

### DROP TEST RESULTS

Altitude  
(meters)

24

Date: 4/1/23

Location: HCC -  
Building 7

	Mass (bare)(grams)	Mass with descent control (grams)	Leaf number	Trial 1: Time (seconds)	Trial 2: Time (seconds)	Trial 3: Time (seconds)	Average Time	Speed m/s
Yellow ball	5	25	2	2.88	2.98	2.86	2.91	8.26
Green ball	6	23	4	3.60	5.73	4.82	4.72	5.09
Red Ball	5	19	2	4.38	3.46	3.46	3.77	6.37
Red Ball 2	5	30	4	4.23	4.19	4.16	4.19	5.72

Test 2

	Mass with descent control (grams)	Mass Added (grams)	Total Mass (in grams)	Trial 1: Time (seconds)	Trial 2: Time (seconds)	Trial 3: Time (seconds)	Average Time	Speed in m/s
Green Ball	23	19	42	3.28	3.05	2.78	3.04	7.90
Red ball 2	30	19	49	3.26	3.05	3.05	3.12	7.69

The drop test was conducted with Anya Dmitrijevic, Ms. Helen Rapozo, and Dr. Kan Shidong. The location shielded the dropped balls from the wind. The balls with control mechanism of 4 leaves performed better than the control mechanism with 2 leaves. In the second trial, we only tested the two balls with 4 leaves. In addition, we added additional mass.

**Results:**

In this test, the descent rates of 2-leafed-descent mechanism with an area of 45.67 cu.cm. can support an average mass of 22 g (340% of the original mass) at the average speed of 7.32 m/s descent rate. The four-leafed descent mechanism performed better. With an area of 68.5 cu.cm, the green ball can support a mass of 42 g (720 % of the original mass) at 7.90 m/s descent rate, while the Red ball can support a mass of 49 g (880 % of the original mass) at 7.69 m/s descent rate.