# Title: Aerospace Engineering - Bottle Rocket

Engineering Challenge

Monday 24, 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?

The problem to be tackled upon is building a rocket from a 2L rocket to fly the highest and furthest across the upper field. The entire idea of the rocket is to see how the forces of draft, weight, gravity, lift and thrust are applied within a flying object.

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**Materials:** List the materials given (if any).

- Cardboard
- Construction Paper
- 2L Bottle
- Duct Tape
- Hot glue
- Box cutter
- Water
- Clear tape
- Scissors

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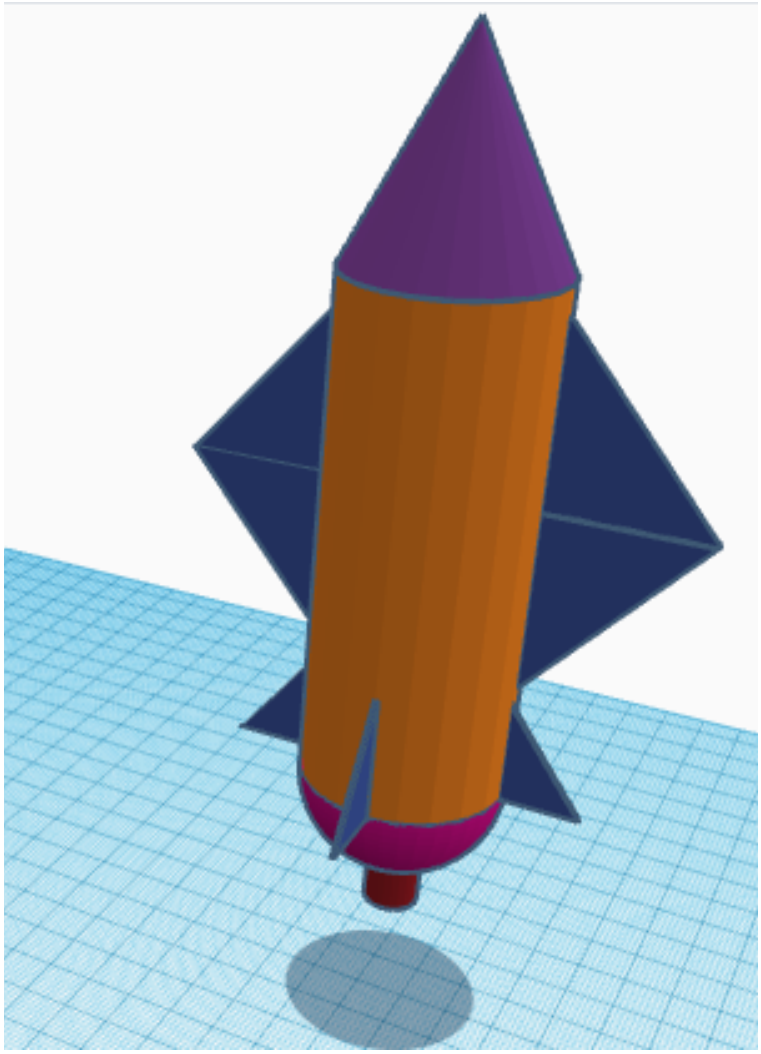
**Approach:** Write a description of your plan to achieve the goal of the problem statement. Add drawings/sketches/CADs if possible.

The plan was to use cardboard for the major attachments for the rocket. This included the cone, bottom four fins, and the wings. We originally planned for half of the bottle to be filled with water.



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**Solution:** What is your solution to the given problem?
The cone was built from a circular cardboard piece folded in half in both directions. Slits were cut between each fold which allowed for the full cone shape to occur. The other pieces were cut normally. Hot glue and tape was used to hold everything together.

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**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?
The rocket somewhat achieved the goal as it did go some distance, however, it did not have a lot of initial lift. It could have been done better if the cone was made out of a lighter material and a little bit smaller. Using lighter materials would be optimal as the weight of the rocket most likely prevented any significant liftoff.

## Images: