

AOPA FOUNDATION HIGH SCHOOL AVIATION STEM CURRICULUM PACING GUIDE



NINTH GRADE CURRICULUM LAUNCHING INTO AVIATION SEMESTER ONE

Unit 1: Aviation 101

	No. of Sessions Per Lesson	Day of Semester
<u>Pre-Course Exam</u>	1	1
<u>Section A – Introduction to Aviation and Aerospace</u>		
Lesson 1 Introduction to Aerospace Studies	1	2
Lesson 2 Engineering Practices in Action	3	5
Lesson 3 Aviation Careers Are For You!	1	6
<u>Section B – Overview of Commercial, Military, and General Aviation</u>		
Lesson 1 Introduction to Commercial Aviation	1	7
Lesson 2 Introduction to Military Aviation	1	8
Lesson 3 Introduction to General Aviation	1	9
<u>Section C – Introduction to Unmanned Aircraft Systems</u>		
Lesson 1 UAS Fundamentals	2	11
Lesson 2 UAS Operation and Safety	1	12
<u>Section D – Introduction to Space Exploration</u>		
Lesson 1 Current and Future Space Exploration	3	15
<u>Unit 1 Exam</u>	1	16
Total Sessions Unit 1	16	
Semester Total	16	

*If the course is off pace for your school/schedule, we recommended that lessons denoted by an asterisk could be shortened or skipped. updated 7.20.21

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Unit 2: Taking Flight—Early Aviation Innovations

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – Aviation’s Primitive Beginnings</u>			
Lesson 1	Flight in Greek Mythology	1	17
Lesson 2	Da Vinci and His Flying Machines	2	19
<u>Section B – Lighter Than Air</u>			
Lesson 1	Hot Air and Gas Ballooning	4	23
<u>Section C – Gliders</u>			
Lesson 1	From Birds to Gliders	1	24
Lesson 2	Glider Flight and Early Innovators	3	27
<u>Section D – Powered, Controlled Flight</u>			
Lesson 1	The “Wright” Approach	2	29
Lesson 2	Build and Test a Wind Tunnel	6	35
Lesson 3	The “Wright” Attitude	1	36
<u>Unit 2 Exam</u>		1	37
Total Sessions Unit 2	21		
Semester Total	37		

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Unit 3: From Theory to Practical Reality—Rapid Developments in Powered Flight

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – First Practical Applications of Airplanes, Commercial and Military</u>			
Lesson 1	Beginnings of U.S. Commercial Airline Service	1	38
Lesson 2	Aviation and World War I	2	40
Lesson 3	Airmail and the Transcontinental Airway System	1	41
<u>Section B – Women in Early Aviation</u>			
Lesson 1	Women in Early Aviation	2	43
<u>Section C – World War II</u>			
Lesson 1	Aviation Innovation and World War II	3	46
Lesson 2	One For All, All For One	2	48
<u>Unit 3 Exam</u>		1	49
Total Sessions Unit 3	12		
Semester Total	49		

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Unit 4: To the Stars—Making Jet and Space Travel Possible

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – The Jet Age</u>			
Lesson 1	Development of the Jet Engine	3	52
Lesson 2	Commercial Air Travel	2	54
<u>Section B – The Space Race</u>			
Lesson 1	The Space Race Begins	1	55
Lesson 2	To the Moon	3	58
Lesson 3	The Space Race Winds Down	1	59
Lesson 4	The Shuttle Program	2	61
<u>Unit 4 Exam</u>		1	62
Total Sessions Unit 4	13		
Semester Total	62		

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Unit 5: Creating the Future—What’s New and Next in Aviation and Aerospace

	No. of Sessions Per Lesson	Day of Semester
<u>Section A – Modern Aircraft Design</u>		
Lesson 1 Fly-by-Wire and “Glass” Cockpits*	1	63
Lesson 2 Aircraft Navigation	1	64
Lesson 3 Composites and Structures	1	65
<u>Section B – Government and Commercial Space</u>		
Lesson 1 Government and Commercial Space	1	66
<u>Section C – End of Semester Project</u>		
Lesson 1 End of Semester Project	5	71
<u>Unit 5 Exam</u>	1	72
<u>Post-Course Exam</u>	1	73
Total Sessions Unit 5	11	
Semester Total	73	

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