

Mystery Architecture



Event Description: Team of 2 students gets a kit of materials to build with & a goal. Don't know in advance.

Ex1 Build a boat that floats & supports the most pennies, max 50

- 10 Popsicle sticks
- 12 in strip of masking tape
- 5 straws
- 2 sheets of colored paper
- 5 pipe cleaners
- 1 colored marker
- 1 plastic cup (9 oz)
- 8 in X 10 in sheet of foil

TB #1: Floats TB#2: Heaviest Boat TB#3: Longest Boat

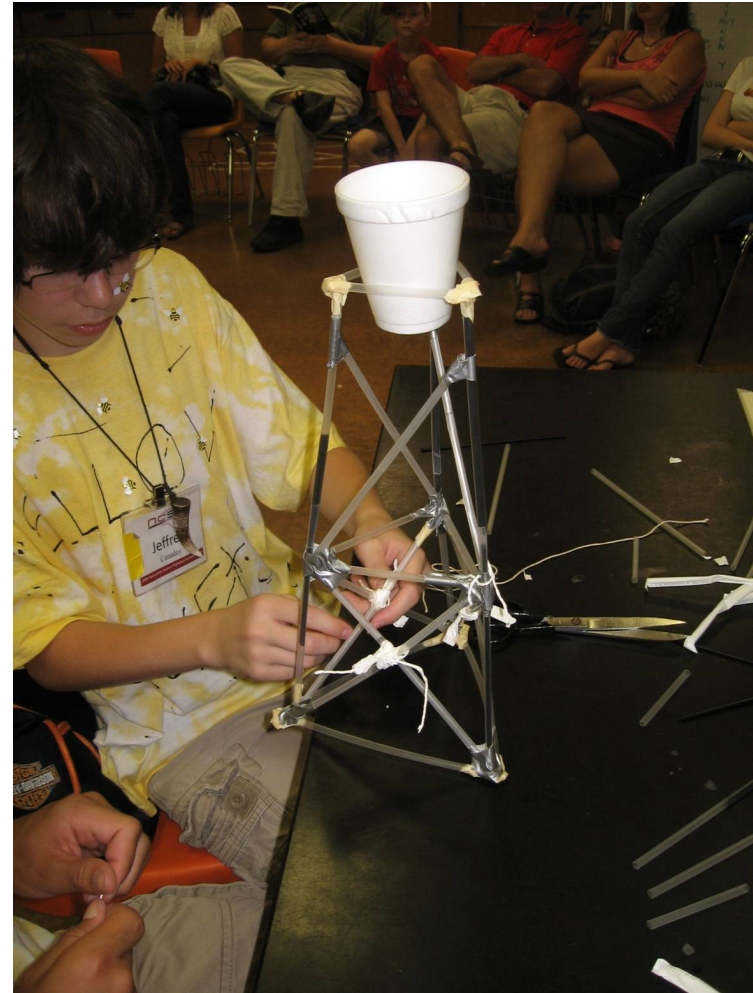
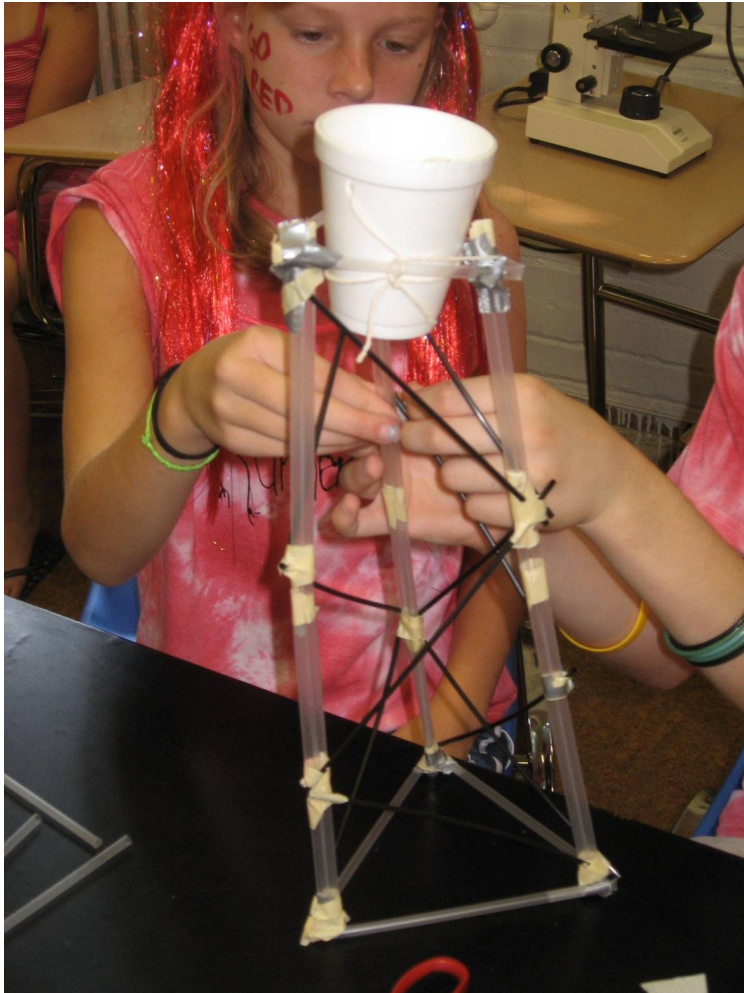
• Ex2 Build a catapult that will launch a marshmallow the farthest distance under its own power.

- 20 Popsicle sticks
- 12 in strip of masking tape
- 1 spoon
- 5 large rubber bands
- 1 sheet of colored paper
- 1 plastic cup (3 oz)
- 12 in string
- 1 colored marker
- 3 large paperclips

TB#1: Holds Marshmallow
TB#2: Narrowest Width

Key Preparation Tips

- Everyone can practice - team, parents, siblings, ... ** great for teambuilding **
- Debrief
 - Design decisions - what options did you consider? why did you choose..? what would you do differently? what caused...? mid-course changes?
 - Execution/Process - deadline to start building?
 - Teamwork - how did you decide...
 - Observation - did you incorporate others' ideas?
 - Team discussion about what worked, didn't
- 40% innate, 60% learned
- 90% teamwork, 10% luck



?? strengths & weaknesses ??

Supplemental: What can be learned

- Basic types of building activities - practice a variety
 - catapults, cantilevers, bridges, towers, boats...etc...
- Engineering techniques & physics
 - Trusses, bracing, pyramids, ...
 - Tension, compression, loads, friction, ...
- Good building techniques
 - Building something level & symmetric
 - Appropriate choice of materials
 - Making tradeoffs

Key Tournament Day Challenges

- Remember scissors, ruler, pliers
- You may need to compete at 2nd tier objective
 - Can't get your thing working (won't launch m' mallow)
 - Objective too easy (e.g., most boats float w/ 50 pennies)
- Teamwork under stress
- Deadline to start building~!
- Deciding when to start over (save some tape?)
- Will you have to move what you build ???
- No talking in the hallways afterwards!

Supplemental: Resources

- [SciOly Wiki](http://www.scioly.org/wiki/Mystery_Architecture)
http://www.scioly.org/wiki/Mystery_Architecture
 - Handout from 2003 SO Summer Institute
http://soinc.org/sites/default/files/uploaded_files/Mystery%20Architecture%20Handout%202003.pdf
 - North Carolina SO website
<http://www.sciencenc.com/event-help/mysteryarchitecture.php>
=> Coaches institute presentation & sample tasks
 - Search for example challenges, videos, and basic engineering principles
- ** Note: rules were a little different in different years