

H2Go Challenge

Problem: Transport 100ml (3.4 oz) of water in a tiny solo cup from start of the track to finish line of track in the shortest amount of time while spilling the least amount of water.

Rules:

1. We will weigh the cup with water before you race. We will weigh the cup with water after you race. *The amount of water lost will be added to your final time.*

For example: if it took you 25 seconds to complete the course, and you lost 10 mL of water, your final time would be 35 seconds (add one second for every mL of water lost).

2. The vehicle will be a Sphero Bolt. You will be controlling the Sphero remotely with your iPad.
3. You/your group will have to design a "hat" and wagon that will attach to the Sphero. The "hat" will go over the Sphero and will attach to the wagon.
4. You are not allowed to cover the cup with anything.
5. Wagon "walls" need to be lower than the height of the cup.
6. The track, or course, will consist of walls, bumps, curves, and angles.

Things to consider:

1. Weight of 3D printed parts is a HUGE factor. Keep parts thin and light (*except for parts that could break off like a hitch or hook*)
2. We have dowels that can be used as axels.
3. We can cut wheels on the laser, as well as other parts if needed.
4. Measure, measure, measure... and then measure again!!!
5. Get parts okayed and printed by Mr. Podmers
 - a. From OnShape.com: right-click on the part tab: Export: STL: Millimeters
 - b. Save to a USB Flash Drive

You will be graded on how you used the Collaborative Design Process:

Challenge: Read the “H2Go Challenge” Brief. Understand the problem, rules, and things to consider. Write down the problem on top of sketch paper. **5 points**

Imagine: Brainstorm. What are some possible solutions that might work? Use “thumbnail sketches.” Have at least 3 different design ideas. **3 points**

Design: Choose the best idea. Create a sketch of your solution. *Sketch should have measurements and details (label parts, show measurements)* **10 points**

Create: Using Onshape.com, create your “hat,” wagon,” and any other parts you need. **Onshape.com can be used to 3D Print AND Laser Cut** **20 points**

Try it Out: Test it out.

Evaluate

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