

PLTW (STEM) Syllabus

Southwest Middle School
2021 – 2022 School year

Mr. Shaun Sommer
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Course and PLTW overviews:

Project Lead the Way (PLTW) is an interactive STEM based curriculum that takes students through the process of building foundational skills using “activities.” Later these skills are put to the test in more complex “projects,” where they combine the skills they’ve learned in previous activities. Finally, all gateway PLTW courses end in a “problem,” which is where they combine all the skills they’ve acquired from the entire course to solve a real world problem with their peers. While fun and engaging in a different way than their core subjects, these electives are challenging and rewarding because there’s never just one right answer to many of the problems we encounter. I don’t ask for the smartest students, but students that are willing to try their hardest and understand that it is ok to fail if they’re making progress towards their goals. Each PLTW Gateway unit engages students in activities that not only build knowledge and skills in areas including computer science, engineering, and biomedical science, but also empower students to develop essential skills such as problem solving, critical and creative thinking, communication, collaboration, and perseverance.

Please make sure that you are reviewing the correct grade for proper course introductions and overviews. These will be shown in ascending order from 7th-8th grade.

7th Grade:

Design and Modeling

Students apply the design process to solve problems and understand the influence of creativity and innovation in their lives. Using design software, students create a virtual image of their designs and produce a portfolio to showcase their innovative solutions

Flight and Space

The exciting world of aerospace comes alive through Flight and Space. Students explore the science behind aeronautics and use their knowledge to design, build, and test an airfoil. Custom-built simulation software allows students to experience space travel.

8th Grade:

Automation and Robotics

Students learn about the history and impact of automation and robotics as they explore mechanical systems, energy transfer, machine automation, and computer control systems. Using the VEX Robotics® platform, students apply what they know to design and program traffic lights, robotic arms, and more.

Magic of Electrons

In this unit, students examine the behavior and parts of atoms as well as the impact of electricity on the world around them. They learn skills in basic circuitry design and use what they know to propose designs such as a burglar alarm for an art museum.

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Scope & Sequence

In addition to rigorous, standards-based instruction, this year will focus on STEM reading strategies - which means ***we will read and read texts, look for context clues, think aloud, summarize, and use lots of graphic organizers.***

These are the main topics we will be covering this semester:(**7th grade**)

<i>Design and Modeling</i>	<i>Flight and Space</i>
<i>1st Nine Weeks:</i> introduction to Design Solid Modeling	<i>3rd Nine Weeks:</i> Engineering/Design Process Flight (science, engineering of flying objects)
<i>2nd Nine Weeks:</i> modeling from the previous quarter (cont.) Design Challenge (Course Problem activity)	<i>4th Nine Weeks:</i> <i>Space</i> (science, engineering of space travel) Destination Mars (Course Problem activity)Solid

These are the main topics we will be covering this semester:(**8th grade**)

<i>Automation and Robotics</i>	<i>Magic of Electrons/AR Continuation</i>
<i>1st Nine Weeks:</i> What is Automation and Robotics Mechanical systems	<i>1st Nine Weeks:</i> Automated Systems (cont.) What is Electricity Electronics
<i>2nd Nine Weeks:</i> Mechanical Systems (cont.) Automated Systems	<i>2nd Nine Weeks:</i> Electronics (cont.) Digital Electronics Extension (time permitting) Introduction to coding

School Policies

Students are to comply with all school policies described with the Student Code of Conduct. Dress code, the use of electronics, and punctuality will be strictly enforced.

Materials

Students are expected to come to class prepared each day with the following school

Supplies: ***Most*** materials will be supplied in class.

1- Charged Laptop/Charger (batteries don't always last all day)

2 – Sharpened pencils or mechanical pencils with lead and erasers

2 – Pens (dark blue or black ink only)

1 – Highlighter (any color)

1- PLTW Engineering Notebook (First one will be supplied. Replacements will be \$3.00)

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Academic Honesty

You are expected to maintain the highest standards of academic conduct. When you cheat, you are robbing yourself of knowledge and the learning experience. I will be holding you to high ethical standards to which you are expected to maintain at all times. There will be absolutely no tolerance of plagiarism which can be as simple as copying and pasting from the internet. You are guilty of cheating whenever you present work as your own and you did not do as well as if you helped someone else to cheat. This means copying and pasting text from online sources without giving credit. Any student(s) who is discovered cheating will receive a "0" for that assignment and have the work documented in their portfolio. Our Science Department policy states that if a student is caught cheating, they will receive an F in conduct for the nine weeks. A referral to an administrator may also be issued based on the assignment.

Grading Policy

Students earn credit through accumulation of points from all assignments, projects and Labs. A grade of 70% or higher will not guarantee your spot next year in STEM however, it will greatly increase your chances. Academic grades are assigned using the following scale:

90-100% - A

80-89% - B

70-79% - C

60-69% - D

59% and below will result in a failing mark.

Grading Weights per Semester:

50% Projects - ***finalized sketches and blueprints, presentations and portfolios.***

40% Classwork - ***participation, group collaboration, vocabulary and engineering notebook checks***

10% Quizzes/tests - ***content checks, conclusion questions, and end of unit exams***

The **CFE** (Common Final Exam) will be at the end of each semester. This is a rubric based assessment conducted by the teacher on the performance of the scholar's achievement of the standards. THE WORK YOU COMPLETE THROUGHOUT THE COURSE IS THE MATERIAL THAT WILL BE SUBMITTED FOR THIS RUBRIC. IF YOU FAIL TO COMPLETE THE ASSIGNMENT WHEN IT IS DUE, YOU ARE PUTTING YOURSELF IN DANGER OF LOSING POINTS ON YOUR CFE GRADE AS WELL. No actual final assessment is given.

Student grades are available to view through Skyward, whereas assignments are found in Canvas and on the my.PLTW.org website. **Any questions about grades should be emailed and a response will be made within 48 hours.** Please allow enough time for grading before asking about an assignment that doesn't have a grade. Grades in Skyward will mirror what is in Canvas as best as possible to allow for as much transparency as possible.

Attendance & Tardies

Attendance will be taken on a daily basis. It is important for all students to come to class on time and ready to learn. If you arrive late to class, you will be marked tardy. A lunch detention will be given every time a student is late after his/her second tardy. Multiple absences may not allow for makeups of lab/group assignments, therefore affecting your academic grade.

Absences & Make-up Work

It is the student's responsibility to ask for make-up work for the days they were absent immediately upon

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returning to school. If you are absent you must reference the online agenda on Canvas or ask classmates what you have missed. You will be allowed one full school day (24 hours) to complete the missing work. All doctor/parent notes should be turned in to the attendance office within 72 hours of the absence to be able to make-up any work. A grade of “missing” (0 points) will remain in the grade book for that assignment until turned in and graded. Late work will not be graded on time but ASAP.

Parent Communication

Parents may schedule individual appointments with one teacher, or a group conference with various teachers. Parent/Teacher conferences are scheduled by calling the School office, 407-370-7200. Conferences are usually scheduled Wednesday – Thursday, after school.

Home Learning

There will be no directly assigned work for home, however, any assignments not finished in class will need to be finished at home. Please understand that this does NOT mean distance learning. Distant learning information will be provided if and when it is needed for LaunchED at home students.

Classroom Rules

1. Treat everyone with respect.
2. See Rule #1
3. Respect the tools and other groups projects in the class
4. See Rule #3
5. Collaborate and have fun!

Consequences

Depending on the infraction:

1. The “Look”
2. Verbal warning
3. Mr. Sommer/RJ conference
4. Parent contact
5. Parent/RJ Dean conference
6. Referral to the Dean

****This year Mr. Yockel and the rest of SWMS will be strict with phone use during school. Student’s are not allowed to have phones out during class, in the hallway, in the courtyard or at lunch. Phone’s will be taken on the spot and returned at the end of the day and either given to the front office. After the first time, phones must be picked up by the parent or guardian. I will contact parents for each offense towards this implemented school policy.****

*I believe in keeping parent/guardian contact as much as possible to prevent issues. I will be sending out a few links with students on how to contact me through my website, www.sommerscience.com , and a Google Form to collect important information.

Syllabus Acknowledgement Form

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I have read and fully understand the policies and procedures of the Class Syllabus. I am aware that the students and/or parents will be held accountable for his/her actions as described in this document.

Print Student Name: _____

Print Parent(s)/Guardian(s) Name(s): _____

Best Contact Number: _____

X _____ **DATE** _____ **Pd:** ____
Student Signature

X _____ **DATE** _____
Parent Signature

X _____ **DATE** _____
Parent Signature

Please Return to Mr. Sommer by **Monday, August 16, 2021** for
your first grade.