



Lesson 11- Build a Tissue Paper Balloon

Subject: Science

Learning Outcomes:

1. The students will use tissue paper, glue, etc to design in a lab setting a tissue paper balloon.
2. They will assemble the balloon and prepare for a launch.

Lesson time: multiple days depending on speed of construction

Materials: Tissue paper, glue sticks, old newspapers, rulers, pencils, stapler, marker, scissors (hint: in the interest if time, you may want to have a template for the students to trace for cutting instead of measuring and connecting your measuring points.)

Procedure:

1. Use directions given below or those found on this website
http://www.explorium.org/tissue_balloons.htm for students to create their model balloons.

Paper Takes Flight - Making Tissue Paper Balloons

The balloon is made of seven "gores" of tissue paper. Two and one half sheets of tissue paper will make one gore. Each gore can be unique using different colors of tissue paper, or make gores all one color. Use your imagination!

Gores will be glued together, leaving openings at the top and bottom. A string will be attached to the top, and wire attached at the bottom, allowing for inflation.

Materials List:

- Eighteen standard-size pieces of tissue paper (approx. 20" x 30") - Art tissue works extremely well, available at craft stores.
- Scissors
- Glue stick(s)
- Flexible wire (coat hanger works great, or 22-24 gauge)
- Gore pattern

Instructions:

- Glue 2 ½ sheets together to make large rectangle. Repeat 6 more times, making a total of 7 rectangles.
- Using the gore pattern provided, cut out 7 gores. It is possible to stack all seven rectangles and cut all at one time.
- Select two gores. Lay one on top of the other, allowing a ½" margin to show on the bottom gore. (See figure 1).
- Apply a line of glue to the ½" margin of the bottom gore #1. Fold this ½" over the edge of panel #2 as you go along. Apply the glue stick heavily and press firmly together.



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- Place gore #3 on top of gore #2, allowing a ½" margin to show on gore #2 on the unglued side. Repeat gluing as in previous step.
 - Glue up the remaining 4 gores using the above method (accordion fashion). Join free edges of gore #1 and gore #7, joining all gores.
 - During and after gluing, carefully separate all folds to keep them from sticking together. This is important!
 - Tie off the top of the balloon with string, about 1" back from the top to close hole in top of balloon. Leave a loop in string for holding balloon up while inflating. (See figure 2).
 - Open hole in bottom of balloon and shape wire to fit, twisting ends together. Cut off excess wire ends to reduce weight. Place ring inside opening and fold paper over it about 1", gluing into place. RING MUST BE A MINIMUM OF 12" FOR PROPER INFLATION!
 - Let balloon dry a couple of hours. You can inflate with a fan or hair dryer to check for holes, loose edges, etc. Make necessary repairs with glue and paper or tape.
 - BALLOON IS NOW READY FOR LAUNCHING!

WARNING!

Because the balloon has metal in it please be careful and do not launch in the proximity to power lines.

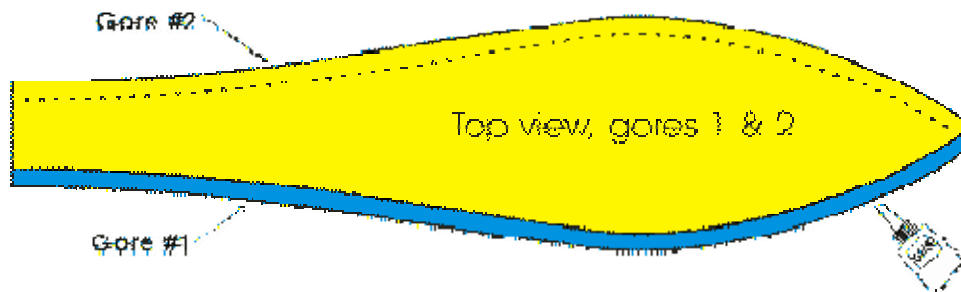


Figure 1.



Figure 2.