

METHODOLOGY OF TEACHING PROBLEM SOLVING USING EQUATIONS

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Abstract

This article discusses the methodology of teaching problem solving using equations in primary school. It reveals the stages of developing students' skills in forming and solving equations. Special attention is given to the development of logical thinking and analytical abilities.

Key words

equation, word problems, primary school, mathematical thinking, teaching methodology.

Introduction

Solving word problems using equations is an important part of mathematics education in elementary school. This method promotes a deeper understanding of the relationships between quantities and develops students' ability to analyze problem statements.

At the initial stage of learning, students often experience difficulty transitioning from concrete actions to abstract models. Therefore, an important task for teachers is to develop students' skills in creating equations based on problem statements.

Using equations helps develop logical thinking, reasoning, and the ability to justify their decisions.

Main Part

Teaching problem solving using equations begins with developing the concept of a variable and simple equations. Students become familiar with unknown numbers and learn to represent them with letters.

Main learning objectives:

Developing the concept of an equation;

Teaching students to create equations based on problem statements;

Developing logical thinking;

Developing solution verification skills.

Learning stages:

1. Analyzing the problem statement. Students identify known and unknown quantities.
2. Selecting a variable. The unknown is denoted by a letter (e.g., x).
3. Forming an equation. A mathematical model is written based on the problem statement.
4. Solving the equation. Students find the value of the unknown.
5. Checking the solution. Substituting the found value into the problem statement.

Teaching methods and techniques:

Visual aids (diagrams, tables);

Practical tasks;

Problem-solving;

Game-based learning.

The use of schematic models is especially important, as they help students better understand the structure of the problem.

Example:

The teacher may pose the following problem: "Masha had several apples. After she bought 5 more apples, she now has 12 apples. How many apples did she have at first?"

Solution: Let x denote the unknown. Let's form the equation:

$$x + 5 = 12$$

Having solved the equation, students obtain: $x = 7$

Training Features:

1. It is important to adhere to the principle of gradual progression: from simple problems → to more complex ones.
2. It is also important to consider the age characteristics of students and use accessible forms of explanation.
3. Developing students' independence through problem solving in a variety of ways is of great importance.

Conclusion

Thus, teaching problem solving using equations plays an important role in developing students' mathematical thinking. This method promotes the development of analytical, logical reasoning, and modeling skills.

The effectiveness of teaching depends on the correct choice of methods, the use of visual aids, and the organization of active student learning.

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