

# PLTW Flight and Space

8th Grade • 2019 - 2020

## Course Description

Students will be challenged to use critical thinking skills to solve problems, design products, and work collaboratively. Students will explore the science behind aeronautics and use their knowledge to design, prototype, and test models. Classes will be held each semester for 37 minutes.

## Classroom Expectations

PBIS SET

S - Self - Directed

E - Engaged

T - Trustworthy

## Materials Required

Engineering Notebook

Pens

Headphones/earbuds

Charged Chromebook

## Grading Scale

	<u>Completion</u>
90 - 100 A	<u>Scores</u>
80 - 89 B	95 ✓ +
70 - 79 C	80 ✓
60 - 69 D	60 ✓ -
50 - 59 F	

## Late Work Policy

As part of the Spartan SET we want to instill a sense of responsibility to our students with this in mind all assignments will have a due date.

1 day late - Highest possible score 90%

2 days late - Highest possible score 80%

3 days late - Highest possible score 70%

**No credit given beyond 3 days past due date.**

## Assessments

- Daily Assignments - point value x 1
- Quizzes - point value x 2
- Notebook Check - point value x 2
- Tests - point value x 3
- Projects - point value x 3

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## Introduction

- What is Flight and Space
- Design Process
- Pre-Test

## History of Flight and Space

- "Spirit of Innovation"
- Flight Machine

## Aeronautics

- WhiteBox Learning History and Principles
- Newton's Laws of Motion
- Weight and Lift
- Drag, Roll, and Pitch
- Engineering Model Plane
- Build Model
- Testing Models

## Propulsions

- Introduction to Propulsions
- Rocket Fuel Lab
- Mars Rover
- Test review
- Final Assessment/Reflection

## Types of Projects

- *Flying Machines - hot air balloon, tetrahedral kite, model glider, and helicopters.*
- *Design, build and test an airfoil*
- *Simulated rocket flights*
- *Online simulation of building and working on a space station*
- *Design, build and test a Mars mini rover*

**Homework and Late/Incomplete Assignments** It is an expectation that students are completing given assignments. If a student has multiple incomplete assignment offenses, then the consequences listed below will take place. Work may be turned in up to the week before the end of the grading period for partial credit. All grades are posted on Canvas and then synced to PowerSchool. Please be sure to check your child's grades on Canvas daily.

**Behavior Policy:** We expect our students to work hard, work with others in an appropriate way, and encourage each other. If students do not follow the rules of the school or the classroom, the consequences below will be given in the order provided. Depending on the severity or in lieu of repeated offenses of the behavior, students may skip to more serious consequences.

**1st Offense:** Verbal Warning

**2nd Offense:** Lunch Detention and Teacher/Student Conversation/Parent Contact

**3rd Offense:** After/Before School Detention/Parent Contact

**4th Offense:** Parent/Teacher/Student Conference

**5th Offense:** Office Referral - Administrative Consequence.

### **Safety Contract**

As I learn to be a good investigator, I need to be organized, clean, and act safely in the classroom. I will not engage in behavior that is disruptive or dangerous or that interferes with another student's right to learn. In the laboratory, I promise to:

1. **Be Prepared:** I will give my full attention to the instructions for each experiment and make sure I understand them before beginning the experiment. I will work only in my assigned space.
2. **Respect Equipment:** I will carefully utilize the different instruments as they are intended to be used to carry out project activities. I will immediately report any damaged or broken instruments or equipment to the teacher.
3. **Complete the Project:** I will wait until the teacher authorizes me to begin the project. I will follow the steps of the procedure in the correct order and I will not carry out steps beyond what is indicated.
4. **Observe Thoroughly:** I will listen and I will observe calmly and silently to learn the most.
5. **Investigate Carefully:** I will follow all written and oral instructions. I will wait until I receive my teacher's permission to begin a project activity.
6. **Be Safe:** I will protect my eyes, face, and hands while performing project activities by wearing safety goggles and, when needed, gloves or other protective gear as directed by my teacher. I will follow any additional safety instructions given by my teacher. I will not horseplay in the classroom.
7. **Record Results:** As I work, I will record my observations and measurements in my engineering notebook or my student sheet.
9. **Clean Up:** I will clean the instruments used in the experiment after I have finished. I will clean up my work area and return all equipment to the properly designated location in the room.

**Report Accidents:** I will immediately notify the teacher of any accident, injury, or dangerous situation that occurs in the classroom to ensure everyone's safety.

I, \_\_\_\_\_ (**first and last name**) have read and agree to follow all of the classroom policies and safety rules set forth in this document. I realize that I must obey the safety rules listed in order to ensure my own safety, and that of my fellow students and instructors. I will cooperate to the fullest extent with my instructor and fellow students to maintain a safe lab environment. I will also closely follow the oral and written instructions provided by the instructor. I am aware that any violation of the safety contract may result in my being removed from the laboratory, detention, and/or lose credit for the work done in my absence.

I have read the Course Syllabus PLTW FLIGHT and SPACE, and understood the information in this letter and I am committed to supporting my child's learning in this course.

Student Name \_\_\_\_\_ Semester \_\_\_\_ Signature \_\_\_\_\_

Parent/Guardian Name \_\_\_\_\_ Signature \_\_\_\_\_

Contact Number \_\_\_\_\_

EMAIL \_\_\_\_\_