EARN YOUR GROWTH

BLACK INVENTORS & INNOVATORS

Overlooked breakthroughs in science, engineering, medicine, agriculture, computing and everyday life

A historical study guide about achievement, discrimination, perseverance and the systems that shape who receives credit.

EMBRACE THE DISCOMFORT. DO THE WORK. OWN YOUR JOURNEY. BECOME MORE. EARN YOUR GROWTH.

How to use this guide

This is a curated, research-oriented collection, not a claim to include every Black innovator. A patent proves a documented claim to an invention, but important innovation also occurs through research, programming, engineering teams, clinical methods, and community practice. Patent records may name an inventor without establishing that they were the first person ever to imagine an idea.

Evidence standard: We separate documented personal discrimination from structural barriers of an era. Where a specific episode is not firmly established, the guide says so rather than inventing a rejection, quote, or triumph. A scientist can have experienced racism while also working in teams, receiving assistance, and facing setbacks.

Study each profile in four passes: (1) What exactly was invented or discovered? (2) What is the evidence? (3) Which barriers can be documented? (4) What actions and support made the work possible?

Historical framework: invention under unequal opportunity

Enslaved people created and improved agricultural, mechanical, culinary, and craft technologies, but the law denied them ordinary rights to own property and profit from their labor. The US Supreme Court's 1857 *Dred Scott* decision and an 1858 federal patent-office ruling associated with Oscar J. E. Stuart and the enslaved inventor Ned illustrate how enslaved inventors were excluded from patent ownership. After emancipation, Jim Crow education, exclusionary hiring, capital shortages, and segregated professional networks constrained opportunities, although conditions varied by place and period.

Avoid the myth that all Black inventions were simply stolen or that one inventor single-handedly created a modern system. Real historical credit is often more interesting: incremental improvements, new manufacturing methods, overlooked calculations, safer devices, and crucial contributions to larger teams.

Part I | Nineteenth-century pioneers

Thomas L. Jennings | 1791-1856 | Clothing care and business

Contribution: Received US Patent 3,306X (1821) for a dry-scouring method, an early patent granted to a Black American.

Barriers and discrimination: Worked in a society where slavery and racial exclusion sharply limited Black legal and commercial rights; he was a free New Yorker. Specific patent-office mistreatment is not established here.

Response and perseverance: Built a successful tailoring and cleaning business and supported abolitionist causes.

Why it matters: Demonstrates how ownership of a technical process could support both enterprise and activism.

Research trail: USPTO Black inventors resources; patent 3,306X; historical studies of free Black New York.

Norbert Rillieux | 1806-1894 | Chemical engineering

Contribution: Developed a multiple-effect evaporator for refining sugar, improving efficiency and safety compared with older open-kettle methods; patented designs in the 1840s.

Barriers and discrimination: A free man of color born in Louisiana, he encountered a racially stratified sugar economy; accounts of individual discriminatory episodes should be checked against biographies.

Response and perseverance: Pursued advanced technical work and later spent substantial time in France.

Why it matters: His engineering transformed an industrial process, not merely a household object.

Research trail: National Inventors Hall of Fame; Smithsonian Lemelson Center; Rillieux patents.

Lewis Howard Latimer | 1848-1928 | Electrical engineering and drafting

Contribution: Patented a process for manufacturing carbon filaments (1882) and contributed technical drafting and expertise to telephone and electric-light development. He did not invent the light bulb.

Barriers and discrimination: The son of formerly enslaved parents worked amid nineteenth-century racial barriers to technical employment.

Response and perseverance: Learned mechanical drawing while employed at a patent-law firm, then built a career with leading electrical firms.

Why it matters: Shows the importance of manufacturing improvements and skilled collaborators in commercializing technology.

Research trail: Smithsonian NMAAHC; National Inventors Hall of Fame; US Patent 252,386.

Granville T. Woods | 1856-1910 | Railway electrical systems

Contribution: Held numerous patents relating to electric railways, communications, and railway safety; inventions included induction-based train communications.

Barriers and discrimination: Black inventors faced discrimination in financing and commercial partnerships; particular lawsuits or claims should be tied to patent and court records.

Response and perseverance: Founded a business, pursued patents, and defended his intellectual property.

Why it matters: Highlights the difference between having a patent and securing capital to manufacture and sell an invention.

Research trail: National Inventors Hall of Fame; USPTO patent database.

Elijah McCoy | 1844-1929 | Mechanical lubrication

Contribution: Patented improvements to automatic lubricators for steam machinery, including a device in 1872.

Barriers and discrimination: Despite mechanical training, racial employment barriers restricted opportunities; accounts describe his work in railroad-related roles rather than engineering positions.

Response and perseverance: Designed practical devices, continued patenting, and founded a company late in life.

Why it matters: Improved maintenance and reliability in industrial machinery. The phrase "the real McCoy" has a disputed origin and should not be presented as proven.

Research trail: National Inventors Hall of Fame; US Patent 129,843; Smithsonian.

Jan Ernst Matzeliger | 1852-1889 | Shoe manufacturing

Contribution: Patented an automatic shoe-lasting machine in 1883 that greatly accelerated a labor-intensive manufacturing stage.

Barriers and discrimination: A Black immigrant from Suriname entered an industrial world with racial and class barriers; precise personal incidents require careful sourcing.

Response and perseverance: Worked through mechanical prototypes while employed in the shoe industry.

Why it matters: His machine helped make shoes cheaper and more widely available.

Research trail: National Inventors Hall of Fame; US Patent 274,207.

Sarah E. Goode | c. 1855-1905 | Furniture design

Contribution: Patented a folding cabinet bed in 1885, designed for small living spaces.

Barriers and discrimination: A Black woman entrepreneur in nineteenth-century Chicago faced overlapping race and gender restrictions on commerce and property; individual discriminatory events are not firmly documented in this guide.

Response and perseverance: Operated a furniture business and protected her design through a patent.

Why it matters: A useful example of inventing around the everyday needs of customers.

Research trail: US Patent 322,177; USPTO educational material.

Miriam E. Benjamin | 1861-1947 | Public-service devices

Contribution: Patented a gong and signal chair in 1888 for summoning attendants, a concept later adapted in service systems.

Barriers and discrimination: Black women had limited access to professional and technical opportunities in the late nineteenth century; no particular denial is asserted without documentation.

Response and perseverance: Worked as an educator and obtained patent protection for a practical service innovation.

Why it matters: Shows that seemingly modest systems innovations can shape customer experience.

Research trail: US Patent 386,289; Smithsonian/USPTO patent records.

Alexander Miles | 1838-1918 | Elevator safety

Contribution: Patented an improved mechanism for automatically opening and closing elevator doors and shaft openings in 1887.

Barriers and discrimination: Racial inequality constrained business opportunity; claims that he alone invented automatic elevator doors overstate the historical record.

Response and perseverance: Operated businesses and pursued a mechanical safety solution.

Why it matters: Safer elevator operation helped enable increasingly vertical cities.

Research trail: US Patent 371,207; National Inventors Hall of Fame.

Andrew J. Beard | c. 1849-1921 | Railroad safety

Contribution: Patented improvements to automatic railroad car couplers in the 1890s, reducing dangerous manual coupling work.

Barriers and discrimination: Born enslaved in Alabama, he lived through Reconstruction and Jim Crow restrictions on Black economic participation.

Response and perseverance: Built mechanical expertise, patented devices, and negotiated commercial value for his inventions.

Why it matters: A safety-focused innovation with direct relevance to workers' lives.

Research trail: US Patent 594,059; USPTO.

Part II | Agriculture, chemistry, health and the home

George Washington Carver | c. 1864-1943 | Agricultural science

Contribution: Developed and promoted crop rotation, soil restoration, and uses for peanuts, sweet potatoes, and other crops at Tuskegee. He did not invent peanut butter.

Barriers and discrimination: Born into slavery and later confronted segregation and limited educational access.

Response and perseverance: Pursued education across several institutions and translated research into farmer-oriented bulletins and demonstrations.

Why it matters: Scientific outreach and soil stewardship mattered as much as patented products.

Research trail: Tuskegee University; National Park Service; USDA historical collections.

Alice H. Parker | 1895-? | Heating systems

Contribution: Patented a gas-fueled heating furnace with independently regulated zones in 1919.

Barriers and discrimination: The opportunities open to Black women engineers and inventors were narrow; detailed evidence of her personal experience is limited.

Response and perseverance: Completed an education and obtained a patent for a heating design.

Why it matters: An early heating-system design; do not claim she invented modern central heating or that her system was commercially adopted.

Research trail: US Patent 1,325,905; patent drawings.

Garrett A. Morgan | 1877-1963 | Safety and traffic systems

Contribution: Patented a safety hood in 1914 and a three-position traffic signal in 1923; also developed hair-care products.

Barriers and discrimination: Faced racial prejudice in marketing and public recognition. Some accounts report demonstrations using a white intermediary or concealed identity; consult primary reporting for specific details.

Response and perseverance: Built businesses, marketed products, and repeatedly patented practical designs.

Why it matters: Improved public safety; his signal was one among several early traffic-control systems.

Research trail: National Inventors Hall of Fame; US Patents 1,090,936 and 1,475,024.

Frederick McKinley Jones | 1893-1961 | Refrigeration and transport

Contribution: Developed portable refrigeration systems used for trucks and other transport, helping move perishable food and medical supplies.

Barriers and discrimination: A Black engineer working in a racially segregated era had fewer conventional educational and professional routes.

Response and perseverance: Largely self-taught, he combined electrical and mechanical expertise and co-founded Thermo King with Joseph Numero.

Why it matters: Cold-chain logistics reshaped food distribution and medicine.

Research trail: National Inventors Hall of Fame; National Medal of Technology and Innovation.

Marie Van Brittan Brown | 1922-1999 | Home security

Contribution: Co-invented a home security system with Albert Brown, patented in 1969, using cameras, monitors, audio, and remote door control.

Barriers and discrimination: The invention emerged amid concerns about neighborhood safety and slow emergency response; do not assume specific racist incidents without evidence.

Response and perseverance: Developed a system with her husband that anticipated features of modern security devices.

Why it matters: A landmark example of designing technology around household safety needs.

Research trail: US Patent 3,482,037.

Patricia Bath | 1942-2019 | Ophthalmology

Contribution: Invented the Laserphaco approach and patented laser-based techniques and devices for cataract treatment; advocated community eye care.

Barriers and discrimination: Experienced racial and gender discrimination in medical training and practice; she also documented unequal access to eye care.

Response and perseverance: Combined research, clinical advocacy, and invention, becoming the first Black woman physician to receive a US medical patent.

Why it matters: Connects technological innovation to health equity.

Research trail: National Inventors Hall of Fame; National Library of Medicine; US Patent 4,744,360.

Charles Drew | 1904-1950 | Blood banking

Contribution: Advanced blood plasma processing, storage, and large-scale blood-bank logistics, including wartime programs.

Barriers and discrimination: Blood-donation programs adopted racial segregation policies that Drew publicly criticized; claims that he personally invented blood transfusion are false.

Response and perseverance: Built a major career as a surgeon, educator, and blood-banking researcher while opposing discriminatory practices.

Why it matters: Demonstrates how scientific expertise can be paired with criticism of unjust policy.

Research trail: National Library of Medicine Profiles in Science; American Red Cross history.

Percy Lavon Julian | 1899-1975 | Synthetic organic chemistry

Contribution: Pioneered methods for synthesizing medicinal compounds and hormones from plant materials, including work on physostigmine and steroid chemistry.

Barriers and discrimination: Faced segregated schooling, professional hiring discrimination, and racist hostility toward his family.

Response and perseverance: Pursued advanced chemistry education, built an industrial research career, and founded his own laboratories.

Why it matters: His research helped scale important pharmaceutical chemistry.

Research trail: American Chemical Society National Historic Chemical Landmarks; PBS NOVA.

Bettye Washington Greene | 1935-1995 | Polymer chemistry

Contribution: Conducted polymer and latex research at Dow Chemical and held patents related to latex formulations and materials.

Barriers and discrimination: As a Black woman chemist in a heavily white, male industrial field, she worked amid systemic employment barriers; specific personal incidents require documentation.

Response and perseverance: Earned a PhD in chemistry and developed a sustained research career with patents.

Why it matters: Highlights less-visible industrial research behind everyday materials.

Research trail: Dow historical material; patent database; American Chemical Society profiles.

Lloyd Augustus Hall | 1894-1971 | Food chemistry

Contribution: Developed techniques for preserving and processing food, including seasoning and curing chemistry.

Barriers and discrimination: Racial hiring discrimination affected his early career; historical accounts describe an employer withdrawing a job offer after discovering he was Black.

Response and perseverance: Pursued chemistry work and became a productive industrial scientist and patent holder.

Why it matters: Food safety and preservation are foundational technologies.

Research trail: National Inventors Hall of Fame; USPTO.

Part III | Computing, space, communications and physics

Gladys West | born 1930 | Geodesy and satellite mathematics

Contribution: Performed mathematical modeling of Earth's shape using satellite data; her work contributed to the foundations used in modern GPS systems.

Barriers and discrimination: Educated in segregated Virginia and entered a technical workforce with limited representation of Black women.

Response and perseverance: Excelled academically and built a long career at the Naval Surface Warfare Center in Dahlgren.

Why it matters: GPS depends on teams of scientists and engineers; her geodetic contribution deserves recognition without calling her its sole inventor.

Research trail: US Air Force Space and Missile Pioneers Hall of Fame; Naval history profiles.

Valerie Thomas | born 1943 | Imaging and data systems

Contribution: Patented an illusion transmitter in 1980 and worked on NASA image-processing and data systems.

Barriers and discrimination: Faced educational expectations that discouraged girls from advanced technical fields; worked in a field with racial and gender barriers.

Response and perseverance: Studied physics and mathematics and developed a substantial NASA career.

Why it matters: Her optical patent is distinct from the invention of all 3D television or virtual reality.

Research trail: US Patent 4,229,761; NASA biographical resources.

Katherine Johnson | 1918-2020 | Orbital mathematics

Contribution: Calculated trajectories and verified orbital calculations for NASA missions, including John Glenn's 1962 flight.

Barriers and discrimination: Worked in segregated educational and professional environments and faced race and gender barriers.

Response and perseverance: Developed mathematical expertise, insisted on participating in technical discussions, and became trusted for mission-critical calculations.

Why it matters: Shows how essential innovation can be mathematical rather than patentable.

Research trail: NASA biography; Margot Lee Shetterly, *Hidden Figures*.

Dorothy Vaughan | 1910-2008 | Computing leadership

Contribution: Supervised the segregated West Area Computing unit at NACA and later learned FORTRAN as electronic computing advanced.

Barriers and discrimination: Worked within NACA's racially segregated system and faced barriers to promotion and recognition.

Response and perseverance: Led and mentored colleagues, anticipating the transition from human to electronic computing.

Why it matters: Technical leadership includes creating opportunities for teams.

Research trail: NASA biography; *Hidden Figures*.

Mary W. Jackson | 1921-2005 | Aeronautical engineering

Contribution: Became NASA's first Black woman engineer and conducted research in aerodynamics.

Barriers and discrimination: Had to obtain permission to attend courses offered at a segregated school to qualify for engineering work.

Response and perseverance: Completed the required training and later worked to advance women and minority employees.

Why it matters: Shows how access to credentials affects who gets to innovate.

Research trail: NASA biography and Mary W. Jackson NASA Headquarters naming resources.

Annie Easley | 1933-2011 | Computer science and energy research

Contribution: Developed software for aerospace and energy projects at NACA/NASA, including work relevant to battery technology.

Barriers and discrimination: Encountered segregation and discrimination; NASA oral histories document the social environment she navigated.

Response and perseverance: Learned programming as technology changed and pursued further mathematical education.

Why it matters: Computing innovation often occurs within teams rather than through a single named invention.

Research trail: NASA Glenn oral history and biography.

Dr. James E. West | born 1931 | Acoustics

Contribution: Co-invented the electret microphone with Gerhard Sessler; their 1962 patent underlies widespread microphone technology.

Barriers and discrimination: Faced the structural barriers confronting Black scientists in mid-century America; do not fabricate an individual discriminatory event.

Response and perseverance: Studied physics, worked at Bell Labs, and continued research and mentorship.

Why it matters: A tiny component with enormous impact across phones, recording, and communications.

Research trail: National Inventors Hall of Fame; US Patent 3,118,022.

Marian Croak | born 1955 | Internet telephony

Contribution: Helped advance Voice over Internet Protocol (VoIP) and related telecommunications technologies; named on many patents.

Barriers and discrimination: Worked in technology fields with low representation of Black women; specific discrimination incidents should be sourced to her own accounts.

Response and perseverance: Built a long research and engineering career and supported access to technical education.

Why it matters: Modern communication is built by networks of inventors and standards developers.

Research trail: National Inventors Hall of Fame; USPTO inventor profiles.

Mark Dean | born 1957 | Computer engineering

Contribution: Co-developed important IBM personal-computer architecture, including work on the Industry Standard Architecture bus; holds numerous patents.

Barriers and discrimination: Black engineers were underrepresented in the computer industry; avoid unverified anecdotes of personal discrimination.

Response and perseverance: Earned advanced degrees and led technical teams at IBM.

Why it matters: Hardware architecture and compatibility can matter more than consumer-facing branding.

Research trail: National Inventors Hall of Fame; IBM historical profiles.

Jerry Lawson | 1940-2011 | Video-game hardware

Contribution: Led development of the Fairchild Channel F system, an early cartridge-based home video-game console.

Barriers and discrimination: Worked in an overwhelmingly white technology industry and was among the few Black engineers in early Silicon Valley.

Response and perseverance: Combined hands-on engineering with leadership of a pioneering product team.

Why it matters: Helped establish a model for interchangeable game cartridges; he did not invent all video games.

Research trail: The Strong National Museum of Play; Computer History Museum.

Otis Boykin | 1920-1982 | Electronic components

Contribution: Patented improvements to electrical resistors and electronic control components used in multiple applications.

Barriers and discrimination: Built his career during Jim Crow and later employment discrimination; claims tying a particular Boykin patent directly to the invention of the pacemaker should be checked carefully.

Response and perseverance: Developed technical expertise and pursued patents across several decades.

Why it matters: Incremental improvements in component reliability can enable major systems.

Research trail: US Patent 2,972,726 and related patents; USPTO.

Shirley Ann Jackson | born 1946 | Theoretical physics and research leadership

Contribution: Conducted fundamental physics research at Bell Labs and led major scientific institutions; not the sole inventor of caller ID, call waiting, or fiber-optic cable.

Barriers and discrimination: One of the first Black women to earn a physics PhD from MIT, she encountered exclusion and hostility in academic settings.

Response and perseverance: Built a distinguished research and leadership career and promoted science education.

Why it matters: A case study in the distinction between direct invention and broader institutional influence.

Research trail: MIT; Rensselaer Polytechnic Institute; National Medal of Science biography.

Part IV | Biomedical research, mathematics and environmental science

Ernest Everett Just | 1883-1941 | Cell and developmental biology

Contribution: Made important discoveries about fertilization, cell surfaces, and early development in marine organisms.

Barriers and discrimination: Faced severe racial exclusion from American scientific appointments and opportunities.

Response and perseverance: Conducted research at marine laboratories and in Europe while publishing influential studies.

Why it matters: Scientific discovery is innovation even when it is not patented.

Research trail: Marine Biological Laboratory; National Academy of Sciences historical accounts.

Roger Arliner Young | 1889-1964 | Marine biology

Contribution: Conducted influential research in marine biology and was the first Black woman to earn a PhD in zoology in the United States (1940).

Barriers and discrimination: Experienced race and gender barriers alongside financial and personal difficulties.

Response and perseverance: Pursued research and teaching despite interruptions and unequal opportunity.

Why it matters: Her career challenges simplistic stories that perseverance always leads to stable recognition or reward.

Research trail: Marine Biological Laboratory; scholarly histories of Black women in science.

Jane Cooke Wright | 1919-2013 | Cancer chemotherapy

Contribution: Helped develop and evaluate chemotherapy treatments and methods for testing drug effectiveness against cancers.

Barriers and discrimination: Black women physicians faced professional segregation and restricted opportunities for leadership.

Response and perseverance: Built a clinical research career and became a major oncology leader.

Why it matters: Her work contributed to evidence-based cancer drug treatment.

Research trail: National Library of Medicine; American Association for Cancer Research.

Vivien Thomas | 1910-1985 | Cardiac surgical innovation

Contribution: Developed surgical techniques and experimental methods crucial to early operations for cyanotic congenital heart disease with Alfred Blalock and Helen Taussig.

Barriers and discrimination: Worked for years under segregated conditions, with title and compensation that did not match his expertise; lacked a medical degree.

Response and perseverance: Became a master laboratory surgeon, trained physicians, and eventually received institutional recognition.

Why it matters: Raises questions about who receives authorship and prestige for team-based medical breakthroughs.

Research trail: Johns Hopkins Medicine; historical studies of the Blalock-Taussig-Thomas shunt.

Alexa Canady | born 1950 | Neurosurgery

Contribution: Became the first Black woman neurosurgeon in the United States and advanced pediatric neurosurgical care.

Barriers and discrimination: Encountered racist and sexist expectations in medicine.

Response and perseverance: Completed demanding training and led pediatric neurosurgical services.

Why it matters: An innovator through clinical practice and institutional barriers broken, rather than one signature patent.

Research trail: National Library of Medicine Changing the Face of Medicine.

Emmett Chappelle | 1925-2019 | Biochemistry and remote sensing

Contribution: Developed methods using bioluminescence and fluorescence to detect biological activity and assess vegetation health.

Barriers and discrimination: Pursued scientific work in a period of segregation and unequal educational access.

Response and perseverance: Served in World War II, completed scientific training, and worked in NASA-related research.

Why it matters: Bridges biology, instrumentation, and environmental monitoring.

Research trail: National Inventors Hall of Fame; NASA historical profiles.

Warren M. Washington | born 1936 | Climate modeling

Contribution: Pioneered computer models of the atmosphere and climate, helping establish modern climate simulation.

Barriers and discrimination: Encountered racial barriers in scientific education and professional environments.

Response and perseverance: Earned a doctorate in meteorology and built an influential research and mentorship career.

Why it matters: Climate science relies on computational innovations as well as observation.

Research trail: National Center for Atmospheric Research; National Medal of Science.

Part V | Additional innovators to investigate

Benjamin Banneker: Astronomer, surveyor and almanac author; examine what is documented about his clock and survey work rather than repeating myths.

Henry Blair: Early Black patent holder for agricultural implements; patents issued in 1834 and 1836.

Joseph Lee: Patented bread-making and bread-crumbing machinery; a Boston entrepreneur.

Madam C. J. Walker: Beauty-products entrepreneur and manufacturing organizer; distinguish company-building from inventing the hot comb.

Marjorie Joyner: Patented a permanent-wave machine in 1928 and worked in beauty education and entrepreneurship.

Bessie Blount Griffin: Developed assistive feeding technology and worked in rehabilitation.

Herman Branson: Biophysicist whose research contributed to understanding protein structures; explore the history of alpha-helix credit.

David Blackwell: Mathematician whose work advanced probability, game theory and statistics.

Evelyn Boyd Granville: Mathematician and computing pioneer who contributed to aerospace work.

Christine Darden: NASA aerospace engineer known for sonic-boom research.

Aprille Ericsson: Aerospace engineer and scientist who worked on spacecraft instruments.

Ayanna Howard: Roboticist whose work spans assistive technologies and artificial intelligence.

Kimberly Bryant: Founder of Black Girls CODE; innovation in widening participation in technology.

Lonnie Johnson: Inventor of the Super Soaker and engineer in aerospace and energy technologies.

George Carruthers: Inventor and astrophysicist associated with ultraviolet imaging instruments used in space.

Walter Lincoln Hawkins: Bell Labs chemist whose work advanced durable cable insulation.

Hadiyah-Nicole Green: Physicist researching laser-activated cancer therapies; distinguish promising research from proven clinical treatment.

Kizzmekia Corbett-Helaire: Immunologist whose work contributed to coronavirus vaccine design as part of large research teams.

Patterns of discrimination: what the evidence shows

Legal exclusion

Slavery and its legal aftermath restricted patent ownership, wages, education, and capital. Investigate how property law shaped the ability to profit from invention.

Segregated training

Schools, laboratories, hospitals, and professional societies could deny admission, equipment, mentorship, or promotion.

Unequal credit

Technicians, assistants, women, and minority researchers could be omitted from public accounts even when they made essential contributions. Authorship and patents require case-by-case examination.

Financing and commercialization

A patent does not pay for factories, legal defense, distribution, or marketing. Racism could compound ordinary business risks.

Resistance and collective support

Historically documented responses include self-education, Black colleges, patenting, community networks, unions, mentors, lawsuits, and institution-building. No one formula worked for everyone.

EYG guided discussions

1. What is the difference between an inventor, a discoverer, a scientist, a technician and an entrepreneur?

2. Choose one patent and identify the exact claims. How does that differ from the popular story?

3. Which obstacle was personal prejudice, and which was built into an institution?

4. How did historically Black colleges and universities, mentors, family members or collaborators change opportunities?

5. Why might a brilliant invention fail commercially?

6. What does perseverance look like when the person never receives fame or wealth?

7. How should we give credit to an individual without erasing the contributions of a team?

8. Which modern barriers to science participation resemble historical barriers, and which have changed?

9. What local Black inventor or STEM teacher deserves a documented oral-history interview?

10. What would ownership mean today: patenting, licensing, research careers, technical training, or building a business?

Research workshop | From a claim to a credible story

Step 1. Find the original patent or scholarly paper. Record its number, filing date, issue date, inventors, and exact technical claims. **Step 2.** Find a credible biography or oral history. **Step 3.** Verify any allegation of racism against a documented source. **Step 4.** Separate what the invention did from what later technologies did. **Step 5.** Explain the role of collaborators and institutions. **Step 6.** End with an evidence-based lesson rather than an inspirational myth.

Six-week reading and teaching plan

Week 1 | Patent ownership and nineteenth-century industry

Compare Jennings, Rillieux, Latimer and Woods; read one original patent.

Week 2 | Safety, manufacturing and everyday needs

Compare McCoy, Matzeliger, Morgan, Goode and Brown.

Week 3 | Medicine, chemistry and public health

Study Drew, Julian, Bath, Wright and Thomas; distinguish clinical discovery from device invention.

Week 4 | Space, mathematics and computing

Read NASA biographies of West, Johnson, Vaughan, Jackson and Easley.

Week 5 | Networks, electronics and modern innovation

Study West, Croak, Dean, Lawson and Greene; map teams and patents.

Week 6 | Community research and EYG production

Prepare a sourced 3-minute video and a one-page inventor fact sheet.

Primary sources, archives and key reading

United States Patent and Trademark Office - https://www.uspto.gov/
Search historical patents and inventor educational materials.

Google Patents - https://patents.google.com/
Convenient patent text and diagrams; verify against official records.

National Inventors Hall of Fame - https://www.invent.org/inductees
Curated inventor biographies and technical histories.

Smithsonian Lemelson Center - https://invention.si.edu/
Invention, technology and social context.

Smithsonian NMAAHC - https://nmaahc.si.edu/
Black history objects, biographies and archival exhibits.

NASA History - https://www.nasa.gov/history/
Profiles, mission histories and oral histories.

National Library of Medicine - https://www.nlm.nih.gov/
Medical history and biographical collections.

American Chemical Society - https://www.acs.org/
Historic chemical landmarks and chemist profiles.

Library of Congress - https://www.loc.gov/
Newspapers, oral histories, images and manuscripts.

National Archives - https://www.archives.gov/
Government records and historical context.

Recommended books

Rayvon Fouche, *Black Inventors in the Age of Segregation* (2003) - a scholarly history of invention, race and patenting.

Margot Lee Shetterly, *Hidden Figures* (2016) - the work and institutions surrounding Black women mathematicians at NACA/NASA.

Shirley Ann Jackson and others: seek oral histories and institutional archives for first-person context rather than relying on viral summaries.

Katherine Johnson, Joylette Hylick and Katherine Moore, *My Remarkable Journey* (2021) - first-person perspective on education and NASA.

National Academy of Sciences, *Biographical Memoirs* - authoritative scientist biographies, freely available online.

Closing reflection | Earn your growth

These stories are not evidence that discrimination can always be defeated through individual effort. They show the value of skill, study, supportive institutions, ownership, documentation, and persistent collective demands for fair access. The EYG challenge: learn one inventor's actual work well enough to explain it without exaggeration, then help someone else discover an opportunity to create.