

Rocket Description		Recovery Information		Altimeter Two Data	
Owner:	Zach Macke	Ejection Occurred		Apogee Altitude:	1224 ft
Rocket Name:	Old School Runesc	• During Ascent	• At Apogee	Top Speed:	219 mph
Type:	Arcas	• After Apogee	• During Descent	Burn Time (burn):	1.56 s
Length: (inches)	56	• Ejection Failure		Peak Acc (Pacc):	10.8 g
Diameter: (inches)	2.6	Parachute Deployment		Avg Acc (Aacc):	6.4 g
Fins:	4	• Full	• Partial	Coast Apogee (C2AP):	7.6 s
Listed Mass: (g)	621	• Did not deploy		Apogee to Eject (AP2E):	-7 s
Date of Construction:	March/April 2016	Parachute Descent		Ejection Alt. (EALt):	1213 ft
Recommended Motors: (G only)	G53-7FJ	• Stable Descent	• Tangled lines	Descent Speed (dESc):	29 mph
		• Some swaying	• Sprial descent	Flight Duration (durA):	36.9 s
		Reason for Recovery Failure		Altimeter Data Analysis	
Center Gravity(CG):	39.5"	• Damaged Chute		All of the Altimeter data looked acurate. The only shocking number would have been the decent speed of 29 mph. After taking into acount that the parachute didn't unravel it is reasonable. Also I had a 7.6s delay and I had a 7 second delay engine so that is reasonable. The altitude	
Center Pressure(CP):	47"	• Tight Upper Body tube			
Building Notes		• Improper setup			
Everything went great, used lots of maj paj. One of the upper clips broke when pushing it in, but it didn't effect the sturdiness of the		• Chute Separated			
Estimated Cd:		• Motor Ejected			
Predicted Altitude:	1237.79 ft	• Unplanned Separation		Prediction vs Actual Analysis	
		• Other		There was a very small difference in my predction and my actual apogee. I'm surprised that I was able to get a prediction that was only 14ft off the actual apogee. There was a slight wind and we did angle the rocket slightly into the wind, so if we would have had no wind and angled the rocket straight up I could've acheived the predicted height.	
Prediction Notes		Descent Speed			
This is based off wksh 7 w/ factors above using the G53-7FJ		• Slow	• Average speed		
		• Very fast	• Ballistic		
		Landing			
Launch Information		• Soft	• Water	I had no problems with the construction of my rocket unlike some of the groups. The painting and design portion was a bit unique compared to some of the other groups because beyond just spray painting the rocket I had the idea to maj paj all of thse separate icons onto the rocket. It took a lot of maj paj and was pretty messy. If I were to do it again I would probably try and some how find a way to turn all of the icons into stickers and just have to stick them on. It was a pain to cut them all out. I feel that I was great on the predicting side of things and don't feel like that needed improvement. The launch and recovery of the rocket went as planed other then the parachute issue. I definatley know now to not wrap the parachute as tightly as I was.	
Date:	5/3/2016	• Tree	• Caught on Wire		
Time of Launch:	10:30	• Hard	• Crash		
Location:	NE Driving Range	• Landed on Building			
Rocket Mass(g):	621	Recovery			
Motor:	G53-7FG	• Full Recovery	• Lost		
Motor Mass(g):	148.2	• Not Recoverable	• Parts lost		
Altimeter Mass(g):	9.9	Distance & Direction from pad:			
Liftoff Mass(g):	779.1	450ft south-east from the launch pad			
Wind Direction:	Blowing -- W to E	Recovery Notes			
Wind Speed:	8 MPH	The rocket came down with out the assistance of the parachute. This caused it to come down quite fast and hard. It landed by the pond south-east of the launch pad.			
Igniter:	First Fire	Post Launch Information			
No. of tries to ignite:	1	Flight Grade			
Ignition		• Excellent			
• Successfull	• Blow Out	• Good			
• Caught on clips	• Motor Failure	• Fair			
Trajectory		• Poor			
• Straight-Up	• Spinning	• Rocket cannot launch again			
• Corkscrew	• Non-vertical	Describe any damage to the rocket:			
• Into the wind	• Unstable	The only damage to the rocket would have been the the nose cone. Even though the rocket came down without the parachute it suffered no structual damages and appears to be ready for another launch. Upon impact the bottom half of the rocket landed in the softer mud next to the lake and the upper portion landed in the water. I think the fact that it landed in a more wet and muddy area			
Launch Notes		Rocket Project Suggestions			
Rocket launched on the first igniter without any problems. It launched into the wind somewhat. It launched mostly straight however there was a slight curve into the wind as it got towards the higher altitudes.		I don't have any suggestions for the project. I think that it has been perfected through all the years and I felt it went great.			