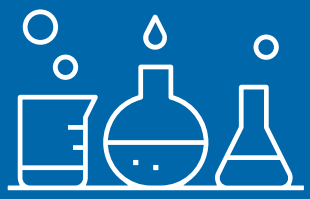
THE INNOVATIVE BIOPHARMACEUTICAL INDUSTRY'S SUPPORT FOR STEM EDUCATION IN:

TEXAS



The Biopharmaceutical Industry's Sustained Commitment to Inspiring and Advancing Tomorrow's STEM Workforce

A high-skilled technical workforce that is proficient in science, technology, engineering, and mathematics (STEM) is increasingly important to sustained economic growth and U.S. global competitiveness. However, as the U.S. continues to lag behind other countries in terms of STEM literacy and expertise, there are legitimate concerns in the nation's ability to produce enough qualified workers to meet the demands of the global knowledge-driven, STEM-intensive economy and to develop workers with the relevant skills needed for the jobs of the future. ***Inspiring and developing the next generation of STEM talent is critical to the economic success of Texas.***

STEM talent is especially important to the success of the nation's biopharmaceutical industry, one of the economy's most innovative sectors employing more than five times the level of STEM workers compared with the overall U.S. economy. **In Texas, the biopharmaceutical industry directly employs 38,039 and has a total economic impact of more than 196,000 state jobs and nearly $53.8 billion in total economic output.**[1]

Texas will need to fill nearly 880,000 STEM jobs by 2026. However, an analysis of a series of STEM education indicators finds that Texas students generally rank near the middle of all states in terms of their proficiency in STEM.

To help inspire and develop the next generation of STEM workers, the innovative biopharmaceutical industry supports 1 program in Texas and 10 programs nationwide.

Number of STEM Programs Supported by the Biopharmaceutical Industry in Texas[2]	**1**
Number of National STEM Programs Open to TX Students and Teachers	**10**

Projected STEM jobs to Fill in TX by 2026[3]

879,990

National Assessment of Educational Progress State Ranking for TX Students[4]

	4th Grade	8th Grade
Math	**9**	**27**
Science	**22**	**20**

Share of Graduating TX High School Students Interested in STEM Major or Career[5] (U.S. = 48%)	**51%**

Biopharmaceutical Industry Economic Footprint in Texas[6]

38,039 Direct Jobs	**$53.8 B** Total Output

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Biopharmaceutical Industry-Supported STEM Education Programs in Texas

The **GlaxoSmithKline Science in the Summer program** provides high-quality STEM experiences to students who would otherwise lack access, especially during summer breaks when school is out of session. In Texas, the program is available through a partnership with the Fort Worth Museum of Science and History and the Sci-Tech Discovery Center in Frisco.

Industry-Supported STEM Education Programs Nationwide

The **Amgen Foundation** offers programs that encourage STEM education for students of all ages:

- **LabXchange**, a free online science education platform that provides users with access to personalized instruction, virtual lab experiences and networking opportunities across the global scientific community.
- **Khan Academy**, where the Amgen Foundation's support as Science Partner helps create comprehensive new biology lessons for students and teachers worldwide, featuring videos, articles, and practice exercises.
- The **Amgen Scholars Program**, which identifies promising science undergraduates from across the country and matches them with research scientists and laboratories at top-tier universities for a hands-on summer internship designed to fuel their passion for STEM.

AstraZeneca is a founding partner of **Generation Health: How Science Powers Us**, an initiative offering experiential learning resources for middle school students to educate on preventative measures and innovative solutions to key health concerns, helping to make the connection between student well-being and the science behind the prevention and treatment of disease.

Bayer supports multiple nationwide efforts to improve STEM education, with an emphasis on rural areas, underserved school districts, and improving science literacy:

- The Bayer Fund supports the America's Farmers' **Grow Rural Education** program, where farmers nominate their local school districts for grants to improve STEM education facilities and programming.
- The **STEM+ Families Initiative**, a partnership with the National Parent and Teacher Association (PTA) provides grants to local PTAs to plan STEM + Families Science Festivals, events that are especially helpful in bringing STEM education opportunities to low-income and underserved communities.
- **Making Science Make Sense**, a company-wide STEM education initiative dedicated to advancing science literacy across the United States through hands-on, inquiry-based learning, purpose-driven volunteerism, community-focused partnerships, and a public education campaign.

The **Genentech Foundation** offers financial support to students from across the country interested in STEM research:

- The **Summer Research Scholars** program selects promising students of color from universities around the country to participate in summer research programs at top-tier institutions nationwide.
- The Foundation's **Fellowship Program** supports undergraduate, graduate, and postdoctoral students that are pursuing research in basic science at top-tier universities nationally.

Johnson & Johnson's WiSTEM2D initiative (Women in Science, Technology, Engineering, Math, Manufacturing and Design) provides support for girls and women of all ages, helping them pursue STEM2D studies and careers no matter where they are located through, fun, hands-on activities.

1 *The Economic Impact of the U.S. Biopharmaceutical Industry: 2017 National and State Estimates, PhRMA and TEConomy Partners, December 2019.*
2 *PhRMA-TEConomy "The Biopharmaceutical Industry's Sustained Commitment to Inspiring and Advancing Tomorrow's STEM Workforce" 2020.*
3 *TEConomy's Analysis of Projections Managing Partnership Occupational Employment Projections for 2018-2028. Projections data reflect the 2016-26 period for the following states: AL, AZ, CT, KS, KY, MA, NM, OK, TX, VT, WA, WV.*
4 *U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2019 Mathematics Assessment and 2015 Science Assessment.*
5 *Percentage of ACT-Tested High School Graduates Scoring Expressing Interest in STEM Majors, Occupations, and/or Activities; ACT: The Condition of STEM 2017 State Profiles.*
6 *The Economic Impact of the U.S. Biopharmaceutical Industry: 2017 National and State Estimates, PhRMA and TEConomy Partners, December 2019.*