



# CALIFORNIA STATE SCIENCE FAIR 2017 PROJECT SUMMARY

<b>Name(s)</b> <b>Maggie R. Watts</b>	<b>Project Number</b> <b>J1928</b>
<b>Project Title</b> <b>Comparing Impacts of Different Hydroponic Methods on Plant Growth</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> I chose to investigate hydroponics because I was thinking of the future of environmental issues. The goal of this project was to test three methods of hydroponics and find the most effective method at the least expense. I tested three hydroponic methods: Coco/Fabric Pots, Clay Pebbles/Deep Water Culture and Rock Wool/Deep Water Culture. I hypothesized the most productive hydroponic method would be the Coco/Fabric Pot method because I thought the Coco/Fabric method would promote the best root growth.</p> <p><b>Methods/Materials</b> My materials consisted of 36 pea plants and three different hydroponic systems. My 42 procedures were set up according to each hydroponic system. I followed the plants through the flowering and pea pod formation for approximately 60 days. I documented plant heights, pea blossom ratios, and plant survival.</p> <p><b>Results</b> The largest percent change in plant height was the Clay Pebbles/Deep Water Culture, with a 40% average increase in plant height. Similarly, the Coco plants had a 36% average growth increase. The Rock Wool method plants reflected only a 5% growth increase. During the 60 day period, 33% of the Rock Wool plants died, 25% of the Clay Pebbles Plants perished, and at the end of the 60 day period, all of the Coco Plants were alive and healthy. I also measured blossoms and their conversions to peas. The Coco plants produced the most blossoms, 34, with 50% of those blossoms became peas. The Clay Pebbles produced 29 blossoms, with a 45% conversion rate to peas. The Rock Wool plants produced the fewest blossoms, 26, but 65% of those blossoms became peas.</p> <p><b>Conclusions/Discussion</b> While observing these hydroponic plants, I found that the most effective hydroponic method was the Coco/Fabric Pot method. With the Coco/Fabric Pot method all of the plants flourished throughout the 60 day observation period. The Coco plants had stronger looking stems, a denser root system, and more leaves and blossoms than the other two methods. Throughout this project I learned about how different hydroponic methods function, why they work that way, which of these methods are the most effective, general gardening information, history of hydroponics, and information on large hydroponic farms. This project is important for the future because when environmental issues become challenging, hydroponics might be a solution to keep the air clean, grow plants, enjoy gardening, and accomplish it all in a small space.</p>	
<b>Summary Statement</b> The goal of my project was to test three methods of hydroponics and find the most effective method with the least expense.	
<b>Help Received</b> An employee at Encinitas Hydroponics taught me about hydroponics and gave me a student discount on my materials.	