

Mr. Robert “Robbie” Ferguson
2022 2nd place National AFA/Rolls-Royce Aerospace/STEM Teacher of the Year

9th-12th grade Engineering, Aerospace, Computer Science teacher

Westminster High School

Kiffany Kiewit, Principal
Westminster, CO

Westminster Public Schools

Dr. Pamela Swanson, Superintendent

Nominated by AFA’s CO 127 Mile High Chapter

Chapter President: Cliff Klein
Chapter VP/AE: Stephen Gourley
State President: Linda Aldrich
State VP/AE: Caty Rozema



Although having earned an elementary education degree in 2007, Mr. Robert “Robbie” Ferguson did not become a teacher until 2013 when he became a charter school K-12 gifted and talented technology teacher. His efforts to get a teaching job right after college were unsuccessful, so he began work as an IT professional until his deep longings to fulfill his dream of becoming a teacher could not be ignored. Since 2017, he has been an engineering, aerospace, and computer science teacher at Westminster High School (WHS). Concurrently, he teaches courses via Front Range Community College, University of CO – Colorado Springs (Project Lead the Way courses), and Spartan College.

Robbie’s path to becoming college educated – and, a teacher – is extraordinary! As a disinterested high schooler, he dropped out of school thinking he could make a life without an education. He quickly found that untrue, so, with the help of his grandfather, a retired educator, he worked day and night to return to school, catch up on missed courses, and graduate earlier than his peers. Upon entering college, his quest to learn was ignited by the varied offering of courses - courses he passed almost flawlessly! After graduation, the education field was saturated and he could not find a teaching job so he took a job as an IT professional. After several years in the IT world, he said, “I was on top of the world financially, but my soul just yearned for something more.”

At WHS he has taught computer science courses, as well as International Baccalaureate Organization (IB) Design Technology and [Project Lead the Way Engineering](#). He was introduced to the Aerospace Frontiers Committee which forever changed his teaching trajectory, turning his passion for STEM and aviation into a new opportunity at his school. With the support and guidance of the Career and Technical Education (CTE) director and the Postsecondary Workforce Readiness director, they built the school’s new aerospace pathway working with partners from [Spartan College \(of Aeronautics and Technology\)](#), PLTW, [Wings Over the Rockies](#) (and [Exploration of Flight](#)), [Edge of Space Sciences](#), and

[NASA](#). WHS now offers multiple aerospace courses and industry relevant credentials for the students. The CTE pathway program is expanding to a new innovation center with IT/aerospace as the focus areas. To say Robbie is excited about being a catalyst in the evolution of these programs at his school is an understatement!

Due to the global pandemic, learning in a hands-on atmosphere presented new challenges for everyone. Robbie soon found that introducing aerospace engineering during these uncertain times was tough, but with a little creativity and flexibility, he was able to work with his students online, hybrid, and face-to-face. He even personally drove to their homes to deliver materials and mentor those in need of additional guidance. Robbie stated, "The aerospace pathway lends itself to be both engaging and exciting where students get to design and build projects they might not normally get a chance to actually experience firsthand." COVID only empowered Mr. Robbie Ferguson onward!

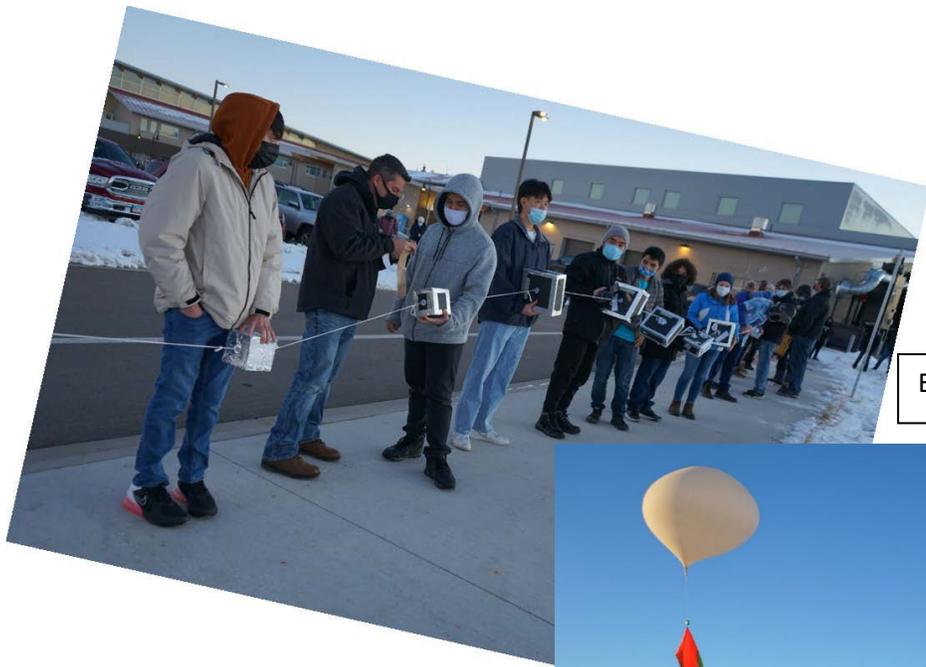
This past academic year, under Robbie's leadership, the newest aerospace engineering course was introduced, *Drone Operations and Robotics*. Robbie partnered with Spartan College of Aeronautics and Technology to get his students interested in aerospace/STEM programs. This course offers students the ability to earn college credits, as well as obtain their FAA Part 107 Commercial Remote Pilots License. Several students this school year took and passed this challenging exam. Robbie's experience, he says, helps to prove that any person/student at almost any age, who is interested in and willing to challenge themselves, can find opportunities within the aerospace industry.

Robbie takes advantage of the aerospace rich environment in his area. His programs at WHS build upon and leverage many industry professionals and experts from [U.S. Drone Soccer-Colorado](#) all the way up to NASA. He strives to incorporate these national-level professionals and industry leaders naturally into his curriculum so that students have something genuine to which they can relate.

His life experiences and passion for STEM instruction created a unique ability to mentor and connect with students at a critical juncture in their lives, opening amazing doors of opportunity for their futures. His desire is to inform other teachers of how transformative aerospace/STEM education is for all students at all skill levels.

Robbie's college experience inspired his goal to be able to offer any high school student an array of courses which might interest them, keep them in school, and prepare them for the future. Robbie has made every effort in his 5 years at WHS to achieve this goal he has set for himself as an educator. He continues to pursue even greater achievement of that goal. He states, "As my aerospace engineering courses continue to flourish and expand, I continue to learn and grow with them. In the near future I would like to offer more opportunities for students to obtain even more industry certifications so that they can transfer these skills toward post-secondary education or join the aerospace workforce right out of high school." Robbie has created the pathways for students by being the ultimate collaborator. His work with local and national educational institutions, organizations, and industry has opened doors he could have only dreamed of in the past.

- See video showing Mr. Robbie Ferguson conducting a high-altitude balloon launch program with his students and NASA consultants, [HERE](#).



EOSS/NASA Weather Balloon Launch



Keynote presentation slide showing altitude data and atmospheric profile analysis.

The slide displays two main graphs:

- ALTITUDE:** A map of the United States with numerous data points and lines extending from various locations, representing high-altitude balloon experiment data.
- Atmospheric Profile:** A 3D graph showing altitude (m) on the vertical axis (0 to 120) and temperature (°C) on the horizontal axis (-100 to 120). The graph is divided into layers: THERMOSPHERE, MESOSPHERE, STRATOSPHERE, and TROPOSPHERE. Key features include the Tropopause, Stratopause, and Mesopause. The Ozone maximum is also indicated.

A video inset in the bottom right corner shows a man speaking during a virtual meeting.

High-Altitude Balloon Experiment Analysis with NASA Expert Comparisons



CO Space Grant Consortium Project



Rocketry Program



Preparation for U.S. Drone Soccer



Spartan College Aeronautics Program

Notable quotes from nomination package:

“Robbie’s professional biography, educational history, and professional development accomplishments speak for themselves. Robbie left a much higher paying job in the industry to follow his passion...that of being able to teach youth about the marvels and avenues of aerospace education. ...We knew we had selected the best teacher for the AFA award.”

~Cliff Klein, AFA Mile High Chapter 127 President

“Robbie is unique in having made a life choice to leave industry and become a teacher. The combination of sharing his technical talents with his industry connections brought to fruition a school aerospace program built from scratch with three years of Robbie’s passion, connections and support. He said, ‘There is no better topic for student engagement during a pandemic than Aerospace.’ The course focuses on the evolution and physics of flight, flight navigation, orbital mechanics, and drone operations and maintenance. Partnerships with NASA, University of Colorado, National Defense, Arvada Associated Modeler, Edge of Space Science, and Spartan College enhanced the curriculum with real world issues being integrated into the instruction at strategic intervals.”

~Linda Aldrich, CO State AFA President

“The importance of proper student preparedness for careers in the Air Force, aviation, aerospace, and cyber security is essential to the overall competitiveness of the U.S. as well as the safety of our nation, and, one could argue, the world. As a district, we realize that our students need fluency with smart technology, experience in precision navigation, knowledge of and the ability to reconcile their atmospheric data collection with that provided by professionals and offer to their future employer a dedication to lifelong learning, scientific exploration and problem solving. To support a program of instruction that satisfies these high responsibilities, requires dedicated instruction by a teacher who routinely elevates his program to provide ever-expanding opportunities for demonstrated proficiency tied to industry expectations. At Westminster High School, that instructor is Mr. Robert “Robbie” Ferguson. A future more dependent on drones and robotics faces us all. His students are one of only two teacher-supported programs in Colorado that build on drone technology, construction, and navigation by also enabling them to participate in the U.S. Drone Soccer competition; a competition WHS and we are proud to host twice this academic year.”

~Dr. Pamela Swanson, Superintendent of Westminster Public Schools

“My daughter, Liane, was one of Robbie’s students in the 2020-2021 school year. She found considerable inspiration and motivation in Robbie’s teaching. She excelled and eventually earned 4 credits from The University of Colorado at Colorado Springs for Robbie’s Aerospace Engineering and Engineering Design and Development classes, in addition to earning Autodesk credentials. Liane also took part in Robbie’s Robotics Club the previous year, which also influenced her college goals. Robbie’s outstanding enthusiasm, his energetic and engaging approach to STEM teaching, and his obvious deep concern for the development of his students is highly effective, from my own personal perspective. My daughter decided to pursue Engineering at The University of Colorado at Boulder in large part due to her classroom experience with Robbie.”

(Additionally, this parent is investing time, research, and resources into Mr. Ferguson’s high-altitude balloon program which further illustrates his personal and professional respect for and belief in Mr. Ferguson’s educational programs.)

~Dr. Michael T. Carter, President Applied Sciences, Parent of Former Student