

THE UNIQUE ROLE OF METHODS IN TEACHING MATHEMATICS

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Abstract: *In this article, we explore how different teaching methods contribute to student achievement in mathematics.*

Key words: *Manipulation, geometry, mathematical principles, teaching methods*

The unique role of methods in teaching mathematics is crucial in helping students comprehend and excel in this subject. Mathematics is often perceived as challenging, but with the right methods, it becomes more accessible and enjoyable for learners. Methods play an essential role in explaining complex concepts, fostering problem-solving skills, promoting critical thinking, and cultivating a deep understanding of mathematical principles. One of the primary purposes of teaching methods in math is to explain difficult concepts in a clear and concise manner. Mathematics can be abstract, and without the proper guidance, students may struggle to grasp its fundamental principles. Methods such as step-by-step problem-solving strategies, visual aids, and real-life examples make abstract concepts more tangible and relatable. These methods enable students to visualize mathematical ideas, making it easier for them to understand and apply them in different contexts.

Furthermore, methods in teaching mathematics foster problem-solving skills. Math is all about problem-solving, and providing students with different problem-solving strategies helps them approach challenges with confidence. Methods like problem-based learning encourage students to think critically and creatively, allowing them to develop problem-solving strategies that are transferable to real-life situations. By emphasizing the process rather than just finding a correct answer, methods support students in becoming independent thinkers and problem solvers. Critical thinking is another indispensable skill that mathematics methods aim to nurture. Solving math problems requires logical reasoning, analysis, and sound judgment. Various methods, such as puzzles, brain teasers, and logical reasoning exercises, engage students in higher-order thinking. These methods encourage students to think beyond memorizing formulas or procedures, challenging them to apply mathematical concepts to unfamiliar situations. Through critical thinking, students gain a deeper understanding of mathematics and develop skills that are valuable in many areas of life.

Methods in teaching mathematics also contribute to cultivating a deep understanding of mathematical principles. Rather than relying solely on rote memorization, effective methods encourage students to explore and discover mathematical concepts. Such methods include hands-on activities, group discussions, and inquiry-based learning. By actively engaging with the subject matter, students solidify their understanding of mathematical concepts and develop a strong foundation for future learning. This deeper understanding allows students to apply mathematical reasoning in real-world scenarios and helps them connect different mathematical concepts. Moreover, methods in teaching mathematics help cater to different learning styles and abilities. Every student has unique strengths and weaknesses when it comes

to learning, and the use of various teaching methods ensures that students receive the support they need to succeed. For instance, visual learners benefit from methods that include graphs, diagrams, and illustrations, while auditory learners may prefer explanations and discussions. Kinesthetic learners can engage with math through hands-on activities or manipulatives. By employing a range of methods, teachers can accommodate the diverse needs of their students, ensuring that everyone has an equal opportunity to excel in mathematics.

In addition to accommodating learning styles, methods in teaching mathematics also promote collaboration and interaction among students. Cooperative learning methods, such as group work and peer tutoring, enable students to share ideas, explain concepts to their peers, and learn from one another. Collaborative activities enhance students' communication skills, build their confidence, and foster a supportive classroom environment. By working together, students can tackle challenging problems more effectively and develop a deeper understanding of mathematical concepts through discussions and exchanges of ideas. Furthermore, methods in teaching mathematics often incorporate technology, which provides valuable resources to supplement traditional learning methods. Access to calculators, computers, educational software, and online resources can enhance mathematical understanding and enable students to explore complex concepts more easily. Technology allows for interactive and dynamic learning experiences, providing visual representations, simulations, and immediate feedback. Integrating technology in mathematics education promotes engagement, improves problem-solving skills, and prepares students for the digital world they will encounter in their future careers. Another significant role of methods in teaching mathematics is to establish a growth mindset among students. A growth mindset is the belief that mathematical abilities can be improved through effort and perseverance. Methods that focus on effort, grit, and resilience help students overcome challenges and develop a positive attitude towards learning mathematics. Encouraging students to embrace mistakes as learning opportunities and to persist in problem-solving promotes a growth mindset, fostering a lifelong love for mathematics and a belief in one's own abilities. The unique role of methods in teaching mathematics is crucial for students to comprehend and excel in this subject.

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