Worthington Science Day
Engineering Design Challenge 2014
Middle School Level

The Challenge:

Students in the Worthington school district would like the administration to consider giving students the option of eating their lunches outside on days with nice weather. One step toward making this feasible would be if each school had a supply of portable tables for students to put their lunch trays on. The physical facilities department for the district has a supply of excess flexible tile that may be suitable for these tables. Your team is being asked to develop and test a possible design for one of these tables.

The Specifications:

The table has to meet the following requirements:

1) The table must be made using only the provided tiles and tape.
2) The table may be made of no more than 507 in^2 of tile (the equivalent of 3 tiles) and no more than 2 feet of tape.
3) The table must have a minimum horizontal surface area of 8 in x 10 in (the size of a Worthington cafeteria tray)
4) The table must support a minimum mass of 1000 g (approximately the mass of 1 L of water)
5) The table must be free-standing.
6) The table's top surface must be at a minimum height of 13 inches (a convenient height for sitting on the ground).

How to Win:

The winner of the competition will be the design that holds the most weight before failure.

Materials:

Each team will first receive a set of materials for experimenting and trying out initial ideas. They can then receive a second set of materials for constructing their final design.

- 3 floor tiles
- 2 feet of tape
- Cutting tool
- 4 bottles of water (500 g each)
- Ruler of other distance measuring device
- Paper & pencil

Other Rules:

- Teams will have **45 minutes** from when they receive their initial materials to develop a final design. At that time, the judges will test the designs and determine the winners.
- No outside resources are allowed including internet access, texting other, or consulting with others outside of the event.