

AOPA FOUNDATION HIGH SCHOOL AVIATION STEM CURRICULUM

PACING GUIDE



ELEVENTH GRADE CURRICULUM: PILOT

FLIGHT PLANNING

SEMESTER TWO

This course will cover the remaining topics necessary for students to take the Federal Aviation Administration's Private Pilot Knowledge Test. Students will review regulations, cross-country flight planning, weight and balance, performance and limitations, human factors, chart use, night operations, navigation systems, and aeronautical decision making. At the end of this course, a school may choose to arrange for students to be signed off to take the Federal Aviation Administration's Private Pilot written exam.

Unit 6: Navigation: Plotting, Pilotage, Paperwork

An in-depth review of sectional aeronautical charts and instruction in the use of a plotter and mechanical flight computer called the E6B allows students to plan a short cross country flight.

		No. of Sessions Per Lesson	Day of Semester
<u>Pre-Course Exam</u>		1	1
<u>Section A – Charts and Airspace Review</u>			
Lesson 1	Advanced Aeronautical Charts	2	3
Lesson 2	Latitude, Longitude, and Time	2	5
<u>Section B – The Geometry of Navigation</u>			
Lesson 1	Drawing and Measuring Courses	3	8
Lesson 2	Which Way to Steer?	4	12
Lesson 3	Flight Computers	3	15
<u>Section C – Planning a Cross-Country Trip</u>			
Lesson 1	Plotting Your Course	2	17
Lesson 2	Helpful Documents	2	19
Lesson 3	VOR and GPS Navigation	4	23
<u>Unit 6 Exam</u>		1	24
Total Sessions Unit 6	24		
Semester Total	24		

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Unit 7: Aircraft Performance

"Will I have enough fuel for this trip? How much baggage can I bring aboard the aircraft? Is the runway length at my destination long enough for landing and takeoff?" Answering these important preflight safety questions requires a pilot to know how to read aircraft performance charts. In this unit, students will learn flight planning procedures that involve determining aircraft performance, which could be affected by weight, atmospheric conditions, the runway environment, and more. Students will learn to use performance charts to determine takeoff, climb, range, endurance, descent, and landing performance.

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – Reading Aircraft Performance Charts</u>			
Lesson 1	Weight and Balance	3	27
Lesson 2	Density Altitude	2	29
Lesson 3	Takeoff and Landing Distances	2	31
Lesson 4	Aircraft Power Settings	4	35
<u>Unit 7 Exam</u>		1	36
Total Sessions Unit 7		12	
Semester Total		36	

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Unit 8: Aeromedical Factors: Am I Safe to Fly?

Aircraft move and operate in many different environments, and sometimes pilots are subjected to conditions that can affect their health and safety. Optical illusions and spatial disorientation are just two of the conditions students will learn about in this unit.

Additional topics include medical certification requirements, drug and alcohol use, and aeronautical decision making strategies.

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – Certificates, Regulations, and Safety</u>			
Lesson 1	Medical Certificates	1	37
<u>Section B – Anatomy and Physiology</u>			
Lesson 1	It's Getting Harder to Breathe	2	39
Lesson 2	Your Eyes are Deceiving You	4	43
Lesson 3	Disorientation and Motion Sickness	1	44
<u>Section C – Drugs and Alcohol</u>			
Lesson 1	Drugs and Alcohol	1	45
<u>Section D - Aeronautical Decision Making</u>			
Lesson 1	Aeronautical Decision Making	2	47
<u>Unit 8 Exam</u>		1	48
Total Sessions Unit 8		12	
Semester Total		48	

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Unit 9: FAA Regulations Review

Throughout your study of aviation in the United States, students have seen references to the Federal Aviation Regulations or FARs. The United States Code of Federal Regulations has many parts (called Titles) regulating activities in the USA. Title 14 relates to Aeronautics and Space, and it is commonly known as the FARs. This unit covers the most common private pilot-related regulations in Part 61 (certification for pilots) and Part 91 (general operating and flight rules).

	No. of Sessions Per Lesson	Day of Semester
<u>Section A – Overview</u>		
Lesson 1 Regulations Overview	1	49
<u>Section B – Part 61 Regulations</u>		
Lesson 1 FAR Part 61 Review	3	52
<u>Section C – Part 91 Regulations</u>		
Lesson 1 FAR Part 91 Review	4	56
<u>Section D – AIM, NTSB, and More</u>		
Lesson 1 Aeronautical Information Manual	2	58
Lesson 2 ACs, ADs, NOTAMs, and the NTSB	1	59
<u>Unit 9 Exam</u>	1	60
Total Sessions Unit 9	12	
Semester Total	60	

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Unit 10: Private Pilot Projects

In this final unit, students get to practice being ground instructors as they select a topic from the Pilot's Handbook of Aeronautical Knowledge, craft a lesson, teach their lesson to the class, and administer an assessment. This hands-on experience further develops their aviation knowledge in preparation for the FAA Private Pilot Knowledge Test.

Students are also given time to assess and update their career portfolio with reflections, artifacts, and documentation from any work experiences, interviews, competitions, or coursework they have participated in throughout the year.

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – Ground Instruction</u>			
Lesson 1	Teach a Private Pilot Lesson	8	68
<u>Section B – Career Planning</u>			
Lesson 1	Career Portfolio Development	1	69
<u>Post-Course Exam</u>		1	70
Total Sessions Unit 10		10	
Semester Total		70	