

What is



S **T** **E** **M**

SCIENCE • TECHNOLOGY • ENGINEERING • MATHEMATICS



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About the **AUTHOR**



I am a passionate Electronics and Communication Engineer with over five years of experience in the dynamic field of robotics education. With a profound enthusiasm for robotics and an unwavering dedication to teaching, I have been committed to transforming the way young minds understand and engage with technology. As a seasoned STEM trainer, they have guided countless students in discovering the potential of robotics, encouraging curiosity, creativity, and critical thinking.

This book, **What is STEM?**, is my latest endeavor to inspire beginners and spark a lifelong interest in these essential subjects. With this I want that STEM should be accessible and engaging for everyone, fostering curiosity and innovation.

Thanks

WHAT IS STEM?

IN SIMPLE LANGUAGE



STEM (SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS)

STEM is a multi-discipline approach to teaching.

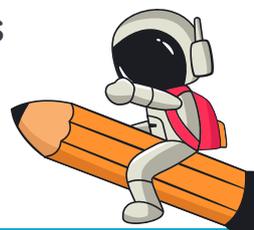
STEM learning is about teaching students the basics of **Science, Technology, Engineering, and Mathematics** all together.

The goal is to help them develop problem-solving skills, creativity, and the ability to work well with others. It prepares them for future careers and helps them understand the world around them.



SOME IMPORTANT POINTS

- STEM education is a multidisciplinary approach combining science, technology, engineering, and mathematics.
- It focuses on real-world problem-solving and innovation.
- STEM education encourages practical application of theoretical knowledge.
- It aims to develop critical thinking, creativity, and problem-solving skills.
- STEM education is gaining popularity due to its relevance to modern challenges.



WHAT IS STEM?

EXAMPLE



WIND MILL (EXAMPLE)

We all used to learn about different forms of energy, like solar, thermal & wind energy, etc. as our classroom topic.

Let's talk about Wind energy. In which Wind Mill is the best example to understand this.



Now if we want to explain the same topic of Wind Mill under STEM concept, so it can be like:-

Science

- Energy transformation (kinetic to mechanical)
- Aerodynamics and blade design
- Physics of motion and force

Technology

- Mechanical engineering (design and construction)
- Electrical engineering (energy conversion)
- Materials science (component selection)

Engineering

- Design process (iterative design and testing)
- Structural engineering (tower stability)
- Control systems (regulation and optimization)

Mathematics

- Geometry (blade shape and size)
- Trigonometry (force analysis and angles)



A STORY FOR STEM LEARNING UNDERSTANDING.

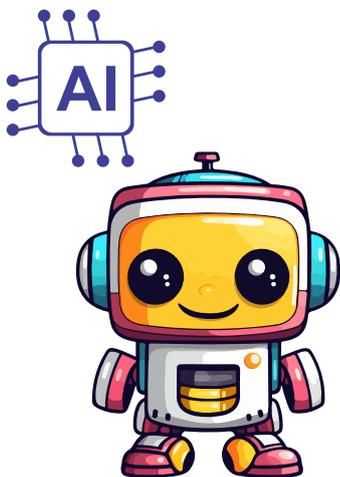
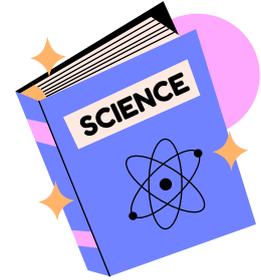


STORY TIME (PAGE -1)

In the vibrant town of Uttarakhand, there lived a boy named **Sam** who was always curious about how things worked. However, he found his traditional classes tedious, as they mostly involved sitting and listening. One day, his school started a new program called **STEM education**, which excited Sam immensely.



In their first **science class**, Sam and his friends created mini volcanoes using baking soda and vinegar. As their volcanoes erupted, they learned about chemical reactions in a fun and explosive way.



Next, in **technology class**, Sam got to program a small robot. He used simple commands to make the robot move and dance, discovering the basics of coding. It was much more exciting than just reading about computers.



A STORY FOR STEM LEARNING UNDERSTANDING.

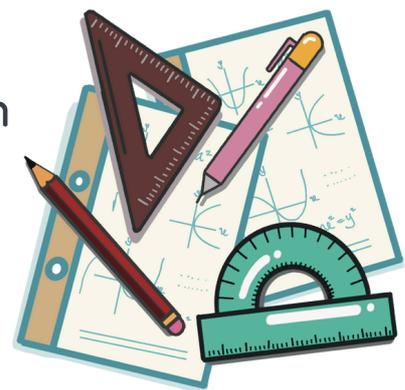


STORY TIME (PAGE-2)



During the **engineering module**, Sam and his classmates were tasked with building a protective case for an egg. Using straws, paper, and tape, they designed cases to protect their eggs from a fall, learning about engineering and design principles.

In **math class**, they used real-life scenarios to understand concepts. Sam enjoyed a project where they planned a school garden, using measurements and calculations to decide how many plants they could grow and how to arrange them.



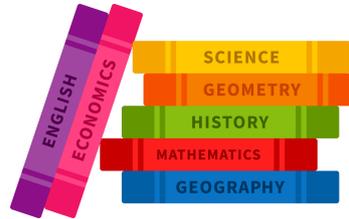
KEY INSIGHTS FOR STEM LEARNING



IMPORTANT POINTS

Integration of Subjects:

STEM education combines different subjects to help students understand how they are connected.



Focus on Skills:

Instead of just memorizing facts, STEM teaches important skills like working together, communicating, and being creative. These skills are important for many jobs today.



Global Competitiveness:

With the U.S. falling behind in international rankings for science and math, strengthening STEM education is critical for maintaining competitiveness in a global economy. This urgency highlights the need for educational reform.



KEY INSIGHTS FOR STEM LEARNING



IMPORTANT POINTS

Innovative Future:

As the world faces tough problems, being able to think creatively and solve issues is very important.



Student-Centered Learning:

STEM education focuses on how each student learns best, making it more engaging and relevant for everyone.

Long-Term Impact:

Investing in STEM education is important for preparing the next generation to solve future challenges and shape our world.





THANK YOU FOR YOUR TIME

For more Information, you can refer to my
YouTube Channel:-

Robotics Villa

