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Title: Honoring and recognizing Katherine Coleman Goble Johnson on her 100th birthday for her extraordinary bravery and brilliance in mathematics.

Sponsors: Councilmember Parker, Councilmember Blackwell, Councilmember Quiñones Sánchez, Councilmember Bass, Councilmember Reynolds Brown, Councilmember Gym, Councilmember Green, Councilmember Jones, Councilmember Johnson, Councilmember Taubenberger, Councilmember Greenlee, Councilmember Domb, Councilmember O'Neill, Councilmember Oh, Councilmember Squilla

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9/13/2018	0	CITY COUNCIL	Introduced and Ordered Placed on This Week's Final Passage Calendar	Pass	
9/13/2018	0	CITY COUNCIL	ADOPTED		

Honoring and recognizing Katherine Coleman Goble Johnson on her 100th birthday for her extraordinary bravery and brilliance in mathematics.

WHEREAS, Katherine Coleman Goble Johnson was born on August 26, 1918, in White Sulphur Springs, West Virginia, the youngest of four children. Johnson showed brilliance in mathematics from a young age, and actually skipped several grades because of her intelligence. Unfortunately, her hometown only offered education for black students until eighth grade. However, her parents were invested in their children's education and moved the family 125 miles away to Institute, West Virginia so their children could continue to attend school. Johnson attended West Virginia State High School and earned her diploma at age 14; and

WHEREAS, After graduating high school, Katherine attended West Virginia State, a historically black college. As a student, she took every math course offered by the college. Multiple professors mentored her, including chemist and mathematician Angie Turner King and W. W. Schieffelin Claytor, the third African American to receive a PhD in math. Claytor even added new math courses just for Katherine. She graduated summa cum laude in 1937, with Degrees in Mathematics and French, at age 18; and

WHEREAS, After graduating college, Katherine took on a teaching job at a black public school in Marion, Virginia. In 1939, after marrying her first husband, James Goble, Katherine left her teaching job and enrolled in a graduate math program at West Virginia University, making her the first African-American woman to attend graduate school there. In fact, she was one of three African American students selected to integrate the graduate school after the United States Supreme Court ruling *Missouri ex rel. Gaines v. Canada* (1938). The court had ruled that states that provided public higher education to white students also had to provide it to black students, to be satisfied either by establishing black colleges and universities or by admitting black students to previously white-only universities; and

WHEREAS, Katherine quit the graduate program after one year, after becoming pregnant and choosing to focus on her family. She returned to teaching when her three daughters got older, but it wasn't until 1952 that a relative told her about open positions at West Area Computing section at the National Advisory Committee for Aeronautics' (NACA's) Langley laboratory, headed by fellow West Virginian Dorothy Vaughan. Katherine and her husband decided to move the family to Newport News to pursue the opportunity, and Katherine began work at Langley in the summer of 1953; and

WHEREAS, The West Area Computing section was made up of African American women who performed manual calculations for the program's engineers. They were so talented at calculations that a WWII memo circulated in 1942 read "The engineers admit themselves that the girl computers do the work more rapidly and accurately than they could"; and

WHEREAS, Just two weeks into Katherine's tenure in the office, Dorothy assigned her to a project in the Maneuver Loads Branch of the Flight Research Division, and Katherine's temporary position soon became permanent. Joining Katherine and Dorothy was Mary Jackson; and

WHEREAS, Katherine spent the next four years analyzing data from flight test, and worked on the investigation of a plane crash caused by wake turbulence. As she was wrapping up this work her husband died of cancer in December 1956. Katherine remarried in 1959 to James A. Johnson, who had been a second lieutenant in the army and was a veteran of the Korean War; and

WHEREAS, Despite the mathematicians' brilliance, the women were segregated because of the color of their skin. They had to use separate dining facilities and rest rooms. This did not end until NACA became NASA in 1958; and

WHEREAS, In 1957, Katherine provided some of the math for the 1958 document *Notes on Space Technology*, a compendium of a series of 1958 lectures given by engineers in the Flight Research Division and the Pilotless Aircraft Research Division (PARC). Engineers from those groups formed the core of the Space Task Group, the NACA's first official foray into space travel, and Katherine, who had worked with many of them since coming to Langley, "came along with the program" as the NACA became NASA later that year; and

WHEREAS, These three women - Katherine Johnson, Dorothy Vaughan, and Mary Jackson - are the inspiration for the hit book and movie *Hidden Figures*. Katherine calculated by hand the flight trajectory for Alan Shepard, the first American to go into space in 1959. She also calculated by hand John Glenn's orbit around Earth in 1962, and the flight trajectory for Apollo 11's flight in 1969, which put the first men on the moon. Later, she was also instrumental in the space shuttle program; and

WHEREAS, Before John Glenn's flight he was skeptical of the calculations received by the computer. He could only be consoled by Johnson's calculations. He famously said, "Get the girl to check the numbers." Johnson repeated the calculations and assured her colleague of his safety. The mission was successful; and

WHEREAS, Katherine went on to author or co-author 26 research papers during her 33 years at NASA. She was the first woman in the division to be published; and

WHEREAS, Katherine Johnson turned 100 on August 26th and has created an extraordinary legacy. She has received five NASA Langley Research Center Special Achievement Awards; an Honorary Doctor of Laws from SUNY Farmingdale; an Honorary Doctor of Science from Capitol College in Laurel, Maryland; an Honorary Doctorate of Science from Old Dominion University; a Presidential Honorary Doctorate of Humane Letters

from West Virginia University; and an Honorary Doctorate of Science from the College of William and Mary. She was also named Outstanding Alumnus of the Year by West Virginia State College, and the University announced plans for an endowed STEM scholarship in her honor and a life-size statue of her on campus. In 2015, she received the Presidential Freedom Award, the highest award a civilian can receive, from President Barack Obama; now, therefore, be it

RESOLVED, THAT THE COUNCIL OF THE CITY OF PHILADELPHIA, Hereby honors and recognizes Katherine Coleman Goble Johnson on her 100th birthday for her extraordinary bravery and brilliance in mathematics.

Cherelle L. Parker - 9th District

Jannie Blackwell - 3rd District

Maria Sanchez - 7th District

Cindy Bass - 8th District

Blondell Reynolds Brown - At Large

Helen Gym - At Large