



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 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.

Talking Points: Telling the STEM Chapter of the Education Core Story

1 As we set out to improve learning, our most important goal should be to create citizens who are part of an agile and adaptable workforce, capable of performing the jobs of the future and contributing to our society as citizens with problem-solving and critical thinking skills. Preparing for the surprises ahead requires adding new knowledge and skills to the traditional curriculum. That includes updating the ways we teach science, technology, engineering and mathematics—including building in multiple opportunities to practice application of these important skills our country will need in the 21st century.

2 STEM learning is important for everyone. These interconnected content areas give us the building blocks for understanding and continuing to improve the systems that power, develop, and advance our society, our economy and industry. Additionally, STEM subjects cultivate experience with experimenting and checking assumptions against data, which help make everyone better problem-solvers and citizens, qualities our country needs in a complex and changing world. STEM learning hones relevant, real-life observation and analysis skills for young people, and exposes them to parts of their community they might not otherwise see.

3 Our country can't afford to let any schools remain outdated or inadequate in these critically important skills. We need to continue to build the capacity of teachers and community educators to facilitate the kind of learning opportunities that enables students to recognize and

formulate questions worthy of exploration and experimentation. We need to ensure that every child in this generation develops the STEM content knowledge and skills needed for this kind of innovation. If we fail to act with this goal in mind, our economy will suffer as we struggle to fill the jobs of the future.

4 To improve education in this country, 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 reinforce their learning by applying their knowledge and building these skills outside of classrooms.

5 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. Creating fairness between places means making sure that there are quality STEM programs in all parts of the country. To make this happen, we need to devote more resources to those areas where the current learning opportunities are patchy or low quality.

6 Evidence tells us that learners need multiple ways to engage with ideas, just as pollinating insects and birds must touch multiple flowers to do the important

Talking Points: Telling the STEM Chapter of the Education Core Story (cont'd)

work of sharing pollen. Multiple pollination points are especially important when children are learning science, technology, engineering and math because engaging learning in a variety of spaces, times, and activities helps students to cross-pollinate ideas in ways that truly grow concepts and ways of thinking. We need to consider and connect all the pollination points we could use to help enrich STEM learning and grow these important skills. Doing this requires us to integrate classroom learning with all of the many places outside of the classroom where young people learn—libraries, community centers, museums, and afterschool programs—to increase opportunities for knowledge and curiosity to grow.

7 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.

8 Learning is much like the process of weaving a rope: No single strand can do all the work of the rope. 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.