



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Zachariah Budd; Nathan Patton</b>	<b>Project Number</b>  35775
<b>Project Title</b> <b>Aquaponics Engineering</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Our objective was to design and build an aquaponics C.H.O.P. (Constant height, one pump) system. We also wanted to use bell siphons to fill and drain the grow-beds. A bell siphon lets the water level of the grow-bed fill to a certain height, then suctions all of the water out of the grow-bed. One pump saves electricity.</p> <p><b>Methods/Materials</b> We designed a multiple grow-bed aquaponics C.H.O.P. system. We used bell siphons to fill and drain the grow-beds. Tilapia was a very common choice for fish when it comes to aquaponics systems, so we used tilapia in our system.</p> <p><b>Results</b> We were successful in designing and building an aquaponics C.H.O.P. system. The bell siphon and single-pump design operates well. We are growing lettuce, peppers, and herbs.</p> <p><b>Conclusions/Discussion</b> We successfully designed and built a C.H.O.P. aquaponics system. It operates by itself. From this project, others can learn about how a bell siphon works or why not to leave the roots of plants in water 24/7.</p>	
<b>Summary Statement</b> We designed and built a self-operating aquaponics system.	
<b>Help Received</b> Zach's dad gave us some ideas for building our aquaponics system; Mrs. Rodriguez gave us financial support; Zach's dad took us shopping.	