

Did You Use the GPS on Your Phone Today?

How trailblazer Gladys West's top-secret project changed the world

About the Story

Lexile: 930L

For qualitative complexity factors,
go to Scope Online.

Learning Objective: to read two texts
about GPS and draw from both to
write an essay

Key Skills: setting, compare and
contrast, interpreting text, key ideas
and details, synthesis

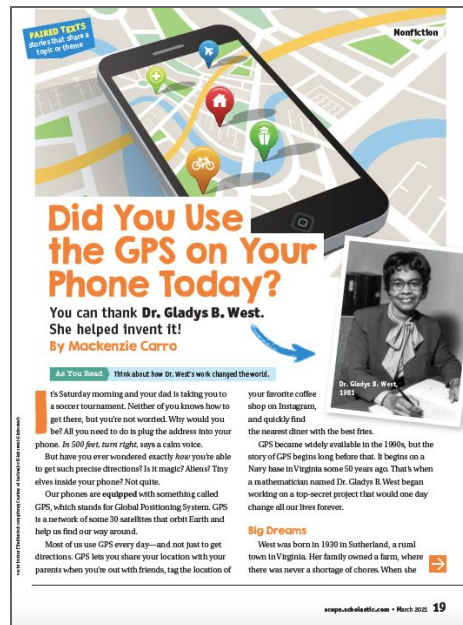
Essential Questions:

- What is a trailblazer?
- How does technology affect our lives?
- How does discrimination affect society?

Standards:

The article and lesson support these
Common Core anchor standards: R.1,
R.2, R.3, R.4, R.5, R.6, R.7, R.9, W.2,
SL.1, SL.2, L.4, L.5, L.6

For more standards information—
including TEKS—go to Scope Online.



Your Teaching Support Package

Find your full suite of support materials at scope.scholastic.com.

Audio:

- Read-aloud
- Vocabulary
- Text-to-speech

Slideshow:

- "How Did People Get Around Before GPS?"

Connected readings from the Scope archives:

- Special Collection: Exploring Women's History

Skill Building Activities to print, project, or share digitally:

- Vocabulary: Definitions and Practice
- Close-Reading and Critical-Thinking
- Preparing to Write: Gladys West's Postage Stamp
- **Core Skills Workout:** Central Ideas and Details*
- Choice Board
- Quiz*
- Contest Entry Form

*Available on two levels

Step-by-Step Lesson

Close Reading, Critical Thinking, Skill Building

1. Preparing to Read

10 minutes

Do-Now: Solve a Riddle (5 minutes)

- Post this riddle in your classroom or virtual hangout: *I circle Earth, but I'm not the moon. I can show you where things are, but I'm not a tour guide. I help study outer space, but I'm not an astronomer. I can show you north, south, east, and west, but I'm not a compass. On a clear night you can see me in the sky, but I'm not a star. What am I?* Then reveal the answer: GPS.

Preview Vocabulary (5 minutes)

- Project the **Vocabulary: Definitions and Practice** on your whiteboard, or if you're remote, share it on your screen. Review the definitions as a class. (Optionally, have students complete the practice activity for homework.) Highlighted words: *equipped, forging, herculean, navigation, ushered, ventured*

2. Reading and Discussing

45 minutes

"Did You Use the GPS on Your Phone Today?"

- Have a volunteer read the **As You Read** box on page 19 of the magazine or at the top of the digital story page.
- As a class, read the article and the slideshow "How Did People Get Around Before GPS?" at Scope Online. Optionally, have students listen to the author read-aloud of the article while they follow along. The **audio read-aloud** is located in the Resources tab in Teacher View and at the bottom of the story page in Student View.
- Divide students into groups to read the article again and respond to the following close-reading questions. *Tip: If you're remote, you can have each group respond in a shared doc or discuss the questions in their own chat room; you can also use the questions as an asynchronous assignment.*

Close-Reading Questions

(10 minutes)

The following questions can be shared in printable or interactive form.

1. **How does author Mackenzie Carro characterize the 1950s and '60s era?** (setting) *Carro characterizes the 1950s and '60s as a thrilling time of exploration, discovery, and innovation: NASA was created, new space technologies like satellites beamed back fascinating information about Earth and our solar system, and the first humans walked on the moon. At the same time, she explains that other aspects of life on Earth were not so thrilling: Racist laws and customs segregated society and dictated most aspects of Black Americans' lives. Women like West experienced gender discrimination as well—mathematics was one of the few fields that offered women a well-paying job at the time. Most of West's colleagues were white men; they were regularly given leadership roles for which she was passed over, requiring her to work extra hard to rise through the ranks at Dahlgren.*
2. **How have computers changed since the 1930s?** (compare and contrast) *Carro writes that in the 1930s, the word "computer" was used to describe not a machine, but rather a human mathematician who performed calculations by hand. The machines we now know as computers were not developed until the 1950s. Back then, few people had ever seen computers, which were so enormous they filled entire rooms. Today, computers fit in our backpacks, our pockets, and even smaller spaces.*
3. **West says, "The state that had looked down at me was now looking up at me, or at least looking me in the eye, and saying, 'Thank you.'" In your own words, explain what West means.** (interpreting text, key ideas and details) *West is saying that finally, the country and state that had oppressed her—and denied her the basic rights of buying a home, eating where she wanted to eat, staying in hotels, and holding a leadership position at work—were seeing her as a human being, appreciating her, and honoring and valuing her contributions.*

"5 Ways GPS Is Changing the World"

- Break students into groups again to read and discuss the informational text. Ask students to discuss anything they found interesting or surprising. Invite groups to share their reactions.
- As a class, discuss the following critical-thinking questions.

Critical-Thinking Questions

(15 minutes)

The following questions can be shared in printable or interactive form.

1. **A trailblazer is a pioneer or leader—usually someone willing to take risks or do something never done before. What makes West a trailblazer?** *West is a trailblazer because during an era marked by racism and gender discrimination, she broke into a field dominated by white men. Despite the challenges she faced within her field and society at large, she became a pioneer and leader in space exploration and technology and then carved a path in a brand-new field: computers. Her accomplishments, contributions, and the way she lived her life paved the way for future generations to follow their dreams and be treated with dignity and respect.*
2. **Evaluate the navigational tools mentioned in the slideshow and article and determine the pros and cons of each.** *Students will likely say that GPS is easy to use, highly accurate, and instantaneous, but that it is expensive and can be hindered by poor cell service or loss of electricity or battery life. Sextants, on the other hand, are purely mechanical and do not rely on electricity, but they require special training to use. It may also be difficult to see the horizon or stars at times, leading to error. While compasses are inexpensive and don't rely on electricity, they can only orient you, not determine your location. Paper maps are inexpensive, easy to use, and can show you geographic features and landmarks but are limited in that travelers may venture outside of a map's range.*
3. **What would life be like without GPS?** *Answers will vary.*
4. **Consider the military's decision to move GPS from a classified technology to a declassified one. How did its intentions for GPS technology change?** *Students may offer that GPS was originally a top-secret project because it was developed for use only by the military, perhaps for launching attacks or defense purposes. But after the Korean Airlines tragedy, it became clear that GPS could be used by a wide range of people and organizations to increase safety and improve lives.*
5. **What does Carro's article reveal about who West is as a person? Name three character traits you think West possesses.** *Answers will vary but will likely be similar to determined, hardworking, intelligent, innovative, ambitious, meticulous, courageous, etc.*

3. Skill Building and Writing

20 minutes

- Have students complete **Preparing to Write: Gladys West's Postage Stamp**. This activity will help them organize their ideas in preparation for the prompt on page 23 in the printed magazine and at the bottom of the digital story article.
- Alternatively, have students choose a culminating task from the **Choice Board**, a menu of differentiated activities.

Connected readings from the *Scope* archives:

Stories of trailblazers from our Women's History Month collection:

- [The Poison Sky](#) (April 2017)
- [Go!](#) (February 2021)
- [The Night of Terror](#) (March 2020)
- [Girl. Fighter. Hero.](#) (November 2015)
- ["Malala the Powerful"](#) (October 2020)
- [Fly Girl](#) (May 2019)
- ["Vanished"](#) (December 2019/January 2020)
- [When Girls Ruled Baseball](#) (March 2016)