

Southington High School Project Lead the Way Program Application for Student Admission

Project Lead the Way (PLTW) is a nonprofit organization that provides STEM (science, technology, engineering, and math) curriculum for grades PreK–12. PLTW's goal is to prepare students for careers in STEM fields. PLTW's programs have reached millions of students in all 50 states. Many alumni who participated in PLTW coursework pursue careers within STEM fields. More information is available at www.pltw.org.

Southington High School offers courses specifically within the *PLTW Engineering* program. Students must apply for the program during their 8th grade year of middle school through a competitive application process. The application process is used to help identify students who are interested and well suited for college-level engineering courses. Unlike typical schools that offer standalone *PLTW Engineering* courses, Southington High School requires five sequenced courses to be completed within the four years of high school.

PLTW classes teach students that real-world problems often have multiple solutions with many pathways to achieve success. With a variety of engaging courses, the curriculum empowers students to explore possibilities, experiment, learn from failure, and turn ideas into reality. Students are encouraged to adopt a problem-solving mindset, engaging them in compelling, real-world challenges that help them become better collaborators and thinkers.

Southington High School offers specific courses from the national *PLTW Engineering* curriculum for students who are strongly considering pursuing a career in engineering or related science, technology, engineering, and math (STEM) pathways. The available courses are:

- Introduction to Engineering Design
- Digital Electronics
- Principles of Engineering
- Computer Integrated Manufacturing
- PLTW Capstone

Southington High School PLTW Program Mission: To meet the educational needs of academically strong, highly motivated students in mathematics and science who have also demonstrated an interest in and aptitude for engineering. This program is a four-year-five course sequential curriculum.

Admission: Admission to this program is on a selective basis, with a total of **36** students accepted from the entering grade 9 class. Students will be notified directly by Southington High regarding their acceptance status.

Note: Students should select an elective credit of interest on their *9th Grade Registration Course Selection* sheet as though they are not invited to join PLTW. Upon acceptance into the PLTW program, changes to the student's grade 9 elective course will be made for them to include the *PLTW Introduction to Engineering Design* course.

College Credits: Students in PLTW are eligible to earn college credit from *Rochester Institute of Technology*. To be eligible for college credit, students must meet or exceed the criteria set forth by the college. Once eligible, an application along with payment must be submitted to the college.

Questions about the program can be directed to:

Mrs. Ana Napolitano (Southington High Student Support Center)
860-628-3229 x11238 or x11244
anapolitano@southingtonschools.org

PLTW Course Descriptions

The five sequential Southington High School courses in the PLTW program are as follows:

Introduction to Engineering Design – Grade 9 (College Level)

This is an introductory course for the national Project Lead the Way program. The course concentrates on developing student problem-solving skills, with emphasis placed on the development of three-dimensional solid models. Students will apply basic technical drawing skills and techniques to demonstrate their understanding of how engineers design products that solve problems and improve the quality of life. Students will work from sketching simple geometric shapes to applying a solid modeling computer software package. They will examine the problem-solving design process and how it is used in industry to design a functional product. 3D modeling software will be used to create, analyze, and evaluate product designs.

Digital Electronics – Grade 10 (College Level)

Digital Electronics is a specialization course in the Project Lead the Way program. This is a course in applied logic that encompasses the application of electronic circuits and devices. Students will be introduced to digital circuits found in video games, watches, calculators, digital cameras, vending machines, and other devices. Students will study the application of digital logic and how digital devices are used to control automated equipment. Computer simulation software is used to design and test digital circuitry before the actual construction of circuits and devices. This course is similar to a first-semester college course and is an important course of study for a student exploring a career in engineering technology.

Principles of Engineering – Grade 11 (College Level)

Principles of Engineering is a high school-level survey course in engineering. Students explore some of the major concepts they will encounter in a college engineering course of study. Students investigate engineering topics which include mechanisms, energy sources and applications, machine control, fluid power, statics, material properties, material testing, statistics, kinematics, and traffic flow analysis. Principles of Engineering provides the opportunity to develop skills and understanding of course concepts through activity, project, and problem-based learning. This course challenges students to hone interpersonal skills, creative abilities, and problem-solving skills while investigating engineering concepts. Students will develop strategies to enable and direct their own learning throughout the duration of the course.

Computer Integrated Manufacturing – Grade 11 (College Level)

Computer Integrated Manufacturing is a specialization course in the Project Lead the Way program. Students study manufacturing history, current needs, manufacturing planning, manufacturing processes, systems integration, and implementation of automation within the manufacturing industry. Students are required to use knowledge acquired in Introduction to Engineering Design, Digital Electronics, and Principles of Engineering to solve problems relating to product design, CAD/CAM/CNC, robotics, and control systems programming. Solving these problems requires students to implement their designs as they hone interpersonal skills, creative abilities, and understanding of the engineering design process. Students apply knowledge gained throughout the course in a final open-ended problem to bring a product idea to fruition.

PLTW Capstone – Grade 12 (College Level)

PLTW Capstone is an engineering design and development research course in which students work in teams to design, construct, test, and analyze the solution to an open-ended engineering problem from an original idea, taken from a database of problems, or a national challenge while applying the principles and skills developed in the four preceding courses. Students will maintain an engineering notebook as part of a portfolio of their work. Each team will be responsible for delivering progress reports and making final presentations of their project solution to an outside review panel and community members. The completed portfolio will be invaluable as students apply to college.

PLTW Application Process Overview

ELIGIBILITY

1. Any student who plans to attend Southington High School and applies for the PLTW program will be considered for admission to the PLTW program. However, only 36 students will be accepted.
2. The PLTW applicant and their legal guardian must complete this application in its entirety (pgs. 5-7), with the appropriate signatures, and return it to their 8th grade school counselor no later than the deadline.
3. Admission is contingent upon successful completion of 8th grade.
4. Admission to the Project Lead the Way program is competitive. Once accepted, students in the program are expected to maintain at least an 80 average in each PLTW course and continue to exhibit those characteristics that earned them acceptance to the program. Failure to adhere to program expectations may lead to disciplinary action, up to and including dismissal from the program.

ACCEPTANCE CRITERIA

- Math and Science Grades: Grade 7 final grades; Grade 8 Trimester 1-2
- Attendance History: Grades 7-8
- Personal Essays: Demonstrated interest and aptitude in engineering
- Grade 8 Recommendations: Math teacher, science teacher, and school counselor
- Interview: Introduce self to PLTW selection committee members during a 5-10 minute meeting

INSTRUCTIONS

1. Complete the *Project Lead the Way Program Application for Student Admission* cover sheet (pg. 5).
2. Compose responses for each of the *Student Essay* writing prompts (pg. 6).
3. Provide each of the *Recommendation Request Confirmation Slips* to your current math, science, and school counselor (pg. 7). Separate each recommendation confirmation slip on page 7 by cutting them with scissors.
4. The finalized application is due in its entirety to your school's counseling office by the due date.
 - a. Students not currently attending Southington Public Schools can send their completed applications directly to Mrs. Napolitano in the SHS Student Support Office.
5. Review the interview questions in preparation for a brief meeting with members of the PLTW Selection Committee.

Section 1: Applicant Background

The student must neatly complete the cover page and attach it to their completed essays. Do not write anything within the *Selection Committee Use Only* section.

Section 2: Student Writing Prompts

Compose clear and concise answers to each question, providing details as appropriate. Prompt 1 provides the opportunity to discuss your interest in engineering and motivating factors for applying to the PLTW program. Prompt 2 allows you to share your personal character traits along with talents in math, science, engineering, and related technology.

Section 3: Recommendations

Provide a *Recommendation Request Form* to your math and science teachers, as well as your school counselor. These forms will be completed electronically as a Google Form and automatically submitted to the PLTW selection committee once your teacher completes it. Staff members will return the *Recommendation Request Form* directly to your school counseling office, indicating its completion.

Section 4: Interview

The PLTW Selection Committee knows you are more than just a number on paper. Prepare to have a brief (approximately 5-minute), informal discussion with a couple of committee members. Just be yourself! All interviews will be conducted at your school during regular school hours. You will be notified of your interview date and time.

Note to Families:

As you complete this application, we welcome any feedback regarding the application process. This survey is optional. In an effort to improve, please use this link to complete a brief survey:

<https://forms.gle/C9tTnhcivpwCRKBN6>



Southington High School
Project Lead the Way Program
Application for Student Admission



Section 1 – Applicant Background

Student Applicant Name: _____ **Student Number:** _____

Student Mailing Address: _____
(Number and Street Name)

(City, State, Zip)

Current Middle School: _____

Legal Guardian Name: _____

Preferred Telephone: _____

Student Signature: _____

Legal Guardian Signature: _____

Selection Committee Use Only:

PLTW Application #: _____

Essay Evaluation: _____

Science GPA: _____

Earth Science: ☐

Math GPA: _____

Algebra: ☐

Geometry: ☐

Recommendation Avg.: _____

Interview: _____

Attendance 7th Grade: _____

Attendance 8th Grade: _____

Comments:

Section 2 – Student Writing Prompts

Directions: You must answer both of the following questions, separately from one another. You can neatly hand-write or type your responses. You must attach your essays to your completed application. **DO NOT WRITE YOUR NAME ON YOUR WRITING PROMPT RESPONSE.** Each response should be 200 words or less.

QUESTION 1

- *Why are you interested in joining the PLTW program at Southington High School? What personal experiences have inspired you to explore engineering?*
 - *Please be specific and provide support for your response. Experiences may include, but are not limited to, activities such as:*

▪ <i>Summer Enrichment Programs</i>	▪ <i>Invention Convention</i>
▪ <i>Personal Hobbies</i>	▪ <i>Science Fair</i>
▪ <i>VEX Robotics</i>	▪ <i>Other applicable experiences ...</i>
▪ <i>Lego League</i>	

QUESTION 2

- *Engineers often work in teams to solve problems and create solutions to improve people's lives. Discuss the personal strengths you have that make you well suited for the field of engineering and acceptance into the PLTW program?*
 - *Please provide up to three specific examples which demonstrate these traits and why they would be beneficial for someone working in the field of engineering.*

Section 3 – Interview: Question Bank

Review the questions below. During your interview, only three of these questions will be asked. Consider rehearsing ahead of time with a family member. Your interview will last approximately 5-8 minutes.

- Share a little bit about yourself. What do you like to do for fun?
- What are your favorite subjects to learn about in school? Explain.
- Explain your involvement in your school and/or local community.
- What do you know about engineering and the PLTW program at Southington High School? Why are you interested in joining the program?
- When you were a member of a team, how did you ensure you were a contributing member?
- Do you prefer projects or activities with clear instructions or ones where you figure it out yourself?
- How do you handle setbacks and failures?
- Explain a time you encountered a challenge and how you overcame it. For example, have you ever fixed anything? Did you ever ruin a meal? Misplace a personal belonging? Lose your pet? Etc.?
- Have you ever looked at something and thought “I can make this better”? Describe what it was and how you would improve it.

Section 4a: PLTW Recommendation – TEACHER CONFIRMATION SLIP, 8th Grade Math Teacher

To be completed by the student applicant and then provided to your math teacher:

Student Name: _____ Student Number: _____

8th Grade Math Teacher Name: _____

To be completed by the applicant's 8th grade math teacher:

- ☐ Complete the recommendation by using the [PLTW Google Recommendation Form](https://bit.ly/4ryXuCo): (<https://bit.ly/4ryXuCo>)
- ☐ You will be asked to rate the applicant based on the following indicators:
 - Disciplined Work Habits
 - Productive Discussion
 - Behavior
 - Motivation
 - Initiative
 - Integrity
 - Reaction to Setbacks
 - Leadership
 - Cooperation/Teamwork
 - Creativity/Imaginative Thought
- ☐ Consider referencing the rubric linked in the *Google Recommendation Form* to help guide your evaluation: (<https://bit.ly/4jizGjS>)
- ☐ Once complete, please submit this form to the school counseling administrative assistant indicating completeness.

----- (student: cut to separate) -----

Section 4b: PLTW Recommendation – TEACHER CONFIRMATION SLIP, 8th Grade Science Teacher

To be completed by the student applicant and then provided to your science teacher:

Student Name: _____ Student Number: _____

8th Grade Science Teacher Name: _____

To be completed by the applicant's 8th grade science teacher:

- ☐ Complete the recommendation by using the [PLTW Google Recommendation Form](https://bit.ly/4ryXuCo): (<https://bit.ly/4ryXuCo>)
- ☐ You will be asked to rate the applicant based on the following indicators:
 - Disciplined Work Habits
 - Productive Discussion
 - Behavior
 - Motivation
 - Initiative
 - Integrity
 - Reaction to Setbacks
 - Leadership
 - Cooperation/Teamwork
 - Creativity/Imaginative Thought
- ☐ Consider referencing the rubric linked in the *Google Recommendation Form* to help guide your evaluation: (<https://bit.ly/4jizGjS>)
- ☐ Once complete, please submit this form to the school counseling administrative assistant indicating completeness.

----- (student: cut to separate) -----

Section 4c: PLTW Recommendation – SCHOOL COUNSELOR CONFIRMATION SLIP, 8th Grade

To be completed by the student applicant and then provided to your school counselor:

Student Name: _____ Student Number: _____

8th Grade School Counselor Name: _____

To be completed by the applicant's 8th school counselor:

- ☐ Complete the recommendation by using the [PLTW Google Recommendation Form \(Counselors\)](https://bit.ly/4epFNQ3): (<https://bit.ly/4epFNQ3>)
- ☐ Consider referencing the rubric linked in the *Google Recommendation Form* to help guide your evaluation: (<https://bit.ly/3UjV5PE>)
- ☐ Once complete, please submit this form to the school counseling administrative assistant indicating completeness.