**STEM resources: Minority retention & inclusion resources**

**Sites, apps, & articles featuring BIPOC/LGBTQ+/female STEM professionals, current & historical**

Color Me PhD

This site features coloring pages, games, & information about BIPOC people in STEM. Some of the pages are in Spanish as well as English.

<https://www.colormephd.org/coloring-pages/history-making-scientists>

NASA

The Color of Space – interviews with black astronauts

<https://www.youtube.com/watch?v=S6vYHdH0AeE>

PBS article: Ten Black Scientists the Science Teachers Should Know About

<https://www.pbs.org/education/blog/ten-black-scientists-that-science-teachers-should-know-about-and-free-resources>

Lathisms

Latinx and Hispanics in the Mathematical Sciences – they have posters

<https://www.lathisms.org/>

Mathematicians of the African Diaspora

A Modern History of Blacks in Mathematics

<http://www.math.buffalo.edu/mad/madhist.html>

Tulane University Libraries – BIPOC in STEM

Resources include information & links to books, plus ideas for diversifying STEM pedagogy.

<https://libguides.tulane.edu/BIPOC_STEM>

Live Science article

Amazing Black Scientists

<https://www.livescience.com/amazing-black-scientists.html>

Academic Influence

Influential black mathematicians

<https://academicinfluence.com/rankings/people/black-scholars/mathematicians>

Mashup math

11 famous African American mathematicians you should know about

<https://www.mashupmath.com/blog/famous-african-american-mathematicians>

Math & movement

Famous Black Mathematicians and Their Contributions

<https://mathandmovement.com/famous-black-mathematicians-and-their-contributions/>

Cell Mentor

Profiles of 100 inspiring black scientists in America

<https://crosstalk.cell.com/blog/100-more-inspiring-black-scientists-in-america>

ASMB

A history of black scientists

<https://www.asbmb.org/diversity/a-history-of-black-scientists>

Maryville University

Women of Color in STEM

<https://online.maryville.edu/blog/women-of-color-in-stem/>

Women in Astronomy (article & links)

<https://www.oercommons.org/authoring/56703-women-in-astronomy/view>

NASA – Chandra

Female space science heroes - interactive app (free).

<https://chandra.si.edu/women/ar/>

Science History Institute

This site is a great resource for science history, with tons of biographies.

<https://www.sciencehistory.org/learn/women-in-chemistry>

<https://www.sciencehistory.org/learn/women-in-science>

ThoughtCo.

Women in Mathematics History

<https://www.thoughtco.com/women-in-mathematics-history-3530363>

National Society of High School Scholars

7 famous women in STEM who defy the gender gap

<https://www.nshss.org/blog/7-famous-women-in-stem-who-defy-the-gender-gap/>

Science Museum (London)

Women in physics

<https://www.sciencemuseum.org.uk/objects-and-stories/women-physics>

Smithsonian Magazine

Article – Women scientists were written out of history. It’s Margaret Rossiter’s lifelong mission to fix that.

<https://www.smithsonianmag.com/science-nature/unheralded-women-scientists-finally-getting-their-due-180973082/>

ASBMB Today

LGBTQ+ scientists in history

<https://www.asbmb.org/asbmb-today/people/061821/lgbtq-scientists-through-history>

c&en

LGBTQ+ chemists you should know about

<https://cen.acs.org/people/lgbtq-scientist-chemist-history/99/web/2021/06>

Discovery

5 LGBT Scientists Who Changed the World

<https://www.discovery.com/science/LGBT-Scientists-Who-Changed-World>

National Museums Liverpool

LGBTQ+ People in STEM

<https://www.liverpoolmuseums.org.uk/stories/lgbtq-people-stem>

Institute for Stem Cell & Regenerative Medicine

Celebrating LGBTQ+ Scientists

<https://iscrm.uw.edu/celebrating-lgbtq-scientists/>

National Organization of Gay and Lesbian Scientists and Technical Professionals, Inc.

Queer Scientists of Historical Note

<https://www.noglstp.org/queer-scientists-history-rev2014-web.pdf>

APS

Profiles of minorities in physics

<https://www.aps.org/programs/minorities/profiles.cfm>

**STEM for ESL/ELL students:**

EdSurge

Seven Steps to Ensure English Learners Aren’t Left Out of STEM

<https://www.edsurge.com/news/2019-02-14-seven-steps-to-ensure-english-learners-aren-t-left-out-of-stem#:~:text=Obstacles%20to%20English%20learners%20participating,appropriate%20instruction%20in%20the%20field>.

Resilient educator article

Making STEM courses attractive for ESL students

<https://resilienteducator.com/classroom-resources/making-stem-courses-attractive-for-esl-students/>

National Academies

Video & consensus report

<https://www.nationalacademies.org/our-work/supporting-english-learners-in-stem-subjects>

Busy Teacher

A list of ideas

<https://busyteacher.org/25720-bringing-stem-to-the-eslell-classroom.html>

Smithsonian Science Education Center

English Learners in STEM – videos, etc.

<https://ssec.si.edu/english-learners-stem>

STEM teaching tools

Article & ideas

<https://stemteachingtools.org/brief/27>

NCELA

Integrating Language While Teaching STEM - resource

<https://ncela.ed.gov/files/briefs/TeachingPracticeBrief-Science-06292020-508.pdf>

**Making STEM more accessible (general):**

ellii

Resources for K-12, emphasis on accessibility.

<https://ellii.com/blog/stem>

ACS article

Decolonizing the undergraduate chemistry curriculum: an account of how to start

<https://pubs.acs.org/doi/10.1021/acs.jchemed.1c00397>

Edutopia article – turning STEM into STEAM, also includes a couple of articles on making STEM more inclusive.

<https://www.edutopia.org/groups/stem-education/777181>

**Organizations with resources for engaging more minorities & fostering careers**

Pioneer Valley Women in STEM

Regional network of women in STEM

<https://www.pvwis.com/>

Sigma Xi

Sigma Xi is a scientific research society & is geared more towards helping undergraduate & graduate students. Although their full content is only available to members, they do have many resources on their website, including articles about the Women in STEM Project, gender equity, engaging more African Americans in STEM, etc.

<https://www.sigmaxi.org/programs/critical-issues-in-science/diversity>

AIP, American Institute of Physics

The organization does focus more on undergraduates & graduates, but may provide insight &/or role models for younger students. They also are committed to providing scholarships, etc. for minorities.

<https://www.aip.org/diversity-initiatives>

APS

Minorities in physics resources, includes information about the Bridge program

<https://www.aps.org/programs/minorities/>

CIO: 20 professional organizations focused on diversity in tech

Article & list of organizations for BIPOC & LGBTQ+, some of which also have workshops, etc. for students.

<https://www.cio.com/article/193688/professional-organizations-focused-on-diversity-in-tech.html>

IAU Women in Astronomy

Resources for & about women in astronomy

<https://www.iau.org/science/scientific_bodies/working_groups/122/womeninastronomy/>

TODOS

Mathematics for ALL (focus on Latina/o students, but committed to equity)

<https://www.todos-math.org/>

SACNAS

Society for Advancement of Chicanos/Hispanics and Native Americans in Science

<https://www.sacnas.org/>

A Guide for Minorities in STEM

Article & resources, mostly for college students.

<https://www.mastersindatascience.org/resources/a-guide-for-minorities-in-stem-increasing-workplace-diversity/>

NASA/NASA DIRECT-STEM

One link is for NASA’s minorities resources while the other is for a program. This program is more for incoming college students, but they focus on competitively training minority students.

<https://www.nasa.gov/centers/hq/library/find/bibliographies/minorities_in_science>

<https://www.calstatela.edu/centers/NASA_DIRECT_STEM>

Center for Online Education

Although it says “colleges”, many of the ideas & resources are applicable to middle & high school students as well.

<https://www.onlinecolleges.net/for-students/women-and-minorities-stem/>

National Association of Mathematicians

<https://www.nam-math.org/>

Woods Hole’s list of engineering & science organizations serving minoritized populations

<https://web.whoi.edu/cdi/minority-science-organizations/>

Pathways to Science

This list features high-school through undergrad summer programs, research opportunities, & funding. Most of them prioritize minority students.

<https://www.pathwaystoscience.org/urm.aspx?sort=region&subsort=Northeast>

FOSSI

This program provides scholarships & opportunities to STEM students at HBCUs.

<https://www.americanchemistry.com/chemistry-in-america/chemistry-sustainability/diversity-inclusion/future-of-stem-scholars-initiative-fossi>

List – organizations which support BIPOC in STEM

Some of the organizations listed do outreach to elementary & middle school as well as high school & college students.

<https://ripplematch.com/insights/11-professional-organizations-that-support-people-of-color-in-stem-e7b9ac6b/>

Professional organizations for minorities in STEM

This list encompasses many types of minorities.

<https://sites.centre.edu/stemresources/2021/08/05/professional-organizations-for-minorities-in-stem/>

NSF reports on women, minorities & persons with disabilities in S&E

<https://www.nsf.gov/statistics/women/>