Hidden Figures: Young Readers' Edition—Chapter Summaries

Prologue

The book begins with the author, Margot Lee Shetterly, telling us about her own life. She grew up in Hampton, Virginia, where her father worked as a scientist at NASA. Because so many people in her neighborhood worked at NASA, Shetterly grew up thinking it was completely normal for Black people to be scientists and mathematicians. It wasn't until she was much older that she realized just how special and rare that was. Her father was part of only 1% of engineers in the 1970s who were African American. Many of the Black women she knew growing up, including her Sunday school teacher, had worked as "computers"—people who solved complex math problems for NASA's air and space programs. Shetterly wrote this book because she believed these women deserved to be recognized and celebrated for their incredible contributions to American history.

Chapter 1: "Setting the Scene"

This chapter introduces the four women at the heart of the story: Dorothy Vaughan, Mary Jackson, Katherine Johnson, and Christine Darden. All four women loved math, became schoolteachers after college, and eventually went on to do groundbreaking mathematical work for the government agency known as NACA (which later became NASA). Starting in 1943, the government hired hundreds of women to work as mathematicians, but these four women stood out because of what they achieved despite enormous challenges.

To help us understand those challenges, Shetterly explains the history of racism in America. After the Civil War ended slavery, many Southern states passed laws called Jim Crow laws that kept Black people and white people separated in almost every part of daily life—restaurants, schools, bathrooms, hospitals, and even voting booths. Then came the Great Depression of the 1930s, when jobs became incredibly hard to find, making life even harder for African Americans. When World War II began, it created new opportunities for both women and Black Americans—including the chance to work as mathematicians, which would change the lives of these four women forever.

Chapter 2: "A Door Opens"

In 1943, NACA—the government agency that studied the science of flying—placed ads looking for women to fill jobs that had previously only been held by men. With so many men away fighting in World War II, employers desperately needed more workers. NACA's main facility was the Langley Memorial Aeronautical Laboratory in Langley, Virginia, where engineers designed and tested new airplanes, first in wind tunnels and then with real test pilots. Building airplanes involved enormous amounts of complex math, so the laboratory needed many mathematicians.

Women had been hired as mathematicians at Langley since 1935, but they were called "computers" or "subprofessionals" and paid less than male employees. By 1943, the laboratory still needed even more help, so they began hiring African American women as well. Previously, the only Black employees had been janitors and cooks. The new Black mathematicians worked in a separate building on the West side of the campus, while the white mathematicians worked on the East side. Outside the lab, the city of Hampton was still segregated, and even inside the lab, a sign was posted pointing to the bathroom marked "Colored Girls." Despite this discrimination, the new Black computers were excited for the chance to prove themselves and serve their country.

Chapter 3: "Mobilization"

This chapter introduces Dorothy Vaughan, the first of our four main characters. Dorothy was born in 1920 in Kansas City, Missouri. Her mother died when she was just two years old, but her stepmother encouraged her to work hard in school. Dorothy was the top student in her high school class and earned a college scholarship to study math at Wilberforce University in Ohio. Although a professor urged her to go on to graduate school, Dorothy chose to get a job to help support her family instead. She became a math and English teacher—the most stable career available to Black women at the time. Unfortunately, during the Great Depression, multiple schools she worked at closed, leaving her searching for work more than once. She eventually found a steady teaching job in Farmville, Virginia, where she met and married Howard Vaughan.

In the summer of 1943, Dorothy was looking for a second job to earn extra money, since teaching paid very little. She saw an advertisement for a laundry job at a nearby army camp and also noticed a flyer for mathematician positions at the Langley Laboratory. At first, she assumed the laboratory job was only for white women. Then she read a newspaper article about Black female engineers who had been hired to work in a laboratory, and everything changed. Suddenly, this job seemed possible. Dorothy filled out applications for both the laundry job and the mathematician position, writing on the Langley application that she could start in just 48 hours if hired.

Chapter 4: "A New Beginning"

Dorothy went back to teaching as the new school year started, adding a special "Wartime Mathematics" unit to her classes to help students manage ration books and household budgets during the war. Then, in November, she received exciting news: the Langley Laboratory offered her a job as a mathematician, with a salary of $2,000 per year—more than twice what she earned as a teacher.

Even though this was a wonderful opportunity, Dorothy had complicated feelings about accepting it. The job was more than four hours away from her home and her four children. She would work six days a week and only be able to see her family during holidays. Still, she knew this job would allow her to better provide for her children, so she accepted. Dorothy packed her bags, boarded a Greyhound bus to Newport News, Virginia, and tried to imagine what her new life would look like. She was nervous, but she pushed away her doubts and focused on the exciting chance ahead of her to serve both her family and her country.

Chapter 5: "The Double V"

By the early 1940s, the Hampton Roads region of Virginia had become a major military hub, and the population had grown rapidly. Women were doing all kinds of jobs previously reserved for men—working in shipyards, shining shoes, staffing offices. Dorothy rented a room with an elderly Black couple and commuted to the laboratory by bus each day. However, because of segregation laws, she had to sit in the back of the bus behind the "Colored Line," or stand if the white section was full.

Meanwhile, African Americans across the country were questioning why they should fight for freedom overseas when they faced discrimination at home. President Franklin D. Roosevelt had spoken about "Four Freedoms"—freedom of speech, freedom of worship, freedom from want, and freedom from fear—but Black Americans pointed out these freedoms were being denied to them in their own country. Out of this frustration grew the idea of the "Double V"—fighting for two victories at once: winning the war against America's foreign enemies, and winning the battle for civil rights and equality at home.

Dorothy believed her work at Langley was helping both causes. Her math would directly support the war effort, and her presence as one of the first Black women in such a role was helping break down racial barriers. On December 1, 1943—the same day that Allied leaders were planning the D-Day invasion—Dorothy Vaughan walked into the Langley Memorial Aeronautical Laboratory for her very first day of work.

Chapter 6: "The 'Colored' Computers"

On her first day, Dorothy took a campus shuttle bus to the West Side of the complex, where the Black computers worked in a building called the Warehouse Building. Inside, she found a room full of women sitting at desks, surrounded by the noise of large mechanical calculating machines. Dorothy was amazed to realize she was now part of one of the most exclusive groups in the country—a room full of college-educated Black women doing elite mathematical work.

Even though all the computers in the West Area were Black, their section managers were white. Every day at lunch, the women had to sit at a table in the back of the cafeteria marked with a sign reading "Colored Computers." While the women were used to segregation outside the laboratory, this sign bothered them even more inside a workplace that had hired them for their intelligence. One woman, Miriam Mann, quietly fought back by stealing the sign and slipping it into her purse whenever it appeared. Her husband worried she could be fired, but Miriam refused to stop. Meanwhile, the women built a strong "sisterhood," supporting one another, holding each other to high standards, and proving every single day that they were just as capable as anyone else.

Chapter 7: "War Birds"

Dorothy had a steep learning curve when she started. She had never flown in a plane and knew nothing about how they worked. The laboratory offered classes after work to help turn the women from math teachers into skilled junior engineers. Dorothy attended two nights a week, learning about aerodynamics and getting hands-on experience in the wind tunnels where airplane experiments were conducted.

The experiments in the wind tunnels produced huge amounts of data—"lots and lots of numbers"—that Dorothy and the other computers had to analyze carefully. Their work was essential to the design and production of American warplanes, but it was almost never celebrated. Most of the time, nobody thought about the computers unless a mistake was made. Still, Dorothy found her work far more exciting and interesting than she had ever imagined, and she knew that every number she calculated was helping the United States win the war.

Chapter 8: "The Duration"

Dorothy loved her job, but the long hours and distance from home made life difficult. She missed her children tremendously. Her position at the laboratory was technically temporary, tied to the wartime need for workers, and she wasn't sure she would be offered a permanent job. Still, she committed to her new life in Hampton, signed a lease on an apartment, and after a full year away, finally brought her four children to live with her. Her husband continued to travel for work and visited when he could.

When World War II officially ended on August 14, 1945, the economy in southeastern Virginia changed dramatically. Nearly half the population had been working for the government, and now many workers were laid off. Two million women across the country received "pink slips"—notices that they were losing their jobs—as employers returned to hiring only men or white workers. Dorothy was very worried about her future at the laboratory. However, her family had settled into life in Newport News, and she hoped she could stay.

Chapter 9: "Breaking Barriers"

Dorothy and her husband continued to grow their family, eventually having six children together. Dorothy earned a good salary at the laboratory but still made sacrifices, like sewing her own clothes and saving leftovers for herself after making sure her children had enough to eat. Fortunately, the defense industry in southeastern Virginia stayed strong after the war, and Dorothy was offered a permanent position at the laboratory with a promotion to shift supervisor.

Despite this progress, men and women were still treated very differently at work. Female computers were often given assignments with no context—just numbers to crunch, with no explanation of what they were calculating or why. Their names rarely appeared on final research reports. Engineers assumed the women didn't care about receiving credit. However, sometimes an impressed engineer would invite a woman to work in one of the specialized wind tunnels, giving her a chance to deepen her expertise.

A huge milestone was reached in 1947 when a team that included two female computers helped an airplane break the sound barrier, traveling at "Mach 1" for the first time in history. Those two women were promoted to junior engineers—an extraordinary achievement. Back at Langley, Dorothy's own supervisor suffered a mental health crisis and left the division without a manager. Dorothy was named temporary head of the section, a role she held for two years before being officially named head of the West Area Computers unit—the first African American woman ever to hold a management position at the laboratory.

Chapter 10: "No Limits"

This chapter introduces the second of our four main characters, Mary Winston Jackson, who began working in West Area Computing in April 1951. Mary grew up in Hampton, Virginia, graduated from high school with honors, and studied math and physical science in college. After graduation she became a teacher, but soon had to leave her job to return home and care for her sick father. Mary was independent and spirited—the kind of woman who wore a white dress with black sequins on her wedding day just because she felt like it. After the war, she had a son and stayed home to care for him, but she remained very active in her community and especially loved leading her local Girl Scout troop. She encouraged the girls to dream big and not let their race, gender, or economic situation hold them back.

Meanwhile, tensions between the United States and the Soviet Union had been growing since the end of World War II. When it was reported that the Soviet Union had a more advanced flight program than anyone realized, NACA received new funding to expand its research. The laboratory needed more computers, and Mary Jackson was hired to join Dorothy Vaughan's team.

Chapter 11: "The Area Rule"

One day while working on the East Side of campus, Mary asked her white coworkers where the nearest bathroom was. They laughed, because they had no idea where the "colored" bathroom was located. Mary was furious—not just because of the discrimination itself, but because it was happening in a place built on scientific and rational thinking. As she walked back to West Computing, she ran into the assistant section head of one of the wind tunnels. Even though she was usually careful about what she said to white people, Mary was so upset that she told him honestly what had just happened. The engineer respected her. Instead of dismissing her frustration, he offered her a spot on his team.

Mary accepted and began working in the Supersonic Pressure Tunnel, where she helped test airplanes designed to fly faster than the speed of sound. She loved seeing her calculations come to life in real experiments. When a manager once insisted her numbers were wrong, Mary stood her ground—and it turned out that the manager had given her incorrect starting figures to begin with. Her colleagues gained enormous respect for her expertise and confidence.

Chapter 12: "An Exceptional Mind"

This chapter introduces the third of our four main characters, Katherine Goble, who came to work at NACA in 1952. Katherine was a natural math genius who inherited her father's love of numbers. She graduated high school at just 14 years old, then flew through every math course her college offered so quickly that her professors had to design brand-new advanced courses just for her. Her professor urged her to pursue graduate studies, but being a mathematician was nearly impossible for a Black woman at the time, so she became a teacher instead. She secretly married her husband Jimmy Goble, because married women weren't allowed to hold teaching jobs.

Eventually, because West Virginia had no graduate programs available for Black students, existing graduate schools were forced to integrate. Katherine was chosen as one of three exceptional Black students asked to desegregate West Virginia State College. She enrolled in math courses and found that the biggest challenge wasn't discrimination—it was finding a class that could actually teach her something new. When she and her husband discovered they were expecting a baby, Katherine left school to focus on her family. Later, when she heard about the mathematician jobs at Langley, she applied and was hired in 1953. On her first day, she was amazed to discover that her new boss, Dorothy Vaughan, was her former neighbor. Katherine was soon sent on an assignment with the Flight Research Division. When she sat down next to a white male colleague, he immediately got up and walked away. Katherine wasn't sure if it was because of her race, her gender, or something else entirely—but she responded with professionalism and charm, and the two eventually became great friends.

Chapter 13: "Turbulence"

Katherine settled in well with the energetic, sharp-minded engineers of the Flight Research Division. Dorothy had to push the division's boss to hire Katherine permanently and give her a raise. Katherine's work was genuinely important—including analyzing plane crashes to figure out what went wrong. One project revealed that air disturbances from large planes can linger for up to 30 minutes and pose dangers to smaller aircraft, a discovery that led to new safety rules in air traffic control.

Katherine's personal life took a devastating turn when her husband was diagnosed with a brain tumor in 1955 and died just before Christmas in 1956. Katherine and her three daughters were heartbroken. But Katherine refused to be defeated by grief. In the new year, she told her daughters' teachers not to go easy on the girls because of their loss, assigned her children new responsibilities at home, and carried on with extraordinary dignity. She became both mother and father to her daughters, all while continuing to do cutting-edge mathematical work.

Chapter 14: "Progress"

As the years passed after World War II, technology was advancing rapidly. Airplanes were getting faster and more complicated, and engineers were beginning to dream about aircraft that could reach outer space. Electronic computers were starting to appear at the Langley Laboratory, and Dorothy immediately recognized that change was coming. Some math problems that had taken a human computer an entire month to solve could now be done much faster by a machine.

Dorothy did not panic. Instead, she signed up for every computer programming class the laboratory offered and encouraged all the women in her department to do the same. She was determined that none of them would be left behind.

Meanwhile, Mary Jackson was excelling in her work in the wind tunnel, and her boss encouraged her to train to become an engineer. At the time, women—especially Black women—almost never became engineers. Mary would need special permission just to attend the necessary courses, which were held at an all-white high school. Permission was granted. When Mary showed up for her first day of class, she was surprised to find a run-down, dingy building—nothing like the beautiful school she had imagined white students must have. It struck her that segregation was actually hurting everyone, because instead of investing all the city's resources into one good school, the money was being split between two underfunded ones.

Chapter 15: "Young, Gifted, and Black"

This chapter introduces the fourth and youngest of our main characters, Christine Mann, a high school senior in Asheville, North Carolina. As part of her morning duties, Christine organized the school library and read the daily newspaper headlines. The biggest news story had been about the Little Rock Nine—nine Black teenagers trying to integrate an all-white high school in Arkansas. Then, on October 5, 1957, the headlines announced something that would change the world: the Soviet Union had successfully launched Sputnik, the first satellite ever sent into space. The Space Age had begun.

Christine felt as though she had woken up in a completely different world. Like many Black Americans, she connected America's failure to reach space first with the country's failure to treat all its citizens equally. She worried about growing tensions between the United States and the Soviet Union, but she also felt a powerful excitement about the possibility of exploring space. Christine had grown up in a segregated neighborhood and worried she might struggle to keep up with white students if her school was integrated. But her parents were determined to support her success, and she graduated from high school and earned a place at the Hampton Institute for college.

Chapter 16: "What a Difference a Day Makes"

Back at the Langley Laboratory, employees would sometimes step outside at night to watch for the flashing light of Sputnik crossing the sky. The pressure on the United States to catch up with the Soviet Union in the Space Race was enormous. Space travel—once considered a ridiculous fantasy compared to practical airplanes—was suddenly the most important challenge in the country.

The government chose NACA to lead the new space program, and the agency was renamed NASA: the National Aeronautics and Space Administration. Overnight, the entire country was watching and hoping. Katherine Goble felt more motivated than ever—she wanted desperately to be part of the team that sent a human being into space.

As the focus of the agency shifted to space travel, the West Area Computing Unit was dissolved. Most of the women had already moved to permanent assignments in other departments, and the specialized nature of space research meant the central computing pool was no longer needed. The end of the West Area unit was actually a victory—it meant that Dorothy and the other women had successfully been integrated alongside their white colleagues, no longer separated on a different side of campus.

Chapter 17: "Writing the Textbook on Space"

No one at NASA knew exactly how to send a human into space—they had to figure it out from scratch. The agency organized a series of lectures to bring everyone up to speed, and Katherine absorbed every bit of information she could, asking questions constantly and reading every publication about aviation and space she could get her hands on. However, she was blocked from attending the closed-door meetings where the most important new research was discussed, simply because she was a woman.

Katherine refused to accept this. She kept asking to be included, again and again, until the frustrated engineers finally gave in and let her attend. She was the only woman in the room, but she had earned her seat.

Chapter 18: "With All Deliberate Speed"

In 1958, Katherine officially became part of the Space Task Group, the team working to put the first American into space. The mission was called Project Mercury, named after the Roman god of travelers. Katherine's job was to calculate the flight trajectories—the exact paths the spacecraft would take as it left Earth and returned safely home.

At the same time, Virginia was making national news for a very different reason. The Supreme Court had ordered that public schools be integrated "with all deliberate speed," but Virginia's governor refused to comply and actually closed schools rather than integrate them. Thirteen thousand children—both Black and white—suddenly had nowhere to go to school.

Meanwhile, Katherine's personal life took a happy turn: she met a man named James Johnson at choir practice, and they married in 1960. She would now be known as Katherine Johnson.

After ten months of grueling work on Project Mercury, Katherine's findings were published in a research report—the first paper in the Aerospace Mechanics Division ever to be signed by a woman. It was a historic moment, though the battle for equality was far from over.

Chapter 19: "Model Behavior"

Back in Mary Jackson's story, it's the summer of 1960. Mary was still doing important work on supersonic airplanes, but she also poured energy into her community outside of work. That summer, she helped her son Levi prepare for the local soap box derby—a race of homemade cars. Many Black boys assumed they weren't welcome to enter, even though there was no official rule keeping them out. Levi was different. With his mother's knowledge of aerodynamics helping him design his car, Levi won the local race and went on to compete in the All-American Soap Box Derby in Ohio, becoming the first African American boy ever to win the local competition.

Mary was incredibly proud, but she also knew that Black girls still faced extra challenges. At NASA, women—both Black and white—were still paid less than men and mostly denied the title of engineer, no matter how skilled they were. Mary was determined to change that for the next generation. She had benefited from the women who had come before her, and she was committed to making things better for those who would come after.

Chapter 20: "Degrees of Freedom"

In February 1960, four Black college students sat down at a whites-only lunch counter in Greensboro, North Carolina, and asked to be served. When the staff refused, the students refused to leave. The next day, more protesters came. Within a week, these peaceful protests—known as "sit-ins"—had spread across North Carolina and into other states.

Christine Mann, now a junior at the Hampton Institute, participated in sit-ins and voter registration drives as part of the growing Civil Rights Movement. She was studying math and physics and thinking about her future.

At the Langley Laboratory, Dorothy Vaughan was now working in the Analysis and Computation Division, alongside both Black and white mathematicians—something that would have been unthinkable just a few years earlier. Computing had become a respected field with men and women of all races working together. Instead of mechanical calculators, the team now used enormous, room-sized computers worth more than a million dollars. Dorothy had reinvented herself as a computer programmer, mastering the new technology while some of her older colleagues struggled to keep up.

Meanwhile, the space program was facing setbacks. On April 12, 1961, Soviet pilot Yuri Gagarin became the first person ever to travel to space and orbit the Earth. NASA was frustrated but determined. After 1.2 million tests, simulations, and checkouts—including sending a chimpanzee named Ham into space—NASA was finally ready. Approximately 45 million Americans watched astronaut Alan Shepard's launch, and though his flight lasted just 15 minutes and 22 seconds, it was a success. President John F. Kennedy then made a bold promise to the nation: the United States would put a human being on the Moon before the end of the decade.

Chapter 21: "Out of the Past, the Future"

Katherine Johnson was most focused on one crucial problem: how to bring the astronauts safely home after their journey to space. The mission had to go perfectly—any tiny miscalculation could be fatal. Astronaut John Glenn, chosen for the United States' first orbital mission, trained exhaustively for the flight. But the launch kept getting delayed—first pushed from 1960 to 1961, then all the way to 1962—while the Soviet Union kept completing more missions.

Finally, in February 1962, everything was almost ready. But John Glenn had one final request before he would agree to get into the capsule. He did not fully trust the new electronic computers that had calculated his flight path. Instead, he asked specifically for Katherine Johnson to check the math by hand. "Get the girl to check the numbers," he said. If Katherine confirmed that the calculations were correct, he would go. If not, he wouldn't launch.

Katherine was extremely nervous. She worked for a day and a half, going through every calculation carefully. In the end, she had complete confidence in her numbers.

On February 20, 1962, John Glenn launched into orbit as 135 million people watched on live television. During the mission, the automatic control system failed and a warning light suggested the heat shield might be loose—both terrifying problems. But Glenn handled each one calmly and skillfully. When his capsule reentered Earth's atmosphere, Mission Control lost contact for 14 agonizing minutes of silence. Then contact was restored, and Glenn splashed down safely in the Atlantic Ocean—exactly where Katherine's calculations had predicted. He was celebrated as a national hero, and word of Katherine Johnson's essential contribution spread proudly through the African American community.

Chapter 22: "America Is for Everybody"

In April 1963, the US Department of Labor published a brochure called "America Is for Everybody," featuring photographs of African Americans working in various fields—including a photo of Katherine Johnson at her desk at NASA. That August, about 300,000 people marched to the National Mall in Washington, D.C., where Dr. Martin Luther King Jr. delivered his famous "I Have a Dream" speech.

Dorothy Vaughan was celebrated for 20 years of service to the laboratory. Still, progress was painfully slow—there were only five Black engineers and 16 Black mathematicians working at NASA at the time. One reason was that racial segregation still existed in the communities surrounding the laboratory, discouraging many qualified Black people from even applying for jobs.

Around this time, Katherine Johnson spotted a new family at her church and went to introduce herself. It was Christine Mann Darden, now married with two daughters. Christine had attended college with Katherine's daughter, and the two women had actually met briefly before. Christine was hired at NASA in 1967, joining a new generation of women inspired by pioneers like Katherine, Mary, and Dorothy. Although Katherine and Christine never worked on the same team, they became close friends outside the laboratory.

Even as NASA faced tragedy—including the deaths of three astronauts in a fire during the Apollo 1 mission—the agency never lost sight of the goal of landing on the Moon. Katherine's job for the Moon mission was to calculate the exact relationship between the two parts of the spacecraft: the section that would orbit the Moon and the section that would land on its surface. She described this work as the highlight of her career, often staying in the lab for 14 to 16 hours a day.

Chapter 23: "One Small Step"

The mission to put a human on the Moon cost $24 billion—roughly $156 billion in today's money—and not everyone agreed it was the best use of resources. Some people argued that the money could have been better spent helping people in need on Earth. Others pointed out that very few Black astronauts or engineers were involved in the mission, even though space "belonged to people of every race." Almost no one outside NASA knew about the essential contributions of women like Dorothy, Mary, Katherine, and Christine.

On July 20, 1969, Neil Armstrong became the first human being ever to walk on the Moon, while 600 million people around the world watched on television. Katherine Johnson watched from a hotel room in Pennsylvania, too anxious to relax until every astronaut was safely back on Earth. Out of the 400,000 people who had contributed to the mission, landing on the Moon was still considered the most dangerous part—the astronauts themselves believed there was only about a 50% chance of success. But Katherine had complete faith in her calculations.

The mission was a total success. Looking ahead, Katherine thought about future missions—maybe to Mars, or even a grand tour of the solar system. It would be hard, she knew. But she also believed with all her heart that once you take the first step, anything is possible.