

# Hot Air Balloon Models — Student Guide

## BUILDING THE BALLOONS

1. Gather the following materials:

- Glue
- 4 sheets construction paper (8-1/2" x 11")
- Rulers, yardsticks and/or tape measures
- Optional cardboard or foamcore
- Scissors
- Hair dryer
- 18 sheets tissue paper, 20" X 30" each
- Stapler
- Pen or pencil

2. **See Figure 1.** Use three sheets of tissue paper, each measuring 20" X 30", to construct a single panel 20" wide and about 90" long. Glue should be applied in thin continuous lines. Adjacent sheets of tissue paper should overlap about a quarter of an inch. Warning: Glue penetrates tissue paper easily and may stick to working surfaces.
3. Use the remaining fifteen sheets of tissue paper to make five more panels exactly like the panel you made in the previous step.
4. **See Figure 2.** On one panel, carefully measure and mark off the measurements shown in Figure 2, to make the outline of a tapered panel. Use scissors to cut out the tapered panel. Optional: If desired, save the pieces you cut off, clearly marking them "TOP" and "BOTTOM". Use these pieces as patterns, by placing them on top of foamcore or cardboard, and cutting out the triangles. Again make sure you clearly mark each cardboard or foamcore pattern piece as either TOP or BOTTOM.
5. **See Figure 3.** Using the first tapered panel or your cardboard triangles as patterns, draw the outline on each of the remaining panels and make the necessary cuts. At the end of this step you should have six identical tapered panels, with dimensions as shown in Figure 3. **NOTE: Save the pieces of tissue that you cut off; they can be used later to patch up any holes in the balloon.**

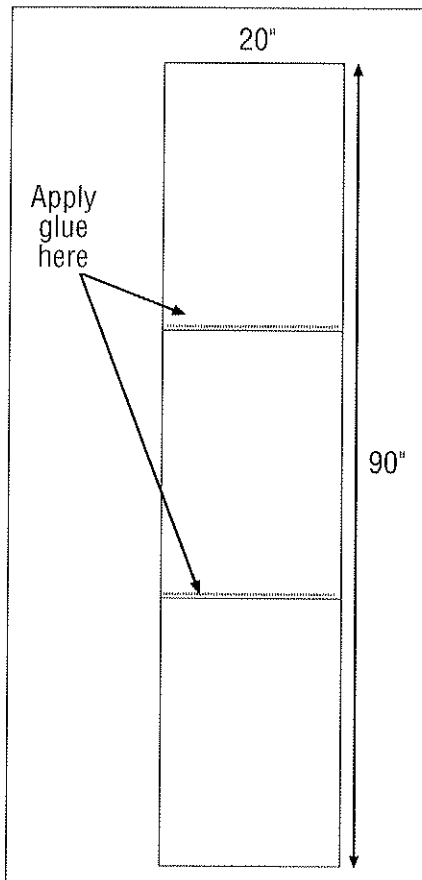


Figure 1

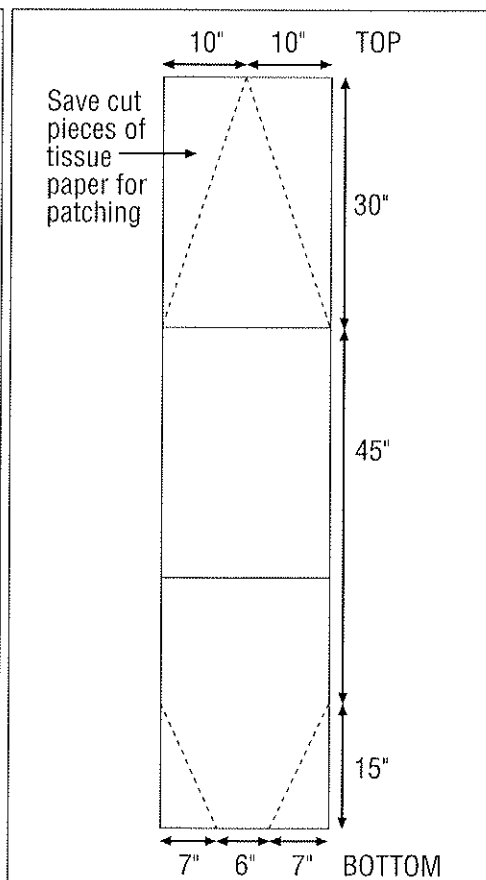


Figure 2

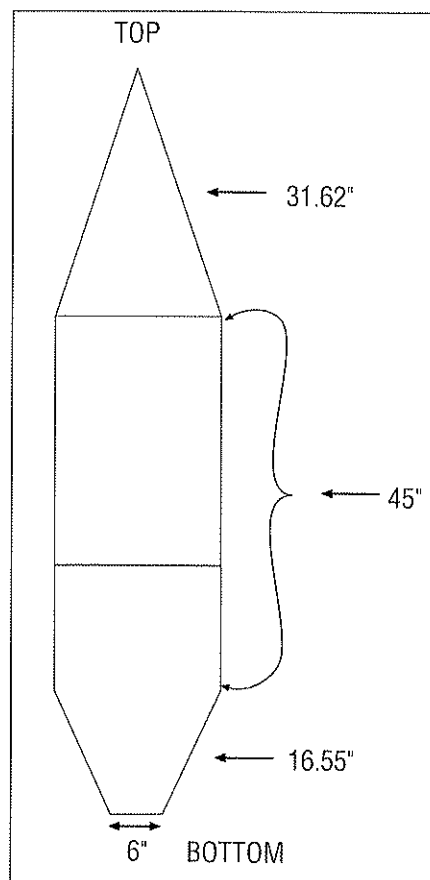


Figure 3

6. **See Figures 4 and 5.** Place one tapered panel directly on top of a second tapered panel, making sure that the top and bottom of both panels match up. Fold back one edge of the top panel and apply a thin continuous line of glue along the edge. Then fold the glued edge back on top of the lower panel, so that the two panels are attached on one edge. The resulting construction is called a double (shown in Figure 5). Note that a finished double has one glued edge (closed side), two free edges (open side), and an unglued bottom.
7. Use the remaining four panels to construct two more doubles.
8. **See Figure 6.** Applying a single thin continuous line of glue, attach one complete free edge of the first double to one complete free edge of the second double, making sure that the tops and bottoms match up. At this point two doubles should be attached to one another, as shown in Figure 6.
9. Find the remaining double. Again, line up one complete free edge of this double with the two doubles you attached in the previous step, making sure that the tops and bottoms of the panels match up. As in the previous step, glue one complete free edge of the remaining double to the rest of the balloon construction. In order to better manage the doubles while applying the glue, you may want to fold the free edges back, apply the glue on the upward facing edge and then fold the edge back onto the free edge of the next double. At the end of this step, all three doubles should be attached at two seams, with two remaining free edges.

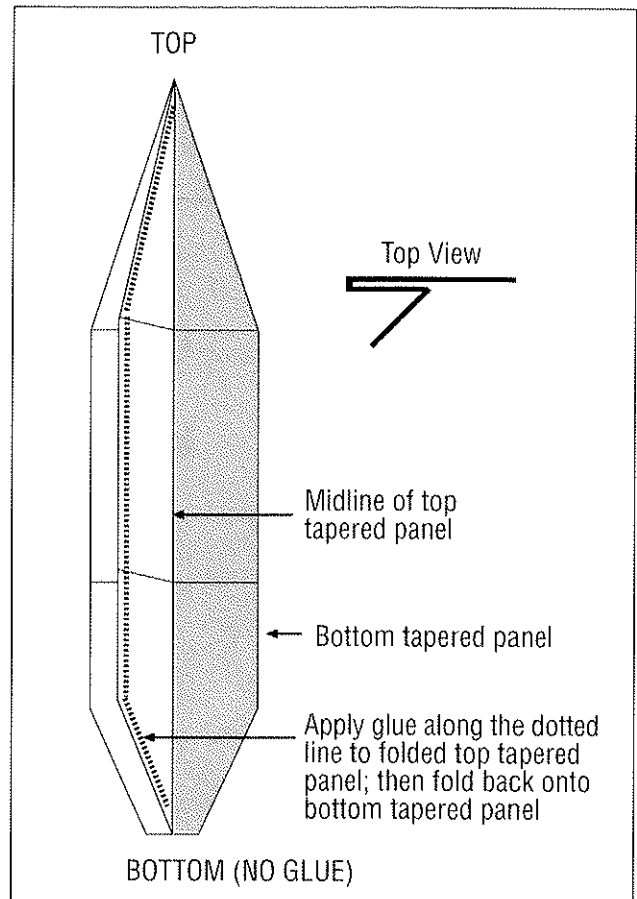


Figure 4

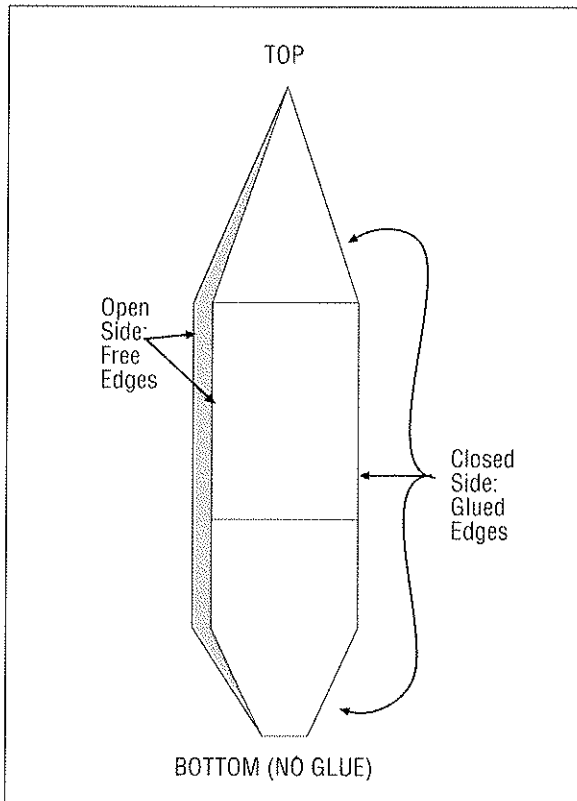


Figure 5

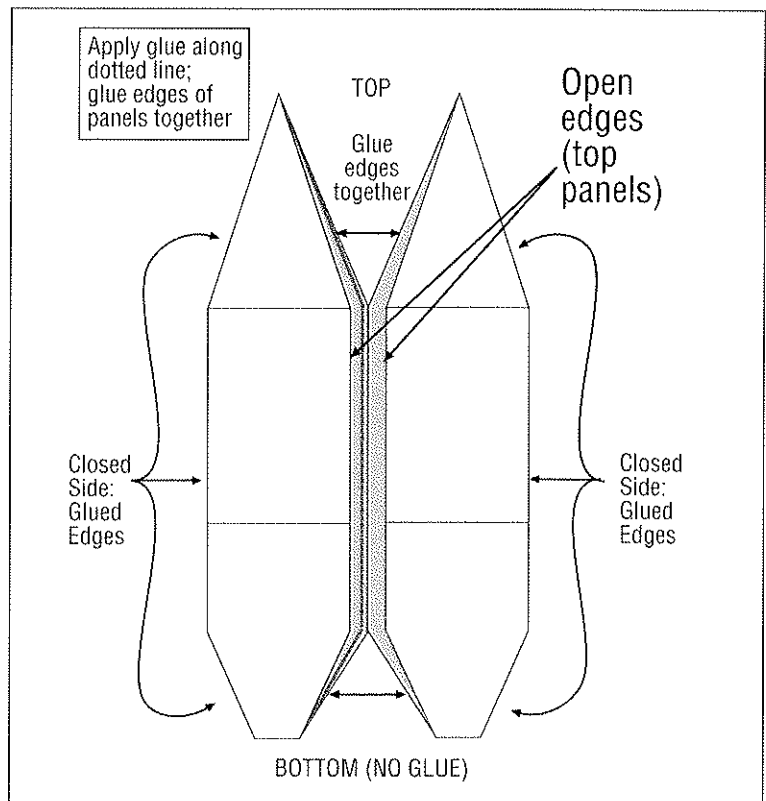
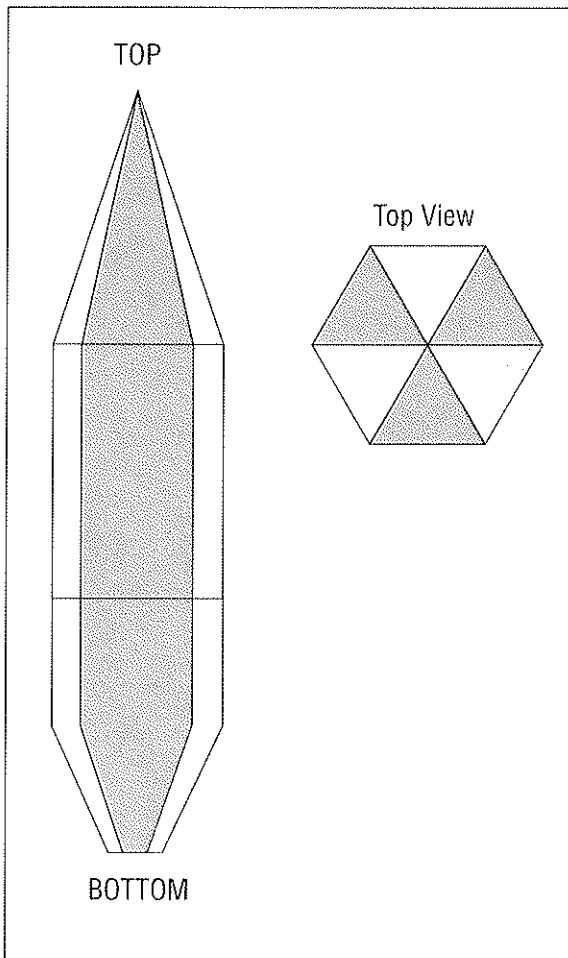
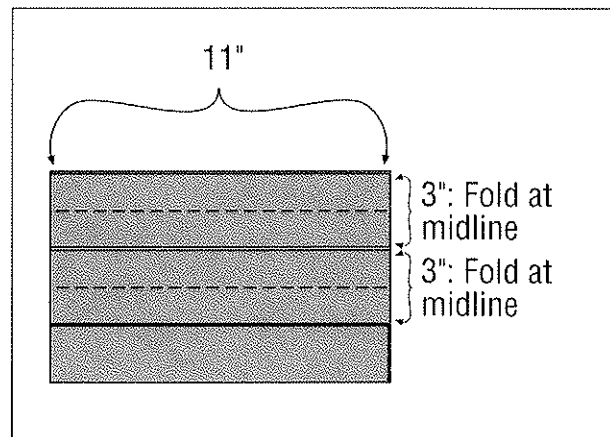


Figure 6

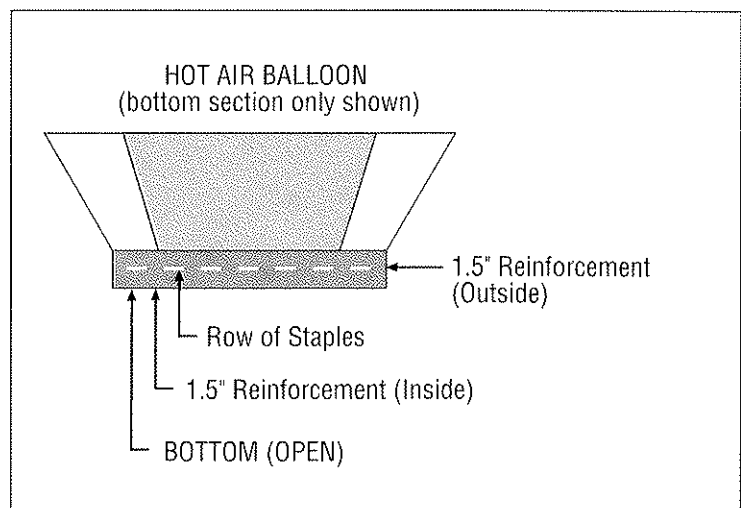
10. **See Figure 7.** Isolate the two remaining free edges of the balloon construction. (Note: You may need to do some folding, creasing and flipping of the balloon to isolate these last free edges.) Apply a single thin continuous line of glue to one of the remaining free edges of the balloon panels, and attach it to the last free edge to complete your balloon. At the end of this step, all of the panels of your balloon should be attached to one another, as shown in Figure 7.
11. **See Figure 8.** Cut out two 3" x 11" strips from each sheet of construction paper. Fold each of the 3" tall strips in half, as shown in Figure 8.
12. **See Figure 9.** Reinforce the opening at the bottom of the balloon by attaching the folded construction paper strips all along the bottom rim (inside and out) of the balloon using glue and staples, as shown in Figure 9. You will probably need to use all eight of the strips to completely reinforce the bottom rim of the balloon; if necessary, trim any excess from the reinforcement strips.
13. If desired, decorate the balloon. Inflate the balloon (a blow-dryer works well for this purpose). Check for holes in the balloon, especially the top half, and repair with glue and cut-to-fit scraps.
14. Name the hot air balloon.



**Figure 7**



**Figure 8**



**Figure 9**