*Hidden Figures: The True Story of Four Black Women and the Space Race*

**Before reading**: Introduce the book by asking the students if they know what a “computer” is. Explain that modern computers are considered machines, however in the 1940’s computers were people whose job it was to do math. Show the students the cover of the book *Hidden Figures: The True Story of Four Black Women and the Space Race.* Explain that the four women depicted on the cover were “computers” for NASA. Their math skills helped make the space program a success. Ask the students if they can see any visual clues that indicate these women were good at math and worked in America’s space program. [There are math equations on their clothing and their earrings are planets and stars. There is a moon behind them and a rocket is approaching it.]

**After reading discussion questions:**

1. What was Dorothy Vaughan’s **incentive** for wanting to work for the National Advisory Committee for Aeronautics in 1943? [The United States was involved in World War II and she wanted to help to use her math skill to help make airplanes fly faster and be safer.]
2. Dorothy Vaughan, Katherine Johnson, Mary Jackson, and Christine Darden were very smart and good students. After graduating from high school they all went to college even though most women during this time did not. Why do you think they went to college? [They loved learning and wanted to become even more knowledgeable, skilled, and valuable as a *human resource*. In economic terms, these four women were investing in their human capital.)
3. Dorothy Vaughan, Katherine Johnson, Mary Jackson, and Christine Darden were **human resources** with many skills and abilities. What are some of the skills that made them valuable human resources? [They were good at math. They liked working with people. They enjoyed learning and strived to get a good education. They were willing to work hard and overcome social injustices.]
4. **Work** is using skills and knowledge to get something done and achieve a purpose or result. People often do work to get paid and earn an income. What was the work the four women did for NASA? How do we know their work was valued by NASA? [The four women were “computers”, or mathematicians. We know NASA valued their work because they were paid for their time and effort.]
5. Why did NASA hire these women and pay them **wages**? [As human “computers” they have skills and knowledge that NASA needed in the 1960’s as it worked hard to get an American astronaut on the moon.]
6. NASA needed **productive resources** to prepare a spacecraft to orbit the earth. What were some of the resources it used? [**Capital resources** –Tools, buildings, machines, transportation devices. **Natural Resources** – metals. **Human resources** –Scientists, “computers”, astronauts, builders, planners, record keepers.]
7. Mary Jackson worked in a supersonic wind tunnel and wanted to become an engineer. She had to get special permission to attend classes which were held in a whites-only high school. Why did Mary want to become an engineer? [In 1958, Mary was able to become the first female African-American aerospace engineer at NASA. She was able to achieve her goal, earn more money, and set an example for other women and minorities aspiring to work in the sciences.]
8. In the 1950s Langley laboratory bought a machine computer that could do math much faster than the human computers. At first these machines made mistakes, but Dorothy Vaughan learned how to program the machines so that they got the right answer. If Dorothy had not learned how to program the new computer, do you think she would have been out of a job? [Probably.] People are always trying to improve technology so things can be done faster. When technology is improved or implemented, how does this usually impact the jobs that were needed to accomplish the same goals before. [Less people are needed to produce the same results and/or the skills and knowledge of the people doing the job needs to increase. Discuss some examples in history or today where technology has changed the number or skill level of the human resources needed.]
9. Dorothy Vaughan, Katherine Johnson, Mary Jackson, and Christine Darden all chose to work for NASA. All choices have **costs** (negatives) and **benefits** (positives). What do you think were some of the **costs** Katherine Johnson incurred while working for NASA during the space race? [She worked hard. Because she was a woman, initially she was not allowed to attend meetings to work on research reports or take credit for her research reports. Because she was African-American, she had to leave the building she worked in to use a segregated lunchroom and bathroom. She worked many hours and could not be with her family.]
10. What are some of the **benefits** Katherine Johnson incurred while working for NASA during the space race? [She was able to use her math skills and was finally allowed to attend meetings and take credit for her work. Astronaut John Glenn had so much confidence in her abilities that he waited until she had double checked the trajectory calculations before he orbited the Earth. She became a role model for women and minorities.]
11. Dorothy Vaughan, Katherine Johnson, Mary Jackson, and Christine Darden not only achieved great personal goals, they also worked for the rights of women and minorities. They understood that all people have strengths and can contribute to society if they work hard to gain knowledge and skills and apply it. Can you think of ways that you can help others?