May 30, 2021

Experiment Plan: Seed Test for the High-Altitude Balloon Test

Payload Summary:

2 Plastic vials with Seeds inside secure 3D printed plastic casing

Total Mass: 14 grams / 0.494 oz.

Total Dimensions: 17.5 mm x 39 mm (Vial) (0.69” x 1.54”) (Vial)

Sample holder: 81.5 mm / 3.21” x 20.5 mm / 0.81”(tall one)

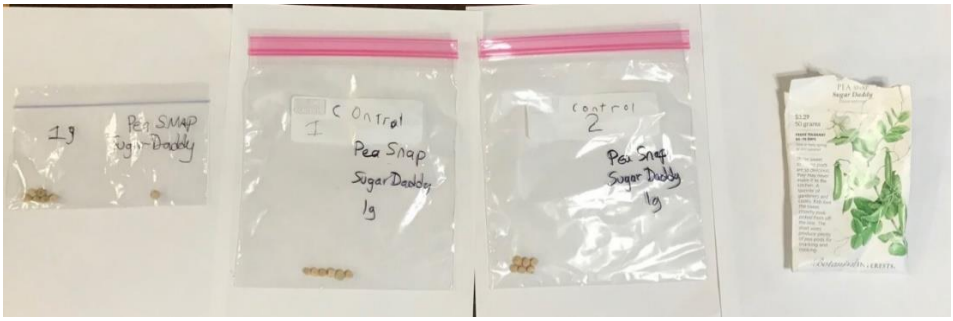
39 mm / 1.54” x 41 mm / 1.62” (side by side)

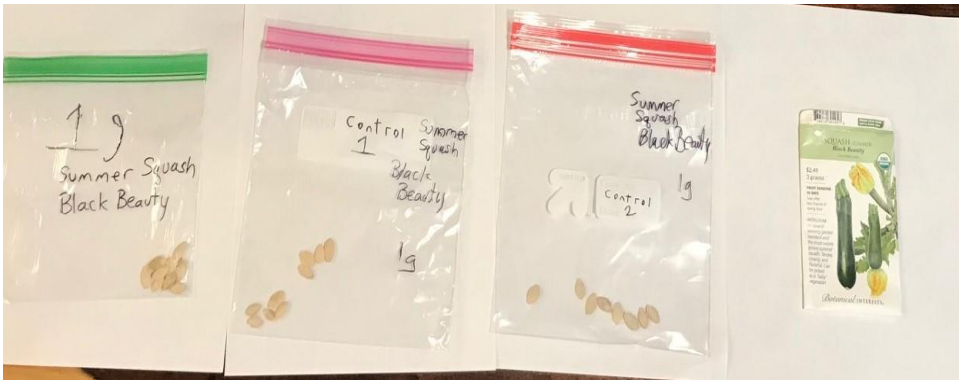
Our test contribution will focus on seeds. We have two test groups with two control sets each of equally weighed seeds. After the two test groups of seeds are sent up to 100,000 feet in space and are returned to us, we will plant them at the same time as the ones in our control groups.

- We will label, observe, measure, and record their growth rates and output
- We will ensure that all seeds are treated the same way with the same amount of light, water, and nutrients
- We will compare the results between the test sample and the control sample
- and maybe eat them…

We selected these seed varieties because they are hardy and know they have been successfully grown by us in the past: Sugar Daddy Snap Pea seeds and Black Beauty Summer Squash seeds. They were purchased at the same time, at the same place.

We weighed each test and control group of seeds all out to 1 gram on a digital scale and also on a pan balance scale.. We labeled everything and will be keeping it all together in a cool, dry, and dark place until it is needed to be shipped.





Additionally, for packaging, we discussed the pros and cons of airtight resealable baggies versus a plastic vial.

We have plastic sterile science vials at home and we measured them out to 3 grams / 0.106 oz. each.

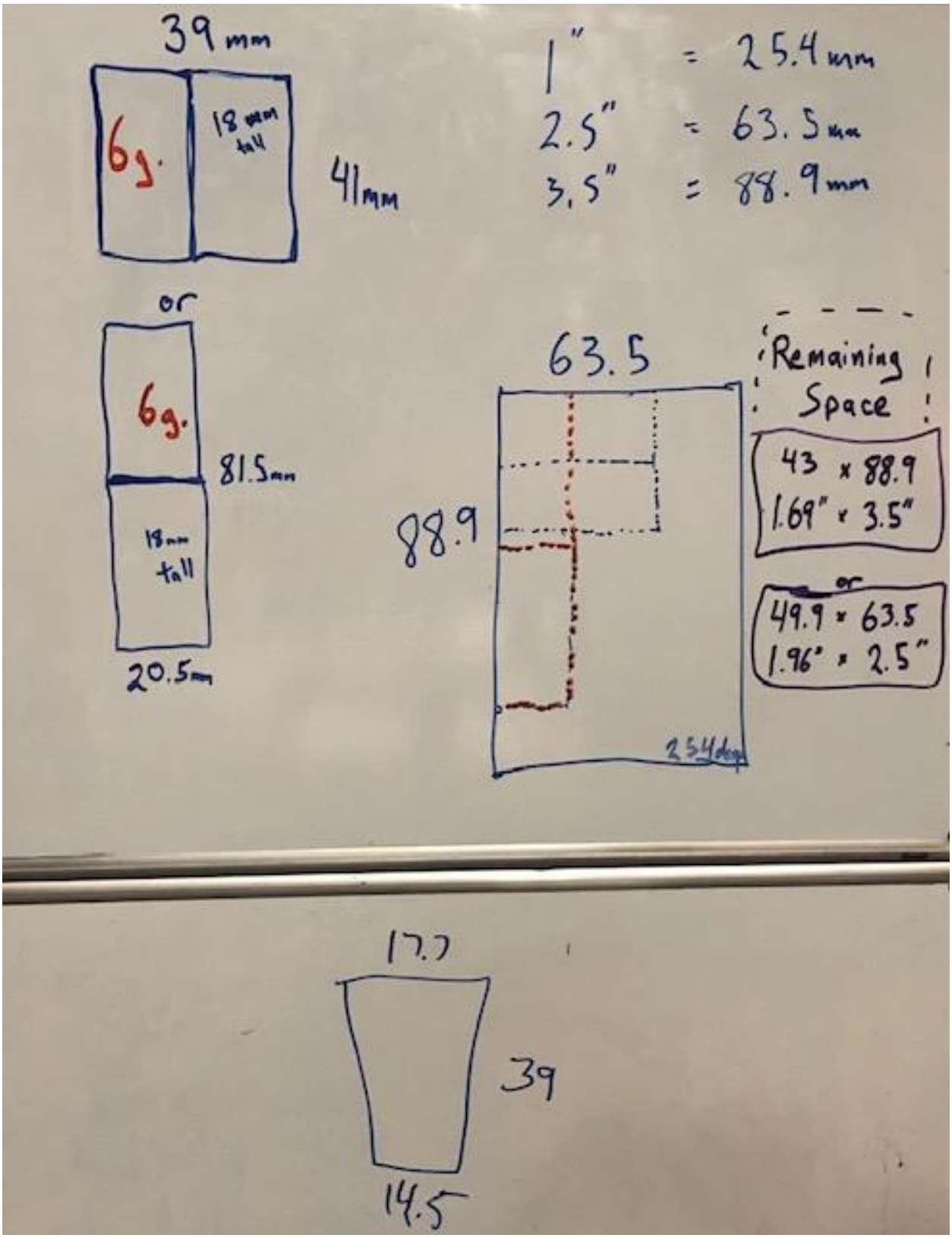

Therefore, the sample of squash seeds weigh a total of 4 grams/ 0.141 oz. (3 grams / 0.106 oz. for the vial and 1 gram/0.0353 oz. for the seeds) and the same for the pea seeds.

We also used a micrometer to measure the dimensions of the packaging that will need to fit into the SpaceWorks box.

Sean designed with TinkerCad a secure housing and 3D printed it out of red PLA plastic. It is a thin plastic package to securely house the two vials so they do not move around in the box. The top of the vial will be secured with scotch tape.

OR

Our whiteboard:



Thank you Janet and SpaceWorks for the opportunity. It means so much to us as we both hope to be in science and this helps us greatly