



# NASA's EPOXI Mission E/PO Program

L.A. McFadden<sup>1</sup>, T. Livengood<sup>1</sup>, J. Ristvey<sup>2</sup>, E.M. Warner<sup>1</sup>,  
<sup>1</sup>U. Maryland, College Park, MD, <sup>2</sup>McREL, Denver, CO

<http://epoxi.umd.edu>

## Goals:

- **Inspire** the next generation of scientists and engineers through the study of comets and the planets of other stars, including possibly Earth-like planets.
- **Engage** educators, students and the general public in scientific inquiry and problem-solving through EPOXI mission science and engineering concepts.

## Objectives:

- **Communicate** the excitement of discovery and the mission science and engineering concepts to formal and informal educators, students, and the general public through a dynamic web site that leverages existing materials from the Deep Impact mission, an electronic newsletter, and national outreach programs.
- **Develop and revise** instructional materials comparing comets and searching for Earth-like planets around nearby stars that are aligned with national Science, Technology, Engineering and Math (STEM) standards and utilize research-based instructional strategies that are relevant to today's students.
- **Deliver** mission science and educational materials through a dynamic web site, public family programs, and professional development using existing national networks that reach underserved populations.
- **Conduct** formative and summative evaluation to ensure that the entire EPOXI E/PO program objectives are met and that improvements to its components can be made. An evaluation of *Family Science Night* has been conducted.

## Family Science Night



Students, teachers, and families engage directly with mission science and engineering concepts through *Family Science Night* (FSN) at the National Air and Space Museum. Audiences come from schools with high percentages of minority and underprivileged enrollment. Participation rates fulfill goals to reach underserved communities.



FSN each year brings ~2500 to the National Air and Space Museum after-hours to hear an exciting space science talk and to see an IMAX film. Presenters are scientists with a talent for communication. Teachers interact closely with FSN staff to select a talk and film supporting curriculum and education goals.

*"I'm a teacher; we had a fantastic time! The kids have been full of information and reaction all day."*

*"[Parents] really enjoy getting to learn with their kids and be part of that experience. What a neat program -- the speakers are engaging and it's age-appropriate for the students."*

from Magnolia Consulting's independent evaluation



## Educational Materials

Aligned with national science and mathematics standards and designed for formal and informal education (K-12, afterschool), EPOXI education brings real-world examples of problem-solving and teamwork to educators and students.

### PlanetQuest



[http://planetquest.jpl.nasa.gov/resources/resources\\_index.cfm](http://planetquest.jpl.nasa.gov/resources/resources_index.cfm)

A student guide contains four hands-on activities: *Looking for Planets Without Seeing Them*; *Measure a Tree*; *Measure the Earth*; and *Measure the Galaxy*. Each activity includes both a student page and a teacher page.

### Comet on a Stick



<http://epoxi.umd.edu/5education/index.shtml>

The "Comet on a Stick" activity can be used with a wide age range of students, who examine their understanding of comets by designing and building a model from readily available art and craft supplies. The activity provides an opportunity for students to emulate a process that scientists and engineers follow on all missions.

## Other Activities



**EPOXI Education Overview: Observing Our Neighbors, Near and Far**

Requesting the Deep Impact spacecraft to visit Comet Tempel 1, EPOXI includes comets as part of its mission. This activity is designed to help students understand the science of comets and the mission of EPOXI. It includes a student page and a teacher page.

**Comets**

- **Lighting Comets and Building Missions** - Students observe and analyze Comet Tempel 1.
- **Teaching with Stars and Comets** - Teaching with Stars and Comets is a hands-on activity that helps students understand the science of comets and the mission of EPOXI.
- **Comet on a Stick** - Students design and build a model of a comet.
- **Planet Finding** - Students use a model to find planets.
- **Requesting the Deep Impact** - Students use a model to request the Deep Impact spacecraft to visit Comet Tempel 1.
- **Teaching with Stars and Comets** - Teaching with Stars and Comets is a hands-on activity that helps students understand the science of comets and the mission of EPOXI.
- **Comet on a Stick** - Students design and build a model of a comet.
- **Planet Finding** - Students use a model to find planets.
- **Requesting the Deep Impact** - Students use a model to request the Deep Impact spacecraft to visit Comet Tempel 1.

## Website



<http://epoxi.umd.edu>

The EPOXI mission website serves as the primary vehicle for dissemination of project news and materials. It also links to existing materials on the Deep Impact and PlanetQuest websites.

## Newsletter

An electronic publication that typically includes a brief mission update, highlight of an educational module or other new or updated content on the website, and an observing challenge. There are currently almost 17,000 people subscribed. Past issues are archived on the website which also has subscription information.

## Amateur Observers' Program

Originally developed for the Deep Impact mission and also utilized by the Dawn mission to encourage observers to go out and observe the targets of NASA missions.

