EDC Learning transforms lives.

STEM Education

Ensuring STEM success for all students

Tomorrow's workforce needs a strong STEM education *today*. STEM knowledge will help students meet society's social, economic, and environmental challenges. STEM skills—analytical, data literacy, computational, and critical thinking—will prepare students for future success in both STEM and non-STEM fields. Yet the U.S. Department of Commerce, among others, has expressed serious concerns about students' STEM proficiency.

The United States must radically change its approach to STEM education. Since 1960, EDC has been a STEM education pioneer. Today, EDC staff continue to spark students' interest in STEM, enhance STEM learning in schools and afterschool programs, and close opportunity gaps that bar students' way to successful STEM learning and careers.

Program Highlights

Promoting Passion and Proficiency

EDC's innovative instructional resources help educators engage students in active, challenging STEM learning. These include the *Beauty and Joy of Computing* Advanced Placement (AP) course, *Ocean Tracks*, *Transition to Algebra*, *EDC Earth Science*, *Math for All*, *SolveMe Puzzles*, *Design It*, *Explore It*, *Concepts & Practices*, and *Possible Worlds*. Across the United States, our resources broaden students' participation in STEM and improve STEM learning outcomes.

Paving the Way to Computer Fluency

In today's high-tech world, youth will need computer fluency to succeed in the work-place. EDC is leading a pre-K–12 computer science education (CS Ed) initiative to ensure all students are ready for what tomorrow will bring. We help districts and states build strong CS Ed systems, advance knowledge of effective CS Ed programs and policies, incubate innovation in CS Ed instruction, and build capacity to teach CS and foster computational thinking skills.

At a Glance

EDC offers:

- Highly effective STEM curricula featuring student-centered instruction to increase students' motivation, engagement, and achievement
- Rigorous and evidence-based approaches to build the capacity of teachers, afterschool educators, and school, district, and state leaders to provide high-quality STEM instruction
- Research and evaluation services that provide new insights into effective STEM education programs, policies, and practices
- Interventions for under-resourced populations to ensure all students develop the STEM knowledge and skills they need to succeed in and beyond school
- Guidance in how to skillfully use technology to enhance STEM education and give students experience using STEM workforce tools

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Partnering with STEM Industry Leaders

EDC and STEM industry leaders help youth link STEM learning with future careers and master key workplace skills. As the international program office for Amgen Biotech Experience (ABE), we support the Amgen Foundation in advancing a science education program that has provided real-world biotech lab experiences to 600,000 students. And, since 2000, EDC and the Ford Motor Company Fund have prepared students for college and careers through Ford Next Generation Learning (NGL), a successful approach to reinventing high schools to enhance student outcomes. Both ABE and Ford NGL are featured in Change the Equation's STEMworks database of programs that "maximize ROI for funders and make a real impact on students."

Preparing Students for Big Data

EDC's Oceans of Data Institute (ODI) transforms education to help people succeed in school, work, and life in a data-intensive world. ODI convenes government, science, industry, technology, and education stakeholders to identify and overcome barriers to data literacy. To forge pathways to data use in education, ODI researches, develops, and tests critical student and teacher supports. To inform workforce development, ODI created the development of the first profile of what data-enabled professionals and data practitioners need to know and be able to do.

Planting the Seeds of STEM Success

EDC identifies effective strategies to help teachers and families support pre-K–3 children's successful STEM learning. Examples include our *Literacy and Academic Success for English Learners through Science* i3 project, our studies to measure children's learning outcomes under the Ready To Learn initiative, and our *Games for Young Mathematicians* study. Our curricula (*Young Scientist Series*) and professional development (*Foundations of Science Literacy*) help teachers engage children in deep STEM inquiry and build STEM understanding in developmentally appropriate ways.

For more information about our STEM initiatives, experts, conference presentations, and resources, visit **ltd.edc.org**.

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EDC designs, implements, and evaluates programs to improve education, health, and economic opportunity worldwide.

6/17

Impact

- EDC is home to five National Science Foundation (NSF) resource centers/initiatives that advance innovative STEM education nationwide.
- Impact studies show that our *Foundations of Science Literacy* program improves preschool instruction, classroom quality, and children's understanding of science concepts.
- Since 2014, over 200 schools and districts in 46 states have used *Transition to Algebra* to enhance instruction and ensure all students succeed.
- Our STEM Learning and Research Center has supported 326 NSF ITEST projects reaching 415,900 youth, 12,800 educators, and 5,100 parents in 46 states and Washington, D.C.
- Over 2,500 public school students are participating in the Beauty and Joy of Computing AP Computer Science Principles course we are scaling in New York City.
- Our Ready To Learn studies found that transmedia (video, interactive games, apps) can improve children's math learning, particularly in low-income households.

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