



## What is STEAM?

STEAM stands for Science, Technology, Engineering, the Arts (visual, music, dance, and theatre), and Mathematics. But STEAM education is far more than a catchy acronym. It's a philosophy of education that embraces teaching skills and subjects in a way that resembles real life. In a school setting, STEAM is an integrated approach to learning that encourages students to think more broadly about complex, real-world problems. This interdisciplinary approach has helped create innovations like the original laptop computer, the iPhone, and has revolutionized many industries. It helps students ask questions, connect the dots, problem solve, think creatively, and be innovative.

## Why is it important?

Simply put, STEAM reflects real life. 65% of children entering school now will be working in jobs that don't even exist yet! One thing we can be certain of is that careers of the future will be interdisciplinary. We live in a time of knowledge and information explosion. We don't need children to memorize random facts anymore. Our children are our future, and we need them to be able to think deeply and critically, evaluate information, apply knowledge, research, and effectively problem solve. STEAM education empowers students to take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration, and work through a creative process; all skills needed for success in the real world.

## How is it unique?

The key component of STEAM is integration. STEAM brings context into the classroom by engaging students in process-based project learning, where they come up with solutions to real world challenges. STEAM experiences involve two or more standards from Science, Technology, Engineering, the Arts, and Math to be taught and assessed in and through each other, simultaneously. Subjects and standards are not taught in isolation. This model mimics the process that we follow when we solve problems in real life.





Children naturally participate in the scientific method of observing, forming questions, making predictions, designing and carrying out experiments, and discussing with peers. They find patterns and build theories to explain what they see, and collect “data” to test those theories. Like scientists, children learn from others. They watch what children and adults do and learn from trying to repeat what they’ve seen or by asking questions and seeing the results.



Technology includes, not only cell phones and computers but also, simple tools such as pulleys, wheels, levers, scissors, and ramps; any man-made tool! Technology allows children to understand how tools help us accomplish tasks.



Engineering applies science, math, and technology to solving problems. Engineering is using materials, designing, crafting, and building – it helps us understand how and why things work. When children design and build with blocks, put together railroad tracks, construct a fort, or figure out how objects fit together, they are engineering.



A creative mindset is critical for scientists, technology developers, engineers, and mathematicians innovating and solving problems. Active and self-guided discovery is core to the arts. Art allows students to express what they know and feel, even before they can read or write. Research shows that early experience with creative arts supports cognitive development and increases self-esteem.



Math is numbers and operations, measurement, patterns, geometry and spatial sense. Children naturally explore mathematics every day, including informal knowledge of “more” and “less,” shape, size, sequencing, volume, and distance. Early math concepts like geometry and spatial relationships can be learned when children explore new objects physically. Math concepts are visible when they are connected to objects and actions.



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