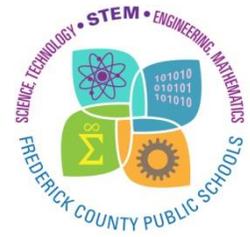




# STEM Education Frequently Asked Questions



## What are the Maryland STEM Standards of Practice?

1. Learn and Apply Rigorous Science, Technology, Engineering and Mathematics Content
2. Integrate Science, Technology, Engineering, and Mathematics Content
3. Interpret and Communicate Information from Science, Technology, Engineering, and Mathematics
4. Engage in Inquiry
5. Engage in Logical Reasoning
6. Collaborate as a STEM Team
7. Apply Technology Strategically

The STEM Standards of Practice incorporate the 21<sup>st</sup> Century Skills needed for students to be College and Career Ready.

## What is STEM Education?

STEM Education is an approach to teaching and learning that integrates the content and skills of science, technology, engineering, and mathematics. STEM Standards of Practice guide STEM instruction by defining the combination of behaviors, integrated with STEM content, which are expected of a proficient STEM student. These behaviors include engagement in inquiry, logical reasoning, collaboration, and investigation. The goal of STEM education is to prepare students for post-secondary study and the 21st century workforce.

## What is a STEM proficient student?

STEM proficient students are able to answer complex questions, investigate global issues, and develop solutions to challenges and real world problems while applying the rigor of science, technology, engineering, and mathematics content in a seamless fashion. STEM proficient students are logical thinkers, effective communicators and are technologically, scientifically, and mathematically literate.

## Which students should develop STEM proficiency?

STEM education is for all students. The Maryland State Department of Education Office of STEM Initiatives and the FCPS STEM Office is focused on strengthening science, technology, engineering, and mathematics education. STEM Standards of Practice and the associated framework documents are designed to increase the proficiency of all students in STEM and grow the number of students who are well prepared for post-secondary study and careers in science, technology, engineering, or mathematics.

## How does STEM education connect to content?

The foundation of STEM education is in content. The required content for STEM education is found in content or curriculum standards. How teachers should approach that content in the learning environment is found in the Maryland State STEM Standards of Practice.

### **What is a STEM centric unit or lesson?**

A STEM centric unit or lesson incorporates the STEM Standards of Practice and reflects the definition of STEM education. STEM Centric lesson or units begin with grade level appropriate curriculum standards. A complex question, real world problem or global issue is identified that relates to the content standards. Transdisciplinary connections are considered and applied. STEM career connections are incorporated and a product, process or action is developed for students to summarize or address the real world problem. Students access content by engaging in the STEM Standards of Practice.

### **Which teachers are responsible for implementing the STEM Standards of Practice?**

The Maryland State STEM Standards of Practice cross all grade levels and disciplines. Instruction in STEM education is a shared responsibility within a school. Therefore, all classroom teachers, support teaching staff, and specials teachers (e.g.: special education, gifted and talented, enrichment programs, afterschool programs, summer programs) can use the Maryland State STEM Standards of Practice and Frameworks to engage students in STEM centric lessons, units and tasks that develop STEM proficiency.

### **Where does STEM fit in the school day?**

STEM education complements the continuum of content instruction that would occur during a school day. STEM education does not disrupt, displace, or add on to curricular pacing. As a result, STEM education should be a seamless fit into content instruction.

### **There are no standardized tests for STEM. Why should schools focus on implementing STEM education when there is no accountability for it?**

While there is not an official STEM standardized test, STEM aligns with concepts that are tested. Therefore, if a school is practicing exemplary STEM education then students will be exposed to skills and concepts that will be tested.

### **How do schools address STEM Education in FCPS?**

Implementation of the STEM Standards of Practice could occur through projects that span multiple disciplines or through appropriate content-based infusion. Implementation should occur at each grade level and is addressed in all content areas during the regular school day. Curricular resources are continually being developed that address STEM Education. In addition, there are several STEM related extracurricular programs such as, Maryland Science Olympiad, Destination Imagination, WISE (Women in Science and Engineering), FIRST Robotics and other clubs that are available on a school by school basis. There is no official STEM Program however we offer a variety of courses that have a STEM focus in the middle and high schools. We also have a wide range of STEM Content courses across grade levels.

### **Who should I contact for more information regarding STEM education?**

[Kim Day](#) STEM Coordinator PreK-12

[Erin Landsman](#) STEM Teacher Specialist PreK-12

*Adapted from the MSDE STEM Frequently Asked Questions*