

Dr. Gladys West

(October 2019)

A lot of us use GPS, or the Global Positioning System, almost daily. We use it to find our way to new locations, to help us when we get lost, or to avoid traffic. Even though billions of us are familiar with GPS, we probably aren't aware that an African American woman named Dr. Gladys West helped to develop it. Dr. West is a mathematician from Virginia. For her many impressive contributions, the United States Air Force inducted Dr. West into the Air Force Space and Missile Pioneers Hall of Fame during a December 2018 ceremony at the Pentagon.

As a young girl growing up in the late 1930s and early 1940s, Dr. West—then known as Gladys Brown—was sure she didn't want to work in a factory or in the agricultural industry like many people did where she lived south of Richmond. In order to avoid these two options, Dr. West knew she had to get an education. So, when she found out the valedictorian from her high school would earn a full scholarship to Virginia State University, she made sure to study hard. She ended up graduating at the top of her class and went off to college, majoring in math which was considered a man's field. After successfully graduating, Dr. West went back to school for her Master's degree.

These were not easy accomplishments for an African American woman at that particular time in history because the majority of colleges and universities disqualified people of color from attending. Virginia State University, a historically black university, was established before the Civil Rights Act of 1964 with the goal of primarily serving the African American community. Other historically black colleges and universities were established throughout the U.S. for the same reason and gave intelligent and talented individuals like Dr. West the opportunities they deserved.

Dr. West began to work at the Naval Surface Warfare Center Dahlgren Division. Over the years, she was a successful project manager and programmer for large-scale computers. She accomplished all this while getting her second Master's degree.

In the 1960s, Dr. West took part in an astronomical study involving Pluto and Neptune. After this, she started to further analyze data from satellites with the end goal of creating accurate models of the Earth's shape. She worked hard and excelled, so she was recommended for project manager of the SeaSat radar altimetry project. SeaSat was the first Earth-orbiting satellite designed for sensing Earth's oceans. While heading up this project, Dr. West put in extra-long hours.

Between the mid-1970s and 1980s, Dr. West programmed an IBM computer to deliver even more precise calculations to

model the shape of the Earth. This required her to use complex algorithms to explain variations in gravitational, tidal, and other forces that distort Earth's shape. Dr. West's data was the basis for GPS.

Dr. West worked at the Dahlgren Division for 42 years, retiring in 1998. That's when she completed a PhD from Virginia Tech. And yet, Dr. West remains largely unknown. Perhaps that's partly due to her humbleness. For Dr. West, it wasn't ever about fame or glory—it was about doing a good job. And she certainly did. After all, now we can find our way home from just about anywhere—all thanks to Dr. West.

Teacher Resources – Vocabulary

Potential Words for Further Study: These words not only help with comprehension of the passage, they also appear more frequently in a wide spectrum of reading, especially in academic text. Therefore, further study of the meaning of these words may be beneficial. The words on this list can be incorporated into subsequent lessons.

Wilson Reading System Vocabulary Level: AB

complex (adj) not simple; involved or complicated

contribution (n) something contributed, such as money to a charity or a poem to a magazine

distort (v) to twist out of shape; change the usual or normal shape, form, or appearance of

Words for Quick Discussion: Consider discussing these words as they are encountered to help students comprehend the passage. A quick discussion in student-friendly language while reading the text is best.

Wilson Reading System Vocabulary Level: B

calculation (n) something deduced by calculating; estimate; plan

distort (v) to misrepresent; misstate; pervert

induct (v) to bring formally into a society or organization; initiate

radar (n) a way of discovering the position or speed of objects such as aircraft or ships when they cannot be seen, by using radio signals

Definition Source: *Collins English Dictionary*. Retrieved from <https://www.collinsdictionary.com/us/dictionary/english>

Text Easability:

Text Easability Scores

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1. Visit the Coh-Metrix Text Easability Assessor website at <http://tea.cohmetrix.com/>. If you do not already have a login and password, create one. It is free and easy to sign up for access to the website.
2. Once you have created an account and sign in, you will be taken to a page with an empty, white text box. Copy and paste the text from this passage into the empty, white text box. Make sure you are only copying and pasting the body of the passage. Do not include the title, date, or any of the resources present in the passage.
3. When you have pasted the passage into the text box, click on the red button beneath the text box that says "Analyze." There will be a short delay and after a few seconds, you will see a bar graph appear to the right of the screen.
4. The bar graph will give you the percentages for several text characteristics including: narrativity, syntactic simplicity, word concreteness, referential cohesion, and deep cohesion.
5. Below the bar graph, the Flesch Kincaid Grade Level is also included for your benefit.
6. Lastly, a paragraph is provided that explains the meaning of the measurements of the text characteristics for your particular passage.
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