

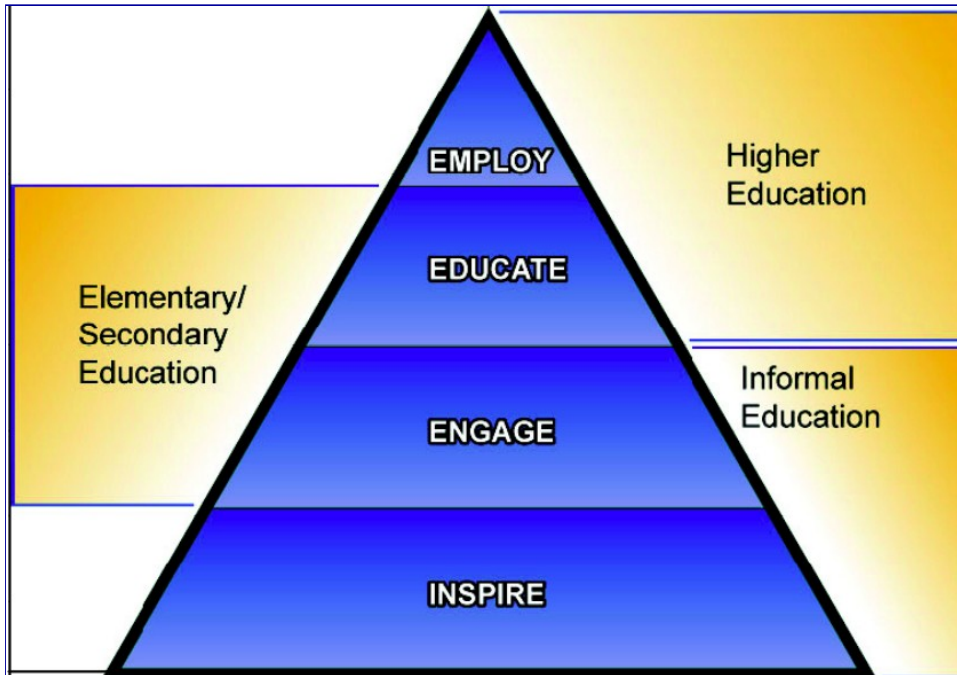


XMM-Newton Education and Public Outreach Program

Lynn Cominsky
Sonoma State University
May 22, 2009



NASA Education Framework



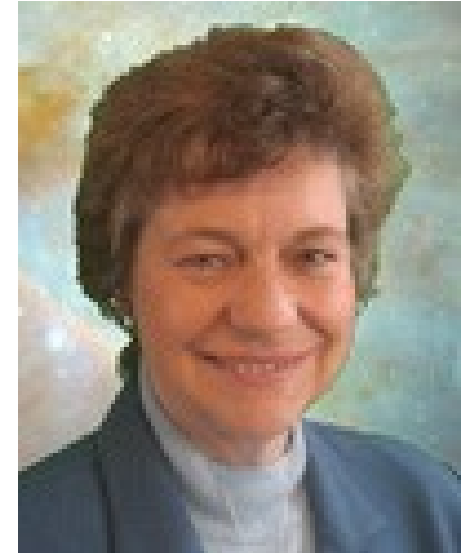
- Informal education and public outreach
- Elementary & Secondary education
- Higher Education

Emphasis on workforce development for under-represented populations



Educator Ambassadors

- XMM-Newton supports 2 Educator Ambassadors
 - New Educator Ambassador is Neta Apple
 - Night Sky Network Coordinator and the Education Committee Chairperson for the Astronomical Society of Kansas City
 - She started with the training on July 28-Aug 1, 2008 at SSU, has already given 4 presentations to students, teachers and the public



- Training materials online from Summer 2008:
<http://epo.sonoma.edu/ea/training2008/index.php>
- Included 2 day mini-workshop on the Dark Universe, Supernova Educator Unit and more!



Educator Ambassadors

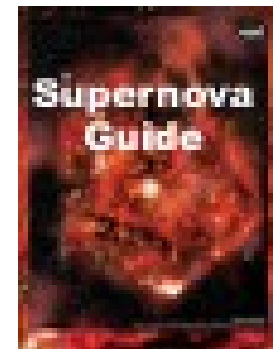
- Christine Royce, Ed.D. is our original XMM-Newton Educator Ambassador
- Assistant Professor of Education at Shippensburg University in PA
- Recently elected to the NSTA Board of Directors as Professional Development Director and Committee Chair (2009 – 2012)
- Previously NSTA Director for District IV
- XMM-Newton workshops and talks have directly reached over 385 students, teachers, and members of the general public through 10 talks and workshops since May, 2008 (for a total of over 4100 participants in over 60 presentations since 2002)





Supernova Education Unit – with Fermi

- 50-page full-color Educator's Guide
 - Background information for the teachers and students
 - Fishing for Supernovae (grades 7-8)
 - Separate file for card images
 - Crawl of the Crab (grades 9-12)
 - Electronic version and animation
 - Paper and pencil version
 - Magnetic Poles and Pulsars
 - Scientific Literacy Activity
 - Math and science standards alignment information
 - Assessment rubrics for all activities
- Approved by NASA Product Review 8/08
- <http://xmm.sonoma.edu/edu/supernova/index.html>





Some (positive) reviews

- The materials emphasize effective instructional practices and provide for an experimental or constructivist approach to learning.
- The materials do a good job of trying to involve a number of different processes (reading, analysis and synthesis).
- The magnetic globe and the “Crawl of the Crab” will engage students at multiple levels.
- The focus on “Data first, conclusions second” is excellent.
- The materials do a good job using learning technologies (Excel, image software, websites and video).



Some (positive) reviews

- The packet is replete with suggestions of further research opportunities.
- Great emphasis on science as inquiry and problem-centered tasks and very hands on.
- The narrative is well written and represents scientific reasoning in a realistic way.
- Great job of zeroing in on the appropriate age levels for the activities.
- The references are ordered by activities, which is very useful for both the teachers and the students.
- A reviewer noted “Teachers will love the activities and all the explanations. There is a clear explanation on what standards are met with each activity.”



Supernova Educator Workshops

- Developed by Cominsky and McLin for Educator Ambassador training in July 2008
- Workshop presentation online at:
<http://xmm.sonoma.edu/presentations>
- New workshop features two activities:
 - Crawl of the Crab
 - Make your own Pulsar
- Given also at CSTA in November 2008
- Approved for CSTA in October 2009



After-school programs

- **Roseland University Prep**
 - 20+ graduates came to SSU in Fall 2009
 - >90% Hispanic, low-income
 - After-school club since 2005
- **MESA Schools Program**
 - 2 After-school clubs at Cali
- **MESA Engineering Program**
 - Now established at SSU
 - Hosted Robotics conference in May 2009



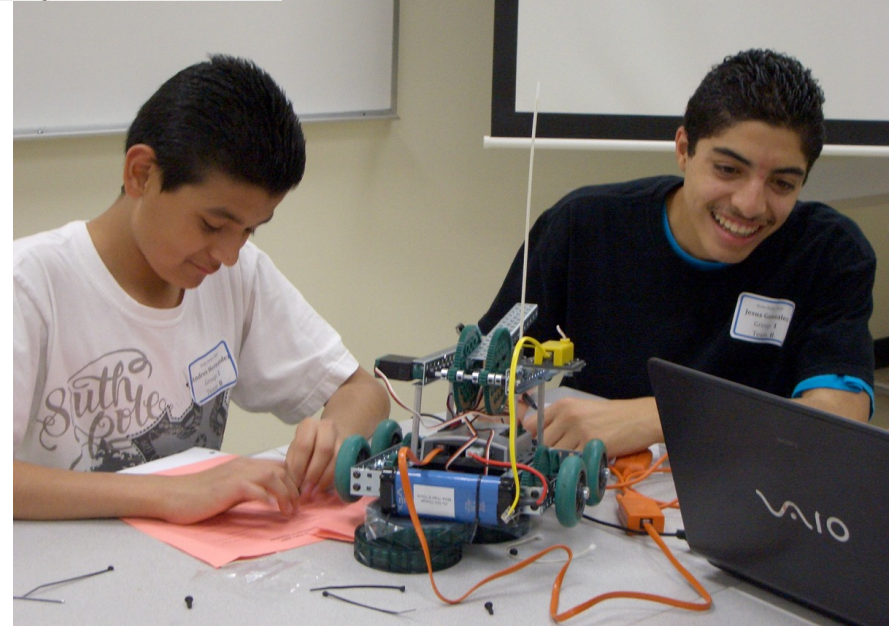
Logan Hill w 4th thru 6th graders at Cali Calmecac



RUP students at MESA day



Robo Rally photos





eXtreme Universe Planetarium Show

- For portable (inflatable) Planetaria
- Planetarium show student manual and teacher's guide already completed (long ago.)
- Beta test version was piloted but we were not happy with it – we are redoing it yet again, this time with the help of former EA Tom Estill, who will come to SSU this summer on detail from GSFC



Plans for 2008/9

- After-School Programs with Under-represented Students
 - Continue work with Cali and RUP students - DONE
 - Start MESA chapter at SSU - DONE
- Expand work with MESA to local community colleges and MESA schools program - DONE
- Develop new workshop for Supernova Education Unit and train EAs during July 2008, also using SUPERNOVA! Toolkit - DONE
- Reprint rulers if funding allows – *Will be done in 2009*
- Get second EA on board again, train in July 2008 -DONE
- Finish planetarium show, write script. – NOT DONE



E/PO Summary

- **XMM-Newton E/PO is exciting the public and students of all ages**
- **Supernova Educator Workshops now in progress using approved guide**
- **Over 4100 teachers have been trained in 6 years by XMM-Newton Educator Ambassadors**
- ***Remaining undone item - portable planetarium show***