



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Danielle M. DeBrine	Project Number 33033
Project Title It Is Clear to the Naked Eye... That Plants Grow Best Under PSI!	
Abstract Objectives/Goals The purpose of this experiment is to determine whether plants grow best under low or high pressure, or at no pressure at all. Methods/Materials The method for this experiment included growing plants in containers at different levels under water. The containers were covered with a balloon to allow the pressure to enter the container. The following is the method and materials used: First, cut four 8 x 8 squares out of paper towel. Add 2 ml of water to the paper towel squares after you place them in the bottles and place three radish seeds on each of the squares. Cover the top of each bottle with a balloon so the pressure can enter the bottle. Then, suspend the bottles into the water using the string/brick contraption. Be sure that the bottles are at the following depths: <ul style="list-style-type: none">- 7 feet 3 inches (on the bottom of the pool)- 3 feet 3 inches (floating at a mid depth)- 4 inches (floating near top of pool) Repeat 3 times for replicate trials. Results The results of this experiment show that plants under greater pressure grow much faster. For example, the one under 3.3 psi (on the bottom of the pool) on day 3, trial 3, had grown 2.5 cm roots, while the control (which wasn't under any pressure) had only grown 1cm roots. Also, on day 7, trial 2 the plant at the 7 foot 3 inch depth had growth 3 cm while the plant at the 4 inch depth only had 1 cm of growth. Conclusions/Discussion The hypothesis was that plants would grow best under greater pressure, and the results have proven this. The results have proven the hypothesis because the seeds under greater pressure grew faster than the seeds exposed to lower pressure. This experiment expands our knowledge about plant biology because it shows that under pressure plants grow faster.	
Summary Statement The purpose of this experiment is to determine whether plants grow best under pressure.	
Help Received For assistance with this project, I got help from my Mom to edit my report. She also taught me how to make graphs on excel. My Dad also helped me take the pictures in this experiment. My Uncle, who is a physicist, also told me the effect the balloon had on the pressure in the container.	