

CASE STUDY

BioTeach Boosts Confidence By Making the Life Sciences Industry Accessible



BACKGROUND

Brighton High School is a small, urban school that is part of the Boston Public Schools. It serves nearly 800 students who represent a diverse population of learners.

Sarah Benat, a Biology and Chemistry Teacher, connected with MassBioEd hoping to bring biotechnology into the general biology and chemistry classrooms. Sarah had some background knowledge of biotechnology and lab experience, but she needed help figuring out how to bring these concepts into her classroom, particularly in

figuring out what labs and activities would be accessible to her students who had diverse learning needs and language skills. She also needed access to the necessary equipment and materials that were beyond her small teaching budget.

APPROACH

Sarah and the students at Brighton High School were excellent candidates for MassBioEd's Take Out Training and Equipment (TOTE) program created with support from the Massachusetts Life Science Center. The TOTE program offers teachers classroom-ready activities and labs to engage students in biotechnology techniques and investigations at no cost. As part of this unique lending program, we provided teacher mentoring and classroom assistance that included:

- Developing an individualized scope of work for Brighton's life science program.
- Preparing and delivering all the equipment and reagents needed to complete TOTE activities.
- Working closely with Sarah to familiarize her with the equipment and curricula and model effective teaching strategies.
- Supporting Sarah on-site with teaching the activities to the students.

Sarah completed the Basic Biotech Skills workshop (required for TOTE) and worked with the MassBioEd team to design a scope of work for her classes.

During the year, we matched Sarah's classes with an industry host for a November Career Exploration Day, where students were able to do hands-on activities, tour the labs, and interact with volunteers who talked to the kids about their varied education and career pathways. MassBioEd also came to Sarah's classroom to help implement two hands-on labs. For most of the 140 general biology students participating, it was the first time they had used equipment from real research labs. At the end of the year, MassBioEd assisted Sarah with cleaning and organizing her supply/prep rooms, testing equipment and ridding her shelves of materials that were expired, broken, or no longer useful.



The following summer, Sarah joined MassBioEd's free 5-day BioTeach Summer Institute at UMass Amherst, which focused on annual strategic planning and lab activities with real-world context. Sarah then received a grant on behalf of her school to purchase gel electrophoresis equipment to supplement existing equipment so she had fully-functioning classroom set.

"MassBioEd was able to build from the basics and provide opportunities for all of my students to engage in scientific inquiry. MassBioEd knew how to adapt lessons for students of all learning styles. For us to be able to perform the sophisticated labs we did is remarkable – it's a testament to the BioTeach program and curriculum."

- Sarah Benat, Biology and Chemistry Teacher

RESULTS

Through MassBioEd's BioTeach program, Sarah's students not only learned foundational biotechnology and biopharma lab techniques, but left excited, inspired, and engaged about the new world of life sciences. The labs also gave them confidence in their ability to do authentic science and to work in a lab. Sarah said, "MassBioEd was able to build from the basics and show my kids that they were capable of a lot more than they thought. MassBioEd knew how to adapt lessons for students of all learning abilities. For us to be able to perform the sophisticated labs we did is remarkable – it's a testament to the BioTeach program and curriculum."

Sarah's involvement with MassBioEd continues to grow, as she introduced other teachers to MassBioEd for department-wide impact. Not only did BioTeach inspire students, but Sarah felt equipped and confident about how to bring these tools and technology into the classroom. "Without MassBioEd's support," Sarah says, "I wouldn't have done all of this in my classroom."

About MassBioEd

Massachusetts Biotechnology Education Foundation, a non-profit 501(c)(3) organization, was founded in 2001 by the Massachusetts Biotechnology Council with the goal of growing and developing talent in the Massachusetts life sciences workforce. In this time we have evolved into a key link connecting students, educators, and professionals to the exciting opportunities within the life sciences industry. Through our programs and opportunities, we aim to cultivate a field of experts who are diverse, well educated, and inspired to solve the world's most vexing challenges.