

Transition Region and Coronal Explorer (TRACE)

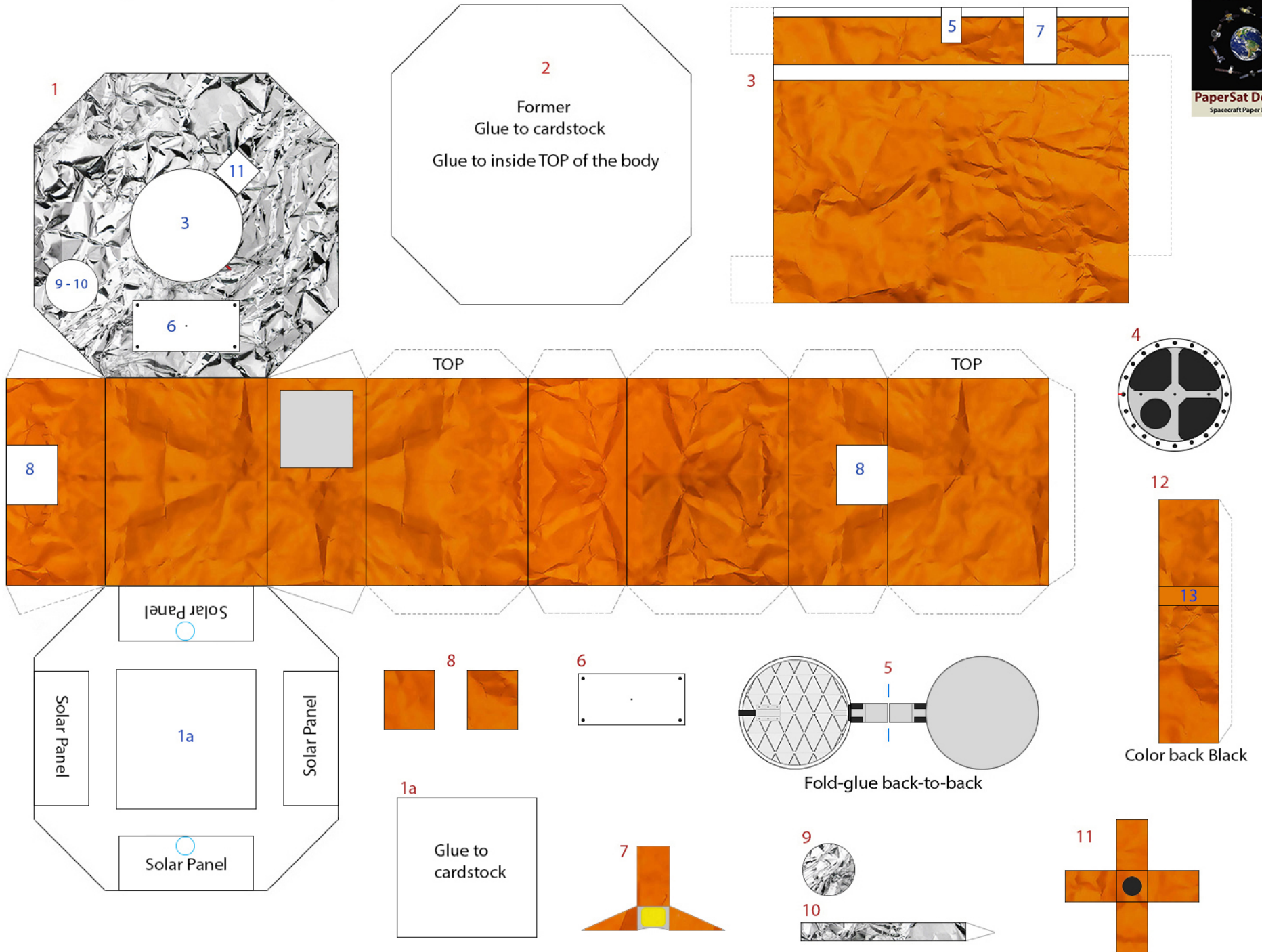


TRACE was a satellite mission designed to deepen understanding of our dynamic sun's activity, by exploring the connections between fine-scale magnetic fields and the associated grand-scale plasma structures on the sun. TRACE imaged the magnetic structures which emerge from the photosphere – the visible surface of the sun – and ultimately define the geometry and dynamics of the upper solar atmosphere, composed of the transition region and corona. Images of solar plasma taken in wavelengths emitted or absorbed by atoms and ions formed in different temperature ranges allowed observation of magnetic field geometry. By linking fine-scale and large-scale structures, TRACE highlighted the effects of the sun's magnetic field on its own atmosphere, and how these changes might affect the heliosphere.

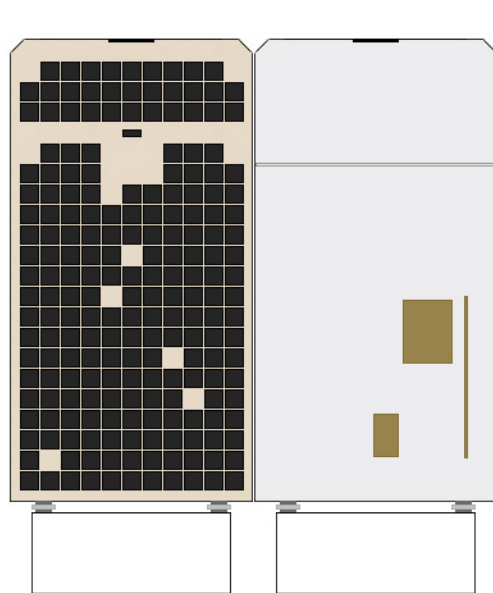
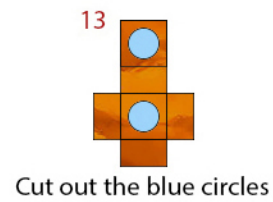
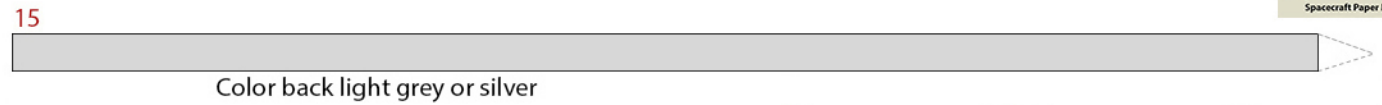
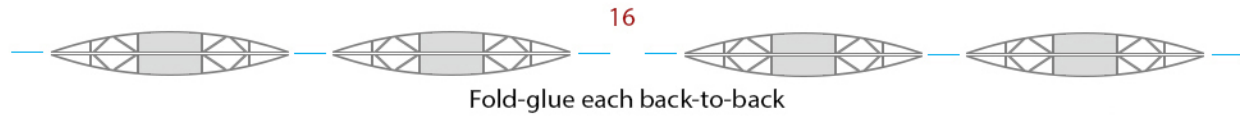
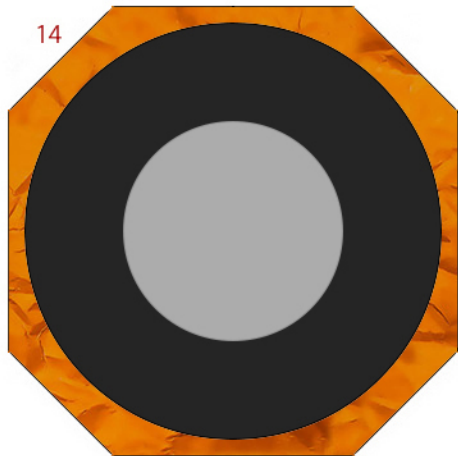
Launched on April 2, 1998, TRACE was the first mission to image an entire cycle of solar activity, studying the sun at both its turbulent maximum and demure minimum. The satellite observed some fine-scale structures for the first time as well, including coronal or solar moss, a sponge-like structure found at the base of some coronal loops. On June 21, 2010, TRACE took its last image, after millions of images before the last and 12 successful years in orbit.

TRACE is the first U.S. research mission with a completely open data policy. All data obtained by TRACE will be available to other scientists, students, and the general public shortly after it becomes available to the primary science team so that the general public can join NASA in its exploration of the solar atmosphere. This is now becoming NASA's standard data policy.

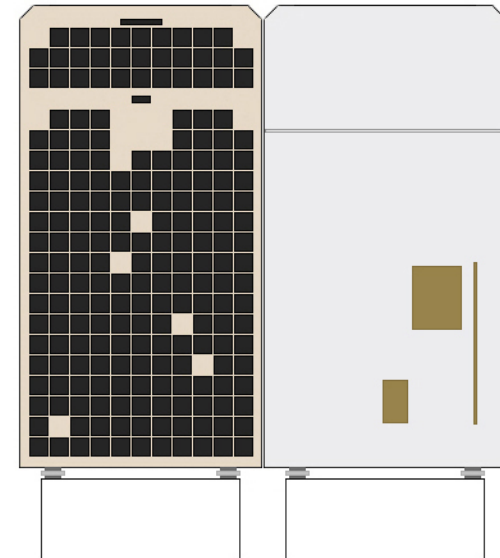
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Fold-glue each solar panel
(17 and 18) back-to-back



18

