XMM-Newton Education and Public Outreach Program

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NASA Education Framework

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

Emphasis on workforce development for under-represented populations
• 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:
• 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/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
• 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**