METHODOLOGY OF SOLVING WORD PROBLEMS IN MATHEMATICS LESSONS

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Abstract: This article discusses the methodology of solving word problems in mathematics lessons and its importance in developing students' logical thinking and analytical abilities. The study analyzes effective pedagogical methods and innovative approaches used in teaching word problems. Special attention is given to the stages of understanding, analyzing, modeling, and solving mathematical problems. The article also examines the role of interactive teaching methods, information technologies, and problem-based learning in improving students' mathematical competencies. Practical recommendations for increasing the effectiveness of teaching word problems are provided.

Аннотация: В данной статье рассматривается методика решения текстовых задач на уроках математики и ее значение в развитии логического мышления и аналитических способностей учащихся. Анализируются эффективные педагогические методы и инновационные подходы, используемые при обучении решению задач. Особое внимание уделяется этапам понимания, анализа, моделирования и решения математических задач. Также исследуется роль интерактивных методов обучения, информационных технологий и проблемного обучения в повышении математической компетентности учащихся. Представлены практические рекомендации по повышению эффективности обучения решению текстовых задач.

Annotatsiya: Mazkur maqolada matematika darslarida matnli masalalar yechish metodikasi hamda uning o‘quvchilarning mantiqiy fikrlashi va tahliliy qobiliyatlarini rivojlantirishdagi ahamiyati yoritilgan. Matnli masalalarni o‘qitishda qo‘llaniladigan

samarali pedagogik metodlar va innovatsion yondashuvlar tahlil qilingan. Shuningdek, masalani tushunish, tahlil qilish, modellashtirish va yechish bosqichlariga alohida e’tibor qaratilgan. Interfaol metodlar, axborot texnologiyalari va muammoli ta’limning o‘quvchilarning matematik kompetensiyalarini rivojlantirishdagi o‘rni ko‘rsatib berilgan. Matnli masalalarni o‘qitish samaradorligini oshirish bo‘yicha amaliy tavsiyalar berilgan.

Keywords: Mathematics education, word problems, teaching methodology, mathematical thinking, problem-solving skills, interactive methods, innovative technologies, logical reasoning.

Ключевые слова: Математическое образование, текстовые задачи, методика обучения, математическое мышление, навыки решения задач, интерактивные методы, инновационные технологии, логическое мышление.

Kalit so‘zlar: Matematika ta’limi, matnli masalalar, o‘qitish metodikasi, matematik tafakkur, masala yechish ko‘nikmalari, interfaol metodlar, innovatsion texnologiyalar, mantiqiy fikrlash.

Introduction. Mathematics education plays an important role in developing students’ intellectual abilities and logical thinking. One of the most significant components of mathematics teaching is solving word problems. Word problems help students connect theoretical mathematical concepts with real-life situations and develop analytical thinking skills.

In modern education, special attention is paid to improving the methodology of teaching word problems. Traditional methods are being supplemented with innovative pedagogical technologies and interactive teaching approaches. Effective organization of the process of solving word problems contributes to increasing students’ interest in mathematics and improving the quality of education.

The methodology of teaching word problems requires systematic and scientifically

based approaches. Therefore, studying modern methods of teaching word problems remains an актуal issue in mathematics education.

Literature Review. Many researchers and educators have studied the methodology of solving mathematical word problems. According to pedagogical studies, solving word problems develops students' logical thinking, creativity, and independent learning abilities.

The following approaches are widely used in teaching word problems:

Analytical method; Synthetic method; Modeling method; Heuristic approach; Problem-based learning; Interactive teaching technologies.

Researchers emphasize that successful problem-solving depends on students' ability to understand the problem condition, identify relationships between quantities, and choose appropriate mathematical operations.

Modern educational technologies, including multimedia tools and digital learning platforms, significantly improve the effectiveness of teaching mathematical problems.

The Importance of Word Problems in Mathematics Education.

Word problems occupy a central place in mathematics teaching because they connect mathematics with practical life situations. Through solving problems, students learn to analyze information, identify relationships, and make logical conclusions.

- -Word problems help students:
- -Develop critical thinking skills;
- -Improve analytical abilities;
- -Strengthen mathematical reasoning;
- -Apply theoretical knowledge in practice;
- -Increase independent learning skills.

Therefore, teaching students effective methods of solving word problems is one of the primary objectives of mathematics education.

Stages of Solving Word Problems.

The process of solving mathematical word problems consists of several stages:

1. Understanding the Problem.

At this stage, students carefully read the problem and identify known and unknown quantities. Understanding the problem correctly is the foundation of successful problem-solving.

2. Analyzing the Problem.

Students analyze the relationships between quantities and determine what mathematical operations are required. Teachers should encourage students to discuss and interpret the problem logically.

3. Mathematical Modeling.

Mathematical modeling involves transforming the verbal condition into mathematical expressions, equations, tables, or diagrams. This stage simplifies the solution process and develops abstract thinking skills.

For example, linear equations are often used in solving word problems:

$$ax+b=c$$

4. Solving the Problem

Students perform calculations and determine the required result. Teachers should pay attention not only to the final answer but also to the reasoning process.

5. Checking the Solution

At the final stage, students verify whether the obtained answer satisfies the problem condition. This develops accuracy and self-control skills.

Interactive Methods in Teaching Word Problems.

Interactive teaching methods significantly increase students' participation and interest during mathematics lessons. Effective methods include:

Brainstorming; Group work; Educational games; Case-study method; Discussion and debate; Problem-based learning.

Interactive approaches encourage collaboration and improve communication skills among students.

The Role of Information Technologies.

Modern information technologies provide new opportunities for teaching mathematics. Educational software and digital platforms help visualize mathematical problems and make lessons more engaging.

Applications such as GeoGebra, Kahoot, and Google Classroom support:

Online assessment; Visualization of mathematical models; Independent learning; Distance education; Immediate feedback.

The use of ICT tools improves students' motivation and learning outcomes.

Problem-Based Learning Technology.

Problem-based learning is one of the effective methods in teaching word problems. Teachers create problematic situations that require students to think independently and search for logical solutions.

This method develops: Research skills; Creativity; Independent thinking; Decision-making abilities.

As a result, students gain deeper understanding of mathematical concepts.

Discussion. The analysis shows that effective methodology in teaching word problems positively influences students' mathematical competence and cognitive activity. The integration of interactive methods and modern technologies increases lesson effectiveness and student engagement.

a. However, successful implementation requires:
b. Professional teacher training;
c. Availability of educational resources;
d. Methodological support;
e. Development of digital literacy skills.

Educational institutions should create conditions for introducing innovative teaching methods into mathematics education.

Conclusion. Teaching word problems effectively is an important part of mathematics education. Modern pedagogical technologies, interactive methods, and problem-based approaches contribute to developing students' logical thinking and problem-solving skills.

The methodology of solving word problems should focus on understanding, analysis, modeling, and verification processes. Integrating innovative technologies into mathematics lessons improves educational quality and students' academic achievement.

Therefore, improving the methodology of teaching word problems remains one of the important tasks of modern mathematics education.

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