



# Talking Points

## *Telling the STEM Chapter of the Education Story*

*The following talking points can be used flexibly – as a source of themes for longer written pieces, as short responses in media interviews or public appearances, or as set-ups to “pre-frame” a conversation on specific policy or program proposals. All of these can and should be embellished in multiple ways, drawing attention to details of programs and policies that flow naturally from these priming statements. Each talking point pulls from rigorously tested messages that have been shown to shift thinking away from common but unproductive ways of thinking about education, and to build the public’s support for more effective approaches to teaching and learning. They need not be used word-for-word, but when adapting, communicators should take care to maintain the core frame elements in each.*



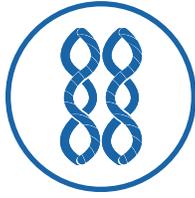
### **Collective Prosperity**

The interconnected content areas of science, technology, engineering and math – STEM - power our economy and advance our society. We need our future leaders to have the skills required to drive a strong, information-age economy. To do this, we must commit the resources necessary to ensure that all children develop STEM knowledge and skills. Schools are important here, but so are out-of-school learning opportunities. Supporting quality STEM learning is vital to our country’s shared, and continued, prosperity.



### **Future Preparation**

Given our complex and changing world, we need tomorrow’s citizens to be equipped to meet our modern challenges. Learning in science, technology, engineering, and math—the subjects called “STEM” – builds the knowledge and skills needed to reason through tough problems and come up with creative, effective, and reasonable solutions. Preparing for the challenges and surprises that lie ahead requires helping all children develop these knowledge and skills. And, we need to make sure that every child in the next generation develops the skills demanded by the information age. STEM learning is a vital part of getting our nation ready for the future.



### ***Weaving Skill Ropes***

Learning is much like the process of weaving a rope: No single strand can do all the work. Instead, for a rope to be strong and useable, each strand needs to be strong and woven tightly together. As we learn new skills, our brains weave these strands together into ropes, which we use to do all the things that we need to be able to do — solve problems, work with others, formulate and express our ideas, make and learn from mistakes as we learn new things. Developing knowledge through problem-solving based on data and through experimentation in science, technology, engineering, and math provides vital strands in all different kinds of skill ropes. Students need chances to learn how to weave these STEM strands into different ropes, so that they're flexible. Crucially, they need many opportunities to practice using the resulting ropes. When kids have strong STEM strands, they can use them for all kinds of things that they will need to be able to do — in school, but also importantly in life.



### ***Activation***

Out-of-school programs activate learning in science, technology, engineering, and math—the subjects called “STEM.” Afterschool and summer programs spark learning by letting children and youth experiment with STEM ideas in real-world situations. Such opportunities help ignite curiosity and interest, especially for those who might not think of themselves as “math and science kids.”



### ***Fluency/Immersion***

Out-of-school learning helps children and youth become fluent in Science, Technology, Engineering, and Math—the subjects called “STEM.” Just as people need to be immersed in real-world situations to best acquire a language, when children and youth explore STEM in their lives outside of the classroom, they can master these subjects. Giving students the chance to practice what they have learned in the classroom in contexts like libraries, community centers, museums, and afterschool programs builds understanding, develops confidence and inspires a greater willingness to take on challenges and even risk the possibility of failure, best equipping them for the agility of thinking that will be required to face the challenges which lie ahead.



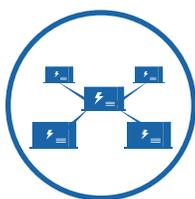
## ***STEM Ecosystem***

Just as an ecosystem depends on each and every plant and animal that makes up the system, STEM education depends on in-school and out-of-school learning playing their roles and being connected. Out-of-school environments like afterschool and summer programs are pollination points within the learning ecosystem — essential locations that children need to grow STEM knowledge and skills. Quality out-of-school STEM programs are part of a thriving learning ecosystem for all young people. Building skills in informal, real-world settings really helps to generate interest and spark learning in these vital subjects.



## ***Fairness Across Places***

Our goal should be to create a country where all children — regardless of where they live — have a fair chance to reach their potential and contribute to society. To live up to this challenge, we need to make sure that, no matter where children live, they have an equal opportunity to access quality learning environments. This includes making sure all schools have teachers and programs that can teach students science, technology, engineering and math — or what we call “STEM.” And it means taking steps so that all communities have places like museums, afterschool programs or science centers, where students can immerse themselves in STEM, experimenting with applications of their knowledge. To make sure that access to STEM learning doesn’t depend on a child’s zip code, we need to devote more resources to those areas where the current opportunities are patchy or low quality.



## ***Charging Stations***

STEM learning opportunities are like charging stations that power up kids’ learning. Some students are in environments with lots of opportunities to charge up STEM learning. Everywhere they go, they are able to access and benefit from powerful charging stations in the form of libraries, museums, science centers and afterschool programs, which provide spaces to apply abstract concepts and turn knowledge into skills. Access to dedicated professionals as mentors also energizes their learning. But other students are in charging dead zones — places where there just aren’t many high-quality learning opportunities they can plug into. When we look out across the current system we can see that it’s patchy — it’s built in a way that provides fewer charging opportunities for some of our nation’s children than for others. This is especially problematic when it comes to STEM learning, where effective learning requires multiple opportunities and ways to interact with content. We need to build a better charging system across the country so that all students, no matter where they are, have high-quality opportunities to engage with STEM subjects.