Sixth Grade Aeronauts
Diagrams

Start with four full size (20"x30") Tissue Paper, stacked on top of one another.

After first fold

After second fold

Make nib to tie up with string

You should end up with eight gores.
Max-width balloon
Angling the top cut to the midpoint of the paper creates an envelope with almost no bunching of the gores. The envelope is short and squat by appearance - 21" high by 25" diameter. Because of its shape you need a second piece of drywall tape at the throat.
Max-height Balloon

Angling the top cut to approximately 9.5" from the top edge of the paper yields a more teardrop shape for the envelope, but results in bunching of some of the gores. This envelope measures about 23" high by 17" diameter.
All these balloons were built using only four pieces of tissue paper. The only thing that is different is the pattern.

Cut with curve as suggested in original document.

Max Width Balloon

Max Height Balloon

Tetrahedron Balloon