

Who We Are

STEM equity starts here.

Kid Spark Education, an educational nonprofit with a national reach, believes every child deserves access to STEM education that can change their lives. We help schools and educational service providers disrupt the pattern of educational inequity by providing STEM and Invention Education early and consistently for Pre-K – 8th grade children. By giving kids of all backgrounds and abilities an equal chance to learn and love STEM, we are nurturing a next generation of successful professionals, bold thinkers, and inventors.

Our Goal

To see STEM and Invention Education available to all school-age children in the United States by 2030.

Why We Exist

By providing high-quality STEM and Invention Education early and consistently, we're disrupting the pattern of educational inequity.

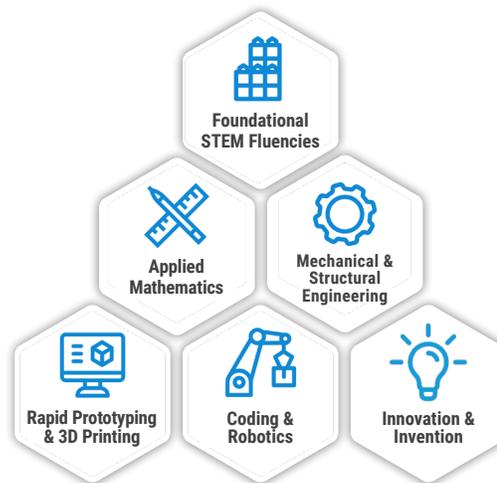
- The only way to close the STEM opportunity gap is to introduce children to STEM as early as possible and provide sustained STEM learning opportunities year after year.
- Yet most formal and informal education providers offer no STEM education at all, especially among locations with a high proportion of students of color, students from low-income households, and in rural communities.
- Through our STEM Equity Grants Program, Kid Spark is removing barriers for the schools and informal education providers with the greatest need – and enlisting our partners and allies in a sweeping movement for educational change.
- Our goal is to be a catalyst for the success of a generation of inventors and innovators and to fill a critical gap among our peers and partners working to do the same. We believe Invention Education is one of the most important of these partners, with the greatest potential impact toward the vision we share.



Our STEM Equity Solution

The Kid Spark Program is deceptively simple ... and has revolutionary impact.

- Research shows that starting very young and having adult mentors are the keys to STEM success. Kid Spark makes it elegantly simple for educators to mentor children in STEM from a very young age.
- The program grows up with children, from Pre-K - 8th grade. By the time children reach high school, foundational STEM skills come as naturally as reading, and comfort with STEM is part of their identity. By helping children to develop these crucial skills and mindsets, we are strengthening the invention pipeline and increasing inclusivity.
- Ease of adoption and program cost have long been the barriers that have kept STEM out of elementary education settings. Kid Spark is readily adopted by elementary teachers and informal educators, and is the lowest-cost scalable solution available.



***Kid Spark Programs** are designed to help young children learn foundational STEM fluencies from a very early age and then build upon their learning each and every year. Our elementary and middle school programs are comprised of progressive units of instruction that cover a range of STEM concepts, and can be used to meet any child where they are.*

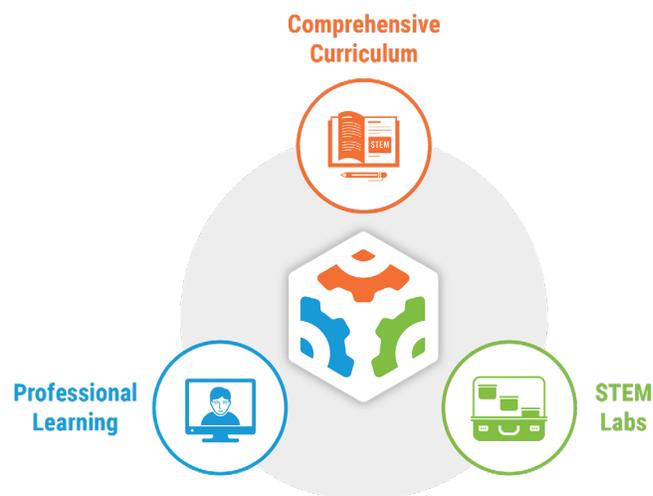
Learning STEM is as important as learning how to read.

Just like reading, STEM concepts are an essential tool for understanding and interacting with the world. Kids who are “STEM fluent” learn to think critically, solve creatively, and engage fearlessly with the world around them. By providing tools to support STEM education, from toddler to teen to teacher, Kid Spark helps kids develop the courage to imagine a better world and the skills to create it. With Kid Spark, kids learn to see like designers and think like engineers. They grow up ready to succeed in a tech-driven twenty-first century – and ready to change their world (and ours).

Our STEM Equity Solution (cont.)

We equip educators to create powerful change for children.

- We offer responsive materials that educators can adapt to their needs and their students' abilities. The program changes to fit the child, not the other way around.
- By making it easy for educators with intense time and budget pressures to adopt the Kid Spark Program, and providing the support they need to deliver it, we're contributing to a diverse pipeline of qualified STEM educators.
- We provide support and training for educators at all levels of experience and from all backgrounds. We're helping teachers do what they do best: mentor a generation of leaders who will change their own lives, their communities, and the world.



***Kid Spark Programs** include progressive engineering and computer-science based curriculum for Pre-K - 8th grade, STEM Labs equipped with engineering and robotics materials for children, and online professional learning resources for educators.*

STEM Education for all children benefits us all.

Kid Spark learners are more likely to choose professional careers, regardless of gender, race, or economic background. They gain the skills and confidence to design new solutions for real-world problems in any career they choose. Inequities in STEM opportunity for girls, children of color, and others have cut off generation after generation of talent, ingenuity, and imagination. We're re-building a pipeline of talent and innovation. That talent means an infusion of innovation in every sector. The next generation will be ready, able, and eager to change our world.

History of Research & Development

Since 2009, Kid Spark has collaborated with educators and researchers at the University of California-San Diego, Pittsburg State University, and the University of San Diego to guide the development of our educational programs. The design/research conducted during this formative time yielded seminal insights into the need to start hands-on STEM instruction as early as possible and novel methods for supporting educators as STEM mentors.

UCSD/CASA Final Report *"Designing Curriculum and Building Minds: Developing Readiness for Science-Related Skills and Dispositions"*

Key Developments: Initial design of early childhood curriculum focused on mentors helping young children learn foundational STEM fluencies.

Key Findings: Mentored guidance led to children displaying more creativity in unguided free-play or invention opportunities.

Kid Spark Education officially becomes a 501c3 non-profit.

Mission: To help all children, especially children from underserved and underrepresented communities, to learn and love STEM.

NP Strategies *"Student and Partnership Experience Evaluation"*

Key Findings: Children report a dramatic increase in how much they like or love STEM after engaging in a Kid Spark Program. Educators report significant increases in their own comfort with teaching STEM.

University of California-San Diego (UCSD) Center for Academic and Social Advancement (CASA) Pilot Study *"Building Minds: Identifying the Building Blocks of Imaginative Play"*

2009

Key Findings: Underrepresented children may be missing foundational STEM fluencies that allow them to relate to science and engineering. Additionally, the role of a mentor is essential in helping children go beyond their learning edge.

2011

Kid Spark establishes partnership with Pittsburg State University (Kansas) Department of Technology & Engineering Education.

2013

Key Developments: Mobile STEM Labs, Convergent to Divergent Lesson Plans

2015

USD Design-Research Study *"Learning How to Think Like an Engineer: A Design-Based Research Study of Kid Spark Education's Curriculum in Kindergarten"*

2017

Key Developments: Revised early childhood curriculum for grades Pre-K - 1st helps children develop important fluencies that are prerequisite for all STEM learning.

2020

USD and San Diego Foundation *"Research on how to start and sustain elementary STEM and Invention Education Programs serving underrepresented children."*

2022

Key Developments: TBD

Key takeaways from our history of research include:

1. All students need to acquire foundational STEM fluencies.

Some examples of foundational STEM fluencies include spatial reasoning, sequence and correspondence, and creative problem solving. While some children learn these fluencies at home, research has proven that many underserved and underrepresented children have not acquired these fluencies upon entering school and in result are less likely to have the confidence to engage in STEM learning.

2. Start STEM early and sustain the journey.

Research shows by 4th grade, 1 in 3 children have decided STEM isn't for them. By 8th grade, it's 1 in 2. The kids opting out are mostly girls, children of color, and children from low-income communities. In order for all children to be successful and thrive in a technology-driven 21st century, they need to start engaging in STEM learning as early as possible, and then build upon their learning each year. This early and sustained exposure will help children develop a **STEM Identity** (seeing one's self as capable of learning and understanding science, technology, engineering, and math) that supports a lifelong love of STEM learning.

3. STEM mentors matter.

The role of the mentor is essential in helping children go deeper than they can by themselves. While there is value in letting children free play with STEM toys or manipulatives, it will not take them beyond their learning edge. It is important for mentors to guide children through a constant cycle of convergent and divergent learning experiences, so they can learn new STEM concepts and then apply their knowledge in creative and inventive ways.

4. Hands-on engineering and Invention Education is a strategic gateway for all children to learn STEM disciplines and to develop a strong STEM Identity.

Children learn math and scientific inquiry best through hands-on engagement as tool-makers, designers, and inventors; essentially, as engineers. When children can construct their sense of math and science with relatable projects -- and learn through their mistakes and succeed through persistence -- they develop a growth mindset towards STEM.

5. Kid Spark STEM Programs are highly effective and affordable for schools and informal learning providers.

Kid Spark Programs utilize existing staff, existing classroom facilities, and reusable engineering materials. Our elementary and middle school programs are comprised of progressive units of instruction that cover a variety of STEM topic areas, and can be used to meet any child where they are. Children report a dramatic increase in how much they like or love STEM after engaging in a Kid Spark Program. Educators report significant increases in their own comfort with teaching STEM, including physics and engineering concepts.

Our Commitment

Kid Spark is working to give every child access to life-changing STEM experiences.

- Familiarity and fluency with STEM is essential to success in a twenty-first century world. Every child needs it, and every child deserves it.
- Our audacious goal is to see STEM and Invention Education available to all school-age children in the United States by 2030.
- Reaching our goal of access for all means closing the opportunity gap for children of color and others facing entrenched, systemic inequities. That's our vision - and our commitment.

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Clients

Kid Spark has elementary and middle school clients in all fifty states. Additionally, Kid Spark partners with children's museums, YMCAs, Boys and Girls Clubs, Girl Scout organizations, and other educational service providers throughout the country.

Financial

Kid Spark provides STEM Equity Program Grants to schools and informal education entities serving a high proportion of Title I students, children of color, and other children who are underrepresented based on race, gender, and economic or geographic disadvantage.

Information regarding our STEM Equity Grants Program can be found at:

<https://go.kidsparkeducation.org/grants/stem-equity-grant-programs>.

Kid Spark also provides its programs on a fee basis to schools that do not qualify for our grants program.

Kid Spark Education

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