

**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 12.18.18



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		

PROPRIETARY

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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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NINTH GRADE CURRICULUM
EXPLORING AVIATION AND AEROSPACE
SEMESTER TWO

Unit 6: Aviation Safety and Oversight

	No. of Sessions Per Lesson	Day of Semester
<u>Pre-Course Exam</u>	1	1
<u>Section A – Role of Government in Aviation Safety</u>		
Lesson 1 Fundamentals of Aviation Safety	2	3
Lesson 2 The Federal Aviation Administration	2	5
<u>Section B – Accident Investigation</u>		
Lesson 1 The Investigative Process	3	8
Lesson 2 Accident Case Study	3	11
<u>Section C – Aviation Weather Services</u>		
Lesson 1 Aviation Weather Reports and Forecasting	2	13
<u>Unit 6 Exam</u>	1	14
Total Sessions Unit 6	14	
Semester Total	14	

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Unit 7: Exploring Careers in Aviation and Aerospace

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – Flying</u>			
Lesson 1	Flying Aircraft and Drones	4	18
<u>Section B – Engineering</u>			
Lesson 1	Becoming an Aerospace Engineer	2	20
<u>Section C – Other Great Aviation Careers</u>			
Lesson 1	Becoming an Air Traffic Controller	2	22
Lesson 2	Becoming an Aircraft Mechanic	1	23
<u>Unit 7 Exam</u>		1	24
Total Days Unit 7	10		
Semester Total	24		

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Unit 8: Aviation Innovation and Problem Solving

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – Going Green</u>			
Lesson 1	Reducing Aviation’s Environmental Impact	3	27
<u>Section B – Modernizing Airspace</u>			
Lesson 1	Next Generation Air Transportation System	1	28
Lesson 2	Integrating Drones	3	31
<u>Section C – Future Aircraft</u>			
Lesson 1	Supersonic Aircraft	3	34
Lesson 2	Autonomous Aircraft	3	37
Lesson 3	Electric Aircraft	2	39
<u>Section D – Future Space Travel</u>			
Lesson 1	Colonizing Space	3	42
<u>Unit 8 Exam</u>		1	43
Total Days Unit 8	19		
Semester Total	43		

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Unit 9: Innovation Challenge

	No. of Sessions Per Lesson	Day of Semester
<u>Section A – “Peep Odyssey”</u>		
Lesson 1 “Peep Odyssey” Innovation Challenge	12	55
Total Sessions Unit 9	12	
Semester Total	55	

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Unit 10: Thinking About a Career in Aviation

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – Preparing for an Aviation Career</u>			
Lesson 1	Developing a Mission Statement*	2	57
Lesson 2	Investigating Education Options After High School*	2	59
<u>Section B – Developing Professionalism</u>			
Lesson 1	Professional Skills and Conduct*	2	61
Lesson 2	Building Communication Skills*	2	63
<u>Section C – Career Planning Project</u>			
Lesson 1	Building a Career Portfolio*	5	68
<u>Unit 10 Exam</u>		1	69
<u>Post-Course Exam</u>		1	70
Total Days Unit 10	15		
Semester Total	70		

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