

DEVELOPING LOGICAL THINKING THROUGH STEM TASKS IN PRIMARY SCHOOL MATHEMATICS LESSONS

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Abstract. This article examines the role and significance of using STEM tasks in developing logical thinking among primary school students during mathematics lessons. The STEM approach integrates theory and practice, fostering creativity, critical thinking, and problem-solving skills in real-life situations. Based on specific examples, the paper analyzes adapted STEM tasks for primary school students, emphasizing their methodological value and effectiveness.

Keywords: primary education, mathematics, STEM, logical thinking, innovative methods, task.

Introduction.

In modern education, a competency-based approach aligned with international standards has become increasingly important. Particularly in primary education, mathematics lessons play a crucial role in developing students' logical reasoning, problem-solving abilities, and creative thinking. In recent years, the STEM (Science, Technology, Engineering, Mathematics) approach has been widely adopted in education. Through this approach, students learn to connect theoretical knowledge with practical applications, solve real-world problems, work collaboratively, and think independently. Main Part The Role of STEM in Education STEM education not only imparts theoretical knowledge but also teaches students how to apply it in everyday life. For instance, in learning mathematics, students do not merely perform arithmetic operations but also use numbers to solve real problems — a process that strengthens logical thinking. The Need to Develop Logical Thinking in Primary School Developing logical thinking in primary school mathematics is the foundation for mastering future knowledge. Even while learning basic arithmetic operations such as addition, subtraction, or geometric shapes, students should be encouraged to make logical conclusions. Types of STEM Tasks - Practical Tasks: e.g., “Divide a 1-meter rope into 4 equal parts and determine the length of each.” - Modeling Tasks: Constructing a house model using geometric shapes and measuring its sides. - Problem Situations: e.g., “If there are 12 trees in the schoolyard and 3 trees in each row, how many rows

are there?” - Integrated Tasks: Preparing a small project by combining mathematics and technology subjects. Mechanism for Developing Logical Thinking STEM tasks engage students in the following activities:

- analyzing problems;
- finding possible solutions;
- performing calculations and verification;
- drawing conclusions.

Through these processes, students develop skills in reasoning, justification, comparison, and generalization. Practical Examples - Grade 1: “If two friends share a chocolate bar equally, how many pieces will each get?”

- Grade 2: “If the perimeter of a square is 12 cm, find the length of one side.”

- Grade 3: “A box contains 24 pencils. If they are divided equally among 6 students, how many pencils will each receive?”

- Grade 4: “Using a 3-liter and a 5-liter container, how can you measure 4 liters of water?”

Although these tasks seem simple, they enhance students’ creativity, analytical ability, and logical reasoning.

Conclusion Using STEM tasks in primary school mathematics lessons not only helps develop students’ knowledge and skills but also fosters universal competencies such as logical reasoning, creativity, and critical thinking. Therefore, integrating innovative STEM-based activities into the teaching process significantly improves educational effectiveness.

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