

# The Women Who Have Helped Build NASA

## Katherine Johnson

Katherine Johnson is a very important woman in recent history. She is special because she led the way in showing what women and Black people could achieve during a time when people were not treated equally.

### What Was Katherine's Early Life Like?

Katherine Johnson was born in 1918 in West Virginia. It was clear from the start that Katherine was very good at mathematics. When she turned 18, she went to West Virginia State College and studied mathematics and French. She graduated in 1937 and began to teach in a school in Virginia.



In 1939, Katherine was one of only three Black students who went to West Virginia University. In the early 1900s very few women went to university, especially black women.

### What Career Did Katherine Have?

Katherine began working for the National Aeronautics and Space Administration (NASA) in 1953. She impressed her boss so much that she was asked to work on a special project about space flight research. Her job was to study information from a test flight into space, and to investigate what caused a plane crash.



In 1957, Russia sent a satellite called Sputnik into space. America then began to take space travel much more seriously.



Katherine was asked to use her amazing mathematical skills to plan routes into space. She planned the path for America's first human spaceflight in 1961 which was an important step in America's history. This was a huge responsibility because the astronauts could die if her calculations were wrong.

In 1986, after 33 years working with NASA, Katherine Johnson retired.

### Did You Know...?

As well as working for NASA, Katherine Johnson also had three daughters: Constance, Joylette and Katherine.

### What Awards Has Katherine Been Given?

In 2015, Katherine Johnson was awarded the Presidential Medal of Freedom by Barack Obama, the US president of the time. These medals are given to people like Katherine, who have helped America progress in the world.

In 2016, she received a Silver Snoopy Award which is given to those who have made an outstanding contribution to flight safety and mission success. A building at NASA has been named after her and a Hollywood film has been made about her career.

## Questions

1. Where was Katherine Johnson born? Tick **one**.

- ☐ East Virginia
- ☐ North Virginia
- ☐ West Virginia
- ☐ South Virginia

2. What subject was Katherine very good at?

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3. When did Katherine go to university? Tick **one**.

- ☐ 1939
- ☐ 1937
- ☐ 1918
- ☐ 1957

4. What was the name of the satellite that Russia sent into space?

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5. For how many years did Katherine work at NASA? Tick **one**.

- ☐ 18
- ☐ 25
- ☐ 33
- ☐ 40

## Questions

6. How many daughters did Katherine have? Tick **one**.

- ☐ none
- ☐ 1
- ☐ 3
- ☐ 4

7. Explain why Katherine Johnson was awarded the Presidential Medal of Freedom.

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## Answers

1. Where was Katherine Johnson born? Tick **one**.

- ☐ East Virginia
- ☐ North Virginia
- ☒ **West Virginia**
- ☐ South Virginia

2. What subject was Katherine very good at?

**mathematics**

3. When did Katherine go to university? Tick **one**.

- ☒ **1939**
- ☐ 1937
- ☐ 1918
- ☐ 1957

4. What was the name of the satellite that Russia sent into space?

**Sputnik**

5. For how many years did Katherine work at NASA? Tick **one**.

- ☐ 18
- ☒ **25**
- ☐ 33
- ☐ 40

## Answers

6. How many daughters did Katherine have? Tick **one**.

- ☐ none
- ☐ 1
- ☒ **3**
- ☐ 4

7. Explain why Katherine Johnson was awarded the Presidential Medal of Freedom.

**Pupil's own response, such as: Katherine Johnson was awarded the Presidential Medal of Freedom because this is given to people who have helped America progress in the world. Katherine planned the path for America's first human spaceflight in 1961 which was an important part in America's history.**

# The Women Who Have Helped Build NASA

## Katherine Johnson

Katherine Johnson is a very important figure in recent history. She is special not only because she was a woman working in a traditionally male job, but because she was Black too. At the time Katherine was working for NASA, Black people were still being treated very poorly and as if they were not equal. She led the way in showing what women and Black people could achieve.



### Early Life and Education

Katherine Johnson was born in 1918 in West Virginia. Early on in her life, Katherine's skill with numbers was clear. At 18 years old, she went to West Virginia State

College, studying mathematics and French. She graduated with the highest honours possible in 1937 and began to teach in a school in Virginia.

In 1939, Katherine was one of only three Black students chosen to attend West Virginia University. In the early 1900s, it was uncommon for women to go to university, especially if they were Black.

Katherine took a break from her studies to bring up her three daughters, then returned to teaching.

### Her Career at NASA

Katherine began working for the National Aeronautics and Space Administration (NASA) in 1953. She impressed her boss so much that within two weeks of starting her job, she had



been asked to work on a special project about space flight research. Her job was to study data from a test flight into space and to investigate a plane crash that had occurred due to turbulence.

In 1957, Katherine's life and career changed when Russia launched a satellite called Sputnik into space. America began to take space travel much more seriously.



From then, Katherine was asked to use her amazing mathematical skills for difficult calculations and research. She plotted the path for America's first human spaceflight in 1961. This was a huge responsibility because if her calculations were wrong, the astronauts could die.

During her successful career with NASA, Katherine co-wrote 26 scientific papers and calculated paths for space shuttles and emergency return directions. In 1986, after 33 years working with NASA, Katherine Johnson retired.

### Awards

In 2015, Katherine Johnson was awarded the Presidential Medal of Freedom by Barack Obama, the US president of the time. These medals are given to people who have helped America progress in the world.

In 2016, a building at NASA was named after her and she received a Silver Snoopy Award. This is given to those who have made an outstanding contribution to flight safety and mission success.



## Questions

1. **Find** and **copy** a word which means the same as **badly**.

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2. When did Katherine graduate from university? Tick **one**.

- ☐ 1918
- ☐ 1939
- ☐ 1937
- ☐ 1957

3. What was unusual about Katherine going to West Virginia University? Use evidence from the text to support your answer.

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4. What does NASA stand for?

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5. When did Katherine begin working for NASA? Tick **one**.

- ☐ 1953
- ☐ 1957
- ☐ 1961
- ☐ 1986

## Questions

6. Who launched Sputnik into space? Tick **one**.

- ☐ the British
- ☐ the Americans
- ☐ the Chinese
- ☐ the Russians

7. Explain why it was important that Katherine's calculations at NASA were correct.

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8. What was Katherine awarded with in 2016? Tick **one**.

- ☐ Gold Snoopy Award
- ☐ Silver Snoopy Award
- ☐ Platinum Snoopy Award
- ☐ Bronze Snoopy Award

## Answers

1. **Find** and **copy** a word which means the same as **badly**.

**poorly**

2. When did Katherine graduate from university? Tick **one**.

- ☐ 1918
- ☐ 1939
- ☒ **1937**
- ☐ 1957

3. What was unusual about Katherine going to West Virginia University? Use evidence from the text to support your answer.

**Pupil's own response, such as: It was unusual for Katherine to go to West Virginia University because at this time, it was uncommon for women to go to university, especially if they were Black and Katherine was both a woman and Black. She was one of only three Black students at the university.**

4. What does NASA stand for?

**National Aeronautics and Space Administration**

5. When did Katherine begin working for NASA? Tick **one**.

- ☒ **1953**
- ☐ 1957
- ☐ 1961
- ☐ 1986

## Answers

6. Who launched Sputnik into space? Tick **one**.

- ☐ the British
- ☐ the Americans
- ☐ the Chinese
- ☒ **the Russians**

7. Explain why it was important that Katherine's calculations at NASA were correct.

**Pupil's own response, such as: It was so important that Katherine's calculations at NASA were correct because she was plotting the path that astronauts took into space. If she got this wrong, the astronauts could have died.**

8. What was Katherine awarded with in 2016? Tick **one**.

- ☐ Gold Snoopy Award
- ☒ **Sliver Snoopy Award**
- ☐ Platinum Snoopy Award
- ☐ Bronze Snoopy Award

# The Women Who Have Helped Build NASA

## Katherine Johnson

Katherine Johnson is regarded as a very significant figure in recent history. She is unique not only because she was a woman working in a male-orientated job, but because she was Black too. At the time Katherine was working for NASA, Black people were still being treated very poorly and as if they were not equal. She was a pioneer not just in her job but in showing what women and Black people could do.



### Early Life and Education

Katherine Johnson was born in 1918 and lived in West Virginia. Early on in her life, Katherine's skill with numbers

and mathematics was clear. At 18 years old, she went to West Virginia State College, studying mathematics and French. She graduated with the highest honours possible in 1937 and began to teach in a school in Virginia.

In 1939, Katherine was considered so skilled in mathematics that she was one of only three Black students chosen to attend West Virginia University. In the early 1900s, it was uncommon for women to go to university and it was even more rare for a Black woman to go to university.

Katherine took a break from her studies to bring up her family (three daughters), then returned to teaching.



### Career

In 1952, she found out that NACA (the National Advisory Committee for Aeronautics) had jobs available in their computing department. This was her chance to be involved in something new and exciting.



Katherine began work in the office in 1953. She impressed her boss, Dorothy Vaughan, so much that within two weeks of starting her job, she had been asked to work on a special project on space flight research. Her job was to study data from a test flight into space, and to investigate a plane crash that had occurred due to turbulence.

In 1957, Katherine's life and career changed when Russia launched a satellite called Sputnik into space. America began to take space travel much more seriously and NACA became NASA (National Aeronautics and Space Administration).

From then, Katherine was asked to use her amazing mathematical skills for complex calculations and research. It became clear that Katherine had a talent for celestial navigation (plotting and directing a route through space) and she plotted the path for America's first human spaceflight in 1961. This was a huge responsibility: if her calculations were wrong, the astronauts could die.

During her successful career with NASA, Katherine co-wrote 26 scientific papers and calculated paths for space shuttles and emergency return directions. Thanks to her incredible work, she is regarded as a pioneer in space science and computing. In 1986, after 33 years working with NASA, Katherine Johnson retired.

### **Awards**

In 2015, Katherine Johnson was awarded the Presidential Medal of Freedom by Barack Obama, the US president of the time. These medals are given to people who have been especially helpful to the people of America and America's progress in the world.

In 2016, a building at NASA was named after her. When she attended the opening of the building, she received a Silver Snoopy Award, which are given to those who have made an outstanding contribution to flight safety and mission success.

## Questions

1. Find and copy a word which means the same as **leader**.

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2. What did Katherine study at West Virginia State College? Tick **one**.

- ☐ mathematics and science
- ☐ mathematics and French
- ☐ mathematics and English
- ☐ mathematics and computing

3. What did NACA stand for?

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4. How did Katherine's life change once Russia launched Sputnik into space? Use evidence from the text to support your answer.

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5. Explain in your own words what 'celestial navigation' means.

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## Questions

6. When was America's first human spaceflight? Tick **one**.

- ☐ 1957
- ☐ 1986
- ☐ 1961
- ☐ 2016

7. Who awarded Katherine with the Presidential Medal of Freedom.

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8. Explain in your own words why Katherine Johnson is such a positive role model.

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## Answers

1. Find and copy a word which means the same as **leader**.

**pioneer**

2. What did Katherine study at West Virginia State College? Tick **one**.

- ☐ mathematics and science
- ☒ **mathematics and French**
- ☐ mathematics and English
- ☐ mathematics and computing

3. What did NACA stand for?

**National Advisory Committee for Aeronautics**

4. How did Katherine's life change once Russia launched Sputnik into space? Use evidence from the text to support your answer.

**Pupil's own response, such as: Katherine's life changed once Russia launched Sputnik into space because America began to take space travel more seriously, NACA became NASA and Katherine was asked to use her skills to carry out complex calculations. She even plotted the path for America's first human spaceflight.**

5. Explain in your own words what 'celestial navigation' means.

**Pupil's own response, such as: I think that 'celestial navigation' means finding a route for space rockets and shuttles to travel through space safely.**

## Answers

6. When was America's first human spaceflight? Tick **one**.

- ☐ 1957
- ☐ 1986
- ☒ **1961**
- ☐ 2016

7. Who awarded Katherine with the Presidential Medal of Freedom.

**Barack Obama, the US president in 2015**

8. Explain in your own words why Katherine Johnson is such a positive role model.

**Pupil's own response, such as: Katherine Johnson is such a positive role model because she overcame lots of challenges in her lifetime. She went to university at a time when Black women rarely went to university, she worked in a job that was mostly done by men and she had an important role in the first American spaceflight. Before now, women and Black people were not treated equally but her achievements helped women and Black people to be recognised and taken seriously.**