METHODS OF INTEGRATED TEACHING OF MATHEMATICS BASED ON STEAM EDUCATION

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Abstract. This article discusses modern methods of integrated teaching of mathematics based on STEAM education. The article analyzes the importance of teaching mathematics based on interdisciplinary integration, practical exercises, innovative technologies and project-based education. It also reveals the possibilities of developing students' creative thinking, solving problem situations and connecting mathematical knowledge with practice.

Keywords: STEAM education, mathematics, integrated approach, innovative technology, creative thinking, project-based education, interdisciplinary integration, algorithm, problem-based education, practical exercise.

The STEAM education model serves to connect students' theoretical knowledge with practice. Teaching mathematics based on an integrated approach develops students' logical and creative thinking.

Today, the use of innovative approaches in the education system is gaining importance. In particular, integrated teaching of mathematics based on the STEAM education model serves to connect students' theoretical knowledge with practical activities.

The STEAM approach combines science, technology, engineering, art and mathematics as a single system, forming students' logical thinking, creativity and problem-solving skills. By integrating mathematics with other subjects, the effectiveness of lessons increases and students' interest in science increases. Integrative teaching methods also allow students to conduct independent research, work in teams and effectively use modern technologies[3].

The use of various projects, experiments and interactive methods in STEAM-based lessons helps to connect mathematical concepts with life processes. As a result, students not only acquire mathematical knowledge, but also acquire the skills to apply them in real life.

STEAM is a modern educational model based on the integration of Science, Technology, Engineering, Art and Mathematics. Through this approach, students learn to solve real-life problems. For example, teaching the subject of geometry by linking it to architecture develops students' spatial imagination[4].

The use of project-based learning, practical experiments, virtual laboratories and interactive platforms is important in mathematics lessons. For example, by linking the subject of interest to economics, bank loans and savings accounts can be analyzed. Or

explaining the speed formula in physics using mathematical equations is an example of integrated education.

Example:

If a car travels 120 km in 2 hours, its speed is:

v = s / t = 120 / 2 = 60 km/h.

This example demonstrates the integration of mathematics and physics.[2]

The STEAM approach develops students' independent and creative thinking skills. Students apply mathematical knowledge in practice while working with robotics, graphic design, and programming elements[3].

GeoGebra, Desmos, Kahoot, and other platforms help organize mathematics education interactively. Artificial intelligence-based programs analyze students' knowledge levels and provide individual tasks.

In conclusion, integrated teaching of mathematics based on STEAM education is important for consolidating students' knowledge and developing creative thinking. Interdisciplinary integration and innovative technologies increase educational efficiency and form modern competencies.

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