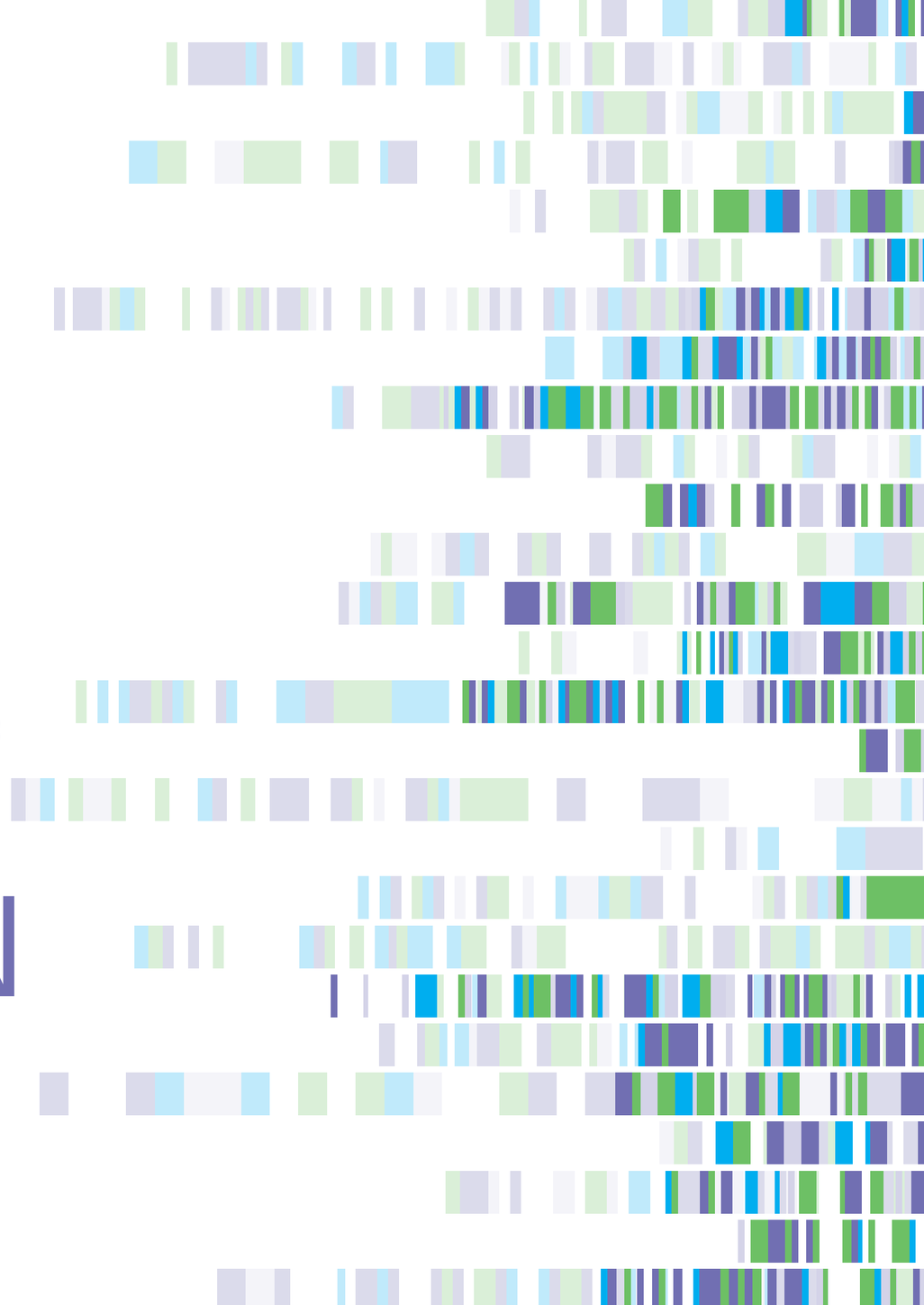
BioBuilderClub

INFO FOR
NEW TEAMS
2025-2026 SEASON



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BIOBUILDERCLUB

MISSION

“All you need is a good idea and we’ll teach you the engineering to bring it to life.”

The BioBuilderClub increases student access to authentic tools and approaches for engineering biology. Within biodesign teams, budding scientists develop meaningful projects that address real-world challenges.

SEE 2025 IMPACT REPORT

OVERVIEW

The BioBuilderClub gives high school students the opportunity to combine engineering and life science to design, build, and test their own ideas. Schools can incorporate the BioBuilderClub into a course or run it as an extracurricular program.

Teams of up to 10 students work at their schools from October to March to solve a problem they care about with biodesign. Teams receive 10 hours of mentorship, can attend online Zoom webinars, and have the opportunity to present their research at our Final Assembly.

- Key Dates:
  - Registration opens August 15th
  - Season Kickoff on zoom October 6th
  - Final Assembly March 12th in person or online
- Example Projects:
  - Removing heavy metals from water through biofiltration
  - Degrading microplastics with bacterial enzymes
  - Producing biofuel from food waste
  - See more examples in our project library: https://biobuilderclub-library.org/

FLEXIBLE IMPLEMENTATION

1 AFTERSCHOOL CLUB

Some BioBuilderClub teams are run as an extracurricular at a high school, supervised by a teacher. Some teams meet outside of school and are supervised by a parent or other adult. An adult is needed to register and oversee the team.

2 IN-CLASS PROJECT

Some high school teachers choose to incorporate the BioBuilderClub into their general or advanced biology classes, and students work on projects in teams during the school day. Teachers may register multiple teams.

HOW IT WORKS

1. Learn about synthetic biology and identify a topic area you want to address, such as agriculture, medicine, sustainability, etc.

2. Once teams select a topic, they are matched with a mentor who has a relevant background and can advise the team on their project and experimental design. Teams develop and refine their biodesign, and may or may not conduct wet lab experiments.

3. Teams prepare short talks and poster presentations for the March Final Assembly. Many go on to publish in BioTreks.

EXPENSES

Registration: $400 per team*

*Title I schools may register two teams at no cost

Other Possible Expenses:

- Lab materials if carrying out wet lab experiments for the project
- Travel to Boston if choosing to participate in the Final Assembly in person

Fundraising: Past teams have successfully applied for school or community funding or held fundraisers

PROJECT PRESENTATIONS

Teams prepare a short talk and a poster for display using electronic posterboards during the poster sessions at the Final Assembly.

All teams are encouraged to participate, regardless of progress. Students may participate in person in Boston or online.

Check out past projects in our Project Library:

Poster Gallery, 2025 Final Assembly:

MATERIALS
TO GET STARTED

The BioBuilderClub welcomes all teams, regardless of access to molecular biology laboratory facilities.

What materials your team will need depends on your team's goals for the season.

Many first year teams, and returning teams, focus on the biodesign aspect of their project to solve a problem they care about.

Design a Solution

- Teacher/adult to lead the club
- 1-10 students to participate
- Some understanding of DNA

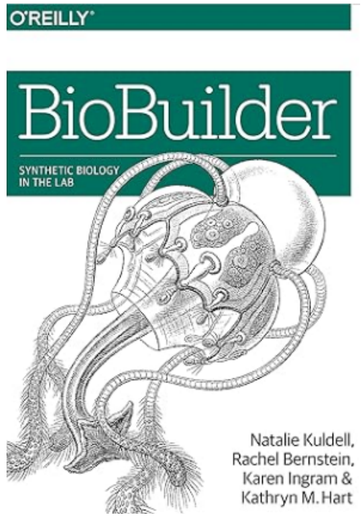
Build Your Design

- Basic biology lab equipment (glassware, pipettes, fridge/freezer, incubator, etc.)
- Basic consumable lab equipment (pipette tips, petri dish, growth media, etc.)

Test What You've Built

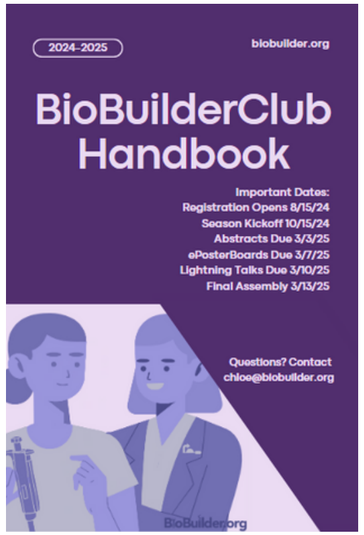
- Additional equipment such as electrophoresis chambers, spectrophotometer, PCR machine, etc.

SUPPORT FROM BIOBUILDER



BioBuilder Textbook

Teams have access to the full online textbook, which covers all aspects of biodesign in detail. New teams receive a physical copy.



Handbook

A guide created specifically with resources for BioBuilderClub teams at every stage. The guide is updated throughout the season.

Chloe Franklin

As National Program Coordinator, Chloe runs the BioBuilderClub. She hosts webinars for students and is easily reachable by email.

Your Mentor

Your team will be paired with a practicing bioengineer working in industry or academia to help guide your team.

TIMELINE

AUGUST 15

Registration

Registration opens. Teams must be registered by an adult. Students may join the team later in the season.

MID-OCTOBER

Season Kickoff

Teams will meet on Zoom to officially star the season and begin learning about biodesign.

NOVEMBER

Topic Selection

After exploring synbio, teams will submit their project topics.

DECEMBER

Mentor Pairing

Mentors will be matched on a rolling basis with most new teams paired in December.

MID-MARCH

Final Assembly

Teams will come together in Boston and online to present their projects and interact with one another.

BioBuilderClub

CONTACT

biobuilderlearning.org/program/biobuilderclub/

chloe@biobuilder.org