

STEAM Project 2016/2017

December 20th

Objective: To build a water drone that will be able to push or pull a 1 kg mass with the fastest time.

Requirements:

1. Drone must be 8-12 inches in length/width
2. It has to push or pull the mass
3. Must be constructed using provided materials
 - a. 3D printer can be used to make pieces
 - b. Additional materials might be permitted with teacher approval
4. Powered by components of provided RC vehicle (No manual pushing/pulling)
5. FASTEST drone wins.

Additional Test(s):

1. Subsequent pull/push: Add on additional mass to see whose will push or pull the most mass (must be full pull within time constraints).

Data to Gather:

1. Total mass of drone, sled, and mass system
2. Acceleration
3. Time
4. Distance
5. Speed (if accelerators don't work)

Use the data to calculate the following:

1. Work
2. Power
3. Force
4. Acceleration
5. Kinetic energy

Event Days Scheduled:

- December 20th (Afternoon)
- January 4th (Afternoon)
- February 1st – Final runs and presentations – Must have PowerPoint/Speech/Preliminary Data
- February 3rd – Final data calculations due

All-Around Competition

- All groups will be awarded points (1-18) in the following categories, with the top overall point earners receiving a prize!
 - Fastest to pull 1 kg
 - Most mass pulled
 - Most visually pleasing drone
 - Best presentation
 - Cheapest drone
 - Lightest drone