The Issue
Science, technology, engineering, and math (STEM) skills are increasingly necessary to give children and youth a path to success in our global society. “Yet most strategies and policies for reforming STEM education focus on what happens during the school day. While schools are absolutely essential for learning, we must acknowledge that children spend less than 20% of their waking hours in schools each year.” An alternative that works to engage children in learning these fields? Afterschool and Summer programs!

These programs offer engaging, hands-on STEM learning that get children excited about these topics and help them build real-life skills and proficiencies. “A recent analysis of evaluation studies of several afterschool STEM programs showed that high-quality programs can lead to increased interest and improved attitudes toward STEM fields and careers, increased STEM knowledge and skills, and increased likelihood of pursuing STEM majors and careers.”

Building interest in STEM is important because children and youth need these skills to navigate an ever increasingly complicated and technologically driven world. Over the next 10 years, Massachusetts is expected to need a workforce that can fill 280,000 more STEM positions.

How Afterschool Helps
Afterschool programs provide quality, informal STEM enrichment that gets kids interested in these domains and provides them with essential 21st century skills. Afterschool and summer STEM programs build confidence in schoolwork, increase academic achievement, reduce dropout rates, and teach teamwork.

The STEM afterschool and summer programs are remarkable. Programs such as Zero Robotics teach a team of students how to “code” in a yearly competition that culminates in a live event broadcasted from the International Space Station. Mass Audubon, using state funds, developed STEM curriculum that built interest in the environment, biology and science. Studies have shown that adding mathematics to an afterschool program can build confidence and reduce school dropout risk.

Most important, STEM afterschool programs help close the achievement gap. A meta-study of after-school programs around the country concluded that afterschool improves social, emotional and academic outcomes. Closing the achievement gap in STEM is critical for the children and youth of Massachusetts, especially minorities, English language learners, and girls.

Impacts of Participating in Afterschool STEM Programs

<table>
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<th>Improved attitudes toward STEM fields and careers</th>
<th>Increased STEM knowledge and skills</th>
<th>Higher likelihood of graduation and pursuit of a STEM career</th>
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The research has helped inform state policy. The **Governor’s STEM Advisory Council**, a body of business leaders, local elected officials, and experts in STEM, “included afterschool and summer programs” as a critical part of their STEM 2.0 plan. During the annual STEM Summit in 2014, afterschool and summer programs were shown as successful catalyst to build 21st century skills and interest.

**What Can We Do?**

Massachusetts must invest in programs we know are successful:

- The **Governor’s STEM Advisory Council**, a body of city and industry leaders, is an ongoing initiative to push Massachusetts closer to becoming the leader in STEM. Their **Pipeline Fund** (line item 1595-7066), is a grant opportunity to help burgeoning STEM programs, afterschool and in school alike, to succeed.

- The **Afterschool and Out-of-School Time Grant** (line item 7061-9611) is the only dedicated state funding line item that goes directly to enhance quality in afterschool. As of FY2014, a new initiative of the grant gave programs money to develop STEM curriculum and improve quality.

- The **STEM Starter Academy** (line item 7066-0036) is an important funding opportunity for community colleges to ensure a continued support of students in STEM majors. The funds go toward students who are interested in STEM but are not performing to certain academic standards.

Massachusetts must also incentivize and reward school and community partnerships. Afterschool STEM programs can have a significant positive impact when they are in tune with their local schools. Superintendents, teachers, and afterschool providers should be encouraged to work together — emphasizing the need to ensure a child gets a quality education throughout the entire day, and year, and has access to STEM programming that creates a spark in all children and youth, regardless of race, gender, ethnicity or class.

Massachusetts ranks fifth in the nation for its afterschool programming.\(^8\) Time to advance to **Number One!**

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