

THE ROLE OF MATHEMATICS IN EDUCATION AND TECHNOLOGY

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Abstract: This article examines the basic role of mathematics in modern education and technology. It highlights the integration of mathematics in STEM (Science, Technology, Engineering, Mathematics) fields, underscoring its impact on academic success and innovation. By exploring the use of technology in mathematics education, the article demonstrates how digital tools enhance learning outcomes and prepare students for 21st-century challenges.

Key words: Mathematics, STEM, Education, Technology, Innovation, Problem-Solving

Mathematics is well known as a subject area where there can be issues in terms of understanding as well as keeping positive perspectives.

Why Is Maths Important?

Maths is a field of study that drives progress across some of the most innovative industries out there and is also used to solve some of the biggest problems we are faced with today.

Mathematics in Education:

Research highlights the importance of mathematics in developing students' competencies in STEM subjects. Mathematics develops the logical thinking, analytical thinking and decision-making skills needed to solve real-world problems. The impact of technology on mathematics education is crucial for our life. The integration of technology in teaching mathematics has changed traditional teaching methods. Digital tools such as simulations, interactive software, and mobile apps improve student engagement and understanding of complex mathematical concepts.

Mathematics in STEM

In STEM education, mathematics plays a central role in connecting theoretical knowledge with practical applications. From statistical analysis in scientific research to algorithms in computer programming, mathematics is indispensable in advancing technological solutions. Mathematics is not only a science, but also an important tool for innovation and problem solving. By integrating technology and promoting STEM-focused education, mathematics education can equip students with the skills they need for the challenges of the future.

There were no major changes in the overall nature of mathematics, and hardly any significant advances within the subject, until the middle of the seventeenth century,

when Newton (in England) and Leibniz (in Germany) independently invented the calculus. In essence, the calculus is the study of motion and change. Previous mathematics had been largely restricted to the static issues of counting, measuring, and describing shape. With the introduction of techniques to handle motion and change, mathematicians were able to study the motion of the planets and of falling bodies on earth, the workings of machinery, the flow of liquids, the expansion of gases, physical forces such as magnetism and electricity, flight, the growth of plants and animals, the spread of epidemics, the fluctuation of profits, and so on. After Newton and Leibniz, mathematics became the study of number, shape, motion, change, and space.

Mathematics, often referred to as the language of the universe, plays a pivotal role in education and the development of young minds. It provides a framework for logical thinking, problem-solving, and critical analysis.

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