

# 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 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 ...



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.

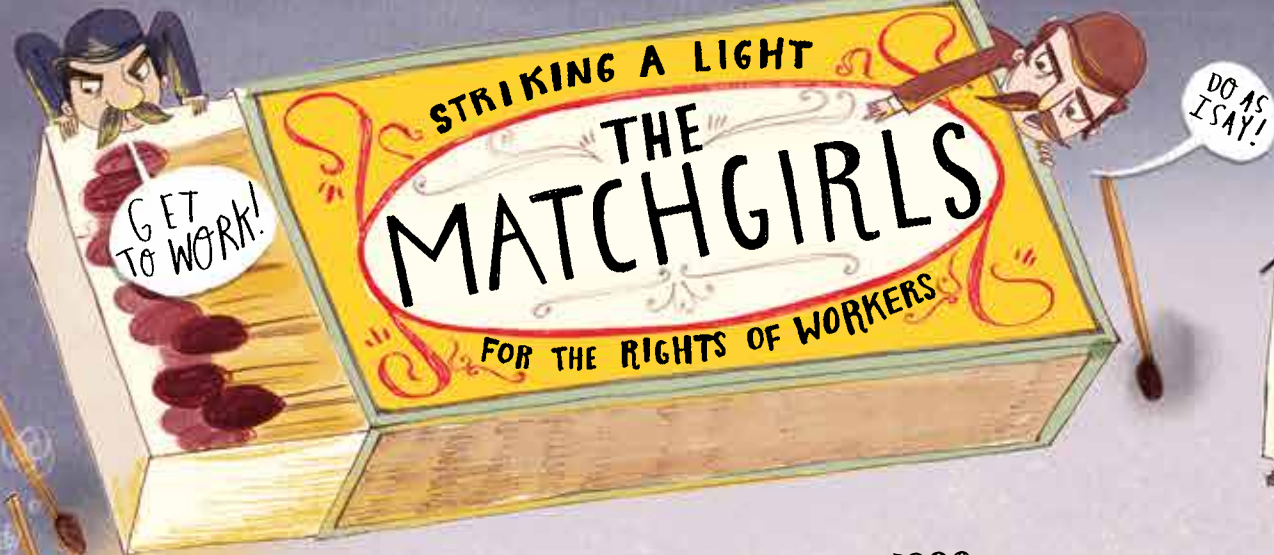
The computing machines got it **RIGHT**. Let's send **JOHN** into **ORBIT**!

**KATHERINE** says the numbers are **GOOD**!

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



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.



In London, UK, during the 1880s, very poor women and girls worked at the Bryant and May match factory. They were trapped working in dreadful conditions for very little money, while all the factory owners earned huge profits.

A group of the matchgirls risked their jobs by **BRAVELY** speaking to women's rights campaigner, Annie Besant, about what it was really like to work in the factory. In **JUNE 1888**, Annie printed their shocking stories.

I have **PHOSSEY JAW!** An illness caused by working so closely with a **DANGEROUS** chemical called white Phosphorus.

We work 14-hour days, standing the whole time!

We are **FORCED** to pay fines for going to the toilet or being **UNTIDY**.

The public were **HORRIFIED**. Factory owners thought that if they denied everything nobody would listen to the matchgirls. This plan **BACKFIRED!**

DO AS I SAY!

In 1882 factory bosses even unveiled this statue of the prime minister to try to make themselves look generous!

ANNIE BESANT

CASP!

THE MATCHGIRLS WALKED OUT ON STRIKE!

The strike made headlines ...

THE STAR  
MATCHGIRLS STAND TOGETHER!

THE TIMES  
PUBLIC DONATE MONEY FOR THE MATCHGIRLS

EVENING STANDARD  
FACTORY BOSSES FORCED TO LISTEN

The public are behind us!

Thanks to donations we won't starve.

People stopped buying BRYANT and MAY matches!

During the strike the matchgirls boldly marched to the Houses of Parliament to discuss their plight.

Perhaps something should be done!

Hmm...

It ain't fair!

We'll show 'em!

We **WON'T** work until things change.

After two weeks the factory realised they had no choice but to admit they had been unfair and to promise to change their ways.

**UNION OF WOMEN MATCHWORKERS**  
To ensure that the factory owners stuck to this, the matchgirls formed the largest union of women workers in the country at that time.

The matchgirls were considered so poor and unimportant that nobody recorded the names of the women who led the strike. Their brave actions **BLAZED** a trail for the right of all workers to work in safety and to be shown **RESPECT** and **FAIRNESS**.

**VICTORY!**

Follow me and we'll make change happen!