



EDUCATION AND PUBLIC OUTREACH



Higher Education

The Global Telescope Network, in partnership with the AAVSO, is a consortium of ground-based telescopes used by amateur astronomers, high school and college students to support space-based observations with Fermi, Swift, and XMM-Newton.

<http://gtn.sonoma.edu>

Cosmology Course: A new curriculum in cosmology is being created for students at the Introductory Astronomy level. This three-year project will start its first pilot testing in January 2011.

Informal Education

The Gamma-Ray Burst (GRB) Website has a real-time map displaying GRB locations in the sky with additional information about ground-based follow-up and satellite observations. <http://grb.sonoma.edu>

Epo's Chronicles: Set in the future, the weekly story of Alkina and her spaceship Epo takes readers on adventures across our galaxy. Each episode contains science information and interesting facts told through an engagingly illustrated story.

<http://eposchronicles.org>

Space Mysteries are web-driven, inquiry-based games that are aligned to national science and mathematics standards. Students have fun while learning and trying to solve the mysteries. <http://mystery.sonoma.edu>

Night Sky Network: In partnership with the Astronomical Society of the Pacific and JPL, the E/PO group helps support amateur astronomers through development of toolkits for outreach to the public.

Outreach

The *Fermi*, *Swift*, *XMM-Newton* and *NuSTAR* missions each have E/PO websites which contain all of our published materials, guides, activities, and presentations as well as links to the mission websites, press releases, and other valuable information.

We also attend science and education conferences around the country and do numerous public lectures on mission-related topics such as gamma-rays and black holes. In addition, the group is involved in several collaborative projects organized by the Astrophysics Forum.

Our Missions

Fermi Gamma-Ray Space Telescope is an international and multi-agency mission launched on June 11, 2008. <http://fermi.sonoma.edu>

Swift is a NASA gamma-ray Explorer satellite, launched on November 20, 2004. <http://swift.sonoma.edu>

XMM-Newton is a European Space Agency X-ray spectroscopy observatory launched in December 1999. <http://xmm.sonoma.edu>

NuSTAR is a hard x-ray focusing telescope in preparation for launch in 2012. <http://www.nustar.caltech.edu/education-outreach>

Elementary & Secondary Education

The Active Galaxy Pop-up Book, expands to reveal a 3-D active galaxy; has an accompanying comic strip on the back and a fold out activity where students in grades 3-8 can build, and eat a model of a galactic black hole before it eats them!

Newton's Laws of Motion poster set: one for each of the three laws of motion and a fourth for Newton's Law of Gravitation; each poster is beautifully illustrated and includes standards-aligned classroom-tested activities for grades 6-9.

The Invisible Universe: from Radio Waves to Gamma-Rays teaches the electromagnetic spectrum to students in grades 6-9. This guide was developed in partnership with the GEMS group at the Lawrence Hall of Science.

The Supernova Education Unit includes classroom activities, background materials and a science literacy extension, for grades 7-14.

The TOPS Educational Guides are a set of three guides created in partnership with TOPS Learning Systems. The guides, "Far Out Math," "Scale the Universe," and "Pi in the Sky" introduce students to the science and technology of Fermi while teaching 6-12 grade basic mathematics and astronomy concepts.

The Active Galaxies Education Unit and the Gamma-Ray Bursts Education Unit each include three classroom activities and a beautiful poster for grades 9-14.

Astrophysics Educator Ambassador (EA) Program: Master Teachers from around the country have been selected to help develop, test and disseminate our classroom materials nationwide.

After-School Clubs: The E/PO group engages local underserved students with after-school science clubs at public charter schools focusing on astronomy and robotics. E/PO staff meet weekly with students at Roseland University Prep (grades 9-12, in partnership with MESA) and with two different groups of students (grades 1-3 and 4-6) at Windsor's Cali Calmeac dual-immersion school.



<http://epo.sonoma.edu>