

All About

Katherine Johnson



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A Race

Imagine there are a group of people about to run a race. Before the start of the race, one person's starting place is moved nearer the finishing line. Another person is moved much further away. One of the runners has a blindfold on, another one has a very heavy rucksack put on their back.

History has many accounts of people who lived under unfair and disadvantaged conditions, yet managed to achieve incredible things. Today, we are going to learn about a woman called Katherine Johnson who was born into difficult circumstances yet made a huge impact on world history.

Talk
about
it.

Is this a fair race? Why or why not? Who has the advantage?



Background to Katherine Johnson's Life

From between 1525 and 1866, millions of African people were taken from their homes in Africa and transported to the New World (North and South America) as part of the slave trade.

Although enslaved African Americans were freed from slavery in 1863, life continued to be incredibly difficult, facing discrimination in many areas of their lives.

Into the 20th Century, many states in the United States followed a policy known as 'Separate but Equal'. This meant that African Americans had to attend different schools, use different restaurants and sit in different areas of public transport than white people. In many places, African Americans also faced obstacles exercising their right to vote. Things provided for African-American people were separate but not equal to things white people had.

Katherine Johnson's Early Life

Katherine Johnson was born in West Virginia, USA, on 26th August 1918.

At an early age, she showed a great talent for maths. However, where Katherine lived, African-American children were only educated until the Eighth Grade (the American equivalent of Year 9).

Talk
about
it.

All the important qualifications were achieved after the Eighth Grade. What impact do you think this lack of education might have had on African Americans?

Katherine's family placed great importance on education so moved their children to a place where they could continue with education. Katherine was so gifted, she started high school when she was only ten years old. Most pupils started when they were 13!

Katherine Johnson's Educational Achievements

Katherine Johnson graduated from high school (the US version of secondary school) when she was 14.

In 1937, straight after she graduated from high school, Katherine went to West Virginia State, a university which was attended by mainly African-American students. While studying there, Katherine took every course possible. One of her professors even started teaching new maths courses just for her.

Talk
about
it.

Sometimes we complain about going to school. Talk about all the benefits of having an education.

At age 18, Katherine graduated from university with an award called *summa cum laude* which is latin for 'with highest honour'. This means she was in the top 1% of students.

Integration

Most places of education in the United States were segregated. In 1938, a law was passed that each state had to offer African-American people the same educational opportunities as white people. They could do this either by building universities just for African Americans or by integrating their current universities.

segregated

When a group or groups of people are kept apart from each other. In this case, African American and white people were being kept apart in schools and universities.

integrating

To remove from segregation. In this case, it means African American and white people were educated at the same places.

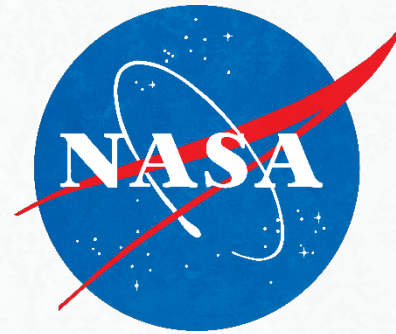
In 1939, Katherine Johnson was one of three African-American students (and the only woman) to start studying at West Virginia University.

Talk
about
it.

How do you think the three students felt starting their studies? How do you think other students might have reacted to them?

NACA

In 1953, Katherine started working in the computing section of the National Advisory Committee for Aeronautics (NACA). NACA researched and developed flying and would eventually become NASA (National Aeronautics and Space Administration). The people working in Katherine's section were known as 'computers' because of their rapid ability to do complex calculations.



The section Katherine worked in was segregated, only African-American people worked there. Even the toilets and eating areas were segregated.

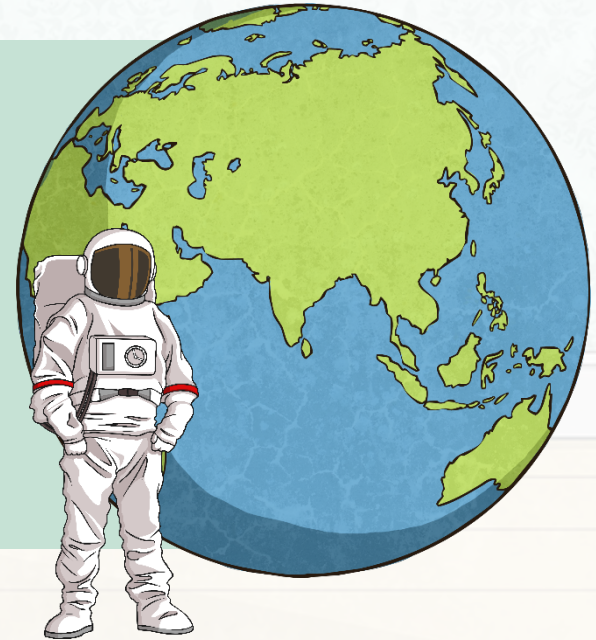
Talk
about it.

Fifteen years after Katherine Johnson was part of being integrated in a university, she was in a segregated department working for the government. What does this tell you about the struggles African-American people had?

Katherine Johnson's Work

Katherine Johnson's work included looking at information from flights, working out why things may have gone wrong and making suggestions on how to improve things.

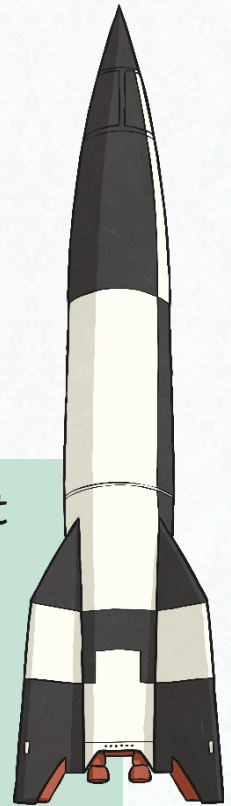
She worked on the Freedom 7 project when Alan Shepherd became the first American to go into space. Katherine performed calculations to help work out when spacecrafts should be launched in order to make them land in the right place.



'Get the Girl!'

The computers and machines at NASA weren't always reliable. Sometimes they stopped working altogether. Because of this, astronauts didn't always trust the calculations about space flight that the computers produced.

In 1962, an astronaut named John Glenn was preparing to orbit the earth. Glenn gave an order, "Get the girl!". Because he was wary of relying on the computers, he wanted Katherine to do all the same calculations that the machines had done to work out how he should fly the spacecraft. Glenn trusted Katherine's work rather than the results the computers had given.



Talk
about it.

It was common for African-American adults to be referred to as 'girl' and 'boy'. Although Glenn clearly respected Katherine's work, what do you think about him calling a 44 year-old gifted mathematician 'girl'. Was this racism? Or sexism because Katherine was a woman? Or was it just a word?

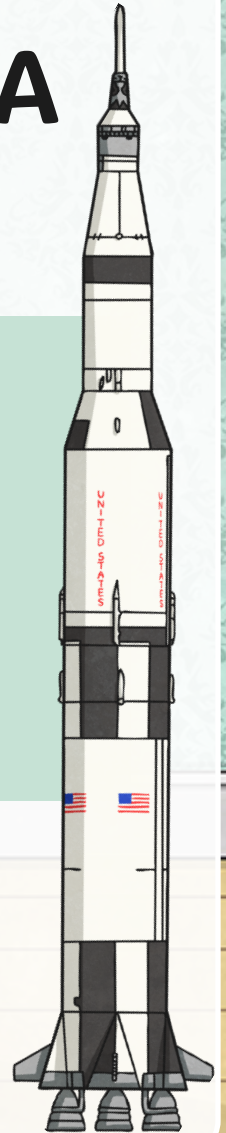
Katherine Johnson's Other Achievements at NASA

In 1969, Johnson worked on calculating the **trajectory** needed for the Apollo 11 moon landing.

Apollo 13 was due to land on the moon in 1970. Due to an explosion in an oxygen tank, the crew had to abort their planned landing. It looked like the crew wouldn't manage to return to Earth and would die in space. Katherine Johnson's calculations were part of the mission to safely return the crew to Earth and her work was a success. Many years later, she said "Everybody was concerned about them getting there. We were concerned about them getting back."

Katherine also worked on the Space Shuttle programme and created plans for a mission to Mars.

trajectory The path of a flying object.



Hidden Figures

In recognition of the work carried out by Johnson and her colleagues, Dorothy Vaughn and Mary Jackson, a film was created called Hidden Figures in 2016.

Here are the stars of Hidden Figures, Janelle Monáe, Taraji P. Henson, Kevin Costner and Octavia Spencer at its premiere.



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Talk
about it.

Why do you think the film was called Hidden Figures?

Katherine Johnson Is Celebrated

Although Katherine's work wasn't always given the prominence it deserved, in recent times she has received the recognition due to her.

Here was Katherine Johnson in 2015, having received the Presidential Medal of Freedom from President Obama.

On the 24th February 2020, Katherine died at the age of 101. NASA posted on social media saying, 'her legacy of excellence broke down racial and social barriers while helping get our space agency off the ground'.



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