A STEM Punch in the Face

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CSS

BTE

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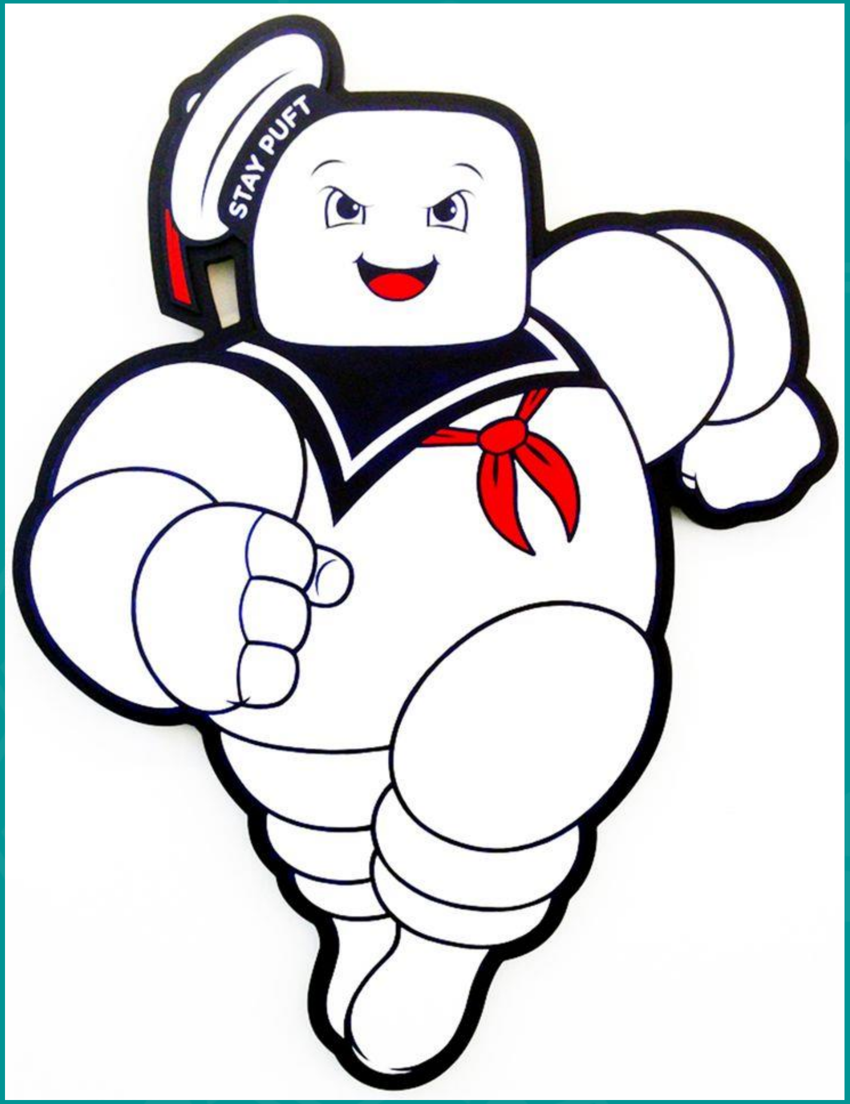
Established 2015
55 students @ Year 1
35 students @ Year 3

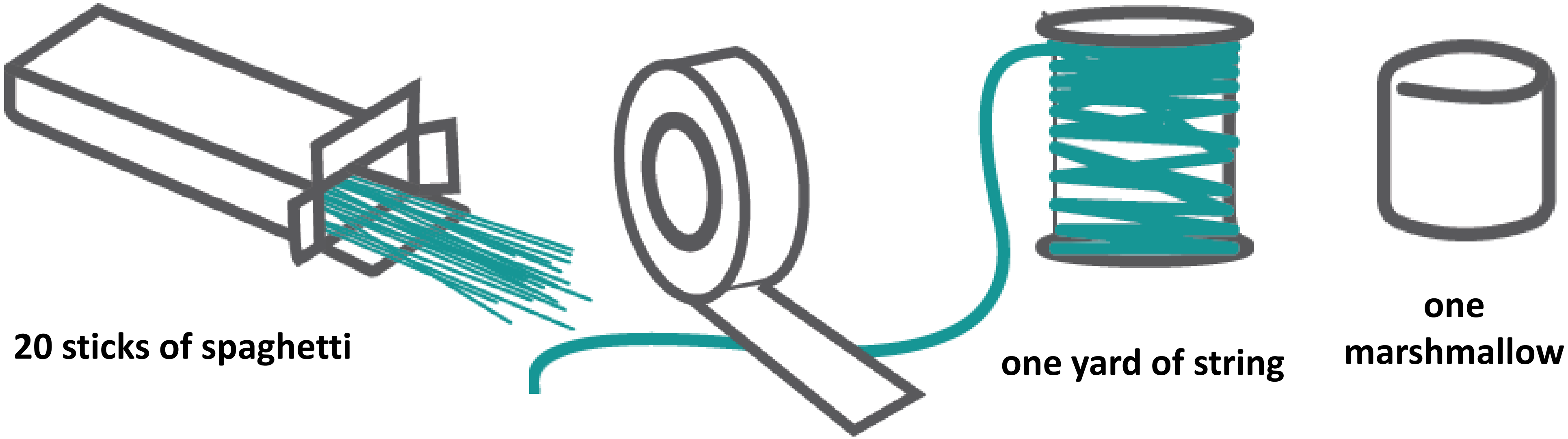
Student Profile

- Academically Challenged
- 80/20 Female Male
- Underserved
- Undocumented

Half Hour Challenge



Build the Tallest Freestanding Structure with:



20 sticks of spaghetti

one yard of tape

one yard of string

one marshmallow

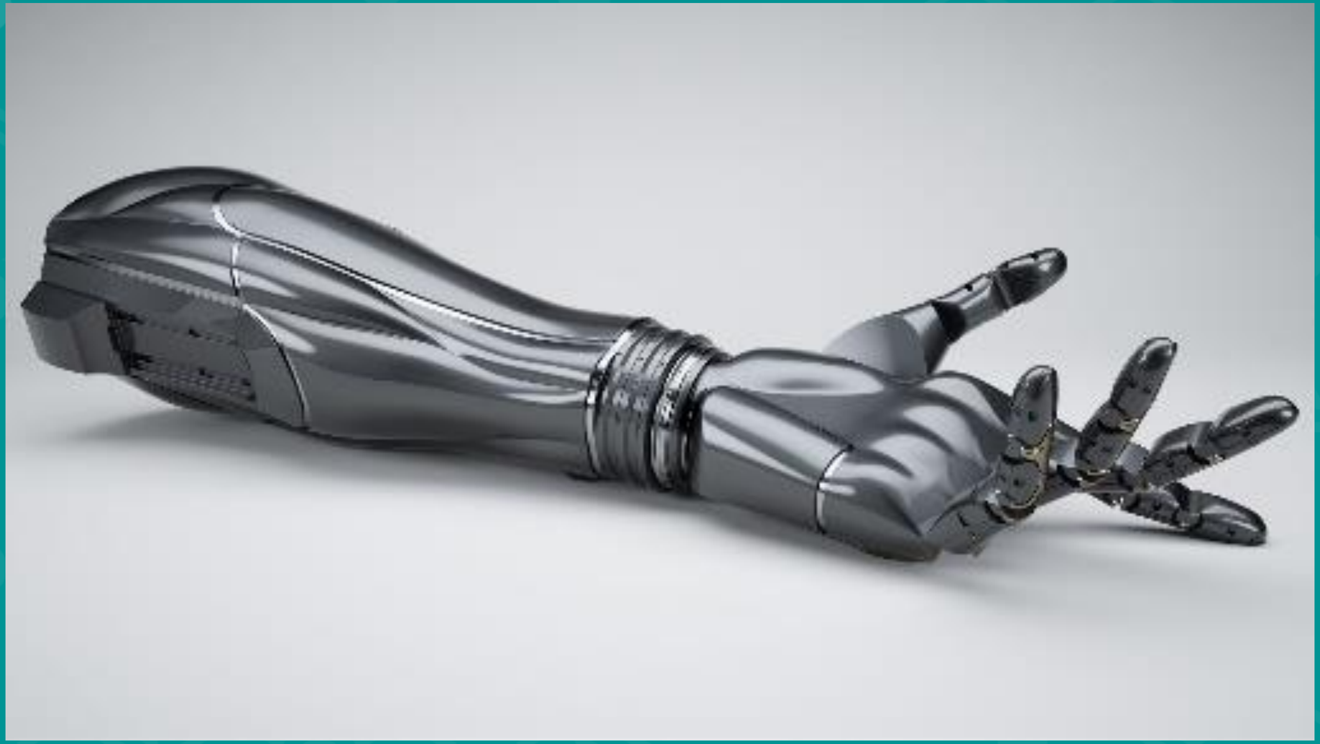
Rules for the Marshmallow Challenge

- The structure must stand on its own.
- The marshmallow must sit on top.
- Use as much or as little of the materials as you want.
- You are allowed to break up the spaghetti, string, or tape.
- Winner: **Tallest Freestanding Structure!**
- **You have 20 minutes to complete this challenge**


Bridge to Employment


Bridge to Employment

3 Hour Challenge

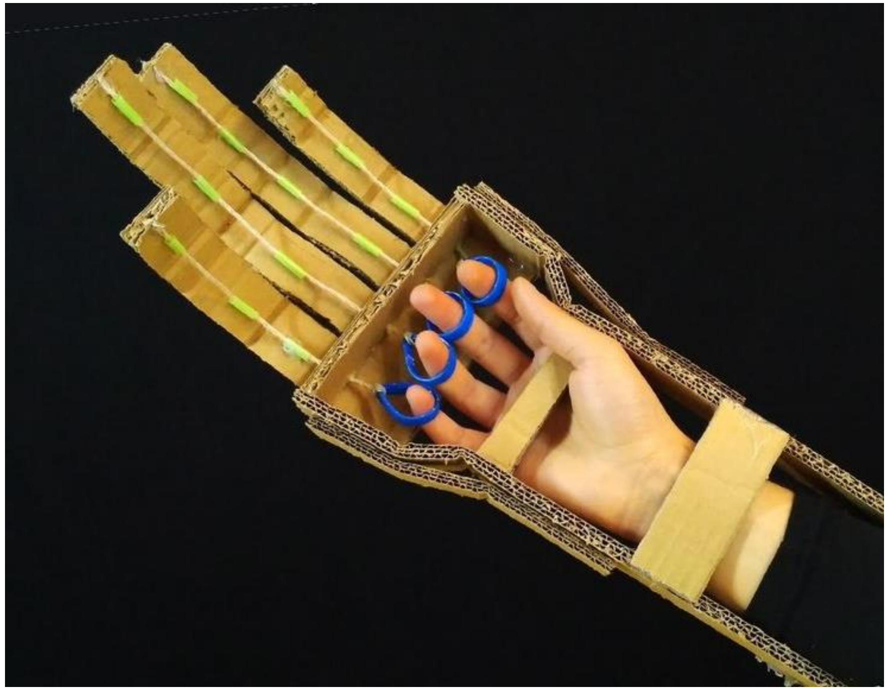


From This . . .

. . . To That

Supply Kit $50

- Glue gun (1)
- Glue sticks (2)
- Pencils (1)
- Sharpies (1)
- Stickers (1 sheet)
- Rulers (1)
- Velcro (1 foot)
- Cardboard (1)
- Box cutter (1)
- String (1 long piece)
- Straws (2)
- Scissors (1)
- Wooden skewer (1)



The Bionic Arm

Objective: Design, create, and market a prosthetic arm that meets the customer's needs from ordinary, household materials

Approach: Each team creates a Company, comprised of Marketing, R&D, Operations, Quality, and Finance roles

Caveat: Each teammate does that not have access to perfect information and is limited in what they can do

Roles and Tasks

Marketing: Interviews the customer, prioritizes needs and wants. Develops a marketing pitch.

R&D: Sketches the design. Can Research information online and take the prosthetic arm to the test range.

Finance: Understands part costs. Confirms product is within budget and profitable.

Operations: Buys parts on released BOM and oversees building the arm.

Quality: Ensures the parts used match BOM. Ensures proper labeling. Showcases the prosthetic arm's functionality to the judges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What We Learned

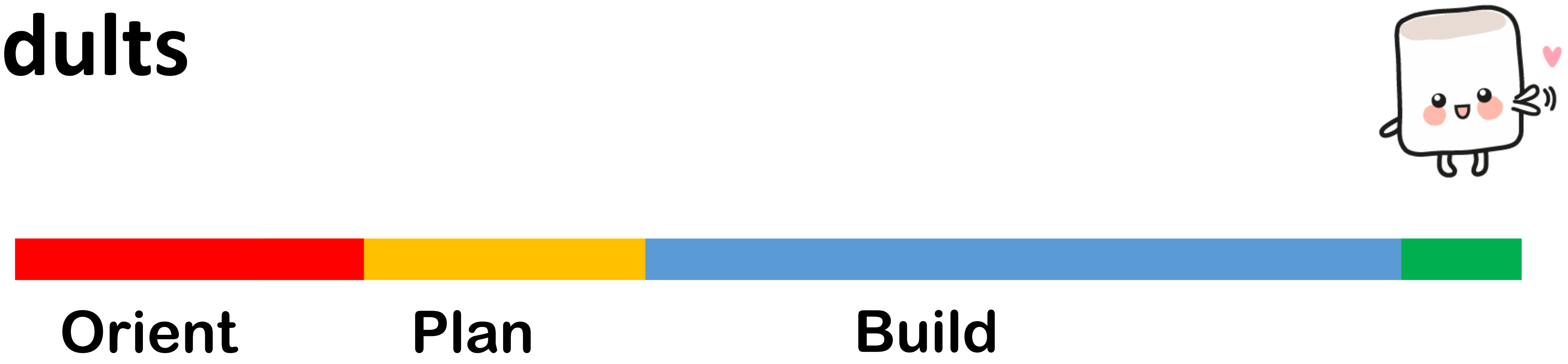
Students are more likely than adults to succeed at these Design Challenges

Why?

Students are more likely to corroborate

Students are More likely to
Brainstorm, Sketch, Build Prototypes

Adults



Students