BioBuilderClub

Impact Report 2022-2023

30 TEAMS | **11** STATES + TAIWAN | **177** STUDENTS REACHED | **33** MENTORS | **20** LIGHTNING TALKS

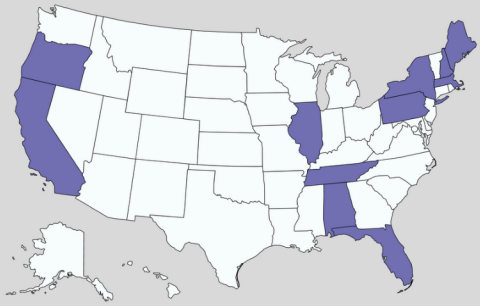
The BioBuilderClub engages high school teams around the world who combine engineering principles and scientific know-how to design, build, and test their own project ideas using synthetic biology.

Teams worked at their schools from October to March to develop meaningful projects that address real-world challenges in areas ranging from agriculture and civil engineering to the environment and medicine.

Teams were paired with one of 33 practicing bioengineers for mentoring. This year, nearly two thirds of our teams were returning teams from schools who had previously participated.

Check out the projects at http://biobuilderclub-library.org/

States Represented:



Sample Projects:

- Algae that produce more starch
- Corn that fixes more CO_2
- *E. coli* that secretes a plastic-degrading enzyme
- Bioluminescent plants
- Nitrogen biosensors to check water quality
- Soybeans that consume less water
- Bioadhesives for waterproof wound dressings

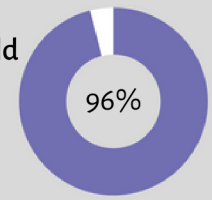
Learning Outcomes

Percentage of students reporting confidence in STEM skills:

- 100%: Presenting scientific ideas orally
- 72%: Giving evidence to support scientific opinions
- 67%: Understanding scientific information on websites
- 67%: Collecting and analyzing data
- 67%: Writing scientific papers or reports
- 56%: Ability to read primary scientific literature or write a research proposal

Students who enjoy learning about science:

Students who would like to know more about STEM jobs:



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Highlights From 2022-2023

Student Feedback:

"I felt like the BioBuilderClub opened a completely new lens for me in the world of synthetic biology and bioengineering."

"[I most enjoyed] the ability to design and build upon ideas that I created, with the promise of developing solutions to real issues we face. "

Arbor Luminary Lecture:

Ravi Ramadhar, President of Daicel Arbor Biosciences, provided insight into his career and the challenges and opportunities in the industry.

Four Schools Received Cold Storage Units Donated by K2 Scientific:

Manhattan Comprehensive Night and Day High School
New York, NY

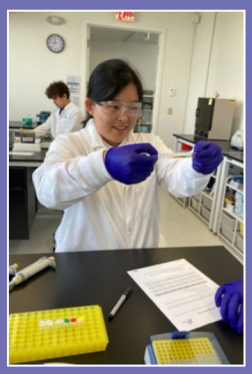
Hancock County Technical Center
Ellsworth, ME

Julia R. Masterman Laboratory and Demonstration School
Philadelphia, PA

Crosstown High School
Memphis, TN

Highlights from this season include three teams who ran experiments in the Learning Lab @Ginkgo and the return of our in-person Final Assembly at the Learning Lab @LabCentral in Cambridge where 20 teams gave lightning talks.

Experiments @Ginkgo:



Final Assembly @LabCentral: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