

12.4: Procedures

You will build a bottle rocket and analyze rocket flight.

Rocket Construction

1. Draw a table in which to record your rocket data. **Do not fill in data until you have read the instructions for obtaining that data.**

Table 12.4.1: Our Rocket Data

Vehicle Mass	Launch Mass	Total Weight Force

2. Check that the 2-Liter bottle your team brought will fit securely on the launcher. If it does not work with the launcher, check with your instructor.
3. Construct your rocket using the materials provided and any approved materials your team brought. Your team will have 30-40 minutes to complete the construction, record initial data, and be ready to launch.
4. Use the triple beam balance to measure the mass of your completed rocket, in kilograms. Record this value as your vehicle mass.
5. Fill your bottle rocket about 1/3 full of water. Use the platform spring scale to measure the total mass of your rocket now that the "fuel" has been added. Record this value as your launch mass.
6. Calculate the total weight force your rocket must overcome with thrust.

Rocket Competition

Warnings

- Rockets may curve, travel sideways, and/or may fall toward you.
- Impact glasses are strongly recommended.

7. Make sure someone on your team has a stop watch. There should also be someone prepared to write down the flight time for each rocket at the launch site.
8. Everyone will walk to the launch site together. Each team will be allowed 10 pumps with the manual bicycle tire pump. Your instructor will count down the launch, while someone on your team stands ready to launch your rocket. Teams will need to measure and record time of flight, for each rocket. Plan to observe and ascertain which rocket is the highest flying rocket with respect to nearby trees and buildings.

Clean-up

- Throw away all rocket building scraps
- Recycle 2-Liter bottle

Contributors and Attributions

- Template:ContribCCPhySc101L

12.4: Procedures is shared under a [CC BY](#) license and was authored, remixed, and/or curated by LibreTexts.