

Stars of the Space Race Teacher's Notes B1

In this article, your students will learn how a group of dedicated female mathematicians known as 'human computers' used their talents to help NASA launch rockets, and astronauts, into space. Even if Virginia's Jim Crow laws required them to be segregated from their white colleagues, the black women of Langley's group contributed to America's decisive victory over the Soviet Union in the Cold War. The film, *Hidden Figures*, is based on a book by African American writer Margot Lee Shetterly, whose father was an engineer with NASA in the 1960s.

Vocabulary and structures.

- NASA related vocabulary (astronauts, carry into orbit, scientists, mathematicians, aeronautical engineers, human computers, the Space Race, space travel, space rockets, spacecraft, calculations...).
- Education and job vocabulary (grow up, go to high school, start working as a..., fight for the possibility to...).
- Relative clauses
- Passive voice
- Comparison and contrast

Reading, writing, speaking.

- We suggest videoprojecting the pictures and start by asking students to look at one of the photos to say what they can.
- Then have them do **Activity A** to get ready for reading. **Activity B** is meant to help them understand the international context, while **Activities C** and **D** are based on the situation at Langley, Virginia, and at the NASA headquarters in particular, with its ambiguity and contradictions. We suggest doing the first set of activities (reading) in groups, so that information can be discussed before sharing it with the class in an oral recap.
- Once the first part of the worksheet has been completed, your students will prepare

to write, using the information they have collected. **Activity E** focuses on comparison and contrast, to help students depict the contradiction between the hidden figures' huge contribution to science and the segregation they had to suffer within NASA.

- Before writing their presentation, students are asked to fill in a mindmap in order to organise their ideas (**Activity F**).
- We suggest working on the trailer of the film, or another video on the topic, as a follow up activity.

See our site for links and suggestions
<http://www.speakeasy-news.com/hidden-figures-teaching-with-trailers/>

Solutions

- A.1.** 3 black female mathematicians.
- 2.** a. 5 b. 3 c. 4 d. 6 e. 1 f. 2
- B.1.** the Cold War 2. the eastern, communist countries / the western, capitalist countries.
- 3.** the Soviet Union (the USSR) / the USA.
- 4.** their technical superiority **5.** exploring space. Each super power wanted to win the challenge.
- C.1.a.** Neil Armstrong, John Glenn, Alan Shepard, Buzz Aldrin b. men only / white / recognised c. pioneers / heroes
 "remembered as the heroes of the Space Race" / "exploring a new frontier".

2.a. Katherine Johnson / Dorothy Vaughan / Mary Jackson
b. black / discriminated against
Examples: there was a team of white women and a team of black women / when they went to the canteen, they were discriminated against because they were black.

c. talented / exceptional “ The astronaut John Glenn, the first American to go into orbit, refused to go into space until Katherine Johnson checked all the calculations” / “Katherine Johnson, a maths prodigy who went to high school at age 10, and finished university at 18!”

d. There were no computers when NASA started its space programme. All the complicated maths calculations were done by humans.

D.1. “But if you were a woman, many of those cool jobs were closed to you.”

2. “Women were generally discouraged from studying maths.”

3. “African Americans couldn’t go to the same schools, live in the same parts of town, or use the same public services as white citizens.”

E.1. Compare: more ...than / like / as...as.

Contrast: as opposed to / although / in spite of / unlike / however.

2. Possible production:

The astronauts who worked for NASA in the 1960s were famous, unlike the scientists who invented space rockets.

It was more difficult for women than men to get qualified jobs in science and maths.

Although these women were exceptional mathematicians, their contribution was not remembered.

However, their talents were recognised by some people at NASA.

3. “Figures” can mean people or numbers, so it is a good description of mathematicians.

They were hidden, because their story wasn’t told.