A Simple Introduction to

Elementary STEM

How to improve engagement and get the results you really want

A Moss Publication

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CHAPTER ONE

STEM – Vital for Elementary Students

STEM

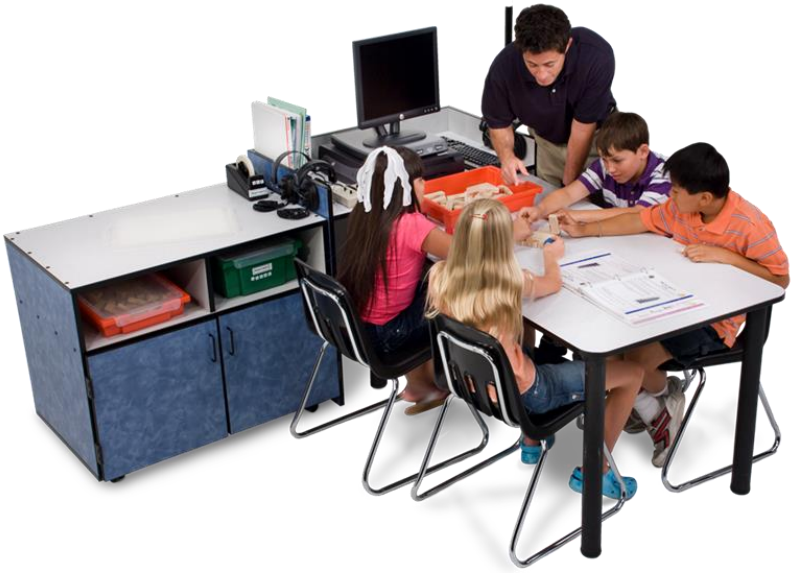
Introduce to Young Learners

STEM (Science, Technology, Engineering and Math) has been an educational "buzzword" for middle school and high school students for the last several years. Only recently have educators keyed in on providing comprehensive STEM opportunities for the youngest learners, and focused efforts on providing age-appropriate curriculum and learning opportunities.

Moss surveyed Elementary Curriculum Specialists and District Administrators and found:

- **EVERY school surveyed** was discussing STEM. Regardless of the implementation, 100% of districts are looking for STEM solutions for their district.
- **Schools want to expose students to STEM** as early as possible. 67% of respondents work for districts that expose students to STEM concepts by 3rd grade (if not in 1st or 2nd grade.)
- **No one thought STEM concepts** were too advanced for elementary students.

The message: It's important to introduce elementary students to learn STEM concepts early. Moss partners with STEM curriculum providers to provide comprehensive solutions.



Hands on, Minds on: Finding curriculum resources that are hands on and age appropriate is easier than you might think.

"Our elementary curriculum addresses national science standards and provides hands on, team-based learning experiences that are rigorous, meaningful, and relevant."

- Pitsco Education

CHAPTER TWO

STEM – Solutions for Every Student

Hands On

Engaging Students

Hands on curriculum has been a staple of elementary education since the beginning of time, right? In fact, 77 % of curriculum directors indicated that hands on curriculum is extremely important in their district.

With an emphasis on hands on curriculum, teachers often face the challenge of developing meaningful and engaging activities that tie into STEM curriculum that will resonate with students after the lesson has ended. Often, teachers lack the time and materials, and are focused on preparing students for standardized tests. Many teachers don't have the time to prepare robust science curriculum ***they want to teach***. Meanwhile, administrators can't find the resources to teach curriculum ***students need to learn***.

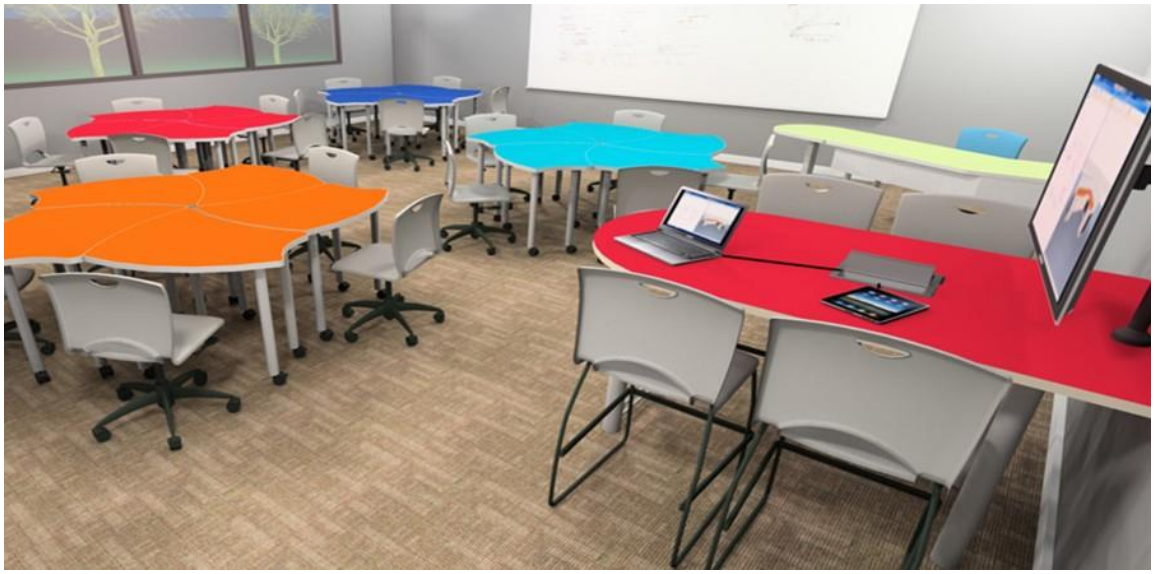
Pitsco Education elementary STEM solution employs rigorous, integrated hands on science curriculum. Though the content focus is science, the curriculum titles are packed with math, technology, and language arts experiences, making a truly well-rounded curriculum. The system is convenient – and effective, offering a rich science experience to students via a teacher-friendly solution.

Soft Skills: In addition to teaching science and math concepts, 100% of survey respondents indicated that curriculum should teach crucial “soft skills” like communication, team work, and responsibility.

Environment: Classroom environment is important. When we say “environment”, we aren’t JUST referring to the tables and chairs; we are referring to the way the class is structured, which can have a great effect on a student’s success.

Pitsco Education structures STEM curriculum to be:

- **Hands On** – delivers STEM-centric content in life science, earth science, and physical science while integrating match, technology, and language arts
- **Teamwork Focused** – teamwork is an integral part of every curriculum solution. Elementary curriculum puts students to work in teams of four, and each student has a unique role as the team discovers key STEM concepts while being challenged to solve real-world problems. Working as a groups is key to overall success. (The teamwork aspect also reinforces crucial “soft skills” lessons.)
- **Flexible**– the environment addresses the ever-present challenges of space, time and resources. The system can be implemented in many different ways including as a science lab, science center or after school program. Schools can provide a dedicated space (a “Makerspace”) or transform and existing elementary classroom into a STEM discovery zone for lessons.



A Note About Classroom Furniture: According to our survey, 100% of elementary educators and administrators understand that the learning environment plays a role in a student's educational outcomes.

Educators can re-imagine and create a learning space that reflects the latest thinking in a classroom environment for active, investigative, technologically-enhanced, collaborative learning. No longer just a collection of desks, today's classroom becomes an educational tool, facilitating imagination and collaboration for even the youngest students.

When considering classroom furniture, we've compiled a list of 7 Essential Components administrators should consider to maximize a student's outcomes. At Moss, we partner with Interior Concepts to provide cost-effective classroom-ready solutions.

CHAPTER THREE

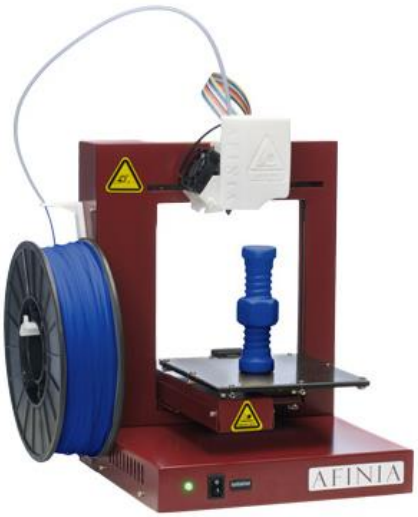
STEM – Tools of the Trade

STEM

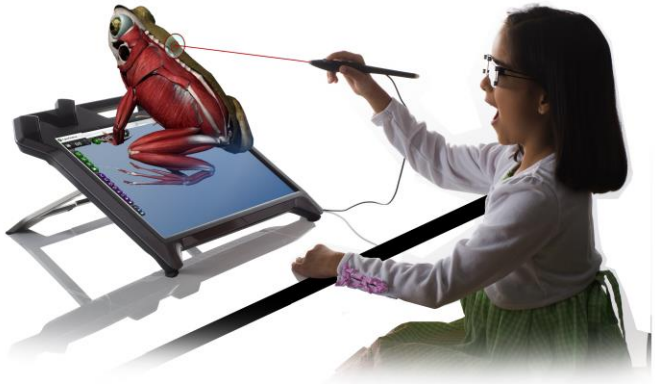
Learning Tools

According to the results of our survey, students are encouraged to learn design and engineering concepts as early as 2nd and 3rd grade. When it comes to bringing engineering concepts down to the elementary level, schools are turning to design and 3D printing.

The benefits of 3D printing are numerous – students respond to 3D printing because it makes learning tangible and real to students of all ages. 3D printing is no longer an academic luxury – it's a essential component of a well-rounded STEM education.



Afinia and Makers Empire bring 3D printing concepts to an elementary level – at an affordable price. Each option puts 3D design and 3D printing curriculum within reach for elementary schools.



Technology Integration: 56% of survey respondents indicated technology is an important tool, but not one that is over-used at the elementary level.

Technology is an important tool for 21st century classrooms. Of survey respondents, 44% identified as "technology forward." In other words, they like to be on the cutting edge of technology and innovation. They place emphasis on the "T" in STEM, and work to integrate technology at early stages.

Tools, like zSpace, allow schools to implement hands on science and math concepts with 3D virtual reality. Imagine dissecting a frog or a human without getting messy, or building a robot without having to worry about limited supplies or student safety. Technology allows for student imagination and exploration in a safe environment, and allows educators to reproduce similar results class after class.

In Conclusion

STEM

Survey Says…

- 67% of survey respondents indicated STEM is a primary focus of their district, and a vital component to their elementary school curriculum
- 44% of survey respondents found it difficult to find engaging, age-appropriate materials to teach STEM to elementary students
- 45% of survey respondents believe technology integration is vital to STEM education
- 63% of survey respondents believe elementary curriculum needs to prepare students for the rigors of middle school and beyond
- 100% of survey respondents believe curriculum needs to teach soft skills such as communication, teamwork and responsibility
- 100% of survey respondents understand that a student's learning environment affects a student's outcomes

Surveys are great, but...

At Moss, we understand STEM education, but we want to learn more about YOUR situation. You aren't a cookie-cutter school, and you don't need cookie-cutter solutions. We want to learn about your needs and your goals, and help you achieve them with smart curriculum and tools. Contact us today to receive a free, no-obligation consultation. Our Education Specialists will devise a plan to take your district to the next level in STEM education.

FREE CONSULTATION

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