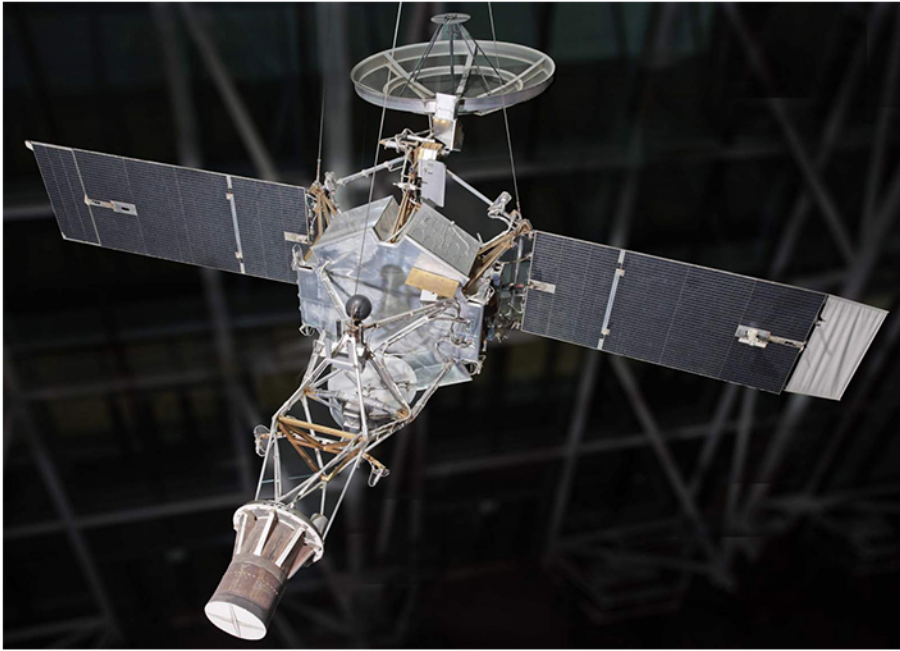


Mariner 2



Mariner 2, (launched on Aug. 27, 1962) the second in the Mariner series of US unmanned interplanetary probes, was the first spacecraft to successfully encounter another planet. It flew past Venus at a distance of 35,000 kilometers (22,000 miles) on December 14, 1962, sending back data on the temperature distribution of the planet's surface and making basic measurements of Venus' atmosphere.

It was a simplified version of the Block I spacecraft of the Ranger program and an exact copy of Mariner 1 which was lost during launch on July 22, 1962.

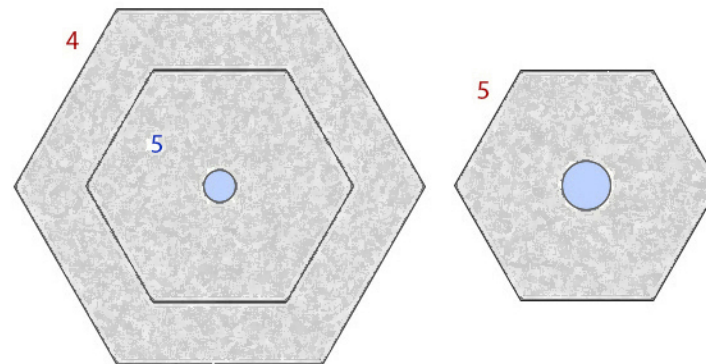
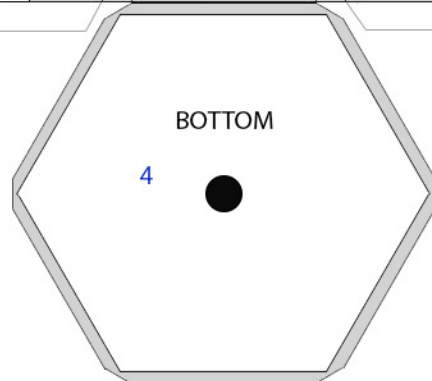
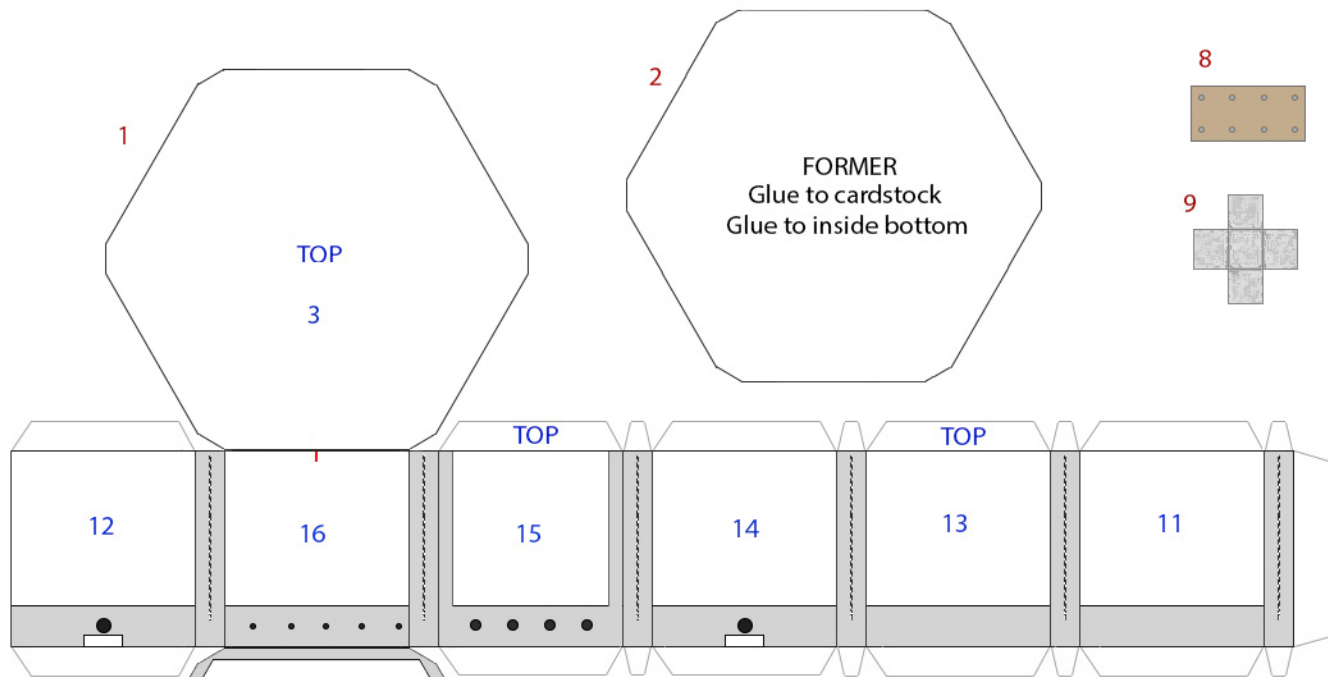
Mariner 2 discovered the slow retrograde (backward) rotation rate for Venus, hot surface temperatures (600 degrees Fahrenheit (315 degrees Celsius) and high surface pressures, a predominantly carbon dioxide atmosphere, continuous cloud cover with a top altitude of about 60 kilometers, and no detectable magnetic field. It also showed that in interplanetary space the solar wind streams continuously and the cosmic dust density is much lower than in the near-Earth region. Improved estimates of Venus' mass and the value of the astronomical unit were made.

It also revealed that a Venus day is very long, by Earth standards: 243 Earth days. Because Venus rotates so slowly, it cannot generate a magnetic field even though it has a metal core.

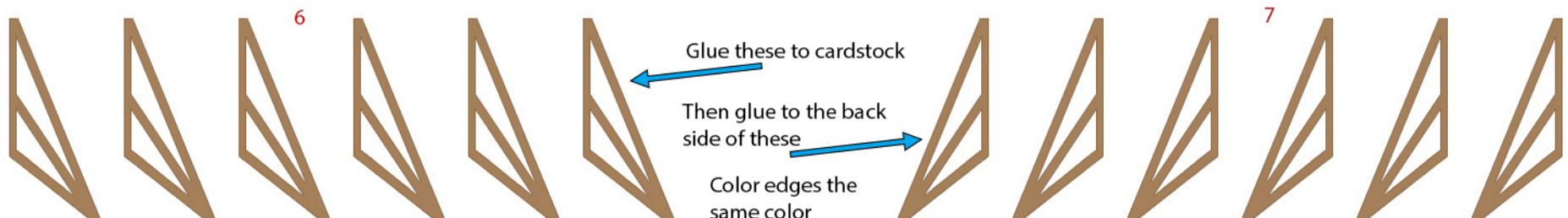
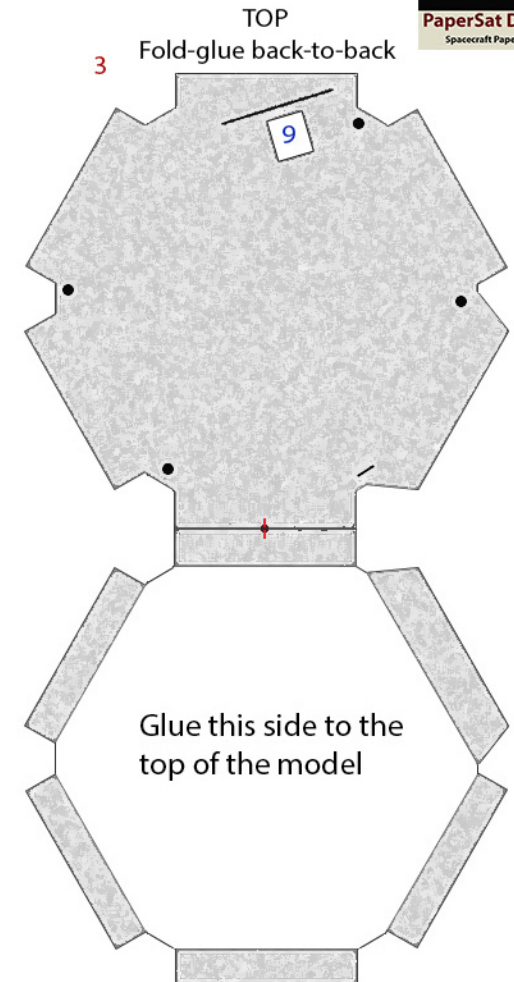
The spacecraft's last transmission to Earth was on Jan. 3, 1963, but other Venus missions were already in the wings. NASA's next spacecraft to Venus, Mariner 5, did carry a camera. But Mariner 2's close-up view of Venus was an important starting point for all Venusian science that has followed.

The Mariner 2 spacecraft was about 3.2 feet (1 meter) across and 1.1 feet (0.36 meters) thick, and would be powered through solar cells. The spacecraft carried a battery on board for supplemental power when it had a lot of work to do.

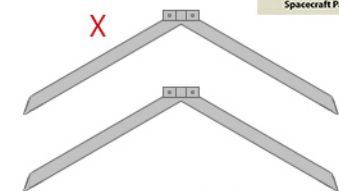
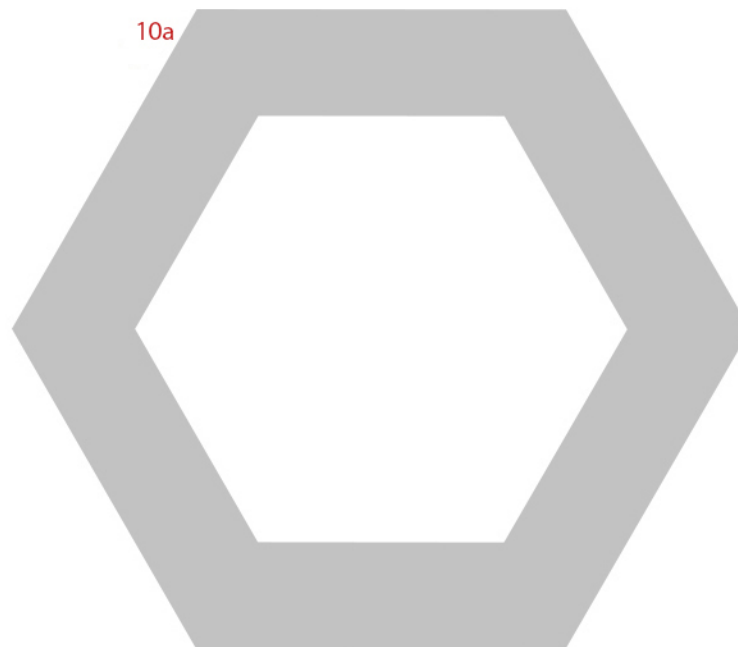
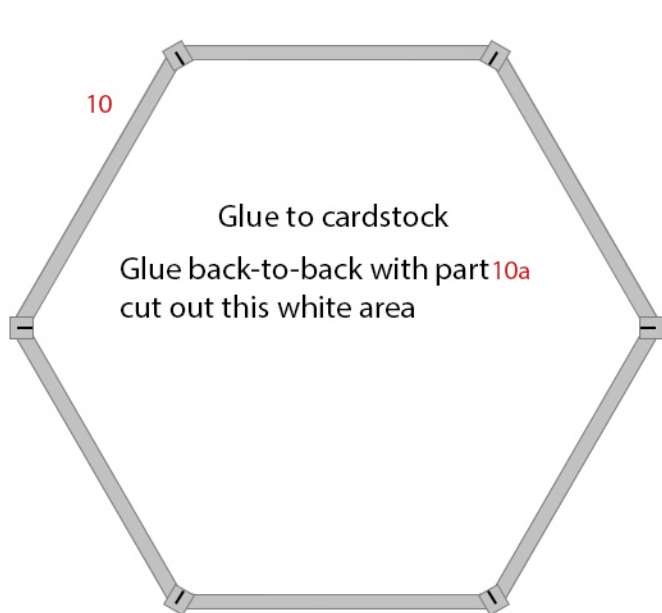
Mariner 2



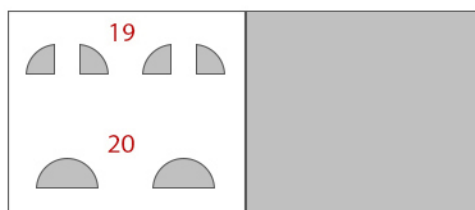
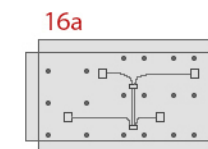
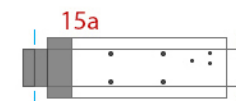
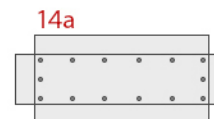
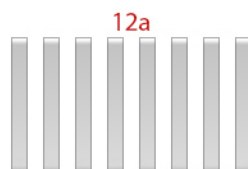
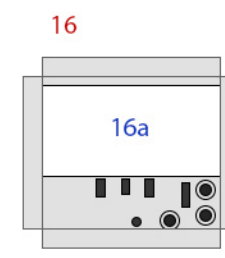
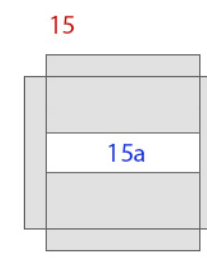
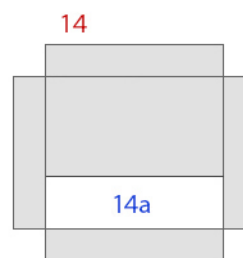
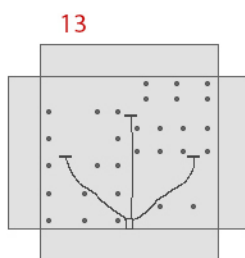
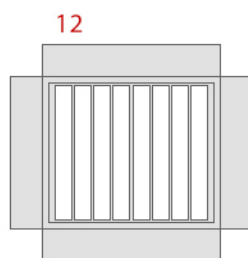
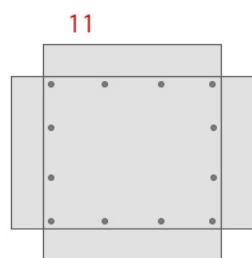
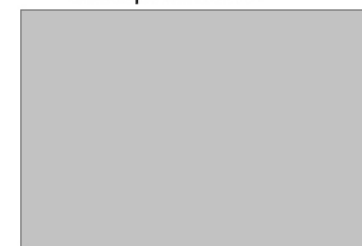
Glue both to cardstock - cut out the blue circles



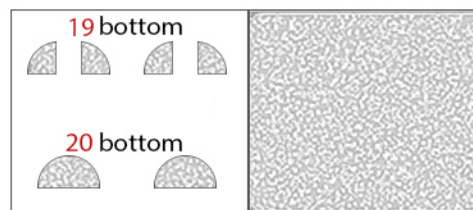
Mariner 2



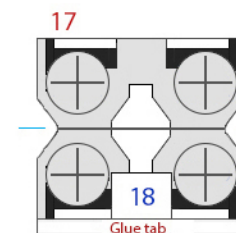
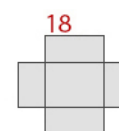
Glue to the backside of the square below



Fold-glue back-to-back

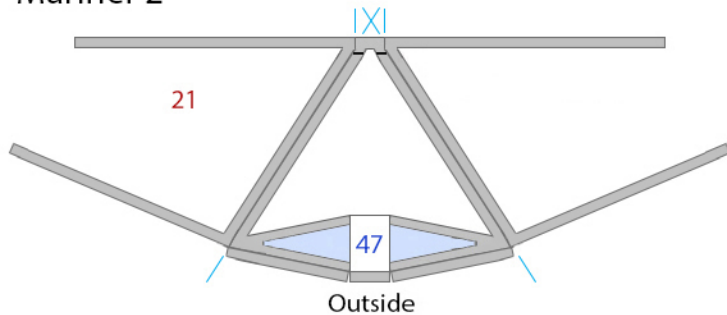


Fold-glue back-to-back

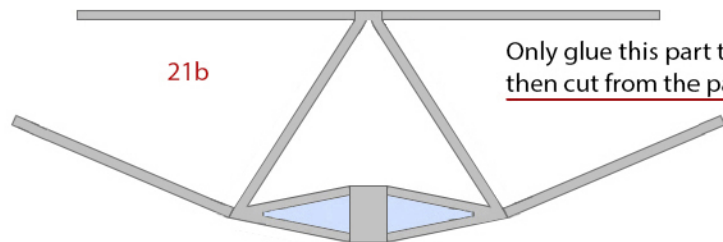


Fold-glue back-to-back

Mariner 2



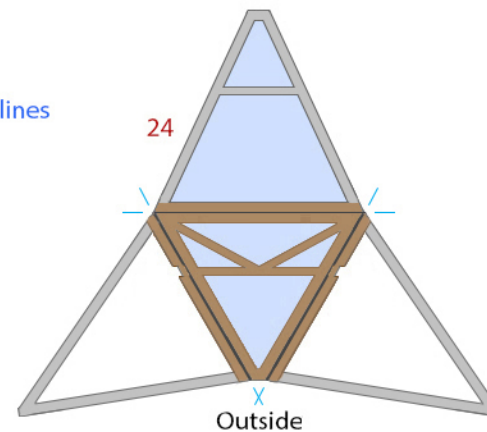
Cut out the two blue areas



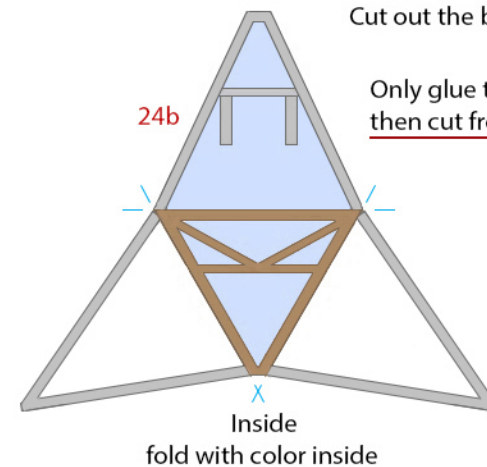
Inside -
Fold with color inside

Glue the triangle area to back side of the triangle of the part above it, fold the legs down and then glue the legs back-to-back

Score-fold at the Blue lines



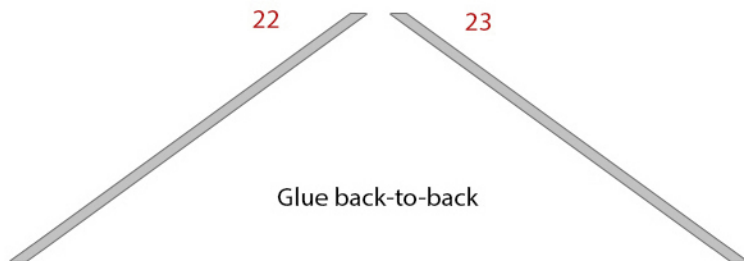
Cut out the blue areas



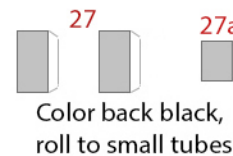
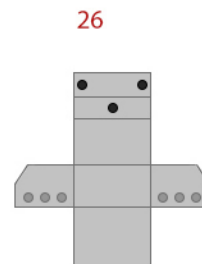
Only glue this part to cardstock then cut from the parts sheet

fold with color inside

Glue the middle triangle to the back side of the middle triangle of the part above it. Fold the three legs down and then glue the legs back-to-back.



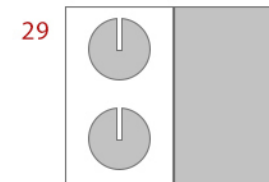
Glue back-to-back



Color back black, roll to small tubes



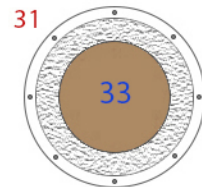
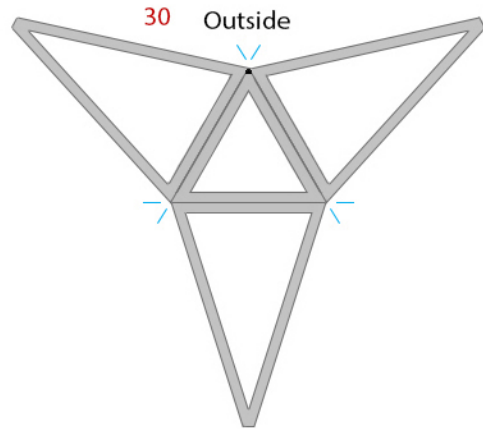
Glue to cardstock, fold at the blue line



Fold-glue back-to-back, cut out the parts. For more realistic look, use a small bead or round object around 8 mm diameter colored light grey or silver.

25
Glue to cardstock, color backside the same color

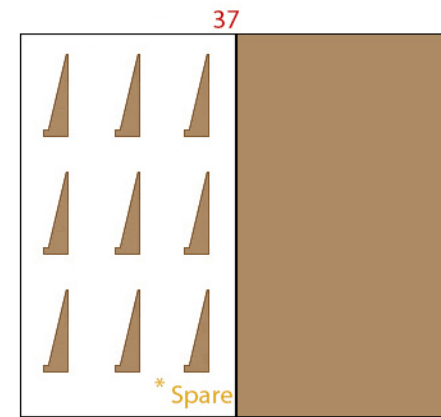
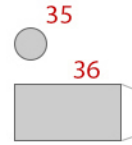
Mariner 2



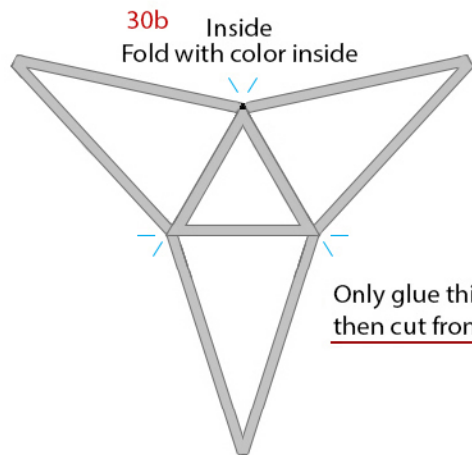
Glue back-to-back,
match the black dots



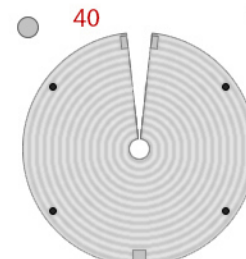
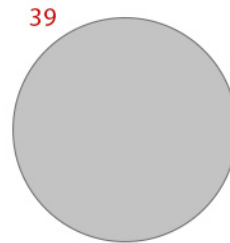
34



Fold- glue back-to-back



Only glue this part to cardstock,
then cut from the parts sheet

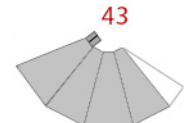


Poke four small holes
on the black dots

connector



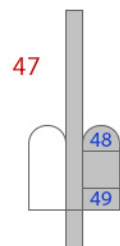
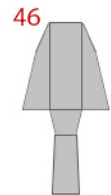
Glue one side to cardstock,
then back-to-back



Color back side
the same color

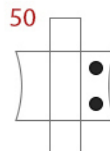


Glue all to cardstock, then
glue each pair back-to-back



Glue to three layers
of cardstock

Glue to
cardstock



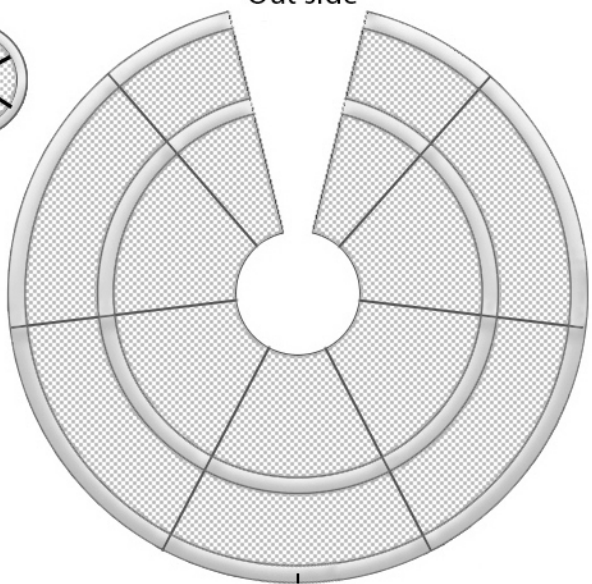
Need four pieces of plastic broom straws or similar material cut
at the same length as the line below, colored light grey or silver

Need plastic broom straw or similar
material cut at the same length as the line below, colored light grey or silver

Mariner 2



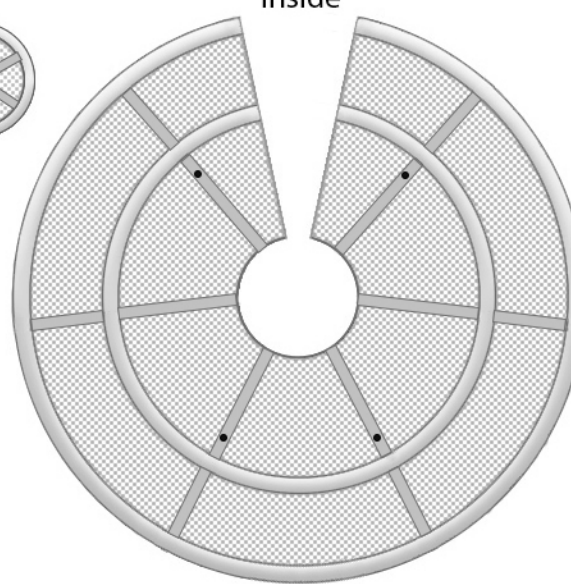
51 Out side



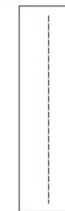
connector



52 Inside

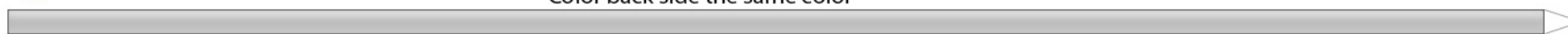


connector



55

Color back side the same color



56

Color back side the same color



57 Color back side the same color



68

69



Glue back-to-back,
match the four spokes

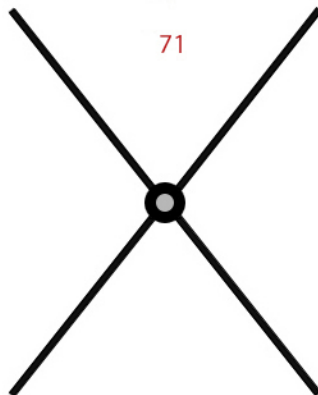
Need tooth pic cut at the same length as
the line below, colored black



70

Color back Black, cut
out the white dot

71



Glue to cardstock,
color back Black

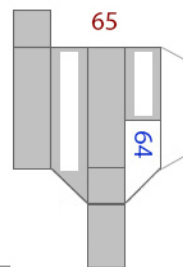
64a

64



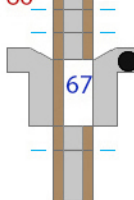
Glue
back-to-back

65



Fold-glue
back-to-back

66



67



60

61



62

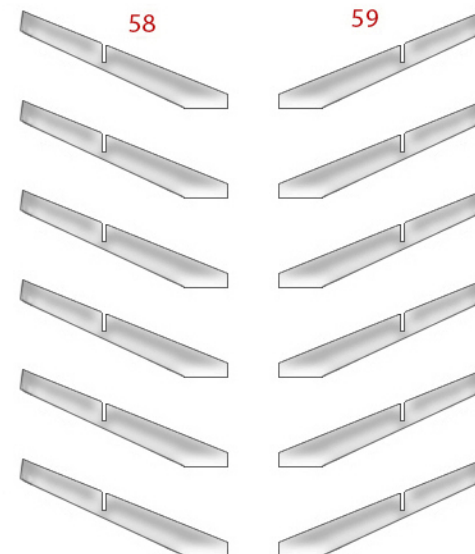
63



Glue 60 to cardstock, then glue back-to-back with 61.
Glue 62 to cardstock, then glue back-to-back with 63.

58

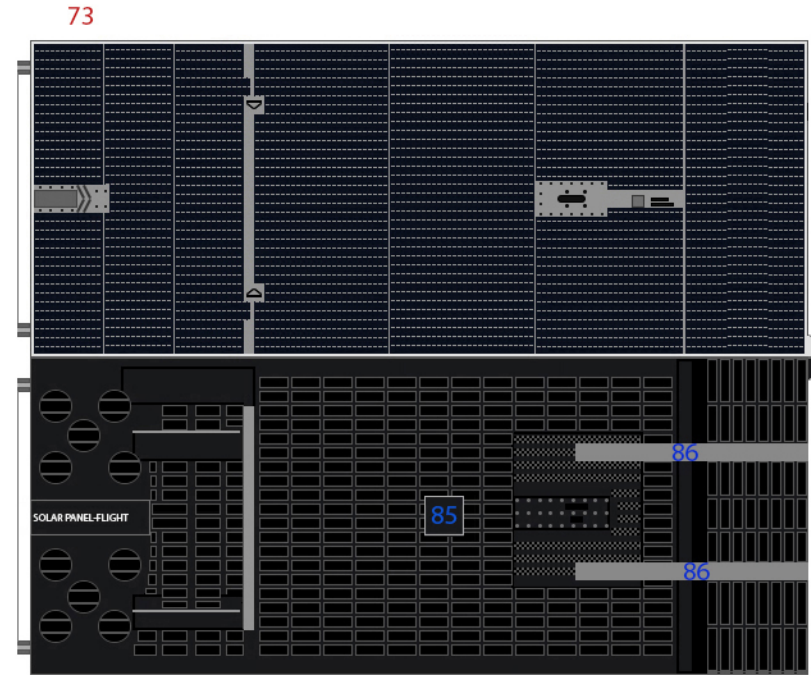
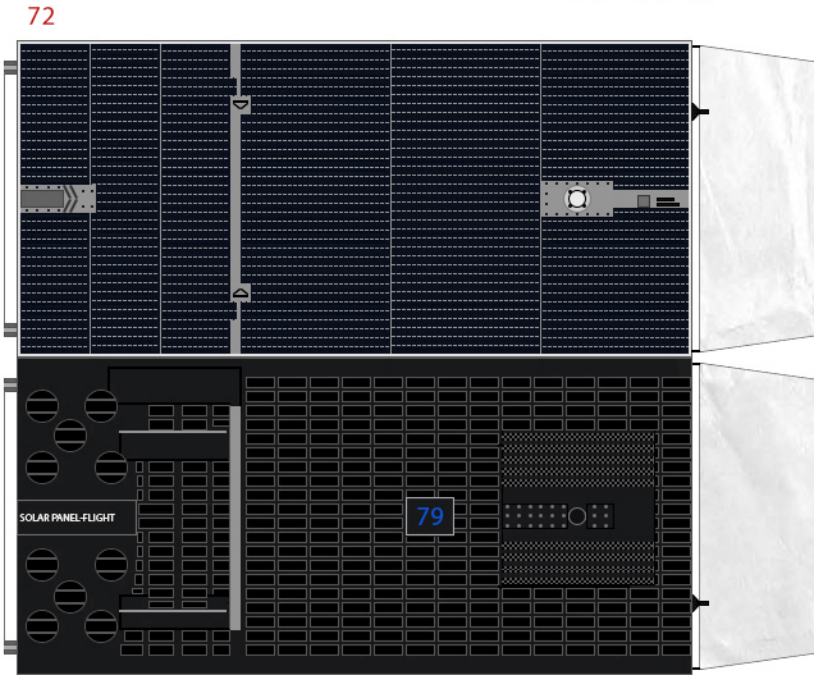
59



Glue 58 to cardstock, then
glue back-to-back with 59

Mariner 2

- 74  76  *spare 
75  Glue each pair back-to-back



Fold-glue each solar panel back-to-back

- 77 
78 
Glue to cardstock, color back Black
79 
Glue to two layers of cardstock
80  color back Black
81 
82 
Glue each to cardstock, color back Black

- 83 
84 
Glue to cardstock, color back Black
85 



- 89 
Glue to cardstock
87 
Glue each pair to cardstock, then back-to-back
88  
Glue to cardstock
87 
Glue each pair to cardstock, then back-to-back
89 
Glue to cardstock