**Creola Katherine Johnson**

(August 26, 1918 – February 24, 2020)

**Background**

Johnson was born as Creola Katherine Coleman on August 26, 1918, in [White Sulphur Springs](https://en.wikipedia.org/wiki/White_Sulphur_Springs,_West_Virginia), West Virginia, to Joylette Roberta (Lowe) and Joshua McKinley Coleman. She was the youngest of four children. Her mother was a teacher and her father was a lumberman, farmer, and handyman, and worked at the [Greenbrier Hotel](https://en.wikipedia.org/wiki/The_Greenbrier).

Coleman showed strong mathematical abilities from an early age. As [Greenbrier County](https://en.wikipedia.org/wiki/Greenbrier_County,_West_Virginia) did not offer public schooling for African-American students past the eighth grade, the Colemans arranged for their children to attend high school in [Institute](https://en.wikipedia.org/wiki/Institute,_West_Virginia), West Virginia. This school was on the campus of [West Virginia State College](https://en.wikipedia.org/wiki/West_Virginia_State_University) (WVSC). Johnson was enrolled when she was ten years old.

After graduating from high school at 14, Johnson enrolled at West Virginia State, a [historically black college](https://en.wikipedia.org/wiki/Historically_black_college). As a student, she took every math course offered by the college. Multiple professors mentored her, including the chemist and mathematician [Angie Turner King](https://en.wikipedia.org/wiki/Angie_Turner_King), who had mentored Coleman throughout high school, and [W. W. Schieffelin Claytor](https://en.wikipedia.org/wiki/W._W._Schieffelin_Claytor), the third African-American to receive a Ph.D. in mathematics. Claytor added new mathematics courses just for Johnson. She graduated [*summa cum laude*](https://en.wikipedia.org/wiki/Latin_honors) in 1937, with degrees in mathematics and French, at age 18. She took on a teaching job at a black public school in [Marion](https://en.wikipedia.org/wiki/Marion,_Virginia), Virginia.

In 1939, after marrying her first husband, James Goble, she left her teaching job and enrolled in a graduate math program. She quit after one year after becoming pregnant and choosing to focus on her family. She was the first African-American woman to attend graduate school at [West Virginia University](https://en.wikipedia.org/wiki/West_Virginia_University) in [Morgantown](https://en.wikipedia.org/wiki/Morgantown,_West_Virginia), West Virginia. Through WVSC's president, Dr. [John W. Davis](https://en.wikipedia.org/wiki/John_Warren_Davis_(college_president)), she became one of three African-American students, and the only woman, selected to integrate the graduate school after the 1938 United States Supreme Court ruling [*Missouri ex rel. Gaines v. Canada*](https://en.wikipedia.org/wiki/Missouri_ex_rel._Gaines_v._Canada).

**Work**

Katherine Johnson blazed trails, not just as a black female mathematician during the Cold War, but by mapping literal paths through outer space. Her math continues to carve out new paths for spacecraft navigating our solar system, as NASA engineers use evolved versions of her equations that will execute missions to the moon and beyond.

Johnson was an American mathematician whose calculations of [orbital mechanics](https://en.wikipedia.org/wiki/Orbital_mechanics) as a [NASA](https://en.wikipedia.org/wiki/NASA) employee were critical to the success of the first and subsequent U.S. crewed spaceflights. During her 35-year career at NASA and [its predecessor](https://en.wikipedia.org/wiki/National_Advisory_Committee_for_Aeronautics), she earned a reputation for mastering complex manual calculations and helped pioneer the use of computers to perform the tasks. The space agency noted her "historical role as one of the first [African-American](https://en.wikipedia.org/wiki/African-American) women to work as a NASA scientist".

Johnson's work included calculating trajectories, [launch windows](https://en.wikipedia.org/wiki/Launch_window), and emergency return paths for [Project Mercury](https://en.wikipedia.org/wiki/Project_Mercury) spaceflights, including those for astronauts [Alan Shepard](https://en.wikipedia.org/wiki/Alan_Shepard), the first American in space, and [John Glenn](https://en.wikipedia.org/wiki/John_Glenn), the first American in orbit, and rendezvous paths for the [Apollo](https://en.wikipedia.org/wiki/Apollo_program) [Lunar Module](https://en.wikipedia.org/wiki/Apollo_Lunar_Module) and [command module](https://en.wikipedia.org/wiki/Apollo_command_module) on flights to the Moon. Her calculations were also essential to the beginning of the [Space Shuttle program](https://en.wikipedia.org/wiki/Space_Shuttle_program), and she worked on plans for [a mission to Mars](https://en.wikipedia.org/wiki/Exploration_of_Mars).

In 2015, President [Barack Obama](https://en.wikipedia.org/wiki/Barack_Obama) awarded Johnson the [Presidential Medal of Freedom](https://en.wikipedia.org/wiki/Presidential_Medal_of_Freedom). In 2016, she was presented the [Silver Snoopy Award](https://en.wikipedia.org/wiki/Silver_Snoopy_award) by NASA astronaut [Leland D. Melvin](https://en.wikipedia.org/wiki/Leland_D._Melvin) and a [NASA Group Achievement Award](https://en.wikipedia.org/wiki/NASA_Group_Achievement_Award). She was portrayed by [Taraji P. Henson](https://en.wikipedia.org/wiki/Taraji_P._Henson) as a lead character in the 2016 film [*Hidden Figures*](https://en.wikipedia.org/wiki/Hidden_Figures). In 2019, Johnson was awarded the [Congressional Gold Medal](https://en.wikipedia.org/wiki/Congressional_Gold_Medal).