



ADVANTAGES OF STEM EDUCATION IN THE EDUCATION OF PRESCHOOL CHILDREN

Jumabayev Abdulxamid To'xtanazarovich
Senior Teacher at Namangan Region National
Center for Training Pedagogues in New Methods

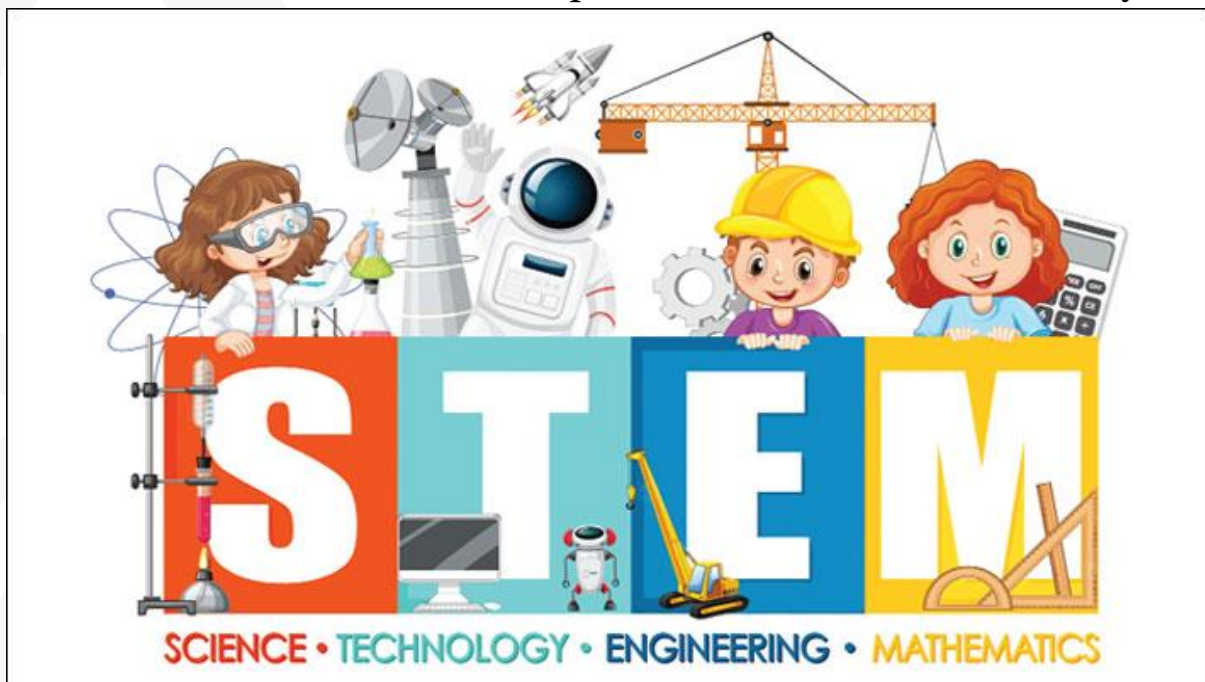
Abstract:

This article describes the purpose of STEM education, STEM education and its advantages in educating preschool children, and the importance of STEM education in the formation of basic skills in children.

Keywords: STEM, STEAM education, science, technology, engineering, arts and mathematics, basic skills.

Preparing today's children to be tomorrow's innovators and inventors begins with STEM education programs.

STEM is one of the most talked about topics in education. But what exactly is STEM?



The acronym STEM stands for Science, Technology, Engineering and Mathematics. STEM was a term first coined in 2001 to represent the growth of technical and science-oriented occupations.

STEM-based education teaches children more than just science and math concepts. Emphasis on hands-on learning with real-world applications helps develop a variety of skill sets, including creativity and 21st century skills.





21st century skills include media and technology literacy, productivity, social skills, communication, flexibility and initiative. Other skills gained through STEM education include problem solving, critical thinking, creativity, curiosity, decision making, leadership, entrepreneurship, acceptance of failure, and more. Regardless of the future career path these kids take, these skills will go a long way in preparing them to be innovative.

Modern STEM education not only develops skills such as critical thinking, problem solving, higher order thinking, design and reasoning, but also behavioral competencies such as persistence, flexibility, collaboration, organization and responsibility.

STEM develops as a unique approach to teaching and learning, and it focuses on the learning styles and interests of individual students. This means that STEM education has something to offer every student. Unlike traditional educational experiences in which science fields are concentrated separately, STEM education emphasizes technology and integrates the disciplines in ways that connect each other.

There is another acronym that is closely related to STEM and is gaining popularity - STEAM. STEAM includes the arts in the mix, meaning creativity and innovation are further emphasized.

STEAM is an educational approach that incorporates the arts into the more familiar STEM model.

As noted, the STEAM education initiative grew out of the pre-existing concept of STEM education. The difference between the two ideas can be summarized as the additional presence of the letter "A" for art; In fact, this is a very important distinction and its importance should not be underestimated.

After all, "art" in this context refers not only to the visual or aesthetic arts, but also to the social studies, language arts, visual arts, musical arts, and physical arts, and all subjects that fall under these subcategories. .

Ultimately, the integrated teaching of science, technology, engineering, art and mathematics helps students to think creatively, use logic, solve problems and benefit from experiential learning and performance. in cooperation with each other.

Whether we use the term STEAM or STEM, many people today associate these learning concepts with the same thing - the importance of science, technology, engineering, mathematics, creativity and innovation.

STEM is an educational approach that integrates science, technology, engineering and mathematics. Using these various elements, lessons are developed to help your young preschooler apply these concepts in the real world.

Let's break down STEM into each of its components and skills:





Science - Observing, making connections, making inferences, and asking questions about how things work. Here, science-related learning activities include exploring water and sand, comparing natural materials like rock and soil, and rolling balls around the room. Or counting how many legs are on a bug caught while playing outdoors can be as fun as looking through a magnifying glass!

Technology - using tools, identifying problems and trying different solutions. Technology-related learning activities include identifying simple machines such as gears and wheels and wheels. It can also include simple coding, where children learn how to program small robots to perform simple tasks. However, make sure your child doesn't stare at screens all day!

Engineering - using tools, identifying problems, designing and creating solutions, building and inventing things. Engineering activities take place in the building block playground, where children plan and design structures each day with little guidance from the teacher. This also happens in the outer dunes, as they build amazing structures and buildings with sand and other materials they can lay their hands on.

Mathematics - sequencing, measuring, counting, making patterns, studying shapes, comparing (size / weight / volume / height / distance). Math-based learning activities include counting, matching shapes, and making patterns. Measuring is also easy, especially with unit blocks, where children can determine that two blocks of the same size are equal to one of the next size.

Here's what STEM in early childhood education looks like for preschoolers:

Through all these activities, your child will also learn innovation and creativity techniques to overcome obstacles, dream and create new inventions.

In addition to these fields, STEM encompasses additional fields such as creativity, resilience, and innovation.

Why is it important to teach children STEM?

How can STEM education help your preschooler?

STEM education is a predictor of future academic success - children who learn STEM concepts are better prepared to meet the increasingly technology-oriented demands of the workplace.

Teaching children STEM can help them develop 21st century skills, such as:

1. Problem solving. STEM education teaches young children how to solve problems using critical thinking skills. Kindergarten and preschoolers can learn how to investigate problems and then come up with a plan to solve them by engaging in STEM learning experiences.





2. Adaptability skills. To succeed in life, children need to apply what they learn in different scenarios. STEM education teaches them to apply the concepts they have learned to different iterations of a problem or issue.
 3. Creativity and application of knowledge. With STEM education, children don't just learn by being taught information. They learn through experience and action. They learn to apply knowledge, knowledge that applies to the real world. It motivates children to learn because they know the skills they learn can be applied immediately and have a positive impact on them and their loved ones.
 4. Decision making. Through the approaches used in STEM education, children are better able to evaluate and weigh different options and make better decisions in the future. Such skills are invaluable for preschoolers, especially older children who are transitioning to elementary school.
 5. Media and technology literacy. STEM learning teaches children about the power of technology and innovation. This way, when children are exposed to new technologies, they will be ready to embrace them instead of being hesitant or afraid.
 6. Team work. Children learn to work together in teams to find solutions to problems, record data, present findings, and put their heads (and hands) together to solve problems. The end result? Your child will better understand how to cooperate with others and thrive in a team environment.
 7. Risk and experience. The process of conducting experiments develops the attitude of "Let's try and see" in preschool children. It helps to take risks and experiment at a young age.
 8. Social skills. Here, children learn to cooperate and work together, giving them real practice in social skills such as how to negotiate with others or adjust their positions to achieve a group goal.
 9. Communication. While learning STEM concepts, your children need to communicate their discoveries or questions effectively in order to work well with others or get help.
 10. Endurance. During STEM activities, children learn to understand how things work. This allows them to fail and try again. STEM education emphasizes the importance of failure as a learning exercise that teaches children to accept mistakes as part of the learning process.
- Regardless of your child's future career choice, these skill sets will go a long way in preparing them to become innovative leaders in their field. The bonus is that STEM learning is fun and kids naturally love it!





References

1. Nefedova V.I. Didactic model of teaching using Internet resources.
2. Dyatlov S.A., Tolstopyatenko A.V. Internet technologies and distance education // Information society, 2000, no. 5, p
3. <https://www.britannica.com/video/193418/overview-STEM-education> - Learn about STEM education and its unique approach to teaching and learning
4. <https://www.education.wa.edu.au/what-is-stem>
5. <https://www.bigbangacademyhk.com/blog-en/stem-education>

