

The Towering Cups

- Requirements
 - Construct the tallest structure possible that will not fall over
 - Use only materials provided for construction or support
 - Cannot be permanently attached to floor or ceiling
- Materials
 - 36 each plastic 9 or 16 oz cups
 - One each clear tape roll, $\frac{3}{4}$ " x 1200 ft
 - One stick Krazy Glue, 0.07 oz
 - 10 rubber bands
 - 8 each large paper clips
- Test
 - Must be able to hold weight of one Coke bottle on top level without falling over
 - Plastic bottle with cap on
 - Full, 16.9 fl oz (1.06 pt or 500 ml)
 - Top of structure must be able to accommodate the Coke bottle
- Rules
 - Design structure first, then construct only according to design; must show design
 - No redesign allowed
 - No prior test allowed
- Time allotted: 15 minutes
- Highest structure to withstand the test wins

Critical Load

- Requirements
 - Construct a structure that will not fall over
 - Use only materials provided for construction or support
 - Cannot be permanently attached to floor or ceiling
- Materials
 - 2 each round dowels, $\frac{5}{16}$ " x 48"
 - 1 each square dowel, $\frac{1}{4}$ " x 36"
 - 10 ft twine, or small dia. Rope
 - Weights for test, up to 50 lbs probably enough, with device to hold weights
- Test
 - Increasing weight applied in 5 lb increments till failure, up to ???
 - Must accommodate weight mounting
- Rules
 - Design structure first
 - Construct Prototype
 - Test
 - Redesign and rebuild if necessary
 - Can cut, mangle or otherwise alter provided materials as required, but no replacements allowed
- Time allotted: 15 minutes
- Structure to withstand most weight wins
 - Structures over 36" high get 20 bonus points
 - Structures between 24" and $35\frac{15}{16}$ " get 5 bonus points per 6" of height
 - Structures 12" and under get 5 points deducted per 1" of height below 12"