

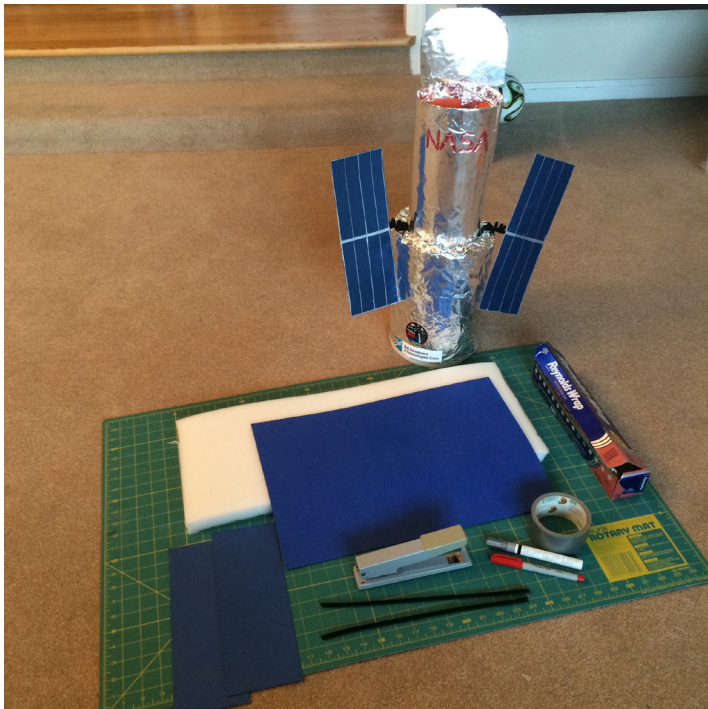


Make Your Own Hubble Hat (or Model!)



Materials and Tools You'll Need

- 1-inch-thick foam, 10×25 inches (measure your head to be sure the foam will fit all the way around your head with about 2 inches of overlap)
- 2-mm-thick foam, 12×18 inches
- One 8×11-inch piece of dark blue poster board cut into two 4×11-inch pieces
- One 6×6-inch piece of poster board (any color)
- 2 pipe cleaners
- Aluminum foil
- Stapler
- Scissors
- Duct tape or hot glue gun
- Red permanent marker
- Silver paint pen or permanent marker
- Pencil



A. Make the Top Section



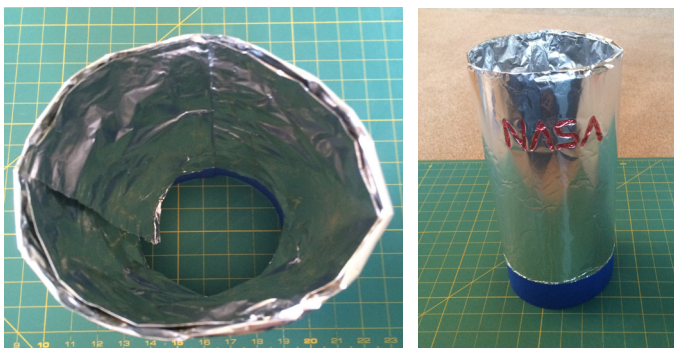
1. Place the thin foam on top of a piece of aluminum foil several inches longer than the foam. The foil should extend under the thin foam so that it's a few inches wider than the foam on each side and about 2 inches higher over the top edge (which will leave the bottom 2 inches of foam exposed).



2. Wrap the foil over the foam's top (long) edge. Then wrap it around the right and left ends, overlapping it. Leave the exposed foam as is.



3. Turn the foam over. Use your red marker to write NASA in the top center.



4. Shape the foam into a 12-inch-tall tube and staple it together with as little overlap as possible.

B. Make the Bottom Section



1. Using the 1-inch-thick foam, make a second tube. If you're planning to wear your Hubble as a hat, wrap it around your head first to get the tube the right size. Staple the foam to form a 10-inch-tall tube.

If you're making this as a hat, you may need to overlap the top section more than the bottom – because later you'll need the top to fit tightly into the bottom.



2. Wrap foil all the way around the tube, with one edge of the foil even with the bottom edge of your tube. Secure with staples, tape or glue as needed.



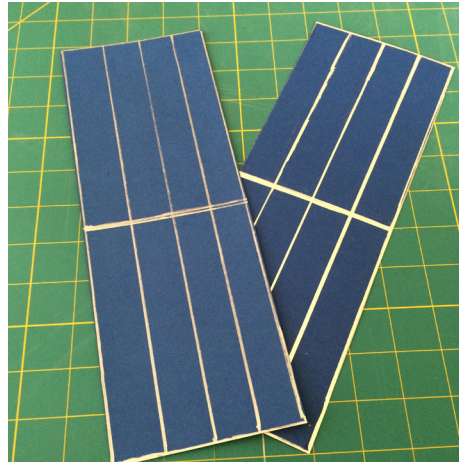
3. Fold the top of the foil down into the tube to cover its top edge.

B. Make the Bottom Section (continued)

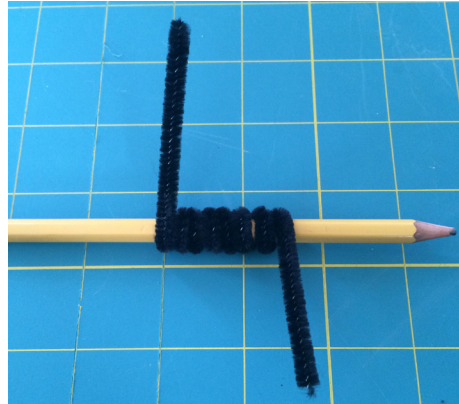


4. Fit the top section into the bottom section.

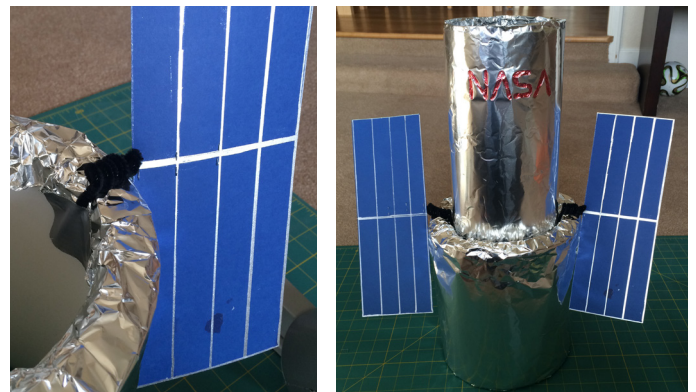
C. Make the Solar Arrays



1. Use the silver paint marker to draw a grid on each dark blue array. (Optional: Use a ruler and mark the grid with a pencil first.)

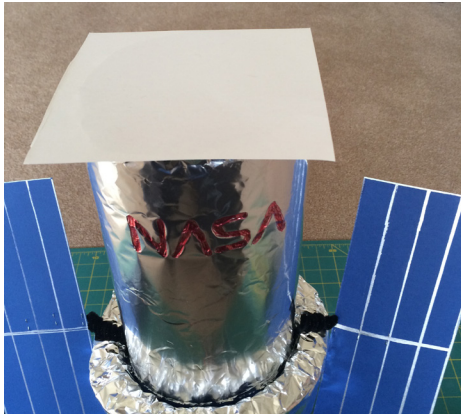


2. Wind each pipe cleaner around a pencil as shown.



3. Staple or glue one end of the pipe cleaner to the solar panel. Wrap the other end into the inside of the bottom section; secure with glue or duct tape. Do the same with the other solar panel.

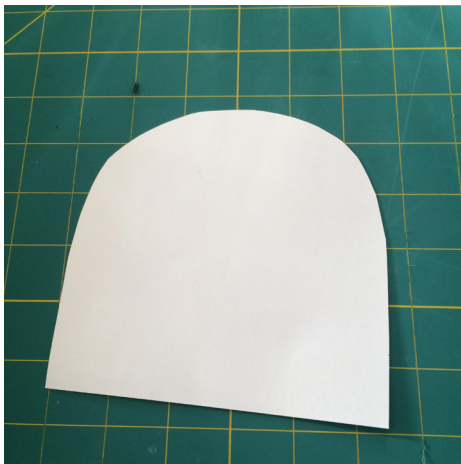
D. Make the Aperture Door



2. Lay the door on a piece of aluminum foil large enough to wrap all the way around the door. Wrap up the door. Staple the foil to the door.

Attach the door to the outside back of the top tube with the stapler.

Optional: Use a glue gun to squirt glue where the top section is fitted into the bottom one. This will keep your Hubble hat/model firmly together.



1. Lay the 6×6-inch square on top of your Hubble. Cut two of its corners curved.



Hubble hats created by Ball Aerospace's James Webb Space Telescope Program Manager, Allison Barto, and her daughter, Treviana.