

PROJECT LEAD THE WAY

# PLTW

### Your biggest challenge will be your imagination!

Imagine a car that could morph its shape based on the driver's whims. What if satellites had metal like skins that could repair themselves from damage in space? Picture a 3D cell phone screen strapped on your wrist. These and countless other life-changing innovations are taking shape in labs and on computer screens around the world. But they all have one thing in common—they all come from an engineer's imagination. Right here in Plano ISD you can begin to dream up tomorrow's wonders—a remarkable place for imagination, innovation and learning.

### PLTW Partners and Sponsors

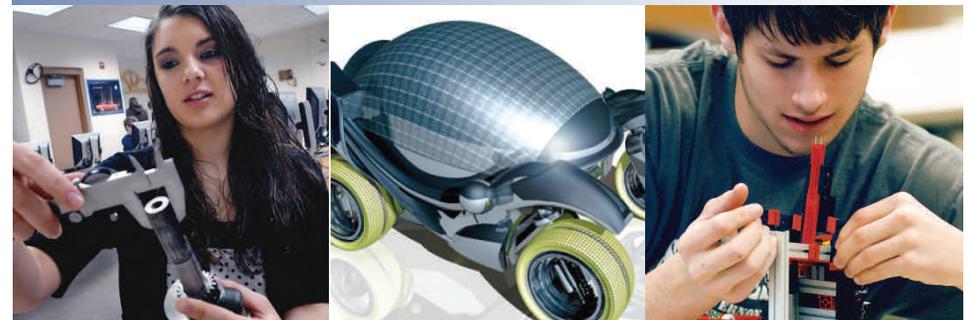


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# Engineering



## Learning that works for America





**Plano ISD Career & Technical Education and Project Lead The Way (PLTW)** prepares students to be the most innovative and productive **leaders in science, technology, engineering, and mathematics (STEM)** and to make meaningful, pioneering contributions to our world. Plano ISD partners with PLTW to provide a rigorous, relevant STEM education. Through an engaging, **hands-on** curriculum, PLTW encourages the development of **problem-solving skills, critical thinking, creative** and **innovative** reasoning, and a love for learning.

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### **PLTW Gateway to Technology** (grade 8) high school elective credit

Calling all future engineers! Explore how technology is used in engineering to solve everyday problems. Learn to use 3D modeling software to design, create and innovate. Are you interested in robotics? You will learn about robots, mechanical systems, machine automation and computer controlled systems. **Prerequisite:** None

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### **PLTW Introduction to Engineering Design** (grades 9-10)

Interested in learning how to use 3D solid modeling software and tinkering with 3D printers? Ever tried to design something new or draw up an idea you wanted to share with your friends and wondered how you could communicate your idea? Or, have you wondered how someone designed that new iPad or sleek new smart phone? **Prerequisite:** Algebra I or concurrent enrollment

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### **PLTW Engineering Science** (grades 10-12) (science credit)

Are you interested in how machines and robots work? Do you think it would be fun to design and build a catapult? Are you interested in how electronic circuits are built and used to power our lives? Would you like to make a robot do what you want it to ?

**Successful completion of this course will receive science credit.**

**Prerequisite:** Geometry or concurrent enrollment and Chemistry or concurrent enrollment is required; Successful completion of Introduction to Engineering (IED) is recommended.




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### **PLTW Digital Electronics** (grades 11-12)

Successful completion of both semesters will receive math credit.

Digital Electronics is the study of electronic circuits used to process and control digital signals. It is the foundation of modern electronic devices such as cell phones, tablets, laptops, digital cameras, televisions, etc.

**Prerequisite:** Algebra I and Geometry is required. Successful completion of PLTW Introduction to Engineering (IED) or Engineering Science (POE) is required. Engineering Science (POE) is recommended.

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### **PLTW Aerospace Engineering** (grades 11-12)

Explore how engineers design objects and solve problems related to aviation systems, defense systems, and space exploration. Explore aerospace materials, rockets, space travel, orbital mechanics, and remotely operated systems like the Mars Rover.

**Prerequisite:** Algebra II or concurrent enrollment; Physics or concurrent enrollment; Introduction to Engineering Design (IED) or PLTW Engineering Science (POE). Engineering Science is recommended.

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### **PLTW Engineering Design & Development** (grade 12)

Students identify an issue and research, design, and test a solution of their open-ended problem, ultimately presenting and defending their solution to a panel of engineers. Students will work closely with experts and will continually hone their organizational, communication, and interpersonal skills, their creative and problem solving abilities, and their understanding of the design process. **Prerequisite:** Algebra II; Physics or concurrent enrollment; PLTW Introduction to Engineering Design (IED); PLTW Engineering Science (POE); or teacher recommendation in lieu of prerequisite courses.

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### **Engineering Design & Presentation I** (grades 11-12)

Design challenges will keep you on your toes as you build rockets, program micro-controllers and solder electrical circuits. Use high-tech software applications and tools to produce and present working drawings and model renderings of designs and learn about the engineering design process. **Prerequisite:** None

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### **Architectural Design I** (grades 11-12)

Are you interested in architecture, construction science, drafting, interior design and landscape architecture? You will use the same high-tech software that professionals use such as Auto Cad, Revit, and 3DS Max to design a better world.

**Prerequisite:** Algebra I and Geometry recommended

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### **Architectural Design II** (grade 12)

Continue your passion of architectural design and study advanced concepts such as site conditions, residential designs, structural systems, civil drafting, electrical and H.V.A.C systems, 3D solid modeling and more! **Prerequisite:** Architectural Design