

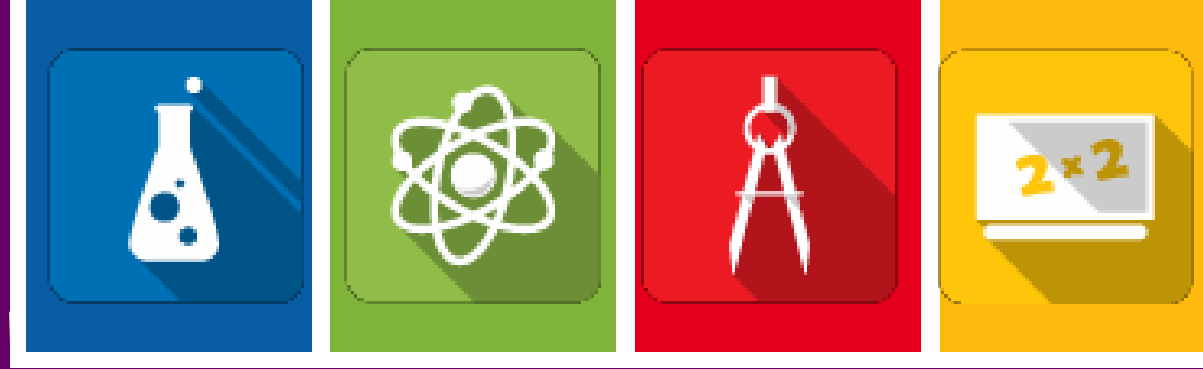


**History, Advantages and Disadvantages
Teaching Science as Inquiry**

STEM Education

I N T R O D U C T I O N

STEM originated in the early 1990s by varieties of educators with help from the National Science Foundation (NSF) in the United States as SMET – Science, Mathematics, Engineering and Technology, mainly to integrate pure and applied sciences into a single unit.



STEM is an acronym for **Science**, **Technology**, **Engineering**, and **Mathematics**.
Devised in 2001 by Dr. Judith Ramaley, the term has won widespread acceptance as a convenient way of referring to these academic disciplines.

Key Points

STEM stands for science, technology, engineering, and mathematics. U.S. National Science Foundation first introduced the term in 2001.

The main focus behind STEM is on progress, problem-solving, critical thinking, innovation, and, ultimately, learning.

STEM is important because it teaches children science and math-based concepts, focusing on hands-on learning and real-world application that can be put to work in the 21st century.

History of STEM Education

First introduced by the U.S. National Science Foundation in 2001, the acronym “STEM” replaced the acronym “SMET” with a much more catchy and appealing string of letters. Ultimately, though, the two represented the same concept: science, technology, engineering, and mathematics.

History of STEM Education

It wasn't until biologist Judith Ramaley came along and moved around the letters that the STEM curriculum really began to take hold of the educational system in the United States and abroad, from early childhood education all the way through to students' entry into the working world.

History of STEM Education

While there's no doubt science, technology, engineering, and mathematics have been an integral part of the K-12 educational system in America for far longer than just 2001, it's the intentionality behind the STEM acronym that really makes it a focal point — That decision on the part of the NSF and the U.S. Department of Education at large to make this catchy acronym priority from early childhood education all the way to high school graduation and beyond.

Advantages of STEM Education

- Teaches students how to think and learn like innovators, giving them the skills to become innovators themselves as professionals
- It gives students the chance to explore complex topics in a much greater depth
- Provides students with the critical thinking and problem-solving skills they need to succeed
- Hopes to elevate the United States educational achievements compared to other, more educationally advanced nations

Advantages of STEM Education

- STEM is a very broad concept that lacks a concrete set of guidelines and parameters for teachers to abide by
- There are no national or global standards to follow along with
- Some labs and materials associated with STEM far exceed the budgets of underfunded schools
- Excludes subjects like arts and literature

Why STEM Education Matters

- A 2005 report from the U.S. National Academies of Science, Engineering, and Medicine does an excellent job underlining the real reason why STEM education matters (and has mattered especially over the last fifteen to twenty years in particular).
- Titled “Rising Above the Gathering Storm,” this report underlines the way successful and important jobs are directly linked to STEM education and the way that those successful, important STEM jobs can help America resolve deep-seated societal problems in the fields of science, technology, engineering, and mathematics.
- This includes everything from cancer to infrastructure to the economy to the climate and all sorts of other trouble spots in between.

Currently, STEM education can be enhanced into varieties of curricula, including

STREAMi – Science, Technology, Research, Engineering, Arts, Mathematics, and innovation

STM – Scientific, Technical, and Mathematics; or Science, Technology, and Medicine; or Scientific, Technical, and Medical

eSTEM – environmental STEM

STEMIE – Science, Technology, Engineering, Mathematics, Invention and Entrepreneurshi**M** – invigorating Science, Technology, Engineering, and Mathematics

STEMS² – Science, Technology, Engineering, Mathematics, Social Sciences and Sense of place

METALS – Mathematics, Engineering, Technology, Arts, Logic, and Science

Curently, STEM education can be enhanced into varieties of curricula, including

STREM – Science, Technology, Robotics, Engineering, and Mathematics; or Science, Technology, Robotics, Engineering, and Multimedia

STEEM – Science, Technology, Engineering, Economics, and Mathematics

STEAM – Science, Technology, Engineering, Arts, and Mathematics; or Science, Technology, Engineering, Agriculture, and Mathematics; or Science, Technology, Engineering and Applied Mathematics

STREAM – Science, Technology, Robotics, Engineering, Arts, and Mathematics

Curently, STEM education can be enhanced into varieties of curricula, including

A-STEM – Arts, Science, Technology, Engineering, and Mathematics

GEMS – Girls in Engineering, Math, and Science

STEMM – Science, Technology, Engineering, Mathematics, and Medicine

SHTEAM – Science, Humanities, Technology, Engineering, Arts, and Mathematics

MINT – Mathematics, Informatics, Natural sciences, and Technology

References

<https://history-computer.com/stem-education/>