Based on the untold true story

Hidden Figures

Meet the women you don’t know, behind the mission you do
Hidden Figures
Curriculum Guide

Journeys in Film
www.journeysinfilm.org
Educating for Global Understanding
www.journeysinfilm.org

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Journeys in Film
50 Sandia Lane
Placitas, NM  87043
505.867.4666
www.journeysinfilm.org

Twentieth Century Fox Home Entertainment
2121 Avenue of the Stars, 5th Floor
Los Angeles, CA 90064
# Table of Contents

**Introduction**

About Journeys in Film  
A Letter From Liam Neeson  
A Letter From Theodore Melfi  
Introducing *Hidden Figures*  
To the Teacher

**Lessons**

**Lesson 1:** Bitter Rivals: The Cold War at Mid-Century  
(Social Studies)  

**Lesson 2:** Sputnik and the Origins of the Space Race  
(Social Studies, Science)

**Lesson 3:** Moving to the Front of the Bus: Segregation and the Civil Rights Movement  
(Social Studies)

**Lesson 4:** The Women of ‘West Computing’: A Viewer-Response Approach  
(Language Arts)

**Lesson 5:** The Math of Space Travel: Orbits and Conic Sections  
(Mathematics)

**Lesson 6:** Computers Come of Age  
(Physics, Programming)

**Lesson 7:** Shooting Scripts and Active Viewing  
(Film Literacy)

**Lesson 8:** The Women of Science  
(Science, History, Career Readiness)
About *Journeys in Film*

Founded in 2003, *Journeys in Film* operates on the belief that teaching with film has the power to prepare students to live and work more successfully in the 21st century as informed and globally competent citizens. Its core mission is to advance global understanding among youth through the combination of age-appropriate films from around the world, interdisciplinary classroom materials coordinated with the films, and teachers’ professional-development offerings. This comprehensive curriculum model promotes widespread use of film as a window to the world to help students to mitigate existing attitudes of cultural bias, cultivate empathy, develop a richer understanding of global issues, and prepare for effective participation in an increasingly interdependent world. Our standards-based lesson plans support various learning styles, promote literacy, transport students around the globe, and foster learning that meets core academic objectives.

Selected films act as springboards for lesson plans in subjects ranging from math, science, language arts, and social studies to other topics that have become critical for students, including environmental sustainability, poverty and hunger, global health, diversity, and immigration. Prominent educators on our team consult with filmmakers and cultural specialists in the development of curriculum guides, each one dedicated to an in-depth exploration of the culture and issues depicted in a specific film. The guides merge effectively into teachers’ existing lesson plans and mandated curricular requirements, providing teachers with an innovative way to fulfill their school districts’ standards-based goals.

Why use this program?

To be prepared to participate in tomorrow’s global arena, students need to gain an understanding of the world beyond their own borders. *Journeys in Film* offers innovative and engaging tools to explore other cultures and social issues, beyond the often negative images seen in print, television, and film media.

For today’s media-centric youth, film is an appropriate and effective teaching tool. *Journeys in Film* has carefully selected quality films that tell the stories of young people living in locations that may otherwise never be experienced by your students. Students travel through these characters and their stories: They drink tea with an Iranian family in *Children of Heaven*, play soccer in a Tibetan monastery in *The Cup*, find themselves in the conflict between urban grandson and rural grandmother in South Korea in *The Way Home*, watch the ways modernity challenges Maori traditions in New Zealand in *Whale Rider*, tour an African school with a Nobel Prize-winning teenager in *He Named Me Malala*, or experience the transformative power of music in *The Music of Strangers: Yo-Yo Ma & the Silk Road Ensemble*. 
In addition to our ongoing development of teaching guides for culturally sensitive foreign films, *Journeys in Film* brings outstanding documentary films to the classroom. Working with the Rossier School of Education at the University of Southern California, *Journeys in Film* has identified exceptional narrative and documentary films that teach about a broad range of social issues in real-life settings such as famine-stricken and war-torn Somalia, a maximum-security prison in Alabama, and a World War II concentration camp near Prague. *Journeys in Film* guides help teachers integrate these films into their classrooms, examining complex issues, encouraging students to be active rather than passive viewers, and maximizing the power of film to enhance critical thinking skills and to meet the Common Core Standards.

*Journeys in Film* is a 501(c)(3) nonprofit organization.
A Letter From Liam Neeson

Working in films such as *Michael Collins* and *Schindler’s List*, I’ve seen the power of film not only to entertain, but also to change the way audiences see themselves and the world. When I first met Joanne Ashe, herself the daughter of Holocaust survivors, she explained to me her vision for a new educational program called *Journeys in Film: Educating for Global Understanding*. I grasped immediately how such a program could transform the use of film in the classroom from a passive viewing activity to an active, integral part of learning.

I have served as the national spokesperson for *Journeys in Film* since its inception because I absolutely believe in the effectiveness of film as an educational tool that can teach our young people to value and respect cultural diversity and to see themselves as individuals who can make a difference. *Journeys in Film* uses interdisciplinary, standards-aligned lesson plans that can support and enrich classroom programs in English, social studies, math, science, and the arts. Using films as a teaching tool is invaluable, and *Journeys in Film* has succeeded in creating outstanding film-based curricula integrated into core academic subjects.

By using carefully selected documentary and foreign films that depict life in other countries and cultures around the globe, combined with interdisciplinary curricula to transform entertainment media into educational media, we can use the classroom to bring the world to every student. Our film program dispels myths and misconceptions, enabling students to overcome biases; it connects the future leaders of the world with each other. As we provide teachers with lessons aligned to Common Core Standards, we are also laying a foundation for understanding, acceptance, trust, and peace.

Please share my vision of a more harmonious world where cross-cultural understanding and the ability to converse about complex issues are keys to a healthy present and a peaceful future. Whether you are a student, an educator, a filmmaker, or a financial supporter, I encourage you to participate in the *Journeys in Film* program.

Please join this vital journey for our kids’ future. They are counting on us. *Journeys in Film* gets them ready for the world.

Sincerely,

[Signature]

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*Journeys in Film*: Educating for Global Understanding

In Partnership with USC Roski School of Art and Design
When you find a career you love, fame is far from your mind. Passion, excitement, and challenging work are instead the driving factors that motivate on a daily basis. Such is the case for Katherine G. Johnson, Dorothy Vaughan, and Mary Jackson—the brilliant trio of African-American women working at NASA in the early 1960s—who helped serve as the brains behind one of the greatest operations in history: the Mercury space missions, culminating in the launch of astronaut John Glenn into orbit.

For decades, until the publication of Margot Lee Shetterly’s book *Hidden Figures*, the story of Johnson, Vaughan, and Jackson, NASA’s so-called “human computers,” went untold. But when their story crossed my path—a story that blurs gender, race, and professional lines—I knew this was a part of history that had to be told. Fifty-five years later, *Hidden Figures* is a rich and moving true story that deserves a spot in our collective consciousness.

The backdrop for the movie is one of the most defining, complex periods in American history: the high-stakes Cold War, the space race, the Jim Crow South and the birth of the civil rights movement. Exploring these historic events serves as a reminder that we must learn from our past experiences while continuing to catapult ourselves forward.

It was also important for me, as a son raised by a single mother and as the father of two daughters, to explore the importance of STEM as a compelling and viable career choice for young girls. The media, cinema, and other public discourse often do society a disservice by not presenting strong, independent women in the fields of science, technology, engineering and math on a regular basis. Drawing attention to these figures, often hidden in plain sight, will hopefully help to chart a new course for female students and change the composition of these vital industries.

At its core, *Hidden Figures* is the story of three remarkable women who overcame every obstacle stacked against them, despite gender, race, and the political landscape of the time. Illuminating this universal experience for the next generation was critical. My goal was to showcase how skill and knowledge are equalizers, how hard work and determination are the cornerstones to every pursuit, and how uniting under a common goal is more powerful than staying divided.

Johnson, Vaughan, and Jackson were pioneers who broke down commonly held perceptions and achieved something phenomenal. Their legacy of persistence serves to empower people of all circumstances and teaches us, as NASA points out in its webpage on Katherine Johnson,

- To love learning.
- To follow your passion.
- To accept the help you’re given, and help others when you can.
- To follow new leads and don’t give up. Keep trying.
- To go beyond the task at hand; ask questions; be inquisitive. Let yourself be heard.
- To do what you love, and love what you do.

I hope that through the exploration of *Hidden Figures*—and your own passions—you, too, will achieve the seemingly impossible.

Theodore Melfi
Director, *Hidden Figures*
Introducing *Hidden Figures*

Space exploration in the modern age is entering a new phase, replete with private space companies, prospective lunar tourism, and even projected travel to Mars, the closest planet in our solar system. It is fitting, therefore, to pause to look back at the early years of the United States space program, and particularly the early efforts to launch astronauts into orbit, a preliminary step toward a moon landing.

*Hidden Figures* tells us about a generally unheralded group of women whose brilliance and dedication provided a foundation for the space program—the black women known as “human computers” who worked at the NASA Center in Langley, Virginia. Faced with obstacles to their own education and to job prospects because of race and gender, these women succeeded in earning places and eventually respect in a workplace dominated by male supervisors and colleagues, many of whom were reluctant to hire women, and marked by segregated facilities, from office to restroom, that reflected the pre-civil rights era.

Katherine Johnson, physicist and mathematician, calculated the orbits, trajectories, and launch windows that would put John Glenn and others into space and bring them back safely. Dorothy Vaughan, another mathematician, became the first African-American supervisor at NASA, learning the computer language FORTRAN on her own and teaching it to her staff. Mary Jackson, an aerospace engineer as well as a mathematician, had to go to court to earn the right to take graduate-level courses at a previously all-white school; she eventually also served as a program officer helping other women succeed at NASA.

Their story is also the story of the world in which they lived and worked—the racism and segregation that made their lives more difficult; the beginnings of the civil rights movement in the South; the Cold War with Russia that gave such impetus to the drive for superiority in space; and the space race itself. The film weaves these events into the dramatic personal stories with skill and accuracy, making it an ideal film for the classroom. It is sure to serve as inspiration to many young women considering a career in science and mathematics.

*Hidden Figures* has been nominated for many awards, including the Academy Awards, BAFTA, the Golden Globes, the NAACP Image Awards, the Screen Actors Guild, and the African-American Film Critics Association.

**Film credits**

**DIRECTOR:** Theodore Melfi

**SCREENPLAY:** Allison Schroeder and Theodore Melfi, based on the book with the same title by Margot Lee Shetterly

**PRODUCERS:** Donna Gigliotti, Peter Chernin, Jenno Topping, Pharrell Williams, Theodore Melfi

**ACTORS:** Taraji P. Henson, Octavia Spencer, Janelle Monáe, Kirsten Dunst, Jim Parsons, Mahershala Ali, Aldis Hodge, Glen Powell, Kimberly Quinn, Kevin Costner, Olek Krupa
To the Teacher

This curriculum guide to *Hidden Figures*, like other Journeys in Film resources, is based on a few fundamental beliefs:

- That a well-made, relevant film is an excellent way to convey information and teach students important critical thinking skills.
- That an interdisciplinary approach will reach students who have different learning modalities and interests.
- That talented teachers interacting with real students on a daily basis are best positioned to write good lesson plans.

The first few lessons in this guide will help students understand the context in which the events of *Hidden Figures* occur. Designed primarily for social studies classes, they may be used either before or after you screen the film, depending on how much prior knowledge of the era your students have.

Lesson 1 teaches students about the Cold War, which dominated foreign policy in the years following World War II, and the competition for political and economic dominance between the United States and the Soviet Union, each with its own “spheres of influence.”

Lesson 2 dissects one facet of this struggle, the space race that began in earnest with the Soviet launch of Sputnik. Whether for fear of nuclear weapons from space or just the appearance of falling behind in technology, the United States government wanted progress immediately; this urgency gave the women of “West Computing” their opportunity.

Lesson 3 is concerned with the strong patterns of segregation that had persisted from the end of Reconstruction into the mid-20th century in the South, and with the efforts to resist them. From the Freedom Riders and the marchers at Selma to Dorothy Vaughan’s “borrowing” of a library book and Mary Jackson’s insistence on being admitted to classes in an all-white high school, the civil rights movement would eventually reshape the lives of millions.

Lesson 4 is a viewer-response activity for language arts classes, to be used as students watch the film and afterward. Students also use the film as the basis for a character study, consider the various meanings of the title, and discuss the multiple interwoven themes of the film.

Lessons 5 and 6 are STEM lessons. Lesson 5 is a geometry lesson that begins with a series of problems through which students become familiar with scientific notation. From there they go on to a study of conic sections, in order to better understand the orbits and trajectories calculated by the “human computers.”

In Lesson 6, which is designed for physics classes, students consider the quantitative effects that forces have on the motion of an object and program in GlowScript to model data. They also consider the critical question of how work will change as automation becomes ever more widespread and sophisticated.

Lesson 7 considers the film as a work of art, constructed with purpose and skill, in a film literacy lesson about the use of scripts and the choices directors make.
Lesson 8 uses the film to motivate students to learn more about the history of women in science and the opportunities available to them.

Although it is possible to use all of these lessons, most teachers will select just one or several to use with their classes. You might wish to consider a team approach built around *Hidden Figures* for a memorable experience for your students.

For more information about this and other free Journeys in Film curriculum and discussion guides, please see the Journeys in Film website at [www.journeysinfilm.org](http://www.journeysinfilm.org).