



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Sofia Perez; Janet Reyes-Zamora	Project Number S1812
Project Title The Effects of Increased Air Pressure on Seed Germination	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This experiment was conducted to compare the effects of atmospheric pressure and increased air pressure on germinating seeds.</p> <p>Methods/Materials In this experiment, seeds from four varieties of pea plants were grown using two procedures: Test Tube and Soda Bottle methods. Fizz keepers were used to pump air into test tubes and 12 ounce soda bottles for increased pressure. Soda bottle caps were used to cover test tubes and soda bottles for atmospheric pressure. Seeds were grown using both methods and placed under experimental conditions for one week. The increased air pressure from the fizz keepers was estimated by measuring the amount of air that was pumped into the bottles and test tubes and the amount of air in the test tubes and soda bottles that were covered with soda caps. The pressures for both atmospheric and increased air pressure were calculated by using the amount of measured air from the bottles and test tubes and Beer's Law.</p> <p>Results The average sprout length results for Sugar Snap peas were: 6.78 cm for seeds that germinated under sea level pressure and 1.48 cm for seeds that germinated under increased air pressure for the Test Tube method. The Soda Bottle method had similar but less significant results. The average sprout lengths for Sugar Snap and garden peas were 2.65cm for seeds that germinated under sea level pressure and 1.65cm for seeds that germinated under increased pressure.</p> <p>Conclusions/Discussion Our hypothesis was that an increase in air pressure during germination would help increase sprout length. This was incorrect. An increase in air pressure during the first week of germination caused shorter sprout lengths for pea plants. A possible reason was that a week was too long. In future research, the experimental germination period will be shortened and plants with different seed types will be investigated</p>	
Summary Statement The difference between atmospheric sea level pressure and increased air pressure was compared for optimal germination conditions for four varieties of pea plants.	
Help Received My science teacher helped us design the project and we conducted the experiment and collected data by ourselves.	