

HAB4 Experiment Proposal

Measuring The effects of UV radiation, low temperature, and exposure to a near vacuum on the taste of jelly beans.

Submitted by Students in the La Paz Intermediate School
HAST-C After School Program

Student Grades: 7th and 8th

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HAB4 Experiment Proposal: Measuring the effects of UV radiation and exposure to low temperature and a near vacuum on the taste of jelly beans

Jelly beans are a popular snack for people of all ages including the authors of this proposal. If we ever get a chance to travel into space we will want to know if our favorite candies will still be enjoyable after the journey. The proposed experiment will expose jelly beans to extremely low temperature, low atmospheric pressure, and high UV radiation as they could be exposed to during space travel. We will fly the jelly beans in a payload of a high altitude balloon and evaluate the flavor, sweetness, and texture of the jelly beans both before and after flight.

Hypothesis:

We believe that the taste, texture and flavor of jelly beans will not be degraded after they are exposed to very low temperature, atmospheric pressure, and high UV radiation.

Variables:

Independent Variables: Atmospheric Pressure, UV Radiation.

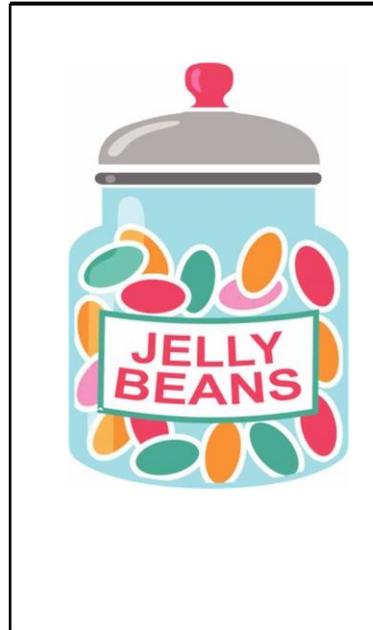
Dependent Variables: Sweetness, Texture, and Flavor

Experimental Procedure:

1. Before launch the experimenters will rate the jelly beans on a scale of 1 to 5 for sweetness, texture, and flavor. Each experimenter will taste one jelly bean of every color so as to not skew the results based upon their favorite flavor.
2. Jellybeans from the same source will be placed in a plastic zip lock bag, taped to a window in the payload box, and then flown up to an altitude of 20 miles where they will be exposed to UV radiation, low temperatures and low atmospheric pressure for about 3 hours.
3. After the flight the experimenters will taste the jelly beans that were flown and again rate them for sweetness, texture, and flavor.
4. We will then average the results from the taste testing before the flight and compare these values to the average results from the taste testing after the flight.
5. If our hypothesis is correct then there should be no significant difference between the average values for each dependent variable.

Schematic:

Payload
box



UV Radiation from Sun

Window in
Payload Box

Materials List:

1. 20 oz of Jelly Beans (10 oz for pre-flight testing; 10 oz for flight and post flight testing)
2. Plastic zip lock bag (< 1 oz)
3. Evaluation forms (not to be flown)

Total Weight for Payload: 11 oz (0.69 lbs)

Taste Testing Evaluation Form:

Date of Test: _____

	Rating (1 – Not Good, 5 - Great)		
Color Tested	Texture	Sweetness	Flavor

References:

Jelly Beans Taste Test, Joy in the Works, March 23, 2015, <https://www.joyintheworks.com/the-best-jelly-beans-of-2015/>

How Long Do Jelly Beans Last?, Eat By Date, <http://www.eatbydate.com/other/sweets/how-long-do-jelly-beans-last-shelf-life-expiration-date/>