

SIMPLE AND COMPLEX PROBLEMS IN PRIMARY SCHOOL STUDENTS

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Abstract. This article discusses the essence of the system of mathematical concepts taught to students in primary school mathematics lessons, as well as the role and importance of complex problems in developing students' mathematical understanding and thinking. The article shows effective ways of forming logical thinking by selecting problems corresponding to the age and psychological characteristics of primary school students, teaching them to solve them step by step.

Keywords: mathematics, mathematical knowledge, mathematical concept and thinking, mathematical problems, complex problem, analytical thinking.

Work on developing the skills of solving simple and complex problems, which began in the first and second grades, is continued in the third and fourth grades. In the third grade, simple and complex problems introduced by the curriculum into first and second-grade textbooks are further reinforced. True, when solving such problems, students perform corresponding calculations not only with one-digit, two-digit, and three-digit numbers, but also with multi-digit numbers. Each problem includes given (known) and sought (unknown) numbers. Numbers, sets in the problem characterize a number or value of quantities, express relationships, or are fuzzy numbers that need to be found. Simple and complex problems for elementary school students depend on the age characteristics of the students and the level of assimilation of mathematical concepts. A simple problem is a problem whose solution can be found with one operation.

A complex problem is a problem whose solution can be found with two or more operations.

Simple problems:

Example: There were 5 apples and 3 pears in the store. How many fruits are there in total?

Solution: $5 + 3 = 8$ fruits.

- Challenge problems:

Example:

There are 15 boys and 3 fewer girls in the class. How many students are there in the class?

Solution:

Find the number of girls: $15 - 3 = 12$ girls.

2. Find the total number of students: $15 + 12 = 27$ students.

Solving problems in elementary school:

Analysis of problems: Students are taught to carefully read the problem and determine what is known and what is being asked.

Selection of operations: Students are taught to determine which operations (addition, subtraction, multiplication, division) will solve the problem.

Solution: Find the answer by performing the selected operation.

Check the answer: Check if the solution is correct.

Development of students through complex problems:

Logical thinking: Complex problems develop students' logical thinking.

Analysis: Enhances the ability to analyze a problem and find a solution.

Independence: Teaches independent problem-solving. Creativity: Encourages finding various solution methods. The problem statement indicates the relationship between the given numbers and between the given numbers and the desired numbers; these relationships determine the choice of appropriate arithmetic operations. In addition, in the course of grades III and IV, a number of new types of simple and complex (typical and non-typical) problems are given. In particular, this course presents simple problems on motion (problems on finding speed, distance, and time of motion), problems on calculating the length, width, and area of a rectangle (square), and problems on calculating the time of the beginning (or end) of a particular event. Problems for solving in grades I-IV can be divided into the following types.

1. Problems on finding the fourth proportional quantity.
2. Problems on proportional division.
3. Problems on finding numbers by two differences.
 - In addition, in these classes, problems with certain content are solved:
 - a) time-related issues;
 - b) issues of action;
 - c) geometric problems.

The type of problem that children encounter more often than others is the problem of finding the fourth proportional quantity. This type of problem includes three dependent (proportional) quantities; For example:

- 1) price, cost, and quantity;
- 2) speed, distance traveled, and travel time;
- 3) working time and the quantity of manufactured parts.

In solving a complex problem, the ability to analyze the problem is of paramount importance. In the manuals on the methodology of teaching elementary mathematics, analytical and synthetic methods of problem analysis are considered. A synthetic analysis of a problem is understood as such a development of reasoning in which, as a result of combining two numerical data, it is determined what can be known from this data, after which the newly discovered data is combined with another data, and this work continues until the answer to the question of the problem is found. Lessons taught, extracurricular activities organized, especially goal-oriented questions and oral exercises presented in this process, also play an important role in the development of logical thinking of primary school students. Children gradually become acquainted with time units and, at the same time, apply them to solving problems. After introducing children to the units of time measurement - year, month, week, they are given the task of expressing the time interval, the beginning and end of which are given to the calendar. After familiarizing themselves with the duration of the day, children should learn to express the time interval given by calendar dates in days and hours. In grades III-IV, the following calculation problems are considered, mainly within a day;

1. Problems on finding the time of the beginning of an event and the time of its completion based on the elapsed time.
2. Problems related to finding the start time of an event based on the time of its onset and the time elapsed.
3. Problems on finding the time interval between events.

Problems of this type are mutually inverse.

Conclusion. We can achieve the foundation of solving any problem by correctly formulating the short condition of the problem, correctly understanding the main question of the problem,



distinguishing between main and additional information, and clearly showing its place in practical life. When solving this type of problem, we mainly need to teach students how to find answers by constructing expressions. In such cases, the expressions are reduced to the form of problems that are not difficult to solve. This, in turn, increases students' self-confidence and improves their attitude towards the concept of a complex problem.

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