

Sarah A. Reid, *The Fayetteville Observer* (North Carolina) | March 4, 2010

Ex-NASA scientist is a star among students

Jaws dropped in an E.E. Smith High School honors astronomy class when a 91-year-old special visitor called her friend -- astronaut Leland D. Melvin.

"Anyone play video games in there?" Melvin asked about 20 excited students. "Well, if you can play and master a video game, you can work a robotic arm in space."

In November, Melvin went on a 13-day flight to deliver 30,000 pounds of spare parts to the International Space Station. For almost 20 minutes, Melvin described the mission to students, answered questions and encouraged them to pursue their dreams.

"You can do anything you put your mind to, if you believe in yourself," he said.

The visitor, Katherine Johnson, a trailblazer in her own right, arranged the call to encourage students at the heavily minority school.

Johnson was NASA's first black female research mathematician and physicist. She designed star charts that astronauts learned as a back-up navigation system in case their computers failed. She calculated the routes famous moonwalker Neil Armstrong and other astronauts would take.

"A lot of youngsters have no ambition," she said. "Nobody has let them know it's OK to study and be smart. ... When I find students who are interested, I'll sit and talk to them all day. Take them home with me."

'Always liked learning'

Johnson was born in 1918 in West Virginia, the youngest of four children. Her father dropped out of school after completing the sixth grade, but he valued education.

Early in Johnson's life, her father moved the family to Institute, W.Va., which offered high school classes to African-Americans. Johnson graduated when she was 14, and earned her bachelor's degree when she was 18 -- during the Great Depression.

"Teachers never had a problem with me," she told students. "I always liked learning."

W.W. Schiefflin Claytor, one of her college professors, recognized Johnson's talent and groomed her to become a research mathematician.

After college, Johnson taught in rural Virginia and West Virginia schools. She married a few years later. She started taking graduate classes in 1940, but stopped after her husband became ill. She taught his classes in the public schools to earn money for her family.

In the 1950s, Johnson learned that the National Advisory Committee for Aeronautics at Langley Research Center -- NASA's predecessor agency -- wanted to hire black women mathematicians. She was hired in 1953.

"NASA was a very professional organization," she said. "Everybody was a smart person. Everybody had been to college. Everybody was interested in what they were doing. They didn't have time to be concerned about what color I was."



Katherine Johnson at home, c. 2010s.

NASA officials were, however, most interested in Johnson's math skills.

"The guys all had graduate degrees in mathematics," she said. "They had forgotten all the geometry they ever knew. I still remembered mine."

Her knowledge set her apart from other women, who worked in a pool and were assigned specific calculations to complete. After being loaned out to an all-male flight team, the men decided they needed her skills and forgot to return her to the pool.

Johnson used plane analytic geometry and algebraic equations to make the space flight maps used by astronauts.

"It was a real challenge to do the Apollo missions to the moon," she said.

Johnson spent days with her clunky desk calculator creating the maps, she said.

When Neil Armstrong landed on the moon, Johnson was at an Alpha Kappa Alpha convention. None of her sorority sisters knew that Johnson had worked on the project.

"Imagine how excited I was when that transpired," she said. "That was all done with mathematical equations."

Most of Johnson's work was done in secret, said her daughter, Connie Garcia.

Johnson married an Army colonel after her first husband died of brain cancer, Garcia said. Whenever Garcia or her sisters needed to get on a military installation, they always took their mother's car because she had better access, Garcia said.

They didn't know why until they became adults and Johnson started to share details of her work.

Johnson shared some of her story with Larry Rivera, whom she met at a conference last year. Rivera's parents, Joe and Linda Rivera, who are owners of the Greek Shop, financed Johnson's trip to E.E. Smith. Rivera's fiancée, Yolunda Nelson, is a science teacher at the school.

Johnson visited multiple classes on Wednesday -- including Nelson's -- and addressed the school during an assembly, where Christopher Martin, half of the musical duo Kid 'n Play, encouraged students in a video message to keep striving.

Students impressed

Freshmen Lynell Raphile and Naheem E. Maldonado said they felt empowered by Johnson's visit.

"To see her in real life is amazing," Maldonado said.

City officials were impressed, too. Early in her visit, three Fayetteville council members presented her with flowers, a corsage and a proclamation naming March 3, 2010, Katherine Johnson Day. Members of four historically black sororities snapped pictures along with students.

"I've never been treated so handsomely," Johnson said. "Never."