Astronomy/Astrophysics Resources for Libraries Interested in Participating in NASA Science4Girls and Their Families
Updated January 2014

Hands-on activities:

- NASA Wavelength: http://nasawavelength.org
  - A searchable database of NASA-developed science education activities
- Star_Net: http://www.starnetlibraries.org/starnet.html
  - This site contains science and technology-related activities and resources for libraries. There is also an online community you can join.
- Space School Musical: http://discovery.nasa.gov/musical/index.cfml
  - Students learn about the solar system through song, dance, and hands-on activities. Suitable for a variety of learning environments, including afterschool.
- MicroObservatory:
  - This is an ideal partnership for Libraries, because you will learn how to give your public audiences access to the *MicroObservatory* online robotic telescope network through the Observing With NASA guest observer web portal. You and your audiences can use this online interface to take and colorize your own images of stars and galaxies the same way that professional astronomers do. Find out how to run workshops that result in exhibitions of original visitor-created astro-photography displays with captions, poems, and 3D models. Observing with NASA DIY Astrophotography workshops combine science, art, and language arts; appeal equally to girls and boys; and are great for family audiences too.
    Partner Organization: Harvard-Smithsonian Center for Astrophysics (CfA), Cambridge, MA
    Website: http://mo-www.cfa.harvard.edu/MicroObservatory/
- *Explore!*
  - The Lunar and Planetary Institute's *Explore* program is designed to engage children in space and planetary science in libraries and other out-of-classroom environments. *Explore* investigations encompass lunar exploration; the planets Earth, Jupiter, and Mars; rockets; health in space; and more. Since its inception over a decade ago, the Explore program has grown to support a community of nearly 800 individuals in 34 states – all trained to bring space and planetary science to their children's and youth programs. Modules, workshops, and webinars are funded by the National Science Foundation and NASA.
    Some key features of *Explore* include:
    • Everything a facilitator needs to conduct a science program, FREE for educational use
    • Flexible
    • Inexpensive, easy to find materials
    http://www.lpi.usra.edu/explore

Exhibits and Displays:

- Visions of the Universe
    - The "Visions of the Universe: Four Centuries of Discovery" exhibit is a traveling exhibit produced by the Space Telescope Science Institute in partnership with the American Library Association and the Harvard Smithsonian Center for Astrophysics. Initially developed and disseminated in celebration of the International Year of Astronomy, the "Visions of the Universe" exhibit portrays how humanity's views and understanding of the universe have changed over the past 400 years. It features six double-sided panels that address topics such as storms on the Sun, Saturn's rings, the nature of comets, star birth, and distant galaxies. In addition, the exhibit is supported by a connected suite of educational resources. Full-sized copies of the "Visions of the Universe" exhibit are available for loan free-of-charge (except for shipping costs) to libraries interested in hosting the exhibit for 3 months or more. In addition, poster-sized versions of the exhibit panels are available in a downloadable, PDF format at http://amazing-space.stsci.edu/visions/.
      For more information, contact Holly Ryer at hgreat@stsci.edu.
- Stop For Science
    - An ISE poster series for ages K-6 with a facilitator guide that is being used in libraries now. It is designed to pique student interest in science concepts and their application to the world in which we live.
      http://chandra.harvard.edu/edu/stop/
- From Earth to the Solar System (FETTSS)/From Earth to the Universe (FETTU):
    - These 2 traveling exhibits are going or have gone to libraries, are aimed at families and have bilingual English/Spanish text as well as suggested activities. The team has exhibits that could be loaned to specific libraries in 2013 and beyond.
      fettss.arc.nasa.gov/
      http://www.fromearthtotheuniverse.org
- Here, There, and Everywhere:
    - A new ultra-portable traveling exhibit (that also has a product series of posters/handouts) launched in the spring of 2012 that compares everyday phenomena/physical processes with earth science and space science through visuals and metaphors. This is also aimed at families, displayed at libraries (among other public science venues), and is bilingual English/Spanish. One of the key features of HTE is that it offers the relevance factor (to everyday life/situations) that has been mentioned in some research on engaging women in science.
      http://hte.si.edu
      The Here, There, and Everywhere team has developed an activity kit that educators, volunteers, or docents can use to interact with families or students visiting the exhibit or posters. Use of these activities in addition to the exhibit or posters has been a big draw for host institutions.
- Constellations: Wonders Within

- Four hundred years ago, Galileo turned his telescope to the sky and forever changed how humanity views its place in the cosmos. Since then, astronomers have been building telescopes both in space and on the ground -- to help further our understanding of the Universe. This series of posters represents some of the most dramatic images made by combining data from the best of modern telescopes. Posters can be downloaded and printed out; website also has activities. http://chandra.harvard.edu/resources/handouts/constellations/

Information / General resources:

- NASA's Scientific Visualization Studio: http://svs.gsfc.nasa.gov
  - Find visualizations and animations about a variety of NASA topics and missions. Search by keyword.

Best practices for engaging girls in STEM:

- SciGirls Seven: http://scigirlsconnect.org/page/scigirls-seven
  - Research-based, proven strategies plus a guide to modifying existing activities to incorporate the strategies.

Career Profiles (http://smdepo.org/post/4909)

- http://women.nasa.gov/ - general, women who work in all aspects of NASA
- http://solarsystem.nasa.gov/people/index.cfm - Profiles of both men and women from planetary, Earth, and Astrophysics backgrounds.
- Chandra has some "Women the High-Energy Universe" profiles on our blog at http://chandra.si.edu/blog/women , and in litho form.
- http://www.sheisanastronomer.org/index.php/profiles - Profiles of women astronomers
- http://www.astrosociety.org/education/astronomy-resource-guides/women-in-astronomy-an-introductory-resource-guide/ - Resources on historical and current female astronomers. Provides individual bibliographic sources on each figure
- http://www.womanastronomer.com/women_astronomers.htm - Q&A with several prominent women astronomers

Remote Speaker Engagements (http://smdepo.org/post/4900)

- Looking for a speaker for a library event? Check out these **Speakers Bureaus**:
  - **NASA**: http://www.nasa.gov/about/speakers/ Find scientists from your regional NASA center.
  - **JPL Solar System Ambassadors**: http://www2.jpl.nasa.gov/ambassador/directory.htm A public outreach program in which volunteers communicate the excitement of JPL's space exploration missions and information about recent discoveries to people in their local communities.