Rocket Data Sheet and Launch Record

Rocket Description	
Owner:	Hannah and Bianca
Rocket Name:	Arlo
Type:	Sumo
Length: (inches)	39"
Diameter: (inches)	4"
Fins:	4
Listed Mass: (g)	907
Date of Construction:	3/1/2016
Recommended Motors: (G only)	
G64-7W, G76-7G, G77-7R, G80-7T	
Center Gravity(CG):	26
Center Pressure(CP):	29.5

Building Notes

The plunger was difficult to glue. Ended up having Duhrkopf glue it and the engine rings to the rocket for us.

Estimated Cd:	0.32
Predicted Altitude:	800

Prediction Notes

Previous lauches of the sumo achieved a height of about 875 feet and the Aerotech prediction was 857, but we don't think that our flight will run perfectly, justifying our prediction.

Launch Information	
Date:	5/2/2016
Time of Launch:	10:10
Location:	By Muni
Rocket Mass(g):	1007
Motor:	G76-4G
Motor Mass(g):	147
Altimeter Mass(g):	9.9
Liftoff Mass(g):	1163.9
Wind Direction:	West
Wind Speed:	10-15 mph
Igniter:	First Fire
No. of tries to ignite:	1

Ignition

¨ Successfull	¨ Blow Out
¨ Caught on clips	¨ Motor Failure

Trajectory

¨ Straight-Up	¨ Spinning
¨ Corkscrew	¨ Non-vertical
¨ Into the wind	¨ Unstable

Launch Notes

We changed the trajectory to a little bit into the wind, but not too much. No problems during our launch.

Recovery Information

Ejection Occurred

¨ During Ascent	¨ At Apogee
¨ After Apogee	¨ During Descent
¨ Ejection Failure	

Parachute Deployment

¨ Full	¨ Partial
¨ Did not deploy	

Parachute Descent

¨ Stable Descent	¨ Tangled lines
¨ Some swaying	¨ Sprial descent

Reason for Recovery Failure

¨ Damaged Chute
¨ Tight Upper Body tube
¨ Improper setup
¨ Chute Separated
¨ Motor Ejected
¨ Unplanned Separation
¨ Other _____

Descent Speed

¨ Slow	¨ Average speed
¨ Very fast	¨ Ballistic

Landing

¨ Soft	¨ Water
¨ Tree	¨ Caught on Wire
¨ Hard	¨ Crash
¨ Landed on Building	

Recovery

¨ Full Recovery	¨ Lost
¨ Not Recoverable	¨ Parts lost

Distance & Direction from pad:

Landed 250 m to the southwest of the pad, near the pond

Recovery Notes

Recovery went A-Ok

Post Launch Information

Flight Grade

¨ Excellent
¨ Good
¨ Fair
¨ Poor
¨ Rocket cannot launch again

Describe any damage to the rocket:

A bend on the bottom of the rocket and a scuff in the paint on fin

Altimeter Two Data	
Apogee Altitude:	822
Top Speed:	180
Burn Time (burn):	1.43
Peak Acc (Pacc):	14.2
Avg Acc (Aacc):	5.7
Coast Apogee (C2AP):	4.8
Apogee to Eject (AP2E):	-1.6
Ejection Alt. (EALt):	734
Descent Speed (dESc):	11
Flight Duration (durA):	49.9

Altimeter Data Analysis

Apogee? We went 22 feet more than we predicted.
Ejection? Our parachute ejected before reaching its apogee. If we went with the -7 it might have been better, but it also would have been cutting it too close to the ground. It might not have had enough

Prediction vs Actual Analysis

Our prediction was close. As stated before it was only, 22 feet off from the prediction vs. actual. The angle was tilted into the wind. Our prediction took into account our error, decreasing our apogee, but Arlo did better than expected.

You don't need as much baby powder as previously believed. We had so much that it produced a cloud of white when the parachute deployed. You don't need as much baby powder as previously believed. We had so much that it produced a cloud of white when the parachute deployed. Don't worry about rocket rally day because it is just a relaxing day of no worrying. It doesn't matter the height. A delay time of seven might have been better like with Brittany's, but seven seconds might also be too long. A delay time of six would be perfect for this design.

Rocket Project Suggestions

Pick an easy design that you can put yourself in that you know you can do well. The altimeter did work after we made four holes for the altimeter to measure the height.