Nancy Parra-Quinlan
2022 National AFA/Rolls-Royce Aerospace/STEM Teacher of the Year

7th & 8th grade science, STEM, and Career Tech Education teacher and Director, Aerospace Academy summer program

Kino Jr High School, Mesa, AZ
Kieko Dilbeck, Principal

Mesa Public Schools
Dr. Andi Fourlis, Superintendent

Nominated by AFA’s AZ-151 Frank Luke Chapter
President, Ed Logan 151 VP/AE, Harry Bailey
AZ President, Wally Saeger AZ VP/AE, Eric Jameson

Nancy Parra-Quinlan is a seventh- and eighth-grade STEM/CTE (career and technical education) teacher in Mesa, Arizona. She teaches robotics, engineering, flight and space, as well as a medical detectives course. She has taught in Arizona for 28 years with the last 17 years at Kino Jr High School, a Title I disadvantaged school in an economically underserved area of Metropolitan Phoenix. The over 1,000 7th and 8th graders are called the “Kolts.” Parra-Quinlan started the school’s STEM program in 2011 and has expanded these offerings to the students annually. In her different electives classes, the students build rockets, dissect sheep brains, create 3D printer projects, and program robots during the school day.

“Beyond the bell,” she is the coach of the after-school’s Lego League Robotics team (the RoboKolts) spending several days a week with the students working on coding and missions, developing research projects, and doing team-building activities. To improve the team’s communication and leadership skills during COVID, they mentored, via Zoom, a rookie robotic team in Yuma, Arizona. Mrs. P-Q (as the students call her) is also the sponsor of the school’s STEM Club (known as SIMI: the STEM Institute for Manufacturing and Innovation). In addition to the club’s own activities, the club plans the school’s STEM programs and projects. During the summers, Mrs. P-Q has taken STEM Club students to the U.S. Space and Rocket Center Space Academy in Huntsville, Alabama, and Astro Camp in Idyllwild, California.

When the Mesa Public School District decided to close the Aviation Camp summer program, Mrs. P-Q assumed its leadership and recreated an Aerospace Academy for students from all over the Phoenix Metropolitan area. As the academy’s director, she plans a two-week curriculum, advertises the camp to the public, and supervises high school student mentors and certified teaching assistants. She secures donors and helps select five scholarship students funded through their contributions. The students visit airports (such as the Falcon Field Airport with the Mesa Police Department’s Aviation Unit as seen in the photo), meet with guest speakers, and participate in hands-on activities including flight simulators, model rocketry, and lunar lander challenges.
Nancy Parra-Quinlan is teaching the least of us to become the best of us...

➢ To understand who Mrs. Parra-Quinlan is, see the short video HERE.

Mrs. P-Q goes above and beyond what is expected in the classroom to provide STEM opportunities to youth and teachers. As another above and beyond volunteer responsibility, Parra-Quinlan holds the rank of captain in the Civil Air Patrol, where she works as an Aerospace Education Officer in both the AZ Wing and with the 305th Squadron. Her double passions are working with cadets to help them pursue their aerospace career goals and working with teachers to help them understand about and utilize the free STEM resources available through CAP.

Mrs. Parra-Quinlan’s Bachelors and Masters degrees in education include Bilingual (Spanish), English as Second Language (ESL), and science endorsements. Additionally, in May 2022, she was awarded an Honorary Doctorate in Humane Letters from Northern Arizona University (NAU) for distinguishing herself through humanitarian and goodwill contributions to society. To increase her knowledge of STEM education, she has taken additional classes at Arizona State University, NAU, San Diego State University, Cal Poly Pomona, and the University of Alabama at Huntsville. Additionally, just in the last two years she attended special professional development opportunities at Huntsville’s Space Academy for Educators, Houston’s Johnson Space Center’s Space Exploration Educators Conference (SEEC), and the U.S. Naval Academy’s Set Sail teacher program.

She is National Board certified in Career & Technical Education, and among the many awards and grants she has received through the years, she was named the 2022 Arizona State Teacher of the Year from the AZ Education Foundation and the Council of Chief State School Officers (CCSSO) in the National Teacher of the Year program. After a rigorous process of drafting essays, filming her teaching, and being interviewed, she was chosen from among a group of ten state finalists for her dedication to STEM education and the pursuit of equity in STEM for women and people of color; both vastly underrepresented in STEM careers. She looks for ways to share her lessons with her colleagues so they can bring STEM to all of their students.

Mrs. P-Q is the Sci Tech Institute AZ Chief Science Officer Mentor and Mesa Public Schools Lead Teacher for the Pawsitive Peers Pet Therapy program. She is a new teacher lead mentor, an AZ Education Foundation Teach STEM curriculum developer and presenter, and a national NASA/JPL Solar System Ambassador where she visits other schools to teach about astronomy using giant Moon and Mars maps and related programs.

Although she has had many years of professional leadership and mentorship roles, her 2022 roles include SEEC national conference presentations, presenter and keynote speaker at NAU’s There’s a Reason I’m a Teacher (TARIAT) conference, Arizona’s STEM Collaborative “Unconference” presenter, and a CCSSO State/National Teacher of the Year Conference participant in Washington, DC, meeting the President of the United States.
Mrs. P-Q currently teaches the school’s STEM education classes via the Project Lead the Way (PLTW) Gateway platform and is the Career Tech Education (CTE) department chair. Her daily instructional programs are varied and include:

- **HE02: Medical Detectives class** where students learn about human body systems, food borne illness, genetic diseases, and DNA. Students learn about different aspects of crime scene investigation and work to solve a "murder mystery" through learned skills, such as DNA comparison.

- **IT20: Automation and Robotics- Lego NXT Robotics class** uses Lego NXT robots to learn the basics of programming and problem solving. VEX robotics are also used to study gear ratios, speed, and torque. Programming is done with RobotC software.

- **IT25: Design and Modeling class** teaches students how to draw in isometric and orthographic projections, as well as use 3D modeling software to create original products, while learning the importance of accuracy, precision, and dimension. Using Autodesk and TinkerCad software, students sketch and create a 3D figure, send the file to the 3D printer, and see it created in real time. Through the use of the Engineering Design Process, the idea of iterative work becomes part of real-world application of concepts taught in class, such as in the school garden where the students design/create garden boxes, analyze planting information, and plan the layout of the produce.

- **IT27: Space and Flight class** examines the history of aviation and explores the future of air and space travel. This class experiments with the forces of flight, types of flight, and a variety of model crafts while learning what makes flight possible. Successful completion of IT20 or IT25 is required to enroll in this course. Connection with the local Model Aeronautics Club strengthens the students’ understanding of flight principles prior to actually flying.

Mrs. P-Q seeks opportunities to impact her students’ lives through STEM education. She states, “It is not enough to do fun STEM activities with students. They need to know how these activities are connected to real-life situations and how they can use the basic STEM principles in their future careers.”
Mrs. Parra-Quinlan has spent her entire teaching career advocating for students in economically underserved schools, working tirelessly to supply an array of STEM education opportunities to her students, as well students and teachers in other community, state, and national programs. It is her mission to bring equity in STEM education to women and students of color as they are vastly underrepresented in STEM careers.

Mrs. P-Q stated, “Often, successful STEM programs are not found in extreme poverty or high minority population schools. According to Change the Equation, a non-profit organization launched by President Barack Obama, ‘at every stage of their K-12 education, students who attend the highest-poverty schools are least likely to have access to STEM resources, experiences, and classes.’ As the disparity in educational funding increases, student access to the materials needed to make a fully-functioning STEM program decreases. I am continuously searching for ways to increase equity in STEM by presenting to current and future educators, providing programs for students from a variety of backgrounds, writing grants to implement new programs, promoting STEM education at public events, and working with policy makers to find gaps in STEM education at the state and national levels.

“My goal as AFA National Teacher of the Year would be to help teachers in schools around the country start, expand, and maintain a STEM Club and/or program. By working with my colleagues, I can assist them build sustainable programs that will help create more possibilities for their economically disadvantaged students to be involved in STEM experiences at their schools. I would use this opportunity to reach teachers all over the country and in Department of Defense schools to increase the potential for their students to receive equitable opportunities to engage in STEM learning and career exploration.”
Notable quotes from her nomination package:

“Ms. Parra-Quinlan has not only held a full schedule of STEM and CTE courses in her classroom, but she has also taken her students to space camps in Alabama and California. She has set the trend locally for students from Title I schools to go on to higher STEM education.”

~ Ed Logan, President, AZ’s Frank Luke Chapter 151

Nancy Parra-Quinlan manifests all the qualities desired to be the 2022 AFA National TOY: excellence in the classroom, recognition by her peers, and demonstrated impact at the local, state and nation levels in the challenging world of STEM education. To increase her knowledge and influence, Nancy became a National Board-Certified Teacher in Career and Technical Education in 2018 and continues that certification today. She is using that expertise to develop lessons for a summer teachers’ STEM professional development opportunity to work with CTE programs like Education Professions, Early Childhood, and Career Pathways, as well as Educators Rising: CTSOs (Career and Technology Student Organization).”

~ Wally Saeger, President AFA Arizona

“Nancy designs learning experiences that allow students to problem solve, think critically, and collaborate. She is proud of the work she is doing to close opportunity gaps for students and create thinkers of the future. Her classroom is full of energy, excitement, and passion for learning. Not only is she a teacher, she is a teacher leader who leads the Career Technical Education department at her school, inspires students as a robotics coach, and mentors new and veteran teachers. Nancy’s influence expands beyond her school into our district, state, and nation.”

~ Andi Fourlis, Superintendent Mesa Public Schools

“It is an honor to recommend Nancy Parra-Quinlan for the AFA National Teacher of the Year. She exhibits the qualities of a national leader in her field and shows no sign of slowing down. Nancy is the heart of STEM education, both in Arizona and across the country. Her wide network of education and aerospace contacts would agree that she gives 100% to creating opportunities for our students to become successful STEM professionals.

~ Mike Vargas, 2019 National AFA/Rolls-Royce Teacher of the Year

2020-2022 Albert Einstein Fellow Dept of the Air Force National K-12 STEM Office