

Tortilla Spacecraft Design 2nd Place Winner

Tortilla Engineers: Carlos (age 5) and Maite R. (age 3)

Tortilla Manager: Laura C. (mother)

Cidra, Puerto Rico

"TOTOPO CMM"



Spacecraft White corn tortillas
Materials: Sugar wafers (Nabisco)
3-D Megaphone® Corn Snacks (Frito Lay)
Fritos Twists® Corn Snacks (Frito Lay)
Toothpicks
Hotmelt glue

Assembly process:

The Tortilla Engineers traced and cut the tortillas into:

- 14 Hexagons (1.75-inch base, 2.875-inch height)
- 2 2-inch strips of tortilla (length of the tortilla diameter)
- 2 triangles (2-inch base, 3-inch height)
- 2 circles, 2 inches in diameter
- 1 circle, 1 inch in diameter



The tortillas components were baked at 350° F for 12 minutes between cookie sheets (to keep them flat) and allowed to cool.

Six hexagons were glued at an angle to a central hexagon to create the top part of the spacecraft. Another six hexagons were glued at an angle to a central hexagon to create the bottom part of the spacecraft.



Sugar wafers were placed on top of the 2-inch tortilla strips to create the solar panels (sugar wafers were cut to fit the tortilla strips).



The solar panels were glued to the bottom part of the spacecraft; the triangles were used as struts to support the panels. Once the



solar panels were in place, the top part of the spacecraft was glued to the bottom part.

The 1-inch circle was glued to a strip of sugar wafer to construct the GPS antenna; a piece of toothpick was glued to the



center of the circle. One 2-inch circle glue to a sugar wafer made up the microwave radiometer; toothpicks were symmetrically arranged on the circle to simulate the antenna structure. The other 2-inch circle glued to a sugar wafer strip made up the data transmission antenna; a sugar wafer square and piece of toothpick simulated the antenna transmission components.

The GPS and data transmission antennas were glued to the top part of the spacecraft. The microwave antenna was glued to the edge of the spacecraft.

3D Megaphones were used to simulate thruster. Fritos Twists were used to simulate scientific instruments.