



## PROJECT LEAD THE WAY CAREER AND TECHNICAL EDUCATION

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### Definition/Purpose

The Project Lead The Way pre-engineering is comprised of four middle school and eight high school courses developed by PLTW (Project Lead the Way). Both the middle and high school programs integrate STEM (Science, Technology, Engineering, Math) concepts. In the middle school program, students use engineering technology to design engineering graphics and models, and electronic devices and robots. The high school program is designed for students interested in pursuing careers in engineering, engineering technology, or related science fields. It introduces students to the scope, rigor and discipline of engineering and covers a broad range of subjects such as digital electronics, computer integrated manufacturing, civil engineering and architecture, aerospace, and biotechnical engineering. PLTW prepares students for college majors in engineering and engineering technology fields and offers them the opportunity to earn college credit while still in high school.

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### Outcome/Results

- When PLTW students are compared to similar students from comparable career/technical fields, PLTW students have significantly higher achievement in mathematics on a NAEP-referenced assessment.
  - When PLTW students are compared to similar students across all career/technical fields, PLTW students have significantly higher achievement in reading, mathematics and science on a NAEP-referenced assessment.
  - When PLTW students are compared to similar students in comparable fields of study and to similar students drawn from all career/technical fields, PLTW students complete significantly more high-level mathematics and science courses.
  - Significantly more PLTW students were enrolled in classes that engage them in reading and writing across the curriculum; and in using real-world problems, technology and group work to advance mathematics and science achievement.
  - Significantly more PLTW students experience career/technical classes that required students to use academic knowledge and skills to complete project assignments.
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## Project Lead the Way (continued)

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### Essential Practices

- Students are encouraged to take four years of mathematics, Algebra I and higher — and at least three college-preparatory-level lab-based science courses
- Course curricula that contain key concepts that affect students' academic and technical learning
- Teacher participation in two weeks of training for each course they plan to teach. Training begins with a pre-assessment of the teacher's possible weaknesses in mathematics
- Further teacher training is provided on how to teach in a project-based format, how to engage students in projects and problems requiring rigorous mathematics and science knowledge and skills, and how to assess students' mastery of materials
- Upgraded laboratories with equipment, instructional materials and supplies essential for teaching the courses
- End-of-course exams that teachers use to determine whether students have mastered key course concepts
- Training for counselors that addresses the changing workplace and the courses students need to take in order to successfully complete the curriculum and be prepared for postsecondary study and careers in the engineering and engineering technology fields.

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### University Partnership

Duke University Pratt School of Engineering, as the official university partner in North Carolina, has agreed to train all PLTW teachers and school counselors, assist in the development of curriculum, certify school PLTW programs, and assist schools in the formation of partnership teams.

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### Enrollment

Statewide

- 55 North Carolina PLTW Schools
- 68 teachers

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### Leadership

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