

STEAM and Computer Science with Robotics

STEAM and Computer Science with Robotics complements and reinforces mathematics through engaging learning experiences that integrate STEAM, computer science, engineering design, and robotics. Using virtual and physical robots, students develop computational thinking, programming, creativity, collaboration, communication, and real-world problem-solving skills.



Integrated TK–12 Pathways in STEAM and Computer Science

Elementary School Grades TK–5 Courses

- **STEAM and Computer Science with Robotics** for each grade.

Build foundations in literacy, numeracy, computational thinking, robotics, engineering design, creativity, and problem solving.

Middle School Grades 6–8 Courses

- **STEAM and Computer Science with Robotics** for each grade
- **Introduction to Computer Science with Robotics**
- **Introduction to Programming with C**
- **Physical Computing with Arduino**

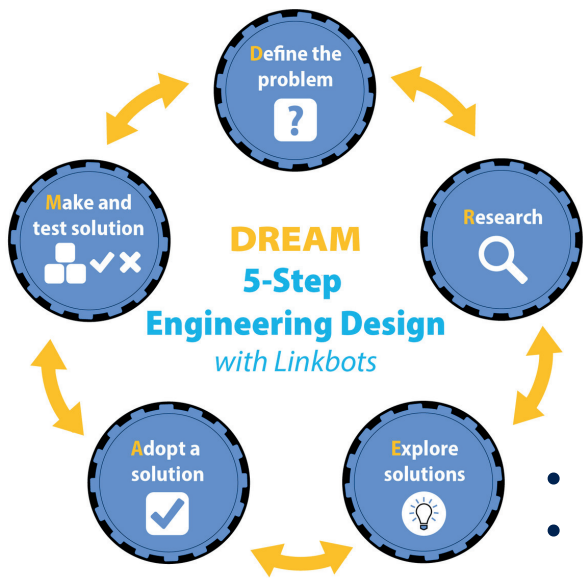
High School Grades 9–12 Courses

- **Computer Science with Robotics**
- **Computer Programming for Solving Applied Problems**
- **AP Computer Science Principles with Robotics**
- **Robotic Technologies**

Schools may implement individual courses, complete pathways, or selected curriculum resources within science, STEAM, computer science, CTE, mathematics, and interdisciplinary programs.

All high school courses are UC A–G approved. AP Computer Science Principles with Robotics is College Board endorsed.

Engineering Design Throughout the Curriculum



Students apply mathematics, science, computer science, and engineering design while strengthening essential future-ready skills.

Engineering Design with Robotics is embedded throughout the curriculum. Students apply the **DREAM 5-Step Engineering Design Process** to solve authentic problems as they design, build, program, test, and refine their own robot machines.

Authentic STEAM and Computer Science Learning Experiences

- Computational Storytelling
- Engineering Design with Robotics
- Design, Build, and Program Their Own Robot Machines
- Arduino and Sensor-Based Robotics
- RoboParade™
- RoboEngineering Expo™
- RoboPlay™ Adventure and Challenge Competitions



Computational Storytelling combines coding, robotics, mathematics, creativity, and communication.

From Classroom Learning to Student Showcases



Unit-embedded **RoboPlay™ Adventures** and **Challenges** prepare students to apply mathematics, coding, engineering design, teamwork, and problem solving.



Explore
STEAM and
Computer
Science
Curriculum