Fairfax Collegiate
2026 Summer Program
Flight School Course Syllabus
Rising Grades 7-9

Course Description

Learn how to become a pilot.

Pilot a small one-engine airplane on Microsoft Flight Simulator and practice level flight, turns, takeoffs and landings.

Prepare for the FAA Airman Knowledge Test.

Move on to instrument flight, two-engine operation, and flying a jet trainer.

Students in Flight School learn about aviation, flight technology, and simulation-based gaming. The class uses Microsoft Flight Simulator to blend guided practice with scenario-based challenges and teaches students about how real pilots train, navigate, and make decisions in the air.

Students learn basic and advanced flight maneuvers, master takeoffs and landings, and fly in a wide range of environments and weather conditions. They plan routes, interpret visual and instrument data, communicate using aviation terminology, and recreate historic flights. They also learn about the process of becoming a pilot in real life, with a focus on the steps to earn SUAS (drone) and Private Pilot certifications. At the end of the course, students take a practice exam with questions drawn from the Private Pilot Aeronautical Knowledge Test. Fairfax Collegiate provides gaming PCs and flight-stick controllers for student use.

At the end of the course, instructors upload a collection of class photos and videos for families to access. Students leave with a stronger understanding of aviation fundamentals and the confidence to keep exploring flight simulation, real-world pilot pathways, or more advanced STEM topics.

Learning Objectives

Course Goals	**Learning to Fly:** Students complete training modules similar to those used by professional pilots. **Historic Flight Scenarios:** Students recreate famous moments in aviation history. **Aircraft Types:** Students fly airplanes of different sizes, eras, and methods of propulsion, learning

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	the peculiarities of each, and how flight technologies have evolved over time. **Becoming a Pilot:** Students learn the process through which real pilots train and gain certificates to advance in their career, progressing from a Student to a Private Pilot, then to a Commercial Pilot and potentially an Airline Transport Pilot.
Course Topics	**Flight Controls:** Students learn the layout of an airplane cockpit, becoming familiar with the placement and function of different instruments. Students practice flying using a flight stick interface. **Takeoff and Landing:** Students practice beginning and ending flights smoothly and safely. **Navigation:** Students learn principles of navigation to chart flight paths and stay on course. **Visual and Instrument Flight:** Students fly in different visibility conditions and learn to reliably interpret instrument data. **Traffic Pattern:** Students learn to communicate with Air Traffic Control and safely share the sky with fellow pilots. **Emergency Maneuvers:** Students practice responding to dangerous situations including stalls, engine failure, and conducting emergency landings. **Geography:** Students explore different areas of the world, visiting airports of various sizes and elevations. **Weather Systems:** Students fly in different weather conditions, and learn the basics of how weather systems form and change. **Modding:** Students learn to incorporate fan-made content to expand the base simulator experience. **Pilot Testing:** Students learn the process of becoming a pilot in real life, and take a practice exam for the Private Pilot certificate.

Course Schedule

Class Meeting 1	**Course Rules and Introduction:** Students are introduced to course rules, their classmates, and the instructor. **Training: Basic Controls and Cameras:** Students learn the layout of the cockpit, and how to manipulate the in-game camera. **Training: Attitude and Instruments:** Students learn the function of instruments and gauges, and practice adjusting their plane's position relative to the horizon. **Presentation: The History and Physics of Flight:** Students learn about basic principles of physics related to flight, and are introduced to the functional components of different types of aircraft.

Class Meeting 2	**Training: Take-Off and Landing:** Students practice taking off, climbing, and leveling off at cruising altitude, and landing. **Tips for Safer Descents:** Students practice strategies to continue improving their landings. **Landing Challenges:** Students practice landing under increasingly different conditions, and receive a score based on their results.
Class Meeting 3	**Going Pro (The First Step): Becoming a Drone Pilot:** Students learn how restricted airspace is classified, the process of becoming certified as a commercial drone operator, and how to register an unmanned aircraft. **Training: Navigation (Visual Flight Rules):** Students learn the principles of navigating using Visual Flight Rules (VFR) in conditions with high visibility. **Training: Instrument Flight Rules:** Students learn to navigate using Instrument Flight Rules (IFR) in conditions with low visibility.
Class Meeting 4	**Wouldn't It Be Livery? - Customizing Your Plane:** Students modify the plane's paint job and call number. **On the Wings of Our Dreams: Creating a Flight Plan:** Students use the World Map interface to plot flights between real airports. **Puddle Jumping: Short Practice Flight:** Students plot and fly their first short flight plan. **Historic Flights: Research:** Students research monumental events in aviation history, including technological innovations as well as pivotal moments in exploration and warfare. **Historic Flights: Report:** Students share the results of their historical research with the class. **On the Wings of History:** Students recreate the historical flight they researched inside Microsoft Flight Simulator.
Class Meeting 5	**Aviation Communication: The Phonetic Alphabet:** Students learn the NATO Phonetic Alphabet, and drill using word games like hangman. **Aviation Communication: Air Traffic Control:** Students practice communicating with Air Traffic Control personnel to safely communicate changes to their plane's position and direction. **Training: Bush Pilot:** Students practice flying in rustic, isolated environments. **Training: Glider:** Students practice flying unpowered aircraft towed by a guide plane.
Class Meeting 6	**Weather Systems:** Students learn about how weather systems are formed, and practice flying in various weather conditions. **Training: Commercial Jets:** Students learn to fly airliners like those used by major airlines. **Becoming a Pilot: Learn the Steps:** Students are introduced to the process of earning a pilot's license in real life. **40 Years of Flight Simulator:** Students explore some "greatest hits" content from throughout the history of the Microsoft Flight Simulator franchise.

Class Meeting 7	**Mayday! A Modding Emergency:** Students learn to add additional content to the base game by incorporating mods. **Emergency Maneuver Challenges:** Students practice responding to the failure of various aircraft systems. **Fighter Jets: Training and Challenges:** Students aim for speed and accuracy while piloting fighter jets, in challenges inspired by the Top Gun series.
Class Meeting 8	**Adding and Testing Custom Content:** Students use modding to add new aircraft, landing challenges, and other bonuses to the base game. **Multiplayer in MFS:** Students explore the sky together with their classmates. **Pilot Exam: What to Expect:** Students receive resources to review for an end of class pilot exam.
Class Meeting 9	**Pilot Exam Preparation:** Students go over material and example questions they are likely to encounter on a Student Pilot certification exam. **Bush Flights:** Students fly long distances through inhospitable territory, keeping an eye on the fuel gauge.
Class Meeting 10	**Pilot Exam:** Students take an exam with questions drawn from real pilot qualification tests. **Exam Review:** Students review exam answers as a class and score their pilot certification tests. **Flying Off Into the Sunset:** Students explore remaining training modules and landing challenges, having truly earned their wings. **Prepare for Departure:** Students uninstall mods and help pack course materials.