

Synthetic Biology for Tennessee Schools: BioBuilder Partners with Niswonger Foundation on \$8.8M Federal Grant for STEM Education

CAMBRIDGE, Mass., Dec. 29, 2020 (SEND2PRESS NEWSWIRE) – The [BioBuilder Educational Foundation](#) announced that they are to partner with the Niswonger Foundation on their award of an “Education Innovation and Research” (EIR) Grant from the U.S. Department of Education that will focus on educational opportunities in Science, Technology, Engineering and Mathematics (STEM).



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BioBuilder will provide teacher professional development in the area of synthetic biology through their Essentials and Master Teacher workshops. BioBuilder’s Professional Development workshops impact a teacher’s understanding of biology and their approach to teaching it. Co-taught by a practicing synthetic biologist and a high school teacher, workshops combine classroom, laboratory, and design activities that are both accessible and inspiring. Participants leave with ready-to-teach lessons that bring engineering into biology classrooms, labs, and science clubs.

Aligned with both the Common Core and Next Generation Science Standards, the BioBuilder curriculum brings modern context to ideas and content traditionally taught in high school and college classes. At the high school level, BioBuilder has been used in General, Honors, and AP Biology as well as Biotechnology classes. In addition to teacher professional development, BioBuilder will support as many as 19 participating school districts with lab kits available through [Carolina Biological Supply Company](#).

Students will participate in project-based learning through the BioBuilder Idea Accelerator, a program that teaches legitimate biotechnology skill building and data analysis through a team-based approach to creative problem solving and professional quality communication. Interested students may also elect to further pursue their biodesign projects with a dedicated mentor through BioBuilder's out-of-school-time activity, the BioBuilderClub.

This partnership builds on BioBuilder's work in recent years in the Kingsport City Schools, supported by the Eastman Foundation and Carolina Biological Supply Company. In January and July 2019, all the biology teachers at the Doby-Bennett High School, as well as teachers from other Kingsport schools and faculty from East Tennessee State University attended BioBuilder Professional Development workshops. Thanks to their training, teachers now plan to provide all 2,500 students at Doby-Bennett with hands-on training in synthetic biology over the next four years. After their pilot year, teachers have seen how their students respond to the BioBuilder labs in amazing ways.

Evie LaFollette, Secondary Science Teacher, Kingsport City Schools shared, "We've seen the full spectrum of students doing the BioBuilder labs, and they all enjoy it. They're asking, 'When do we get to do the next one?'"

The EIR grant was awarded to the Niswonger Foundation to fund the Rural Tennessee STEM.LD program. The concept of Learning Design (the "LD" in "STEM.LD") is defined as "the creative and deliberate act of devising new practices, plans of activity, resources and tools aimed at achieving particular educational results in a given context". BioBuilder joins the Niswonger Foundation in the belief that designing student-centered learning ecosystems and pathways can lead to positive student outcomes, from K-12 student achievement to meaningful employment in the workforce post-high school.

BioBuilder is one of a number of partners supporting the Rural Tennessee STEM.LD program. Other educational resources and partners will include cybersecurity experiential opportunities from the University of Alabama at Huntsville; expertise in curriculum design in engineering technology from Purdue University; East Tennessee State University's math, epidemiology, graphics design and computer science programs; the ETSU Research Corporation; and STEM project-based programs including STREAMWORKS, the Marine Advanced Technology in Education for Inspiration and Innovation; and "If I Had a Hammer."

Announcement from the U.S. Department of Education:

<https://www.ed.gov/news/press-releases/secretary-devos-announces-new-funding->

accelerate-education-innovation-and-empower-teachers-professional-development-options-0

About the Niswonger Foundation

The [Niswonger Foundation](https://www.niswongerfoundation.org/) was established in 2001 to make a positive and sustainable difference in education in Northeast Tennessee. The Niswonger Foundation focuses on removing constraints to educational innovation and problem solving, thus allowing local school systems to better provide for student needs. By building school programs that are research-based and sustainable, the Niswonger Foundation has become a recognized voice for educational reform in the State of Tennessee, while nurturing the next generation of leaders. Learn more: <https://www.niswongerfoundation.org/>.

About BioBuilder Educational Foundation

Created by an award-winning team at MIT, BioBuilder offers new ways to teach, learn, and explore cutting-edge science and engineering. BioBuilder provides students the chance to integrate biology and engineering through practical, hands-on lessons, club activities, and school-to-work experiences. Teachers learn new methods of teaching that engage and inspire the young scientists in their classrooms.

Learn more: <https://biobuilder.org/>.