

Venus Express



Venus Express was ESA's first spacecraft to voyage to our nearest planet; it was built around the design of Mars Express, making it quicker and cheaper to develop. It studied the planet's complex dynamics and chemistry, and the interactions between the atmosphere and the surface, which provided clues about the surface's characteristics.

It also studied the interactions between the atmosphere and the interplanetary environment (solar wind) to better understand the evolution of the planet. Venus Express also observed the Venusian atmosphere and clouds in unprecedented detail and accuracy.

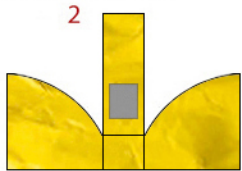
Launched in November 2005, it arrived at Venus in April 2006 and began continuously sending back science data from its polar orbit around Venus. Equipped with seven scientific instruments, the main objective of the mission was the long term observation of the Venusian atmosphere. The observation over such long periods of time had never been done in previous missions to Venus, and was key to a better understanding of the atmospheric dynamics. It was hoped that such studies can contribute to an understanding of atmospheric dynamics in general, while also contributing to an understanding of climate change on Earth. ESA concluded the mission in December 2014.

Many of the spacecraft's observations have focused on the structure, dynamics, composition and chemistry of the dense atmosphere and the overlying clouds. One of the most fascinating features is the swirling vortex at the planet's South Pole, which was found to be much more complex than previously thought. Venus Express showed that the internal structure of the vortex is highly variable, whilst its centre of rotation is located approximately three degrees of latitude away from the South Pole. The feature changes shape at least every 24 hours and drifts around the Pole over a period of five to 10 Earth days.

Other surprises included the discovery of a surprisingly cold region high in the planet's atmosphere that may be frigid enough for carbon dioxide to freeze out as ice or snow, the discovery of a high altitude ozone layer and a mysterious layer of sulphur dioxide far above the main cloud layer.

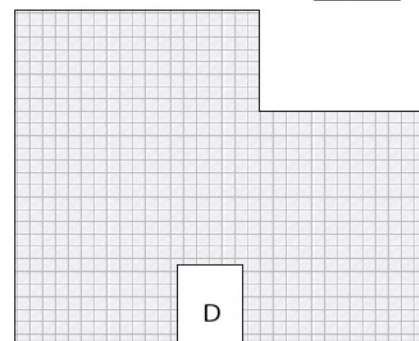
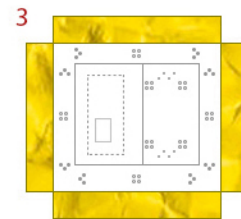
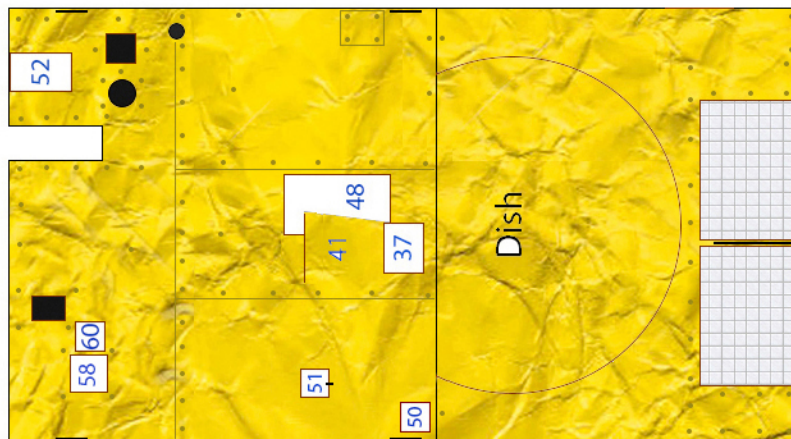
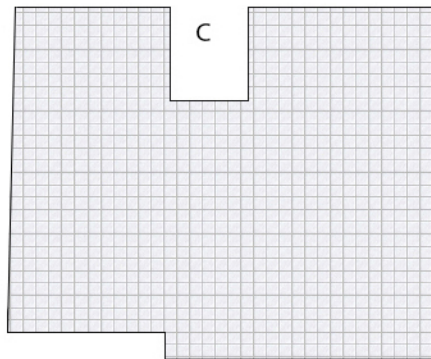
Some observations of the surface terrain were possible with the Visible and Infrared Thermal Imaging Spectrometer (VIRTIS). The data provide the best evidence to date that Venus has been volcanically active in recent geological times. In the upper atmosphere, enormous variations of sulphur dioxide have been discovered; on Earth, the only natural source of this gas is volcanic activity, so this variability provides tantalising hints that Venus' volcanoes are currently erupting.

Venus Express



Cut out all blue areas

Poke small holes on the two grey dots for the solar panel support rods.



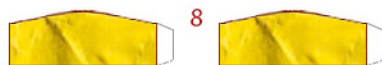
Color back Black



Glue to two layers of cardstock



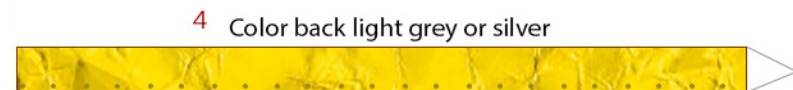
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Color back Black



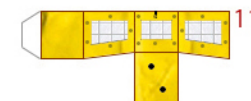
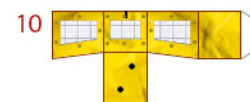
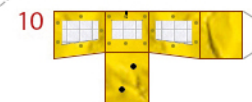
Glue to two layers of cardstock



Color back light grey or silver



E

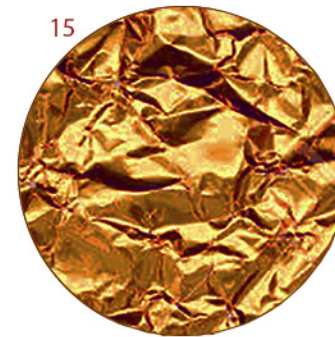
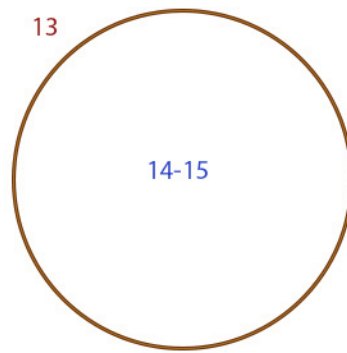
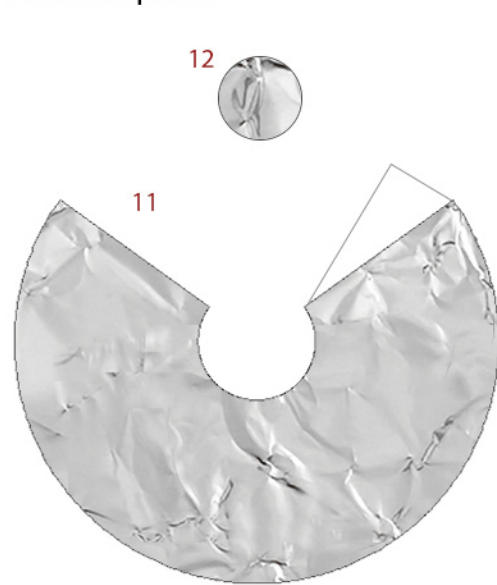


Zach's

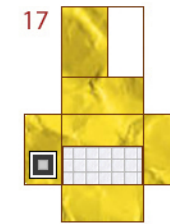


Spacecraft Paper Models

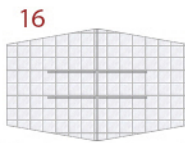
Venus Express



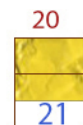
Inside
Glue to cardstock



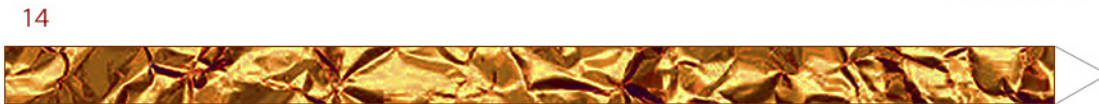
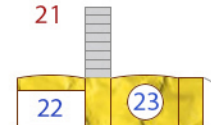
Color back light grey or silver



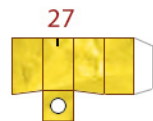
Fold-glue back-to-back



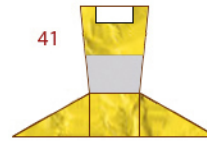
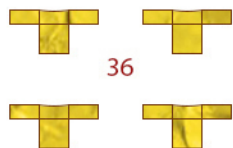
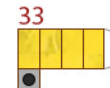
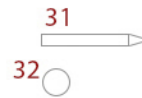
Glue to two layers
of cardstock



Roll-glue to a ring

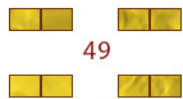


Cut pointed end of tooth
pic around 7mm long,
colored white. Glue to the
circle on part 27.



Glue back-to-back

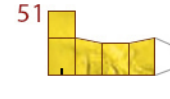
Glue to two layers
of cardstock



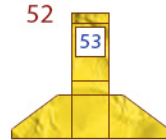
Fold-glue
back-to-back



Cut pointed end of tooth
pic around 7mm long,
colored white. Glue to the
circle on part 50.



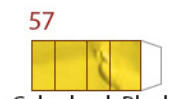
Color back Black



Glue to
cardstock



Color back Black



Color back Black



Color back Black

Venus Express

60



Glue to two layers
of cardstock

61



Cut plastic broom straw the same
length as the line below, colored
yellow for the Magnetometer.

Cut a thin music wire (or similar material) the same length
as the line below colored light grey or silver for the solar
array support rod.

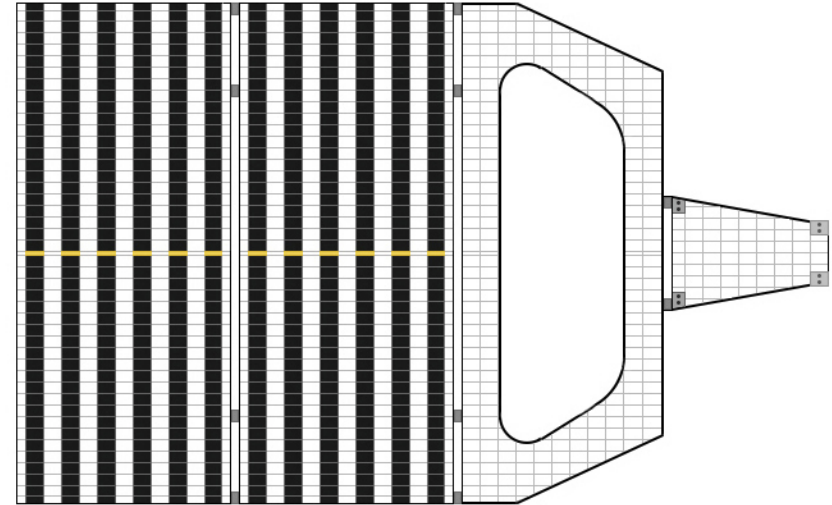
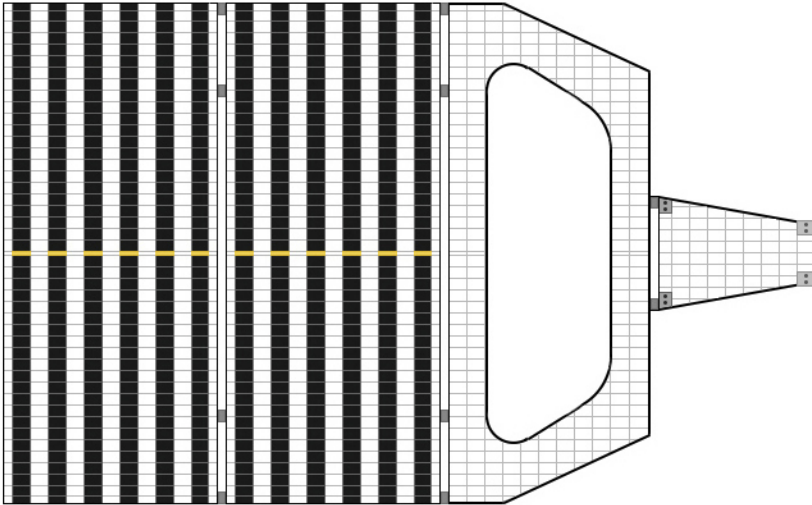
Zach's



PaperSat Designs
Spacecraft Paper Models

Glue each pair (front and back) back-to-back

Front



Back

