

“We constantly have former students come back to tell us that they chose to major in science, biotech or related fields because of this experience.”

– Jim Mauch, Secondary School Science Teacher



Quick Facts

- In a typical year, ABE reaches approximately **90,000 students** and **1,500 teachers**
- Programme curriculum, professional development, and all materials needed are provided free of charge
- The programme has impacted nearly **850,000 students to date**
- Independent and rigorous evaluation data found that students exposed to ABE have significant and substantial learning in biotechnology and increased interest and confidence in doing science and biotechnology
- By the end of 2023, ABE should have reached nearly **1,000,000 students** because of the Amgen Foundation's more than **\$40 million** commitment to the programme
- ABE is currently available in the following regions: Australia, Canada, France, Germany, Hong Kong SAR, Ireland, Italy, Japan, Mainland China, the Netherlands, Singapore, Turkey, United Kingdom, and the United States (*Kentucky, Los Angeles, Massachusetts, Rhode Island, San Diego, San Francisco, Tampa, Washington D.C., and Puerto Rico, with affiliate sites in Washington State and Pittsburgh*)

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The Amgen Biotech Experience (ABE) is an innovative science education programme that introduces secondary school students to the excitement of scientific discovery. ABE provides secondary school teachers with the loan of research-grade equipment, supplies, curriculum and professional development at no cost.

BIOTECHNOLOGY

Biotechnology has brought about the discovery and development of a new generation of human therapeutics. Advancements in both cellular and molecular biology have allowed scientists to identify and develop a host of new medicines for patients with serious illness. Biotechnology provides the tools and techniques for modern pharmaceutical research and drug development, and it is critical that future citizens are knowledgeable about this field.

PROGRAMME BACKGROUND

The Amgen Biotech Experience began 30 years ago through a unique collaboration of Amgen scientists and educators with a passion for sharing the joy of science and discovery. With the vision to bring the excitement of biotechnology to the fingertips of students, they developed a robust curriculum that is now available in 24 regions across the globe. In 2013, the Amgen Foundation joined forces with Education Development Center, a global nonprofit organisation with deep experience and expertise in science education, to establish a Programme Office to support and strengthen the programme worldwide.

THE PROGRAMME AND CURRICULUM

The ABE programme integrates a curriculum that allows students to explore the steps involved in creating biotechnology therapies. Aligned with the core biology curriculum, the programme supports the larger goal of fostering scientific literacy. In addition to the curriculum and teacher professional development to understand the lab protocols and science, participating teachers receive a loaned kit, free of charge, with research-grade equipment and supplies that allow students to participate in advanced science laboratories.

THE LAB AND MATERIALS

The ABE labs parallel some of the important steps taken by the biotechnology industry to develop medicines to treat a variety of diseases. The labs incorporate core technologies used by scientists in the discovery of human therapeutics, so that students will better understand the role of biotechnology and the potential impact of this industry on our future. In addition, by engaging in this programme, students may be more motivated to understand the underlying science concepts and perhaps even pursue careers in science. In collaboration with the Amgen Foundation and ABE teachers, [LabXchange](#) has created a collection of pathways designed to enhance the ABE lab experience. The pathways are modular to allow you to mix and match concepts and practice with lab techniques in the way that best supports your students.

ABE FRANCE

ABE France is led by the Department of Biology at L'Ecole Normale Supérieure. As part of the adaptation and implementation of the ABE program in France, professors of biology and biotechnology will attend ABE trainings in DNA manipulation and protein purification experiments at the ENS. They will then borrow the materials and reagents to train the students in their high schools. Through the ABE program, students will use modern biotechnology techniques and tools through genuine experiments, carried out daily in laboratories. They will understand their nature and potentialities, but also, they will discover the pleasure of manipulating, understand that these up-to-date techniques are accessible, and hopefully they may eventually pursue careers in the sciences.

