

THE FUTURE OF STEM EDUCATION



GRANT GUIDE FOR EDUCATORS



2026-2027

CreXo™

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TABLE OF CONTENTS

About the Grant Guide	3-4
Identifying Need	5
Measuring Success	6-7
Products + Impacts on Learning	
Hummingbird Robotics	8-9
Finch Robot	10-11
Strawbees	12-13
Tinkering Labs	14-15
DataSnap	16-17
Swift	18-19
Broadening Impact	20
Developing a Budget	21
Team Contacts	22



At CreXo, we believe every student deserves access to engaging, high-quality STEM learning opportunities. This guide is designed to support educators in securing funding for STEM programs by providing information that aligns with common grant application requirements.

CreXo Family of Brands	Kindergarten	Elementary
		
		
		
		
		

Whether you are developing a grant proposal, seeking administrative approval, or building a departmental budget request, these resources can help you articulate the educational impact of CreXo classroom tools. If you have questions or would like personalized support, our team is happy to help.

Middle	Secondary	Subject
		Computer Science, Robotics, STEM
		Screen-free engineering, STEM, (robotics optional)
		Screen-free engineering, STEM, Inventions
		Data literacy, Science, STEM
		Screen-free engineering, STEM, Makerspace

Identifying Need

A compelling proposal begins with a clearly defined need supported by data. Whether your goal is to expand access to computer science education, increase participation among underrepresented student populations, strengthen STEM pathways, or provide equitable learning opportunities in under-served communities, incorporating current data and connecting your goals to broader initiatives can demonstrate both relevance and potential impact.

Resources for Supporting Your Need Statement

- **State of AI + Computer Science Education Report** – Review national and state-specific data on computer science access, participation, equity gaps, and education policy trends.
- **STEM Education Coalition** - Advocates for policies and investments that expand access to high-quality STEM education. Their resources include research, policy updates, and national trends.
- **National Girls Collaborative Project** - Provides research and statistics related to increasing participation of girls and underrepresented populations in STEM fields.
- **National Center for Education Statistics (NCES)** - Provides comprehensive education data that can help applicants establish local, state, and national context for educational challenges and opportunities.
- **The Manufacturing Institute** - Publishes research on workforce shortages and the need for technical, engineering, and problem-solving skills.

Consider addressing questions such as:

- Q. Which student groups are underrepresented in STEM programs at your school/district?
- Q. What career-readiness skills will students develop through the proposed project?
- Q. How does this project support district, state, or national educational priorities?
- Q. What barriers limit student participation, and how will this project help remove them?

Measuring Success

Strong proposals explain how success will be measured, when it will be measured, and what evidence will be collected. Start by connecting the project to existing school/district/state priorities, then identify a few measurable outcomes that are realistic to collect.

- 1 Goal** What need or school/district/state priority are you addressing?
- 2 Activity** How will students use the chosen STEM tool(s)?
- 3 Evidence** What will you collect? (surveys, assessments, projects, enrollment, attendance, portfolios, rubrics)
- 4 Target & Timeline** By when, and what level of change will indicate success?

Examples of Measurable Outcomes:

Participation & Access

Easy to collect

- Number of students participating in robotics/STEM activities
- Number of classrooms, grade levels, or teachers using the tools
- Enrollment growth in STEM courses, clubs, or enrichment programs
- Participation of students from groups previously underrepresented in STEM

Learning & Skill Development

Pre/Post evidence

- Improvement on pre/post assessments of STEM concepts
- Demonstrated proficiency in computational thinking, engineering design, data collection, or problem solving
- Quality of student projects as measured by a standards-aligned rubric
- Completion of design-build-test-refine cycles documented in student portfolios

Engagement & future interest

Survey-based

- % of students reporting increased interest in STEM courses, clubs, or careers
- % of students who feel more confident using technology and solving problems

Measuring Success cont.

Sample Evaluation Plan

Goal: Increase middle-school engagement and foundational STEM skills through robotics.

Evidence: Pre/post survey, teacher rubric, project completion data, and enrollment records

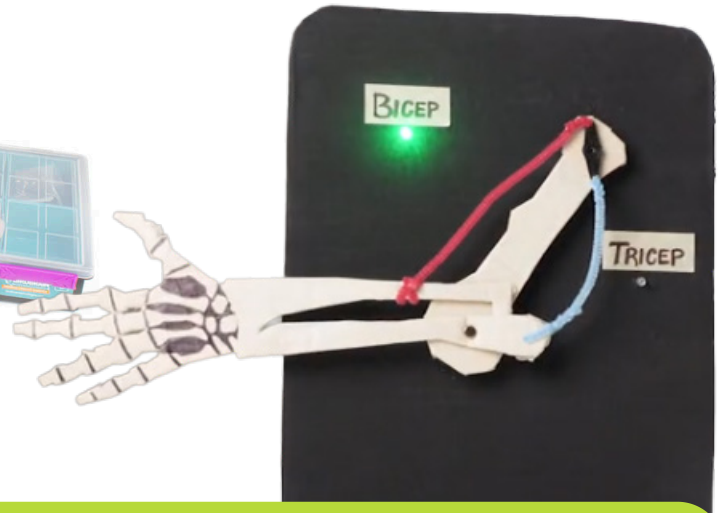
Target: By the end of the semester, at least 80% of participating students will complete a functioning robotics project, and average confidence ratings in STEM problem solving will increase from pre- to post-survey.

Timeline: Baseline in September, midpoint check in November, final collection in January.

Sample Proposal Language

“This project supports the district’s goal of increasing student engagement and expanding access to STEM learning by providing hands-on robotics and engineering experiences aligned to NGSS, ISTE, and grade-level academic standards.

Success will be measured through participation data, pre/post student surveys, standards-aligned assessments, and evaluation of student robotics projects using a common rubric. Data will be collected at the beginning and end of the implementation period. Results will be reviewed to determine growth in STEM confidence, computational thinking, engineering design skills, and participation in STEM learning opportunities.”



Product Descriptions + Impacts on Learning

The Hummingbird Robotics Collection

Product Description

The Hummingbird Robotics Kit is a hands-on robotics and engineering tool that empowers students to design, build, and program original robotic creations using everyday craft and recycled materials. Developed at Carnegie Mellon University, the kit combines lights, sensors, and motors to transform student ideas into robots, kinetic sculptures, and animatronic projects.

Designed for learners in grades 4-12, Hummingbird supports open-ended, project-based learning that integrates engineering, computer science, creativity, and design thinking. Students create personally meaningful projects while developing technical skills.

Hummingbird Kits are compatible with beginner-friendly programming environments such as Snap! and MakeCode, as well as advanced text-based languages including Java and Python. This scalability allows the same technology to support learners ranging from upper elementary through high school, making it suitable for differentiated instruction and long-term program implementation.

Hummingbird is especially effective in interdisciplinary learning environments, enabling educators to connect robotics and coding with science, mathematics, language arts, social studies, art, and career and technical education (CTE) programs. Working in collaborative teams of two to three students, learners apply the engineering design process as they plan, prototype, test, refine, and present their robotic solutions.

Educational Impact

Connect Learning to Real-World Problem Solving

Hummingbird enables students to apply computer science, engineering, and design thinking skills to authentic challenges that reflect real-world needs. Projects may include designing disaster-resistant model homes, developing assistive technologies, creating environmental monitoring systems, or building biomimetic robots inspired by nature. Through these experiences, students learn to identify problems, evaluate solutions, and communicate their ideas while developing critical thinking and innovation skills.

Deepen Understanding Through Applied Learning

With Hummingbird, students demonstrate understanding through the creation of interactive, physical models. Rather than simply recalling information, students apply academic concepts in new and challenging contexts. This project-based approach promotes deeper engagement, improves knowledge retention, and provides multiple pathways for students to demonstrate mastery.

For example, students may:

- Create robotic models that illustrate scientific concepts and systems
- Design interactive storytelling projects that bring literature and history to life
- Build simulations of planetary motion, ecosystems, or human body systems

Increase Participation and Confidence in STEM

Research indicates that interest in STEM fields often declines as students progress through school, particularly among girls and historically underrepresented populations. Hummingbird was intentionally designed to broaden participation in STEM by combining technology, creativity, storytelling, art, and engineering. Building robots from familiar materials and creating projects based on personal interests reduces barriers to entry. The emphasis on personal expression allows for a wider range of students to see themselves as capable engineers, programmers, designers, and innovators.

[See the research!](#)

Develop Future-Ready Skills

Through Hummingbird projects, students build essential 21st-century skills that support college, career, and workforce readiness, including:

- Computational thinking
- Engineering design and problem solving
- Communication and presentation skills
- Collaboration and teamwork
- Persistence, resilience, and iterative learning



Product Descriptions + Impacts on Learning

The Finch Robot Collection

Product Description

The Finch Robot is a versatile, classroom-ready tool that engages students in hands-on computer science and computational thinking. Developed at Carnegie Mellon University, Finch is designed for learners in Kindergarten through college. It arrives fully assembled, allowing students to begin exploring programming concepts immediately without requiring prior coding experience.

Equipped with a wide range of built-in sensors and outputs (lights, movement, sound)—plus the capabilities of the micro:bit such as an accelerometer, compass, and LED matrix—Finch enables students to create increasingly sophisticated programs and interactive projects. Students can design autonomous vehicles, data-collection tools, interactive games, musical instruments, and countless other real-world applications.

Finch supports a progression of learning from introductory coding to advanced computer science concepts through compatibility with beginner-friendly programming environments such as FinchBlox and MakeCode, as well as text-based programming languages including Java and Python. This scalability allows Finch to support learners across grade levels and instructional settings, from elementary STEM enrichment to Advanced Placement high school courses.

Built for classroom use, Finch features a durable design, rechargeable battery with more than seven hours of runtime, and extensive free curricular resources that help educators integrate computer science into existing instructional programs.

Educational Impact

Strengthen Computer Science Learning Through Hands-On Application

Finch transforms abstract programming concepts into interactive experiences that help students develop a deeper understanding of computer science principles. By controlling a physical robot, students immediately see the results of their code, making learning more engaging, meaningful, and accessible. Students use Finch to apply concepts including:

- Algorithms and computational thinking
- Variables, conditional logic, and loops
- Data collection and analysis
- Testing, debugging, and iteration

Connect Learning Across Multiple Subjects

Finch supports interdisciplinary learning by providing opportunities to apply computer science concepts within mathematics, science, engineering, and other academic disciplines. Because a single set of robots can be shared across multiple classrooms and grade levels, Finch provides a flexible resource that supports school-wide STEM and computer science initiatives.

For example, students may:

- Explore measurement, graphing, and statistical analysis in mathematics
- Create interactive demonstrations that reinforce classroom learning
- Design interactive storytelling projects that bring literature and history to life

Develop Future-Ready Skills

Working with Finch, students develop critical skills that extend beyond computer science, including:

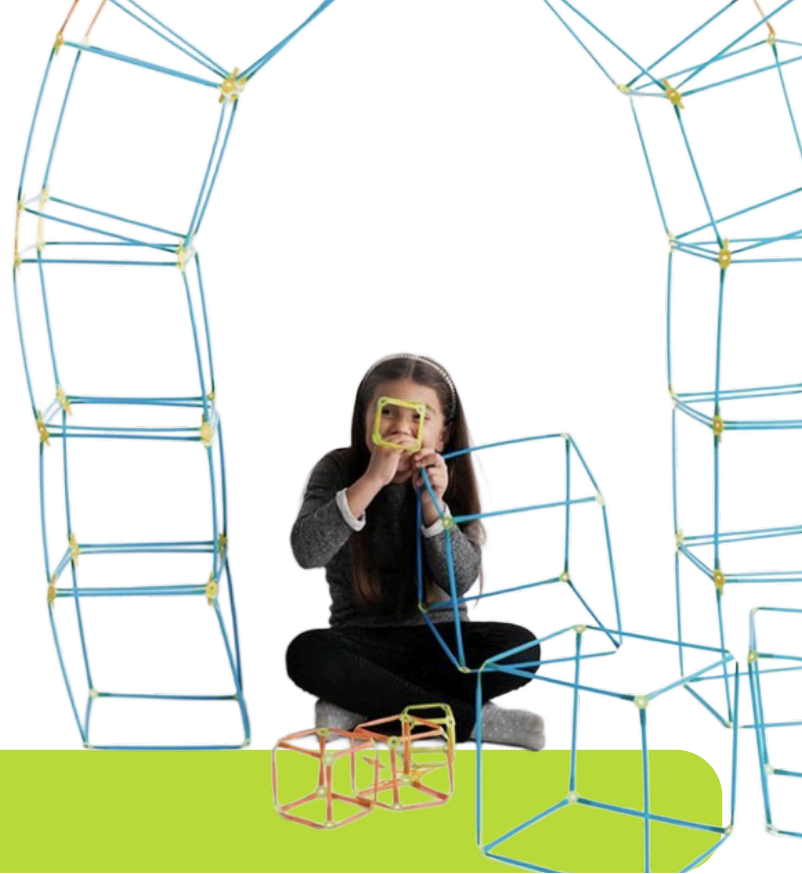
- Computational thinking and problem solving
- Collaboration and communication
- Data literacy
- Persistence and resilience

The scaffolded learning resources included with Finch allow students to experience success early while continuing to grow into more advanced concepts over time. Because this tool supports learners from elementary school through college-level coursework, schools can create a coherent computer science pathway that builds skills progressively and helps more students envision themselves as future innovators, engineers, programmers, and technology leaders.



Product Descriptions + Impacts on Learning

The Strawbees Collection



Product Description

Strawbees empowers students in grades K-8 to act as inventors, designers, and engineers through hands-on STEAM learning experiences. Using a simple yet powerful system of reusable connectors and flexible building straws, students can rapidly prototype ideas, test solutions, and bring their imagination to life.

Strawbees offers an approachable entry point into engineering design for students of varying ages, abilities, and prior experiences. The low floor and high ceiling of the building system enable all learners to participate successfully while providing opportunities for advanced exploration and innovation. Students can construct everything from geometric structures and mechanical devices to kinetic sculptures, assistive technologies, and solutions to real-world challenges.

The intuitive, color-coded connector system allows learners to quickly move from idea to prototype, encouraging iterative design and experimentation. As projects become more sophisticated, students are challenged to apply increasingly complex concepts related to engineering, mathematics, physics, and architecture.

Strawbees is supported by a robust library of free learning resources, making it easy to integrate hands-on STEM experiences into classrooms, makerspaces, after-school programs, or summer camps. The platform supports both guided lessons and open-ended challenges, allowing educators to tailor experiences to their instructional goals and student needs.

Educational Impact

Develop Engineering and Problem-Solving Skills

Strawbees allows students to investigate engineering principles in a tangible and engaging way as they design structures, analyze performance, identify challenges, and refine their solutions. Students develop skills in:

- Engineering design and prototyping
- Systems thinking
- Critical thinking and problem solving
- Structural design and stability
- Mechanical reasoning
- Testing and iterative improvement

Strengthen STEM Learning Through Applied Experiences

Strawbees helps students connect academic concepts to authentic applications. This active learning approach promotes deeper understanding and retention of STEM concepts while helping students see the relevance of classroom learning. Students may:

- Investigate geometry by constructing three-dimensional shapes and structures
- Explore forces and motion through mechanical designs
- Examine stability, balance, and load distribution in engineering challenges
- Model scientific concepts and systems
- Design solutions to environmental, community, or global problems

Increase Student Engagement and Ownership of Learning

Because Strawbees supports open-ended exploration and student choice, learners are able to pursue ideas that are personally meaningful and relevant to their interests. This sense of ownership increases engagement and motivation while encouraging persistence when challenges arise.

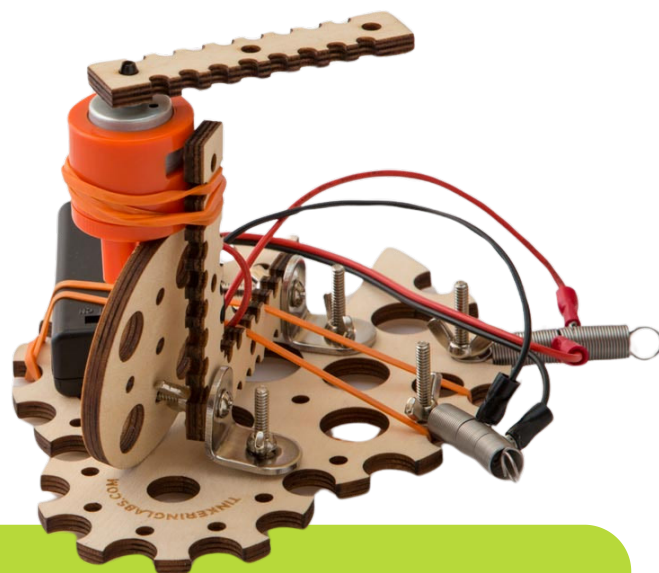
Prepare Students for Future Success

Through repeated cycles of imagining, building, testing, and improving, students develop the future-ready skills increasingly valued in higher education and the workforce, including:

- Innovation and critical thinking
- Engineering design
- Collaboration
- Persistence and adaptability

These experiences help students build confidence as learners and prepare them to navigate a rapidly changing world where creativity and technical literacy are essential.

Product Descriptions + Impacts on Learning



The Tinkering Labs Collection

Product Description

The Electric Motors Catalyst Kit empowers students to think like inventors and engineers through hands-on, screen-free STEM experiences. Using authentic hardware and open-ended design challenges, students develop mechanical thinking skills while exercising creativity and innovation.

The Catalyst Kit is a reusable engineering toolkit that combines motors, batteries, wood components, screws, wing nuts, brackets, and additional connectors. Students use these materials to design, prototype, test, and refine original inventions that solve engaging engineering challenges. Whether building a machine that can transport an object, launch a projectile, or complete a creative task, students learn through exploration and iteration rather than step-by-step instructions.

Unlike many STEM tools that focus on a single outcome, Tinkering Labs encourages divergent thinking and creative ownership. There is no single "correct" solution. Instead, students investigate multiple approaches, evaluate tradeoffs, and improve their designs through repeated testing and refinement—mirroring the authentic work of engineers and inventors.

Designed for students in grades 3–8, the Catalyst Kit provides a rare opportunity for screen-free STEM learning that remains highly engaging for upper elementary and middle school students. The included challenge cards, brainstorming tools, and reusable components allow educators to facilitate both brief engineering experiences and extended project-based learning units.

Educational Impact

Develop Engineering Design Skills

Tinkering Labs immerses students in the engineering design process by challenging them to identify problems, generate ideas, build prototypes, test solutions, and improve their designs. Through iterative design experiences, students develop the ability to:

- Analyze problems and constraints
- Generate and evaluate multiple solutions
- Test and refine prototypes
- Learn from failure and persist through challenges

These experiences build resilience, adaptability, and critical thinking skills.

Make STEM Concepts Tangible and Meaningful

Many scientific and engineering concepts can feel abstract. The Catalyst Kit helps students connect theory to practice. As students construct machines and mechanisms, they explore:

- Forces and motion
- Energy transfer
- Mechanical systems
- Simple machines
- Circuits and electricity
- Cause-and-effect relationships

Increase Student Engagement

The Catalyst Kit transforms learning from a passive experience into an active process of discovery and experimentation. The use of authentic hardware and real engineering materials creates an experience that feels meaningful and relevant. Students are often highly invested in their designs because they have ownership over both the process and the outcome. This engagement is particularly valuable for learners who thrive in hands-on environments or who may not connect as strongly with traditional instructional approaches.

Prepare Students for Future Careers

Today's employers increasingly seek individuals who can think critically, solve complex problems, collaborate effectively, and adapt to new challenges. Through invention-based learning experiences, students develop many of these competencies, including:

- Engineering design and systems thinking
- Critical thinking and problem solving
- Creativity and innovation
- Collaboration and communication
- Persistence and resilience



Product Descriptions + Impacts on Learning

The DataSnap Collection

Product Description

DataSnap transforms traditional STEM activities with real-time data and analysis by combining engineering challenges, wireless motion sensors, and intuitive analysis tools. Students in grades 3–12 investigate real-world physics and engineering concepts while developing the data literacy skills increasingly important in today's technology-driven world.

At the center of the DataSnap ecosystem is the DataSnap Motion Sensor, a durable wireless device that captures real-time motion data and streams it directly to student devices. The sensor measures variables such as velocity, acceleration, force, flight time, height, and impact dynamics, presenting results through student-friendly visualizations that make complex scientific concepts easier to understand.

3 DataSnap learning experiences:

- **Air Racer** – Students design, test, and optimize air-powered vehicles while exploring concepts such as force, motion, aerodynamics, energy transfer, and Newton's Laws.
- **Projectile** – Students investigate catapult design, velocity, acceleration, energy, and predictive modeling through hands-on projectile-launch challenges.
- **Impact** – Students engineer protective systems and analyze collisions using real-time motion and impact data to understand acceleration, force, inertia, and engineering design principles.

Educational Impact

Connect Engineering Design with Data Literacy

Many STEM activities focus primarily on building and experimentation. DataSnap extends learning by helping students collect, interpret, and apply quantitative evidence throughout the engineering design process. As students test racers, catapults, and impact systems, they gather real-time performance data and use that information to evaluate design decisions, identify trends, and improve outcomes.

Students develop skills in:

- Data collection and analysis
- Evidence-based decision making
- Experimental design
- Modeling and prediction
- Engineering optimization
- Scientific inquiry

Make Abstract Physics Concepts Visible

Physics concepts such as velocity, acceleration, force, energy transfer, and motion can be difficult for students to visualize. DataSnap bridges the gap between theory and practice by providing immediate, real-world measurements that connect classroom learning to observable outcomes. Rather than simply calculating values on paper, students can see how design changes affect performance and analyze the resulting data in real time. This hands-on approach helps deepen conceptual understanding and improve retention of STEM concepts.

Build Future-Ready Skills for an AI-Driven World

Modern workplaces increasingly rely on data analysis, interpretation, and informed decision-making. DataSnap introduces students to foundational concepts in data science and predictive modeling through age-appropriate, hands-on investigations.

Students gain experience with:

- Data literacy
- Computational thinking
- Predictive modeling
- Quantitative reasoning
- Technology-enabled investigation
- Evidence-based communication



Product Descriptions + Impacts on Learning

The Swift Collection

Product Description

The Swift collection brings hands-on STEM, engineering, and design learning into the classroom through accessible tools and open-ended building experiences. Designed to support students as they imagine, create, test, and improve their ideas, Swift transforms cardboard and everyday materials into powerful tools for learning and innovation.

At the center of the Swift ecosystem is the Swift Saw that enables students to safely design, cut, construct, and iterate on cardboard engineering projects. Add on Swift's cardboard connectors and hand tools, and students can create storybook dioramas, habitat models, carnival games, engineering prototypes, assistive devices, architectural structures, and countless other original inventions.

The Swift platform supports STEM learning across subject areas. Because projects are open-ended and adaptable, Swift can be implemented in classrooms, makerspaces, libraries, after-school programs, summer camps, and enrichment settings.

By combining creativity, engineering, and hands-on making, Swift helps students develop the confidence and skills needed to transform ideas into tangible solutions.

Educational Impact

Develop Engineering Design Skills

Swift immerses students in the engineering design process, helping them move beyond consuming information to actively creating and solving problems.

Students learn to:

- Identify challenges and opportunities
- Brainstorm and evaluate ideas
- Create prototypes
- Test and improve designs
- Communicate solutions and findings

These experiences help students develop the mindset and habits of engineers, inventors, and entrepreneurs while reinforcing the value of persistence and iteration.

Strengthen Cross-Curricular Learning

Swift supports meaningful connections across multiple content areas by providing students with opportunities to demonstrate understanding through design and creation.

Examples include:

- Building storybook scenes to support literacy and comprehension
- Designing habitat models to explore ecosystems and life science
- Creating structures that apply mathematics and geometry concepts
- Developing prototypes that address historical, environmental, or community challenges

By integrating making and design into core subjects, students experience learning as interconnected and relevant.

Foster Creative Confidence

Innovation begins with the belief that ideas can be transformed into reality. Swift encourages students to take intellectual risks, explore multiple solutions, and express their creativity through original projects.

As students experience success in designing and building their own creations, they develop creative confidence—the belief that they can solve problems, contribute ideas, and make meaningful improvements to the world around them.

Broadening Impact

Many grantmakers look for evidence that a project's benefits will extend beyond the students directly participating in the program. Demonstrating a plan to share results and engage the broader community can strengthen your proposal and increase the perceived value of the investment.

Ideas for Sharing and Expanding Impact:

Showcase Student Learning

- Feature student projects during open houses, STEM nights, or family engagement events
- Organize a robotics showcase, maker fair, or engineering design challenge where students present their work and explain their design process
- Display student creations in libraries, district offices, or community spaces

Build Leadership Opportunities for Students

- Establish a student mentor program where experienced students teach STEM concepts to younger learners
- Create student-led workshops, demonstrations, or lunchtime clubs that expand participation in STEM activities
- Encourage students to present their projects at local, regional, or state conferences

Support Educators and School-Wide Adoption

- Share successful lessons, projects, and implementation strategies with colleagues during professional learning communities (PLCs) or staff development sessions
- Develop a lending or shared-use model that allows multiple classrooms, grade levels, or departments to benefit from the equipment
- Create interdisciplinary projects that engage students across science, mathematics, technology, language arts, social studies, and art courses

Engage Families and the Community

- Partner with local libraries, museums, community centers, after-school programs, or youth organizations to host robotics demonstrations or STEM workshops
- Invite families to participate in student showcases, coding nights, or maker events
- Share project updates and student success stories through district websites, newsletters, and social media channels

Developing a Budget

Your budget should clearly connect expenses to project goals, student outcomes, and long-term sustainability. If a budget template is not provided by the funder, consider organizing expenses into the following categories.

Equipment and Instructional Materials (Fixed Costs)

These are items that can be used across multiple years. Because they do not increase significantly as additional students participate, they are often considered long-term investments. When possible, explain how these resources will serve multiple cohorts of students over time, maximizing the funder's investment. Examples:

- Robots or STEM Kits
- Storage and charging solutions
- Chromebooks, tablets, or laptops
- Extension cords and power strips
- Makerspace tools and equipment
- Classroom organization materials

Program Supplies (Variable Costs)

These are consumable materials that support student projects and are replenished as participation grows. Examples:

- Craft and prototyping materials
- Glue sticks, tape, fasteners, and adhesives
- Cardboard, paper, felt, foam, and recycled materials
- Batteries and charging accessories

In-Kind Contributions and Community Support

In-kind contributions are donated resources, services, or time that support the project at no additional cost. Including these contributions demonstrates organizational commitment. Examples:

- Teacher planning and preparation time
- Existing classroom supplies and equipment
- Community partnerships and mentoring support
- Donated meeting or instructional space
- Volunteer support

Professional Development and Training

Successful STEM programs depend on educators who feel confident implementing new tools and instructional strategies. Including professional development in your budget demonstrates a commitment to high-quality implementation and long-term sustainability. Consider reaching out to our team to discuss training - info@crexo.com, 888-371-6161



We wish you luck in the grant writing process! If you have questions or would like personalized support, our team is happy to help.

LET'S CONNECT

Talk with a Product Specialist

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