



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

Robotics & Technology

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 Robotics and Technology Matter in Pennsylvania

Robotics and Technology are driving innovation across industries—manufacturing, healthcare, agriculture, logistics and more. Pennsylvania is leading the way with a growing demand for skilled workers who can design, build, code and maintain intelligent systems. From designing intelligent machines to programming systems that solve real-world problems, this sector offers exciting, high-growth careers that combine creativity, coding, engineering and innovation.

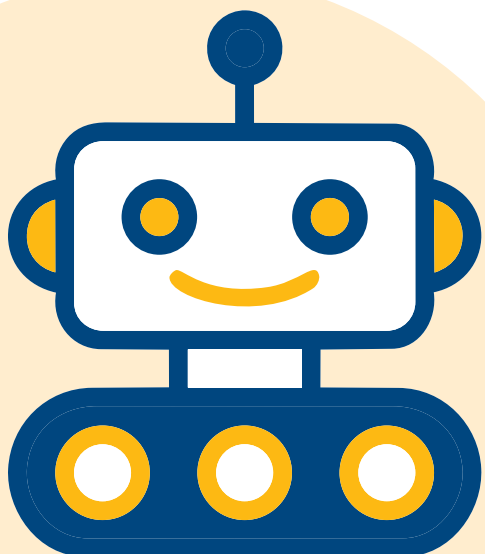
Key Durable Skills Developed

Through robotics and technology learning, youth build skills that last a lifetime:

- **Communication**
- **Collaboration**
- **Critical Thinking**
- **Leadership**
- **Creativity and Innovation**

How OST Programs Support Career Pathways in Robotics and Technology

OST programs provide hands-on learning opportunities that connect youth to real-world challenges, industry professionals, and the skills they need to succeed in high-demand careers.



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

Career Awareness (K-5)

- Simple explanations of robotics careers
- Fun, hands-on activities that build curiosity and durable skills
- Connections to everyday technology and community relevance

Example Activities:

- Build a Simple Robot Challenge (using LEGO® or recycled materials)
- Code a Robot to Move (Block-based coding with ScratchJR or Blockly)
- Robot in My Community – Where do we see robots?

Career Exploration (6-8)

- Career pathways linked to youth interests
- Sample OST activities with explicit career connections
- Role models, videos and partner spotlights

Example Activities

- Design a Robot for a Purpose (Solve a real-world challenge)
- Introduction to Programming (Python)
- Meet a Roboticist (Guest speaker or virtual tour)

Career Preparation (9-12)

- Workforce readiness and applied learning
- Industry-aligned projects or simulations
- Postsecondary, credential, or employment pathway highlights

Example Activities

- Build, Code, Compete (Robotics competitions)
- Automation and AI Simulation (Design a robotic system)
- Career Pathway Mapping (From High School to Career)

Sample OST Activity

Robot Rescue Challenge

Youth program a robot to navigate an obstacle course and “rescue” an object, applying coding, engineering and teamwork skills.

“I never thought I could build and code a robot! Now I want to be an engineer and create robots that help people.”

— OST Youth Participant

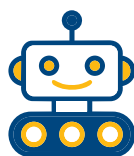
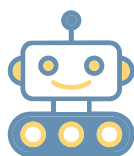
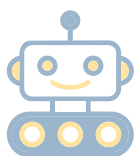
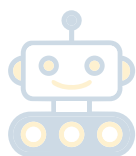
Examples of Pennsylvania Partners

- FIRST Pennsylvania
- PA CareerLink®
- Local Employers and Manufacturers
- Community Colleges and Universities

Support OST Programs that Connect Youth to High-Demand Robotics and Technology 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 energy professionals.**



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