

KATHERINE JOHNSON

There wasn't a calculation too complicated for the extraordinarily talented mathematician Katherine Johnson. She was a **BRIGHT STAR** but because of segregation Katherine had to fight to **SHINE**. (Segregation laws in the USA at that time stopped black people from having the same opportunities as white people.)

In the 1950s, Katherine got a job as a 'computer' at NASA. Computers as we know them today hadn't been developed yet so NASA employed lots of women to help male scientists with the maths needed to fly spacecraft. Women were rarely considered for these top jobs - especially black women like Katherine.

Nobody expected Katherine to play a vital part in the **THE SPACE RACE**, but they hadn't done their maths properly!

"The idea of going into SPACE was NEW and DARING. There were no textbooks so we had to write them."

***THE SPACE RACE:** During the 1950s and 60s, the USA and the Soviet Union (now Russia) competed to be the first to explore space.

FOLLOW THE ARROWS TO SEE HOW KATHERINE HELPED PLOT NASA'S JOURNEY TO THE STARS ...

Lots of the way things worked at NASA didn't add up to Katherine, like not being allowed to attend important meetings just because she was a woman ...



By 1960, Katherine became one of the first women at NASA to have her work and name credited on a research report.

In 1961, Katherine's calculations helped to successfully send the first American into space on the **Freedom 7 Mission**.

If We **LAUNCH** here, we'll **LAND** here.



In 1962, astronaut John Glenn trusted Katherine over new computer technology to check the numbers that would allow him to launch and land safely on his mission to orbit the Earth.

The Computing machines got it **RIGHT**. Let's send **JOHN** into **ORBIT**!

KATHERINE says the numbers are **GOOD**!



During her **33**-year career at **NASA**, Katherine continued to work on many high profile space missions. The course she set made **shining** careers in maths and science possible for countless other women.

DETERMINATION OF AZIMUTH ANGLE AT BURNT FOR PLACING A SATELLITE OVER A SELECTED EARTH POSITION by T. SKOPINSKI and K. JOHNSON

