

Representation Matters!

Black Women and Girls in Math

Ebony Vandross

BEFORE YOU READ: “Figures” has more than one meaning. It can mean “numbers,” and it can refer to people. As you read the article, think about how the movie “Hidden Figures” got its name.

QUESTION: What recent movie inspired the star of the movie, the First Lady of the United States, and regular people all over the country to buy out whole theaters so that children could attend?

ANSWER: *Hidden Figures!*

A Box Office Hit Goes Against Stereotypes

Hidden Figures is a major motion picture based on the life and career of African-American mathematician Katherine Johnson. The movie was a box

office hit, earning a worldwide total of over \$235 million. Black people in particular showed tremendous enthusiasm for the movie. In an industry that often promotes stereotypes of black people and of women, this movie

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was different. It focused not only on Katherine Johnson, who was a mathematician for NASA (National Aeronautics and Space Administration), but also on the lives and work of fellow mathematicians Dorothy Vaughan and Mary Jackson, who went on to be the first African-American female engineer at NASA.¹

Hidden Figures is based on a book by the same name. It refers to the “figures” in U.S. society who are often marginalized or hidden from view. The subtitle of the book is “The American Dream and the Untold Story of the Black Women Who Helped

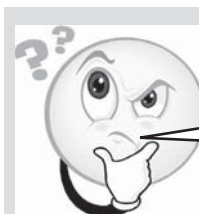


At a press conference before the release of Hidden Figures: Octavia Spencer, who portrays Dorothy Vaughan; Taraji P. Henson, who portrays Katherine Johnson; and Janelle Monáe, who portrays Mary Jackson. Photo credit: NASA/Kim Shiflett.

Win the Space Race.” The book, written by Margot Lee Shetterly, brought national attention to the stories of these women and articulated their often overlooked legacy.²

Free Screenings for Families

The movie is so inspiring, especially to young black girls! But what if they didn’t have the chance to see it? Octavia Spencer, one of the stars of the show, wondered the same thing. She decided to buy out several screens at Baldwin Hills theater in Crenshaw, California, for low-income families to see the movie.³ She said, “My mom would not have been able to afford to take me and my siblings. So, I’m honoring her and all single parents this #MLKweekend. Pass the word.”⁴



Math Strategy:
Remember that not all problems have individual solutions. We *all* need to work to ensure *all* groups are fully represented in *all* fields.



Left to right: Dorothy Vaughan, Katherine Johnson, Mary Jackson worked as mathematicians and engineers for the National Aeronautics and Space Administration (NASA). Photos from Wikipedia.

Jantina Anderson of Greenwood, Indiana, saw the movie with her two young daughters. She was so moved by the film that she raised \$6,490 (with an initial goal of \$3,500⁵) to fund a screening of *Hidden Figures* for 100 girls.⁶ Anderson noted that the movie “gives black girls an opportunity to see themselves as the main character, pursuing career fields related to science and math and contributing to one of the nation’s greatest accomplishments at that time.”

Michelle Obama’s White House screening of the movie⁷ inspired 13-year-old aspiring astronaut Taylor Richardson of Jacksonville, Florida, so much that she raised \$19,633 (of an initial goal of \$2,600) for a viewing of the movie, as well as to purchase copies of the book for 100 girls because she “want[s] girls to know that, like boys, they too can excel in STEM with hard work.”⁸ (STEM stands for Science, Technology, Engineering, and Math.) After its success, Taylor took her campaign to encourage young girls of color interested in the field of math and STEM even further with the release of science fiction epic *A Wrinkle in Time*, raising over \$100,000 for a viewing and copies of the book. Richardson stated, “I want girls, especially

those of color, to see this movie and know that not only can [they] touch the stars—they already are ones!”⁹

Using Film to Encourage Girls of Color

The passionate responses from so many people who believed that movies would have a positive effect on young black women speak to the larger issue of the relationship between girls and math/STEM. In a 2013 study, the U.S. Census Bureau concluded that women make up only 26 percent of STEM workers despite making up nearly half of the national workforce.¹⁰ A 2012 study by the Girl Scout Research Institute concluded that “African American and Hispanic girls have high interest in STEM, high confidence, and a strong work ethic, but have

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fewer supports, less exposure, and lower academic achievement than Caucasian girls.”¹¹ Knowing this, it’s easy to see why representation matters and why people are using films like *Hidden Figures* and *A Wrinkle in Time* as tools to encourage young women of color to pursue fields they may not have otherwise considered.

In 2015, when Katherine Johnson received the Medal of Freedom from the White House,¹² it was an important moment for the history of black women and solidified the legacy of Johnson’s work on a national level. After the release of *Hidden Figures*, Johnson speculated that it would play a significant part in encouraging young people to learn more about math and STEM: “Go see ‘*Hidden Figures*,’ and take a young person! It will give a more positive outlook on what is possible if you work hard, do your best and are prepared.”¹³

AFTER YOU READ:

1. Look at the chart below. Write a few true statements about the data you see in the chart.
2. What do you wonder about the information in this chart? Research the answers to your questions.

3. What does the author mean by “representation matters?” Do you agree or disagree? Explain.

4. What is your experience with STEM (science, technology, engineering, and math)?

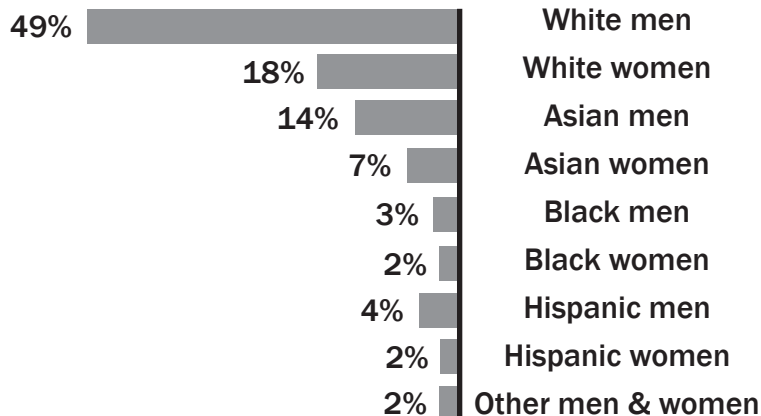
5. Consider hosting a screening of *Hidden Figures* at your school or in your community. Discuss the film and connections to you or people you know. Who are the “hidden figures” in your community? What can you do to make them less hidden?

Sources: 1. <www.collectspace.com/news/news-091116a-hidden-figures-shetterly-interview.html>; 2. <www.nytimes.com/2016/05/22/movies/taraji-p-henson-octavia-spencer-hidden-figures-rocket-science-and-race.html?_r=0>; 3. <www.huffingtonpost.com/entry/octavia-spencer-hidden-figures-screening-low-income-families_us_587c6316e4b0e58057ff770e>; 4. <www.instagram.com/p/BPMCLodA3Yq/?utm_source=ig_embed>; 5. <www.gofundme.com/hiddenfiguresindy>; 6. <www.indystar.com/story/life/2017/02/03/young-black-girls-deserve-know-their-greatness/97380040>; 7. <people.com/politics/michelle-obama-hidden-figures-screening-white-house>; 8. <www.gofundme.com/hidden-figures-screening>; 9. <www.gofundme.com/astronaut-starbright-fund>; 10. <www.census.gov/prod/2013pubs/acs-24.pdf>; 11. <www.girlscouts.org/content/dam/girlscouts-gsusa/forms-and-documents/about-girl-scouts/research/generation_stem_full_report.pdf>; 12. <obamawhitehouse.archives.gov/blog/2015/11/25/honoring-nasas-katherine-johnson-stem-pioneer>; 13. <www.latimes.com/science/sciencenow/la-sci-sn-hidden-figures-katherine-johnson-20170109-story.html>

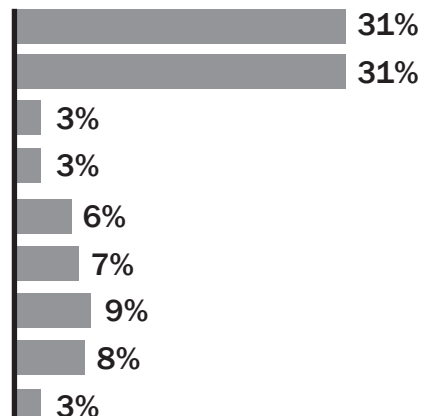
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Workers in Science & Engineering (S&E) Occupations, 2015

Percent in S&E Occupations



Percent of U.S. population



In 2015, some women and some minority groups were under-represented in science and engineering (S&E) occupations compared to the general U.S. population. Source: <www.phys.org> Data from: National Science Foundation, 2017. Special Report NSF 17-310. Arlington, VA. Available at <www.nsf.gov/statistics/wmpd>.