



# WHAT IS STEAM?

The STEM to STEAM movement has been taking root over the past several years and is surging forward as a positive mode of action to truly meet the needs of a 21st century economy. STEM alone misses several key components that many employers, educators, and parents have voiced as critical for our children to thrive in the present and rapidly approaching future.

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***STEAM is an educational approach to learning that uses Science, Technology, Engineering, the Arts and Mathematics as access points for guiding student inquiry, dialogue, and critical thinking.***

The end results are students who take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration, and work through the creative process. These are the innovators, educators, leaders, and learners of the 21st century!

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STEM vs. STEAM

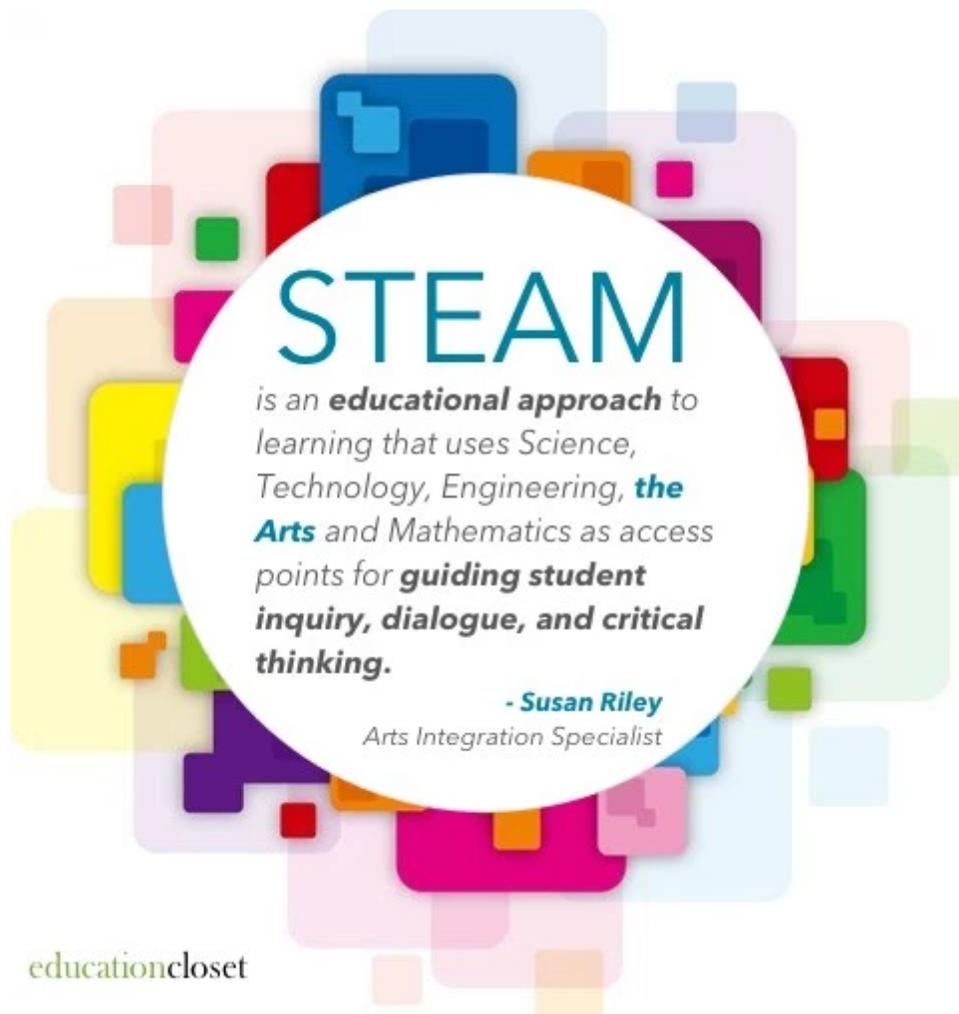
Much has been proclaimed about the need for more STEM “programs” in our schools. The logic is simple: the wave of future economic prosperity lies in a workforce that is well-versed in rising job markets like science, technology, engineering and math. Thus, there has been an increased investment in STEM initiatives in schools. This includes (but is not limited to):

- providing mobile devices for students (sometimes in the forms of computer labs, and other times in the form of 1:1 – a single device for each student)
- after-school STEM clubs or programs
- STEM curriculum, where projects using STEM practices are embedded
- BYOD initiatives (bring your own device)
- STEM days to encourage hands-on exploration within each of these disciplines
- robotics programs

While these initiatives are a wonderful start into the exploration of these four areas of study, the critical process of creativity and innovation is missing. Students in STEM programs may have more experiential learning opportunities, but they are limited to only science, technology,

engineering and math. Our economy requires so much more than an understanding of these areas – it requires application, creation and ingenuity. STEM alone does not foster these essential nutrients.

STEAM is a way to take the benefits of STEM and complete the package by integrating these principles in and through the arts. STEAM takes STEM to the next level: it allows students to connect their learning in these critical areas together with arts practices, elements, design principles, and standards to provide the whole pallet of learning at their disposal. STEAM removes limitations and replaces them with wonder, critique, inquiry, and innovation.



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## STEAM with Integrity

The pathway to STEAM is exciting, but can also be dangerous without an understanding of what STEAM truly means in both its intention and its implementation. Like its STEM predecessor, STEAM can stop short of its best manifestation without several core components:

- STEAM is an integrated approach to learning which requires an intentional connection between standards, assessments and lesson design/implementation

- True STEAM experiences involve two or more standards from Science, Technology, Engineering, Math and the Arts to be taught AND assessed in and through each other
- Inquiry, collaboration, and an emphasis on process-based learning are at the heart of the STEAM approach
- Utilizing and leveraging the integrity of the arts themselves is essential to an authentic STEAM initiative



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**In order to accomplish these goals, schools must consider a variety of factors, including:**

- Collaborative planning, including a cross-section of teachers on each team
- Adjusting scheduling to accommodate a new way of teaching and learning
- Professional development for all staff in STEAM practices and principles
- STEAM schema-mapping for the curriculum and assessment design process
- Alignment and unpacking of standards and assessments
- Seamless lesson implementation processes and strategies

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This approach to learning is certainly not an easy task, but the benefits to students and the entire school community are tremendous. Students and teachers engaged in STEAM make more real-life connections so that school is not a place where you go to learn but instead becomes the entire experience of learning itself. We are always learning, always growing, always experimenting.

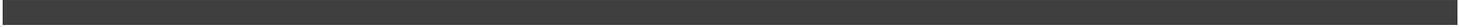
**School doesn't have to be a place, but rather a frame of mind that uses the Arts as a lever to explosive growth, social-emotional connections, and the foundation for the innovators of tomorrow...today!**



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