



Workforce and Career-Ready Learning in Out-of-School Time (OST):

Life Sciences

The Shapiro Administration has prioritized five key industries to bolster Pennsylvania's economic development over the next decade—Agriculture, Energy, Life Sciences, Manufacturing, and Robotics and Technology. Out-of-school time (OST) programs provide a critical opportunity to connect students to these high-growth sectors early, building awareness, foundational skills, and real-world experiences that align education with workforce needs.

Why Life Sciences Matter in Pennsylvania

Life sciences encompass the study of living organisms and the systems that sustain life. The industry includes biotechnology, pharmaceuticals, healthcare, agriculture, biomedical engineering, environmental science, genomics and medical research. These fields improve human health, strengthen food systems, advance scientific discovery, and drive innovation.

Pennsylvania is recognized as a national leader in life sciences, making the sector one of the Commonwealth's five priority industries for economic growth and workforce development.

Life Sciences by the Numbers

- Pennsylvania is home to **more than 3,100** life sciences businesses.
- The industry employs **over 118,000** professionals across the Commonwealth.
- Pennsylvania consistently ranks among the nation's leaders in:
 - Biotechnology
 - Pharmaceutical Manufacturing
 - Medical Device Development
 - Biomedical Research
 - Agricultural Sciences
- World-renowned research institutions, hospitals, universities, and life science companies make Pennsylvania a national hub for innovation.
- Thousands of additional positions are projected over the next decade as demand grows for healthcare, biotechnology and laboratory professionals.

Life Science Careers

Life sciences offer careers for individuals with certificates, technical training, two-year degrees, four-year degrees, and advanced graduate education.

Examples include:

- Agricultural Scientist
- Biomedical Engineer
- Biologist
- Biotechnology Executive
- Clinical Research Coordinator
- Environmental Scientist
- Epidemiologist
- Food Safety Specialist
- Genetic Counselor
- Healthcare Researcher
- Laboratory Technician
- Medical Scientist
- Microbiologist
- Pharmaceutical Scientist
- Public Health Professional



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Career Salaries

Typical salary ranges include:

- Research Associate/Laboratory Technician: \$50,000–\$75,000
- Clinical Research Coordinator: \$65,000–\$90,000
- Medical Scientist/Biologist: \$86,000–\$100,000
- Senior Scientist: \$120,000–\$180,000+
- Life Science Consultant/Executive: \$140,000–\$250,000+

How OST Programs Support Career Pathways in Life Sciences

Pennsylvania's life sciences industry depends on a highly skilled workforce prepared to innovate, solve complex problems, and improve lives. Afterschool and summer programs play a critical role in cultivating that future workforce by providing meaningful science, technology, engineering and mathematics (STEM) experiences, career exploration, and connections to Pennsylvania's growing life sciences sector.

High quality OST programs introduce youth to life science careers long before they make decisions about college or employment.

OST programs help students develop:

- Scientific curiosity.
- Critical thinking and problem-solving.
- Research and laboratory skills.
- STEM and biotechnology knowledge.
- Data analysis.
- Teamwork and communication.
- Digital literacy.
- Ethical decision-making.
- Career awareness and workplace readiness.

Hands-on experiences encourage students to see themselves as future scientists, healthcare professionals, engineers, and innovators.

Learning Experiences That Inspire Future Careers

Afterschool and summer programs engage youth through:

- Microscopy investigations.
- Environmental monitoring.
- Water quality testing.
- Robotics and biomedical engineering.
- Public health projects.
- Agriculture and food science activities.
- Citizen science initiatives.
- Medical simulations.

These experiences connect classroom learning to real-world careers while building confidence and workforce skills.

PSAYDN Workforce Connection

The Pennsylvania Statewide Afterschool/Youth Development Network (PSAYDN) supports career-connected learning that prepares young people for Pennsylvania's priority workforce sectors. By investing in high-quality afterschool and summer programs, we help youth develop the knowledge, skills, and experiences needed to succeed in the Commonwealth's thriving life sciences industry.

Today's curiosity becomes tomorrow's cure. Investing in out-of-school time helps build Pennsylvania's future life sciences workforce.

Support OST Programs that Connect Youth to High-Demand Life Sciences Careers in Pennsylvania.

Policymakers, funders, and partners can help by:

- Funding OST programs aligned to career-ready learning.
- Expanding partnerships between schools, industry and workforce agencies.
- Advocating for resources that prepare the next generation of life sciences professionals.