in both vases?

This two-step problem is derived from 2 simple problems, the condition of the first simple problem, and the question of the second simple problem. Now you can conduct a structured question and answer session with the students on working on the problem:

What is the matter about? (About the flowers in the vase)

How many flowers are in the vase? (Two)

Do you know how many flowers are in the first vase? (Yes, 5)

What does the problem say about the flowers in the second vase? (Said to have 2 less flowers than the first vase)

What is the problem asking us to find? (To find how many flowers are in both vases)

With the help of the teacher, a short condition of the problem is drawn up.

As an example of this problem, we present the system of works on drawing up short terms. At first, 2 vases are taken to make it understandable to the students. 5 flowers are placed on the first one. 3 flowers are placed on the 2nd, and 3 are shown to the student so that they are not visible. But it is said that there are less than 2 flowers in a vase. Then the students are told that they can make a short condition for such problems. On the blackboard, draw a conditional vase in the form of a circle, and flowers in the form of sticks.

For example,


Another short condition view of this issue, also showing a short note:

In the 1st vase - 5 f.

In the 2nd vase - ?, 2 less ?

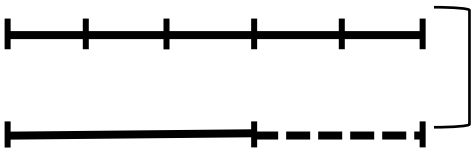
It is shown to express this condition in a drawing using cross sections, depending on the number of cells

in the student's notebook:

1-v:

?

2- v: 2 less



The purpose of teaching the students different forms of the short condition of the problem is that the student can make a short condition of the given problem. With this, figurative thinking begins to develop in the student.

The main link of working on the issue is the ability to discuss the issue in students. The teacher plays an important role here. Every question asked by the teacher should be meaningful, relevant, appropriate to the student's level of knowledge and age. The teacher should give a sequence of questions for discussion in such a way that this sequence of questions should be chain-like. Just as each link in a chain has its own function, each question in the discussion should be aimed at solving a particular puzzle. Now we will conduct an analysis of the discussion of the issue for the above issue. The teacher can conduct the following questions and answers depending on the short condition.

Can you answer the question immediately? ( No)

Why? (The number of flowers in the 2nd vase is unknown)

What does the issue say about him? (It is said that there are 2 less than the flowers in the first vase)

Can we find it? (yes)

How? (subtract 2 from 5)

Can you answer the question now? (Yes. 5 by adding 5 and the difference of 2)

So how many jobs will solve our problem? (with 2 exercises. First subtract, then add)

We write the solution of the problem one by one, explaining it:

1) 5-2=3 (flowers) – the number of flowers in the 2nd vase

2) 5+3=8 (flowers) - the number of flowers in both vases.

Answer: 8 flowers.

Now we will solve this problem by analyzing it synthetically.

Drawing students' attention to the condition of the problem, the numerical data to be searched for from the given numerical data are determined:

5 what is this? (number of flowers in vase 1)

2 what is this? (how much less the number of flowers in the 2nd vase is than in the 1st vase)

What can we infer from this data? (the number of flowers in the 2nd vase)

So how do you find the number of flowers in vase 2? (subtract 2 from 5)

Knowing the numbers in the first and second vase, what can you determine? (Number of flowers in both vases)

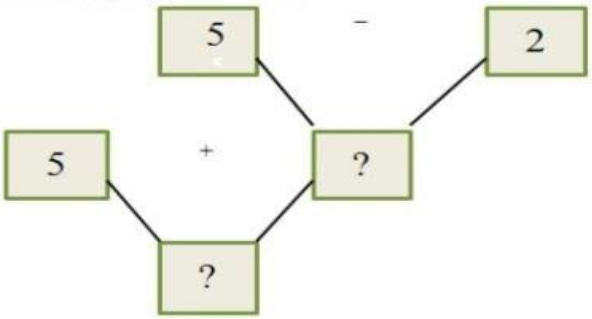
So the problem will be solved by how many jobs? (with 2 jobs. First subtract then add)

We write the solution to the problem in the expression form:

5+(5+2) = 5+3= 8(flowers)

Answer: There are 8 flowers in both vases.

Some experienced teachers teach their students how to solve problems on a schematic basis.




In this scheme, 2 is subtracted from 5 and the result is placed in the first unknown(?) place. Then the difference between 5 and 2 is added to 5. It is said to put the result in place of the problem question. This chain method can also be considered as a synthetic method.

Little by little, students begin to develop skills in discussing issues, and systematic work is organized to discuss and solve complex issues.

Another way to introduce two-step problems:

First, one simple problem is formulated and solved. The solved simple problem serves as a condition for the second problem to be constructed. Such issues are among content issues. We will solve the following problems one after the other and present the methods of solving them by discussing the content of the problems:

Problem: 1. Steel caught 8 fish. Nadir caught 6 fish. How many fish did Polat and Nadir catch?

2. Polat and Nadir caught fish. 4 fish were released into the water. How many fish do they have left?

Students are taught to combine these two problems to form one 2-step problem text. Of course, after first solving the first problem, putting the answer in the empty cell of the second problem, after solving the second simple problem, the students will make a two-action problem.

Problem: Polat caught 8 fish, Nadir 6. 4 fish were released into the water. How many fish do they have left?

The shorthand version of this complex problem is as follows:

Caught - 8 and 6 fish

They released - 4 fish

Remained – ? fish

Since this issue can be solved in different ways, its discussion will also be different.

Method 1: ( 8 + 6 ) – 4 solution specific way of reasoning:

- Do the students know how much Polat and Nadir caught fish? (Yes, Polat caught 8 fish, Nadir 6)
- What can you determine using this information? (How many fish did Polat and Nadir catch together)
- Yes, that's right, bless you
- What else could be found based on this information (how many more fish did Polat catch than Nadir, or how many fish did Nadir catch less than Połat)

Although the teacher's next question seems to be superfluous to find a solution to this problem, such questions help the student to understand the problem in a conscious way. The teacher continues the discussion.

- You are right. Is this information necessary for the problem we are solving now? (No)
- We need information about how many fish Polat and Nadir caught together. With the help of this information and the number 4, can you determine the marriage? (How many fish do the children have left)

- So, how many jobs will be done? (in work 2. First, using addition, then subtraction)

This method of discussion of the problem teaches students to find the desired (unknown) from the givens of the problem. It can be seen that this method is more important in solving problems with 3-4 cases.

After finding a solution to the problem, students should focus on the question "Can the above problem be solved in another way?" It is important to be involved in the question.

Finding a different solution to the problem allows students to think logically, reason, and express their thoughts.

Here are some ways to think about finding another solution to this problem:

Method 2. Another solution to the above problem is: ( 8 – 4 ) + 6

During the reasoning process, it is useful to remind students what each number in the problem solution represents. 8 is the number of fish caught by Steel, 6 is the number of fish caught by Rare, and 4 is the number of fish released. 8 - 4 represents the number of fish that Steel caught after being released.

(8 – 4) + 6 means the number of fish left in the children after being released into the water.

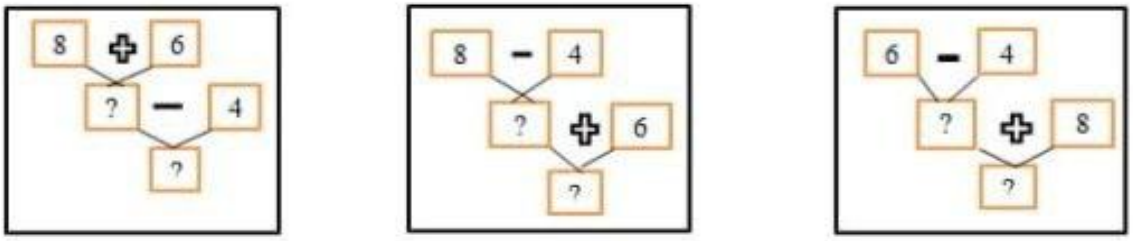
Method 3. Another way to solve the problem: 8 + (6 – 4)

**Result:** In connection with this expression, the following considerations can be made together with the students:

Polat caught 8 fish. Nadir caught 6 fish. 4 of the rare fishes were released. After that, the children have 8 + ( 6 – 4) = 8 + 2 = 10 fish left.

The search for a solution to the problem solved in these three ways can be given in the form of the following schemes in the chain method:

Method 1 Method 2 Method 3




**Conclusion:** It can be concluded that students discuss the problem and look for a solution in different ways. Discussion of issues serves to develop the student's attention, imagination, perception, memory, and thinking. By teaching elementary school students to discuss and solve problems, they will have the basis for the formation of skills such as a deep approach to every problem, life, independent thinking, and drawing conclusions.

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