

Rocket Balloon Race

Newton's Laws



A resource created by SaxaVord UK Space Port

This is designed to present Newton's Third Law in a simple way – but relevant to process of rocket propulsion. Different balloon and inlet sizes will be used by different teams to show how the amount of fuel (air) and flow rate of propellant (outlet hole size) impact the speed and distance of each balloon.

The experiment will be approximately 50 minutes, including setup, multiple runs for testing variables, data collection, and a concluding discussion to interpret results.

Apparatus

- Long balloons of varying sizes
- Straws and strings to serve as the "track" for the balloon rockets.
- Tape to attach the balloons to the straws.
- Varying sized straws to act as fuel outlet
- Measuring tape and stopwatch for data collection.

Procedure

1. Teams are assigned balloons of different sizes and given straws with varying inlet sizes.
2. Each team threads a straw over a string, which is stretched between two anchors across the room.
3. The balloon is inflated and taped to the straw (See Figure 1 for setup).
4. Upon release, teams measure the distance travelled and time taken for their balloon.

