Engaging Girls in STEM

A resource list originally created for and shared on NASA's Museum Alliance website. (https://informal.jpl.nasa.gov/museum/)

STEM Careers/Women at NASA

- Visit women.nasa.gov for interviews of diverse women of NASA, discussing their careers and how they got to where they are, plus more resources like printable factsheets and handouts.
- Short, peppy video linking students' current interests with potential NASA careers.
- Interviews with and links to more info on women in Planetary Science.
- Articles, guest blogs by women working with NASA's Chandra x-ray observatory.
- How to request NASA speakers/Astronauts.
- How to request Solar System Ambassadors.

NASA Competitions and Challenges

- Bookmark this page for the latest student opportunities.
- The crowdsourcing community is invited to create the most innovative, efficient and optimal solutions for specific, real-world challenges being faced by NASA.

NASA Internships, Fellowships and Scholarships

- http://www.nasa.gov/audience/forstudents/stu-intern-curr-opps.html
- https://intern.nasa.gov/ossi/web/public/main/

Girl Scouts

- Information on astronauts who were Girl Scouts, how to get NASA recognition for earning a Gold Award, printable poster featuring Space Shuttle missions crewed by former Girl Scouts, etc., can be found here and here.

Videos

- SciGirls episode (26 minutes) with real girls conducting investigations, mentored by female scientists: light pollution and validating satellite data on clouds.

Women in Astronomy

- Extensive listing of books, bios and links.

Engaging Girls

Based on research into girls' engagement with STEM, these approaches (the "SciGirls Seven") have, unsurprisingly, been shown to benefit all learners.

1. Girls benefit from collaboration, especially when they can participate and communicate fairly.
2. Girls are motivated by projects they find personally relevant and meaningful.
3. Girls enjoy hands-on, open-ended projects and investigations.
4. Girls are motivated when they can approach projects in their own way, applying their creativity, unique talents, and preferred learning styles.
5. Girls' confidence and performance improves in response to specific, positive feedback on things they can control—such as effort, strategies, and behaviors.
6. Girls gain confidence and trust in their own reasoning when encouraged to think critically.
7. Girls benefit from relationships with role models and mentors.

Hands-on Activities

- The Explore! program engages children in space and planetary science. Flexible with inexpensive, easy to find materials.
- It's easier to have a portable planetarium than you think! In this program, kids create their own constellations and mythology.
- This free app guides families through hands-on activities to investigate and learn about the Sun together.

These fun design challenges require creative, collaborative problem solving, and use simple materials:

- Build a shock absorbing system to keep your astronauts safe
- Use limited resources to create a tower
- Zip your marbles down the line - and land them on the target
- Create a soft landing for your craft
- Build and operate a robotic arm
- Launch a payload

Policy/Research/Institutional Practices

- https://www.whitehouse.gov/administration/eop/ostp/women
- http://missionstem.nasa.gov/
- http://www.aauw.org/what-we-do/stem-education/

Continue the Learning At Home

- Printable "Connect With NASA" handout for the public