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THE METHODOLOGY OF TEACHING MATHEMATICS IN GENERAL EDUCATION SCHOOLS

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Annotation: This article is devoted to the theoretical and practical analysis of pressing issues in the methodology of teaching mathematics in general education schools. It comprehensively examines the fundamental principles of teaching mathematics in modern pedagogical science, advanced methods of organizing the educational process, and the role of methodology in developing intellectual potential. The research elucidates scientific foundations for enhancing active and independent learning skills, the significance of utilizing modern information and communication technologies, and improving assessment and diagnostic systems.

Keywords: mathematics teaching methodology, general education schools,theoretical and methodological foundations, educational process, intellectual development, activation, modern technologies, assessment.

Introduction: The subject of mathematics occupies a central place in the curriculum of every general education school. It not only imparts knowledge about numbers, shapes, and relationships but also develops logical thinking, problem analysis, and problem-solving skills. Therefore, an effective methodology for teaching mathematics holds significant importance in improving the quality of education. This article examines modern methodological approaches to teaching mathematics in general education schools, effective methods for organizing teacher and student activities, and ways to enhance the educational process.

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activities, and ways to improve the educational process.

Fundamental Principles of Mathematics Teaching Methodology:

The methodology of teaching mathematics is based on various pedagogical and psychological principles. The organization of the educational process based on the following fundamental principles of modern methodology enhances effectiveness:

1. Principle of Scientism and Continuity: Mathematical knowledge should be presented on a scientific basis, clearly and coherently. New information should be reinforced in the student's memory in relation to previously acquired knowledge. Each topic must be systematically connected with the preceding and subsequent topics.

2. Principle of Developing Logical Thinking: Mathematics is, in essence, a science of logic. Therefore, a primary goal in the teaching process should be to develop students' abilities to perform logical operations such as analysis, synthesis,deduction, induction, generalization, and abstraction.

3. Principle of Visual Representation and Practical Demonstration: To instill mathematical concepts, laws, and formulas in students' minds, it is important to use visual aids (diagrams, graphs, models, multimedia tools) and to reinforce theoretical knowledge through practical exercises, laboratory work, and examples related to everyday life.

4. Principle of Ensuring Activity and Independence: Involving the student as an active participant in the lesson, encouraging independent thinking, and fostering a creative approach to learning activities increase the effectiveness of the learning process. It is necessary to encourage the application of various methods in solving problems and create opportunities for students to monitor and evaluate their own knowledge.

5. Principle of Individual Approach: Organizing the educational process by considering students' individual psychological characteristics, knowledge levels,interests, and learning paces contributes to their comprehensive development. The application of differentiated assignments and problems serves to implement this principle.

Modern Pedagogical Technologies and Their Application

As is known, the effectiveness of the educational process depends on the pedagogical technologies used. The following modern technologies yield effective results in teaching mathematics:

- Problem-Based Learning Technology: The student is presented with a problem and encouraged to analyze it and independently seek solutions. This develops creative and critical thinking.

- Use of Information and Communication Technologies (ICT): Interactive whiteboards, computer programs, electronic textbooks, and online learning platforms enable the visualization of mathematical concepts, conducting interactive exercises in problem-solving, and continuous monitoring of students' knowledge.

- Collaborative Learning Technology: Students are divided into small groups and solve problems by helping each other. This improves teamwork, communication, and idea-sharing skills.

- Project-Based Learning Technology: Students prepare projects on a specific topic, applying theoretical knowledge in practice and developing research skills.

- Differentiated Instruction Technology: By creating individual assignments and programs for students with varying levels of knowledge, it is achieved that

each student develops according to their own capabilities.

Improving the Educational Process Management and Assessment System

A crucial component of mathematics teaching methodology is the creation of an effective educational process management system and an objective system for assessing students' knowledge. The teacher's activity is not limited to merely imparting knowledge but also includes ensuring students' active participation in the learning process and directing their intellectual development. The assessment system, beyond simply determining the outcome, should aim to identify students' successes, strengths, and weaknesses in the learning process and, based on this,provide direction for future learning. Formative assessment methods (e.g., short quizzes, oral questioning, self-assessment) allow for continuous monitoring of the student's progress in the learning process.

Conclusion:

Improving the methodology of teaching mathematics in general education schools is a complex and multifaceted process that requires consideration of modern achievements in pedagogical science, advanced technologies, and the scientific-theoretical foundations of the educational process. The skillful application of modern methodological approaches and technologies by teachers, the development of students' active and independent thinking, the enhancement of their intellectual potential, and the continuous assessment and improvement of the educational process are crucial conditions for elevating the quality of mathematics

education to a high level.

List of References:

1. Decree of the President of the Republic of Uzbekistan "On Approval of the Concept for the Development of School Education in the Republic of Uzbekistan." Collection of legislative acts of the Republic of Uzbekistan. – T.: Adolat, 2018.
2. Concept for the Development of School Education in the Republic of Uzbekistan. // Xalq ta'limi (Public Education). – Tashkent, 2018. – No. 4. – pp. 5-18.
3. Azlarov T.A., Yusupov Sh.A. Methodology of Teaching Mathematics. – Tashkent: O'qituvchi, 2005.
4. G'ofurov A.G., Abdullayeva G.A. Methodology of Teaching Mathematics in General Education Schools. – Tashkent: TDPU, 2015.
5. Umarova Z.Q. Application of Modern Pedagogical Technologies in Teaching Mathematics. // Xalq ta'limi (Public Education). – Tashkent, 2017. – No. 3. – pp. 45-49.
6. Jalolov S.S., Tursunov R.T. Fundamentals of Mathematics Teaching Methodology. – Tashkent: National University of Uzbekistan Publishing House, 2009.
7. Yuldashev B., Usmanov N. Pedagogical Technologies and Pedagogical Skill. – Tashkent: Fan va texnologiya, 2010.
8. Bennison, J. (2017). Developing mathematical thinking in the primary and secondary classroom. Routledge.