

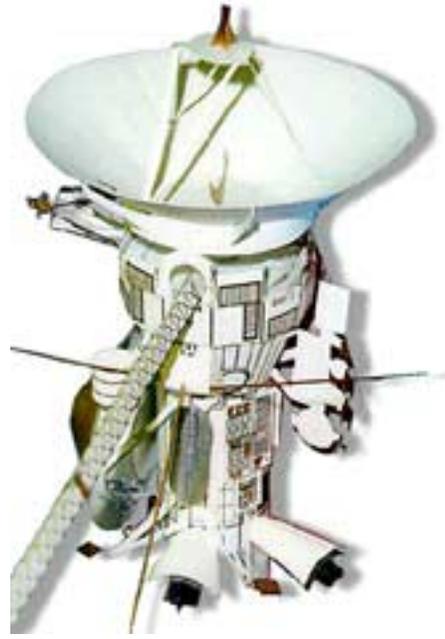
The Edible Cassini Model

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Objective

This activity demonstrates how a model of Cassini can be constructed using edible products, much like a gingerbread house. This is an ideal activity for younger students, art class, or camp or after school activity sessions.

Keywords: spacecraft, instrument, antenna



Discussion

Spacecraft are designed to withstand launch from Earth and travel to another planet. To maximize the spacecraft's strength so that it will survive the interplanetary journey while minimizing the weight (and thus the cost associated with launch), the main body of the spacecraft is generally built of extremely strong, light-weight material. The strong, light-weight construction allows a model builder to build a scale model of spacecraft using things as simple as paper.

Materials Needed:

- Ice cream cone with a flat bottom and a cup-like top
- Cake mix (made according to box instructions)
- Cake frosting (any kind) - a good substitution is to mix frosting for a gingerbread house. This type of frosting adheres more effectively than standard cake frosting.
- Chocolate wafer candy bar
- Candy mint still in its wrapping (preferably silver wrapping)
- Small marshmallows
- Piece of licorice
- Small, disk-shaped candies

Procedure

- Fill the ice cream cone 2/3 full with the cake mix. Bake according to the instructions, just as for a cupcake.

- Place a layer of frosting on top of the cake.
- Fold the licorice in half and poke the ends into the cake. The licorice should make an inverted V sticking out of the cake. This represents the interior structure of Cassini's high-gain antenna.
- Using frosting as glue, place four M and M candies around the inside of the top of the ice cream cone. These represent the four sun sensors that tell the spacecraft where Earth is.
- Cut a hole in the ice cream cone right under the "antenna." Insert the chocolate wafer into the cone. Using frosting as glue, place a marshmallow on the end of the chocolate wafer. This represents the magnetometer boom.
- Holding the cone with the chocolate wafer pointing to the right, take the candy mint and attach it to the side of the cone that is facing you. Use frosting as glue. This represents the Huygens probe.

Extension

Using a diagram of the spacecraft and some imagination, add additional instruments and engineering components onto your spacecraft.

Standards

A visit to the URL <http://www.mcrel.org> yielded the following standards and included benchmarks that may be applicable to this activity.

Level I Primary (K-2) Technology Standard 4. *Understands the nature of technological design*
Knows that objects occur in nature; but people can also design and make objects (e.g., to solve a problem, to improve the quality of life).

Level II Upper Elementary (3-5) Technology Standard 5. *Understands the nature and operation of systems.*

Knows that when things are made up of many parts, the parts usually affect one another.

Level II Upper Elementary (3-5) Technology Standard 5. *Understands the nature and operation of systems.*

Identifies the relationships between elements (i.e., components, such as people or parts) in systems.

NOTE: This activity is currently posted to the Cassini web site as a field-test version. Educators who use this activity for classroom demonstration purposes are encouraged to submit comments to the Cassini Education Outreach Coordinator. We are dedicated to providing high-quality activities for classroom use and welcome your suggestions.