



Gateway: Flight & Space 8th Grade

Matt McClellan – Special Areas Curriculum Coordinator

Reviewed by the Curriculum Advisory Committee
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Approved by the Board of Education
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COURSE TITLE: Gateway – Flight & Space

GRADE LEVEL: 8th Grade

CONTENT AREA: Career and Technical Education

Course Description:

The exciting world of aerospace comes alive through Flight and Space. Students explore the science behind aeronautics and use their knowledge to design, build, and test an airfoil. Custom built simulation software allows students to experience space travel.

Taken from www.pltw.org

Course Rationale:

Through topics like robotics, flight and space, and DNA and crime scene analysis, middle school students engage their natural curiosity and imagination in creative problem solving. PLTW's Gateway program is a strong foundation for further STEM learning in high school and beyond, challenging students to solve real-world challenges, such as cleaning oil spills and designing sustainable housing solutions. Using the same advanced software and tools as those used by the world's leading companies, students learn how to apply math, science, technology, and engineering to their everyday lives.

Taken from www.pltw.org

Course Scope and Sequence

Unit 1: History of Flight and Space (15 days)	Unit 2: Aeronautics (19 days)	Unit 3: Traveling and Living in Space (11 days)

Essential Terminology/Vocabulary

Unit 1: aerodynamics, aeronautics, aerospace, aerospace engineer, airplane, airship, astronautics, drones, helicopter, hot air balloon, infomercial, jingle, launch, rocket, sailplane, script, seaplane, slogan, space shuttle, storyboard, unmanned aerospace vehicle

Unit 2: acceleration, aileron, airfoil, angle of attack, aspect ratio, bernoulli's principle, camber, chord, dihedral angle, drag, elevator, empennage, flaps, fluid, force, fuselage, glider, gravity, heavier than air, horizontal stabilizer, hypersonic, leading edge, lift, lighter than air, mach 1, mass, newton's first law, newton's second law, newton's third law, pitch, precise input, propellant, propeller, propulsion, ramjet, rocket engine, roll, rudder, slats, spoiler, thrust, trailing edge, turbine, vertical stabilizer, velocity, weight, wing, yaw

Unit 3: astronaut, center of gravity, crater, docking, ellipse, fin, hypothesis, international space station, lava tubes, lunar mare, manned spacecraft, microgravity, national aeronautics and space administration, navigation, orbit, propellant, regolith, rille, rima, rocket, rover, space, space race, space shuttle, space travel, spacecraft, topography, trajectory, unmanned spacecraft, vector, velocity, weather cocking, weightlessness, zero gravity

Approved Course Materials and Resources:

- Gateway to Engineering: Rogers, Wright, Yates, ©2010 ISBN-13: 978-1-4180-6178-4
- Project Lead the Way's *Learning Management System (LMS)*