

Staff Picks

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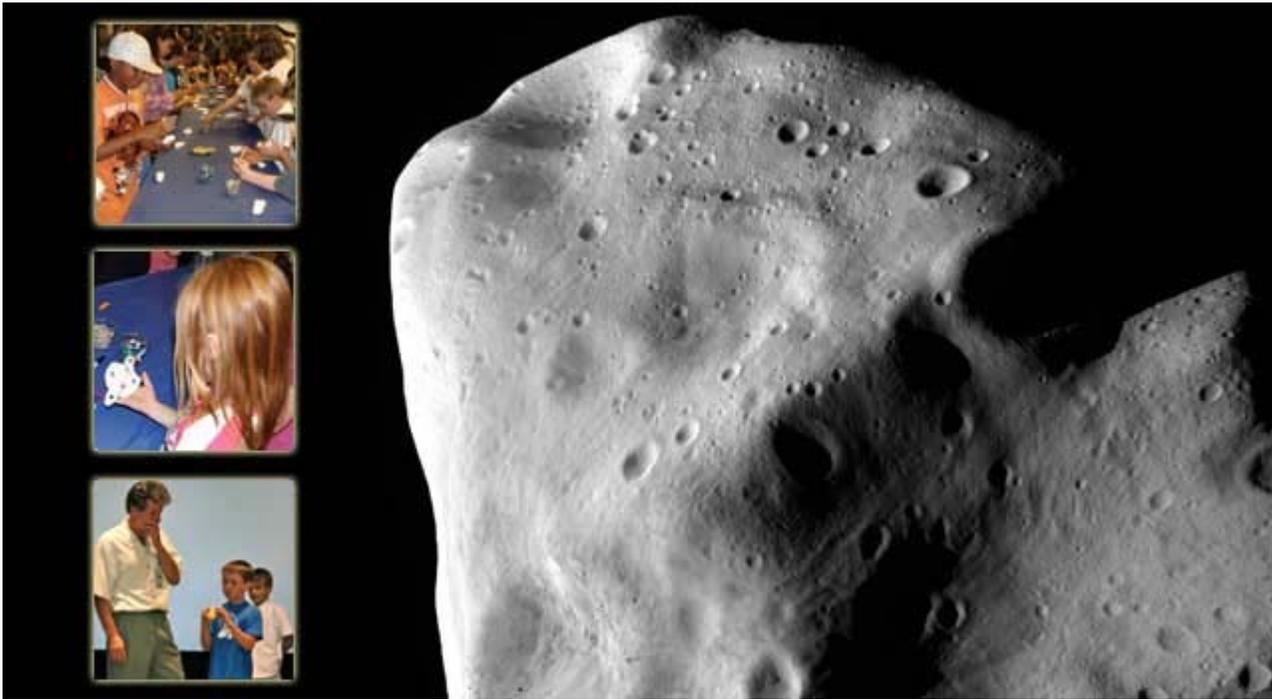
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Modeling Activity Complements Asteroid Encounter



This image is from the closest approach of the Rosetta spacecraft to the asteroid Lutetia at 3162 kilometers (about 1,965 miles). Image credit: ESA 2010 MPS for OSIRIS Team MPS/UPD/LAM/IAA/RSSD/INTA/UPM/DASP/IDA [More Lutetia images](#)

July 14, 2010

Students molded mounds of clay into tiny asteroids at NASA's Jet Propulsion Laboratory in Pasadena, Calif. on Saturday, July 10. This was one of several hands-on activities that highlighted the Rosetta spacecraft's successful flyby of asteroid Lutetia earlier that morning. The European Space Agency's Rosetta Orbiter, which includes several contributions from NASA, flew within 3,200 kilometers (a little less than 2,000 miles) of the asteroid.

NASA/JPL Rosetta Project Manager Art Chmielewski walked students through the flyby events and what scientists had gleaned so far from the data. "Even though the asteroid is one of the largest ones," explained Chmielewski, "there was very little known about it until this Saturday. The best pre-Rosetta flyby pictures consisted of only a few pixels. Lutetia turns out to be an elongated object about 130 by 80 kilometers (roughly 80 by 50 miles). It is heavily cratered, revealing a great number of collisions that must have taken place since its creation over four billion years ago. Scientists in Europe and the U.S. are currently analyzing the data to determine the type of asteroid, its composition, density and possibility of the existence of an exosphere, or thin atmosphere, around the object."

Chmielewski also led a number of educational activities, which are geared for students in grades 3 – 8. The following activity is easy and fun and can be led by non-science teachers and science educators alike.

Modeling an Asteroid

Materials:

Clay (preferably kid's crafting clay)
 Small pebbles
 Colored beads

Markers

Instructions:

1. Lead a discussion with students to explain that asteroids are rocky fragments left over from the formation of the solar system about 4.6 billion years ago. They can be cratered or smooth, and are generally made up of a variety of rocks, ice, dirt, dust and sometimes, as in the case of Lutetia, metal.
2. Have students mold the clay as they like and add pebbles, beads or other small materials. They can color the asteroids with markers.
3. Pull up images of real asteroids and ask students to compare their asteroids to real ones. Lutetia images can be found here: http://www.nasa.gov/topics/solarsystem/features/rosetta_images20100710.html. Other asteroid images are here: <http://www.jpl.nasa.gov/asteroidwatch/images.cfm> .
4. Explain that in many cases, scientists don't know precisely what makes up asteroids. This was the case with asteroid Lutetia. Scientists are currently studying data from the weekend's flyby to better understand its composition and other features.

The Rosetta mission will rendezvous with comet 67P/Churyumov-Gerasimenko in 2014. To learn more about NASA's role in the mission, go to <http://rosetta.jpl.nasa.gov/> . More information about Rosetta can also be found on the European Space Agency's site at <http://www.esa.int/SPECIALS/Rosetta/> . For more on asteroids and comets, go to <http://www.jpl.nasa.gov/asteroidwatch/asteroids-comets.cfm> .