

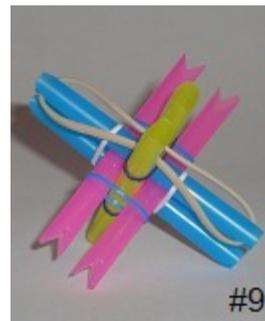
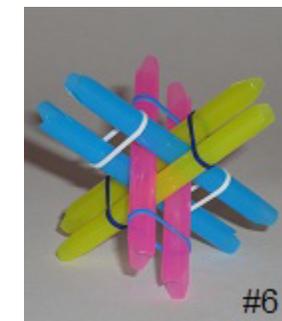
How to Make A Tensegrity Model

The expanded octahedron (nearly icosahedron) offers an illustration of the three dimensions, height/vertical, width/horizontal, and depth/sagittal, expanded into a voluminous polyhedron. This model demonstrates the principle of struts suspended within tensile forces and an interior open spaciousness without a tightly held core.

While the rubber band model is not ideal, i.e. the tensile forces do not get stiffer with increased loading, it is a good first step in moving away from the axial-loaded compression model to an understanding of a tensegrity model.

Materials needed: six 3" rubber bands, six plastic straws cut slightly shorter than the rubber bands and shallowly notched on each end, six 5/8" rubber bands (commonly used for small braids), and pair of scissors.

1. With a small rubber band, loosely bind one end of the first pair of straws together, 1/3 in from end. This will be the vertical pair.
2. Bind the other 2 pairs of straws the same way.
3. Holding the first pair in a vertical profile orientation seeing only one of the 2 straws, insert the second pair horizontally between the members of the vertical pair to make a "+".
4. With a small rubber band bind the free end of the first pair to stabilize.
5. Insert the third pair, creating the third dimension, around the verticals of the first pair and between the horizontals of the second pair.
6. Bind the free ends of the second and third pairs.
7. Snug the 6 small rubber bands toward the center - You now have a symmetrical 3-D "+" sign.
8. Hold the 3-D sign so that you face the vertical pair in profile, notice that the sagittal (forward/back) pair is perpendicular to and straddles the vertical pair. Twist the vertical straw-facings so that you cannot see the notches. This makes them ready to accept the large rubber bands along the long axis of the straw. Do this for each pair.
9. Loop a large rubber band over one end of a straw, fitting it into the notch. Pass the other end of the rubber band between the adjacent perpendicular straws and fit it into the notch at the other end of the same straw. Do this for all 6 straws using one large rubber band per straw.
10. Stretch the mid-point of one side of the rubber band and fit it into the nearest perpendicular straw notch above it. Stretch the mid-point of the other side of the same rubber band and fit it into the other perpendicular straw notch. Do this for all six rubber bands (12 stretches).
11. Snip the 6 small rubber bands holding the 3-D plus sign together.



VOILA! You have a tensegrity structure.