

# LIGHTING A SPARK

By Susan Mallett

Photo by Robert Makowitz

## Kaci Heins is AFA's 2014 National Aerospace Teacher of the Year.

Kaci A. Heins knew in high school that she wanted to be a science teacher. She loved working with kids and had a passion for science. Later, as a student teacher in Australia, she witnessed the value of using hands-on challenges in the classroom and not relying solely on textbooks.

Now in her 10th year as an instructor, Heins is a sixth-grade science teacher at Northland Preparatory Academy in Flagstaff, Ariz. She has retained her passion for all things science.

Her motto is, "Dare Mighty Things." She encourages her students to be creative, take risks, and accept failure as part of the process of learning and growing.

"Heins lives science education and seeks to do projects that impact our students and our community," said Toni Keberlein, Northland Preparatory Academy principal.

AFA's Prescott/Goldwater Chapter selected Heins as its 2014 Teacher of the Year. The Arizona state AFA orga-

nization subsequently chose her for the state-level award. AFA then picked her as the 2014 National Aerospace Teacher of the Year from among a pool of talented candidates.

Heins integrated aerospace and science, technology, engineering, and mathematics, or STEM, topics into her classroom. Her science curriculum has engineering design challenges built in to provide hands-on and real-world experiences for her students. Some of these engineering projects include rockets, solar ovens, wind turbine design, heat shield testing, water filtration, and plant growth chambers. She incorporates field trips and hosts live chats online.

"Building water rockets and then Web-chatting with a real rocket engineer could light a spark in a middle school student that would help drive them to pursue higher math and science courses throughout high school and college," said Heins. "The end result could be a new engineer in the United States workforce."

Kaci Heins observes her students' microgravity experiment aboard a NASA zero-gravity airplane in 2013. Inset: In March, Heins' students launched a Lego astronaut into near space with a high-altitude balloon.



Each year Heins has her students build a payload for a high-altitude balloon that's launched into the stratosphere. One year, her class designed a payload featuring a camera pointed at a Lego toy astronaut. The students successfully snapped a photo of the astronaut against the cold background of near space.

Heins also brings guest speakers to her classroom. For example, in October, Heins hosted TSgt. Timothy J. Tichawa, an AFA Emerging Leader alumnus and an instructor at the Air Force's Advanced Space Operations School in Colorado Springs, Colo. He talked to her students about Air Force satellites and the importance of STEM education for space-related careers. (See "Dare Mighty Things," *Wingman Magazine*, January 2015, p. 19).

After school, Heins coaches the school's Lego robotics teams. She also makes presentations to other educators

# National Aerospace Teacher of the Year

AFA's National Aerospace Teacher of the Year program recognizes classroom teachers for exemplary educational performance and leadership that builds enthusiasm among students for science, technology, engineering, and mathematics. Such efforts contribute to preparing students to be the next generation of skilled workers supporting the nation's national and economic security.

The program begins each year with AFA chapters recognizing excellent kindergarten through grade 12 educators and celebrating them in their communities. AFA state organizations subsequently choose one educator as the statewide Teacher of the Year.

The highest level of recognition comes at the national level. All state teachers of the year—from the current and previous year—are eligible to apply for consideration. From that pool, a panel made up of one member from AFA's Aerospace Education Council and previous national teachers of the year selects the winner, along with a first runner-up and second runner-up. Applications must be postmarked by May 31. For more information, see <http://www.afa.org/TeacherOfYearGuidelines>.

As time nears for the 2015 selection, AFA encourages the state aerospace education vice presidents to take the time to assist their state Teacher of the Year in preparing an application package for the esteemed national award.

The National Aerospace Teacher of the Year serves as a member of AFA's Aerospace Education Council, helps to bring AFA's educational programs to public awareness, and inspires more educators to connect with AFA to support aerospace and STEM initiatives.

Visit <http://www.afa.org/informationfor/teachers/teacheroftheyear>.



Photo by Bruce Sidinger

Heins oversees her students at Northland Preparatory Academy as they cut a PVC pipe for an underwater remotely operated vehicle kit.

at science conferences across the country on topics such as student learning in microgravity and using Skype and assessment clickers in changing students' STEM attitudes.

Among her other accomplishments, she has been a national educator with the Civil Air Patrol Aerospace Connections in Education program, sent a student experiment on cell replication in microgravity to the International Space Station, arranged for students to talk with an ISS astronaut in space via amateur radio, and took two student experiments onto a zero-gravity airplane.

Heins has collaborated with other organizations to expand funding sources and learning opportunities for her students and fellow educators, raising more than \$30,000 for STEM programs at her school.

She has garnered numerous state and national awards from well-respected organizations. For example, she was CAP's 2011 Aerospace Education Teacher of the Year.

Heins has proved to be a mighty voice for AFA's aerospace education mission and has embraced the responsibility with zest. AFA has been proud to have Heins as a member of its Aerospace Education Council and as an educational representative for the organization.

Her message to other educators: "Dare Mighty Things Through STEM Education!"

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# FIRST RUNNER-UP

## Michael Steeber

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Michael Steeber is in his 11th year of teaching at Frazier High School in Perryopolis, Pa., where he teaches physics and robotics. He was first runner-up for AFA's 2014 National Aerospace Teacher of the Year award.

Steeber believes that students do not have to be geniuses to grasp science, technology, engineering, and mathematics subjects. Instead, they just need something to stimulate them and bring out their passion and curiosity, he said.

Accordingly, Steeber works in the classroom to relate STEM issues to his students, utilizing items they know. For example, a hair dryer can teach them about heat transfer and thermodynamics principles, he said. Presenting STEM

topics this way means the students will more likely retain knowledge.

"He has the most uncanny ability to motivate and engage students," said Chris S. Sefcheck, Frazier High School principal at the time of Steeber's Teacher of the Year nomination.

Steeber started Frazier High School's robotics program, which includes a college level course and a robotics team. That team, advised by Steeber, has done well in peer competitions. The program has also enabled his students to visit robotics firms and research facilities in the state to stimulate their interest in STEM.

Steeber also coaches football.

AFA's Joe Walker-Mon Valley Chapter nominated him as Teacher of the Year.



Photo by Kim Redman

Along with teaching physics and robotics, Michael Steeber also coaches football.

# SECOND RUNNER-UP

## Jeff Scott

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Jeff Scott had 24 years of teaching under his belt when AFA selected him as second runner-up for the 2014 National Aerospace Teacher of the Year award.

He taught at Washington High School in Parkland, Wash., for 14 years. The school has a high percentage of students living in poverty, yet inspires them to deliver high academic performance.

Scott is now retired, but his work and dedication left an enduring imprint on his students and the local community.

The first in his family to attend a four-year college, Scott said observing a middle school instructor as part of a teacher orientation course at Eastern Washington University changed his life. "I found my passion," he said.

At Washington High School, Scott taught courses in engineering, mathematics, general science, and physics. He introduced his students to topics like computer-aided design, robotics, and aerospace engineering.

Washington High School established an engineering program through Scott's efforts that resulted in a capstone aviation engineering class. As part of it, students were able to shadow industry professionals in the hopes of fueling their interest in STEM.

Scott was also advisor for an after-school club geared toward minority and female students.

AFA's McChord Field Chapter nominated him as Teacher of the Year.



Courtesy photo

Jeff Scott based the engineering program at Washington High School on robotics and stressed team work.