

Deep Space-1



Deep Space 1 (DS1) was a pioneering spacecraft launched on October 24, 1998 as part of NASA's New Millennium Program. The primary goal of the spacecraft's mission was to test dozens of new including ion propulsion, autonomous optical navigation, a solar power concentration array, and a combination miniature camera-imaging spectrometer. and other groundbreaking technologies that were implemented in future missions, such as Dawn and New Horizons.

Even rovers have benefited from DS1's technological groundwork. NASA's Mars Curiosity rover occasionally uses autonomous navigation as it treks across the Martian surface.

The DS1 spacecraft's technological testing was successful and significantly contributed to decreasing risks and costs for later spacecraft. The mission surpassed expectations by also capturing up-close images of the asteroid 9969 Braille and Comet Borrelly as the spacecraft flew by.

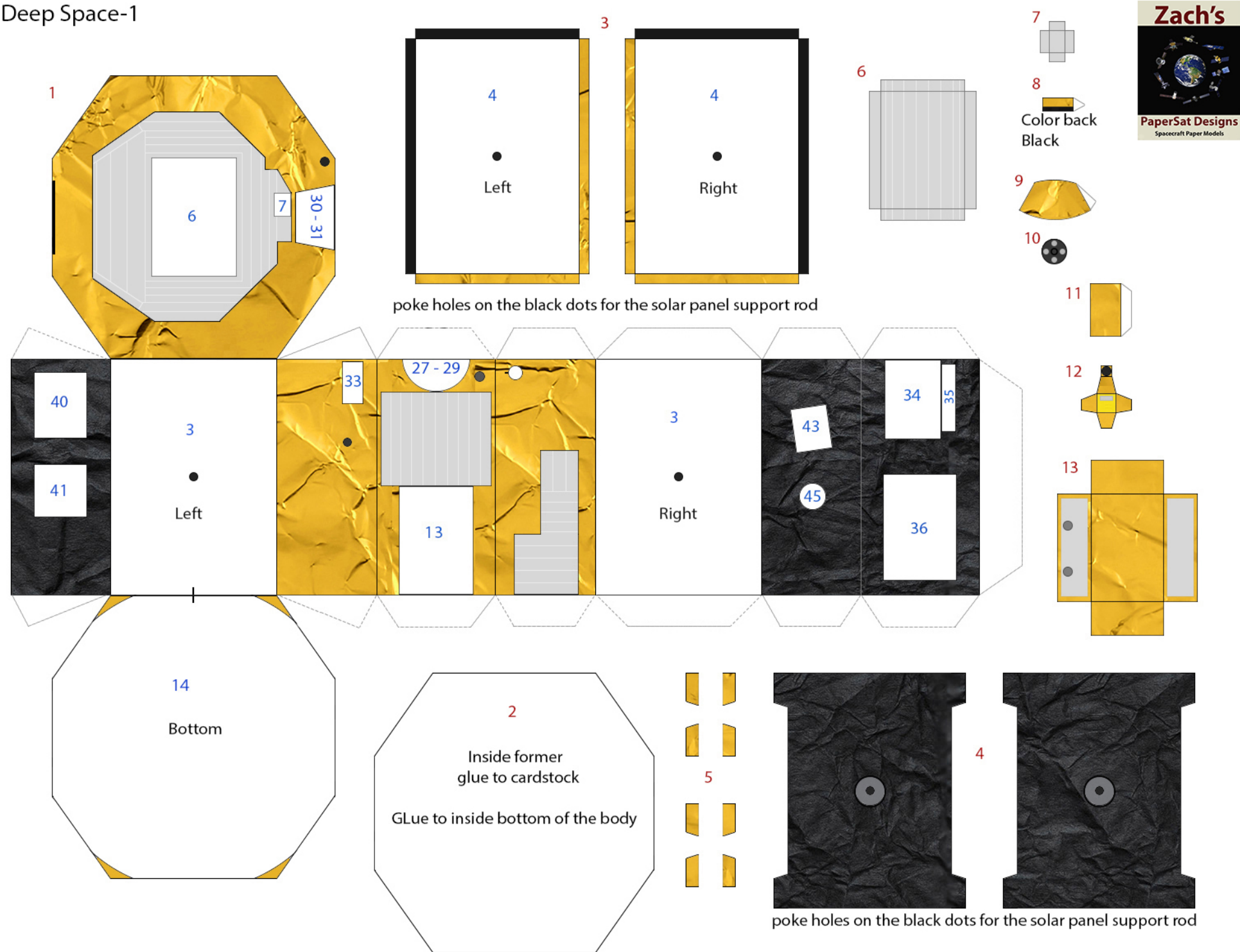
The success of Deep Space 1 set the stage for future ion-propelled spacecraft missions, especially those making the technically difficult journey to asteroids or comets, such as NASA's Dawn mission. Ion propulsion is a kind of solar-electric propulsion. It was the first spacecraft to rely on ion propulsion for its main source of thrust, rather than conventional chemical propulsion systems. Its technologies will help enable many ambitious space-exploring and Earth-exploring missions in coming decades.

On its way to Borrelly, it set the record for the longest operating time for a propulsion system in space. By Aug. 17, 2000, the engine had been operating for 162 days as part of an eight-month run. On Sept. 22, 2001, DS1 entered the coma of Comet Borrelly, making its closest approach of about 1,350 miles (2,171 kilometers) to the nucleus at 22:29:33 UT. Traveling at about 10 miles per second (16.58 kilometers per second) relative to the nucleus at the time, it returned some of the best images of a comet to date, as well as other significant data.

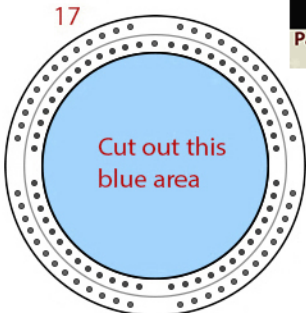
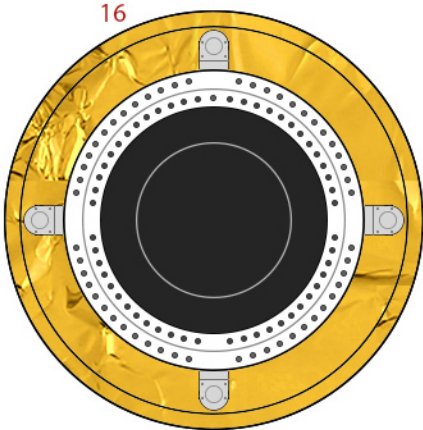
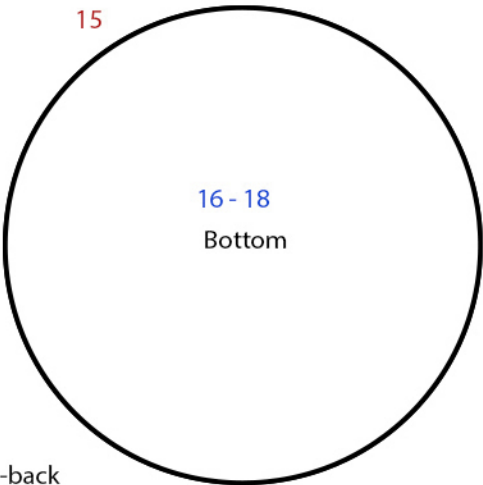
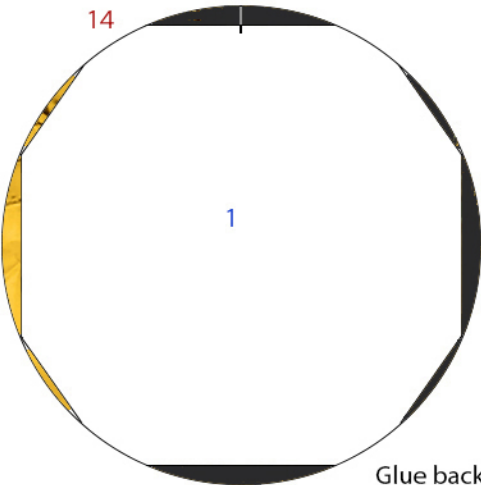
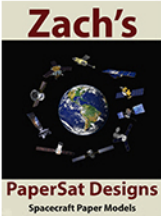
Deep Space 1 succeeded in its primary and secondary objectives, returning valuable science data and images. DS1's ion engines were shut down on 18 December 2001 at approximately 20:00:00 UTC, signaling the end of the mission. On-board communications were set to remain in active mode in case the craft should be needed in the future.

Today, DS1 continues to orbit the sun much like a planet, asteroid or comet. And, it carries with it a time capsule of sorts. In the late 1990s, before DS1's launch, NASA presented information to the Boys & Girls Clubs of America about what humans had accomplished in the preceding millennium. The youth were then invited to write or draw their views of the future. Over 800 of those sketches were recorded on a CD-ROM placed onboard the spacecraft, along with some personal thoughts and hopes of some of the people who worked on the mission.

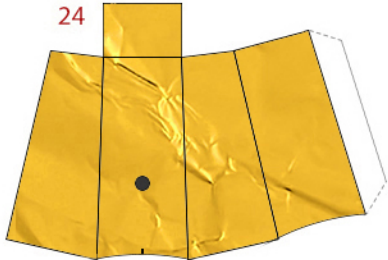
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Glue to cardstock



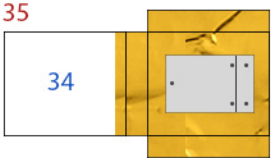
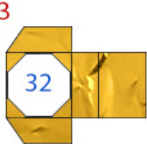
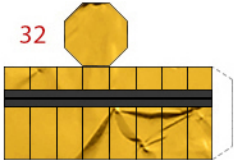
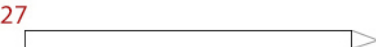
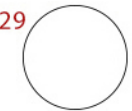
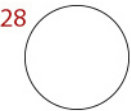
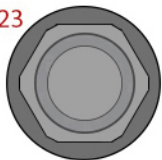
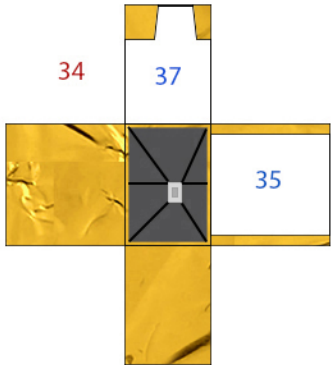
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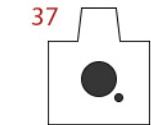
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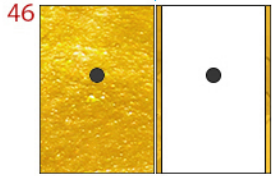
Color back Black



Deep Space-1



Color back Black



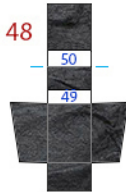
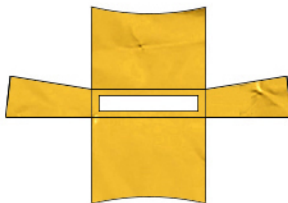
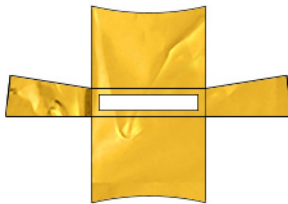
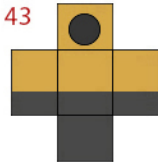
Fold-glue back-to-back



Glue to two layers of cardstock



Color back Black



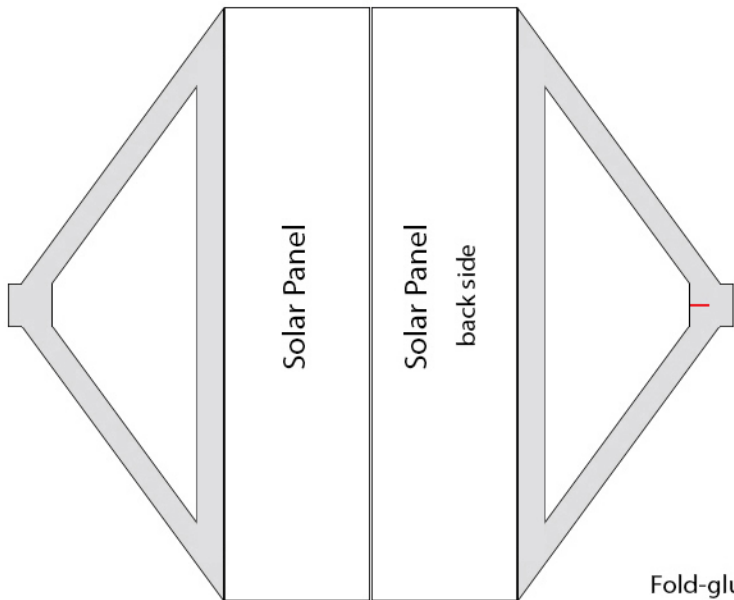
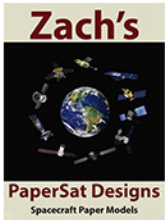
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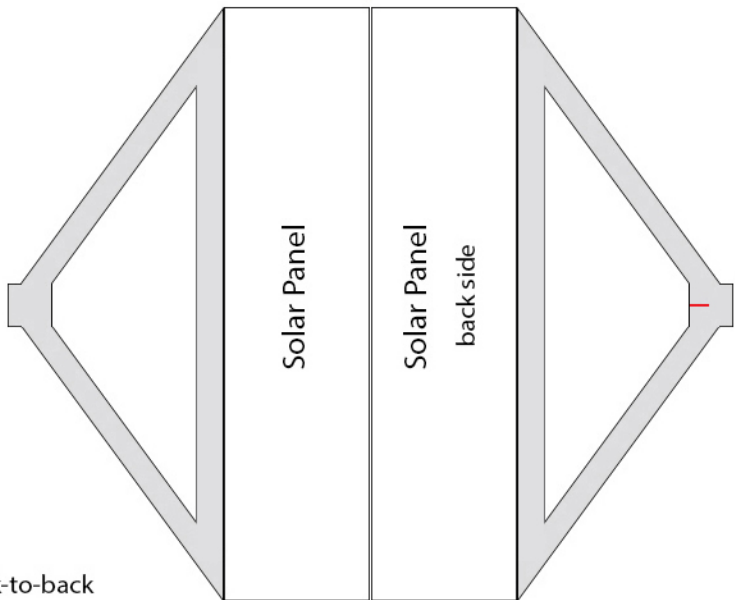
50



Glue these to cardstock color back and edges Black
Fold at the blue lines



51



Fold-glue each back-to-back

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Need thin music wire or similar material cut at the same length as the line below (9 inches) for solar panel support rod.

Zach's



PaperSat Designs
Spacecraft Paper Models

