Title: Gutter Boat

Engineering Challenge

July 20, 2022

Problem Statement: Write the problem statement in your own words and interpretation. What are you trying to achieve? What is being learned through this challenge?

Make a boat out of the specified materials within a specific measurement requirement in order to go the furthest distance.

Materials: List the materials given (if any).

- 1 Plastic cup
- 1 Pipe Cleaner
- 1 Tissue
- 2 pieces of construction paper
- 2 rubber bands
- 4 sticks
- 2 straws
- 6in tape
- 2 hair pins

Approach: Write a description of your plan to achieve the goal of the problem statement. Add drawings/sketches/CADs if possible.

We wanted a boat that was buoyant and also fit within the measurement requirements. We also needed to meet the minimum material requirement of 6 different materials. In addition, we wanted a rudder or a fan on it.

Solution: What is your solution to the given problem?

We first divided a piece of paper into two. We attached one of the pieces to the cup with rubber bands and a little bit of tape to connect to the other paper. The other paper had straws attached to it using more tap and pins. The cup was further secured by the pipe cleaner.

Analysis: After testing, did it achieve your goal? Either way, what could you have done better? If given more time/materials, what would you do differently?

After testing, it somewhat achieved the goal. It made it to the 1ft mark but it sank. The water reached the paper and damaged it; the straws did not give the boat the necessary buoyant force needed. Something that could have been done was to make the base out of the cup after splitting it into 2. The cup is waterproof and won't be damaged by the water.

Images: