



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kaitlyn A. Russo</b>	<b>Project Number</b>  36359
<b>Project Title</b> <b>The Effect of Vertical Gardening on Soil Quality</b>	
<b>Objectives/Goals</b> The purpose of my science fair project is to determine at which level of vertical gardening the water run-off becomes the most contaminated and is recycle the water an affective way to reduce contaminating run-off. <b>Abstract</b> <b>Methods/Materials</b> Materials: Two 5-layer Vertical Gardens, 3 bags of Unfertilized Soil, 3 bags of fertilized soil, 160 Radish seeds, The Lamotte water test kit, N-P-K Kit, 1000ml beaker, 2 Black Bins, Window screening, Syringe, Small piping, 2 containers to collect water, 2 wooden planks, Duct tape, Aquarium pump, and 1.5 in tubing Procedures: Set up the vertical gardens using the 2 bins and place two layers of soil in each: one fertilized, and one unfertilized. Next plant readish seeds. Water as needed but when watering collect the water run-off from bins and test for nitrates and phosphates. Continue first trial for two weeks, then after two weeks start second trial adding a third level. Then after another two weeks conduct another trial but adding another level. Then lastly conduct a fourth trail but this time both vertical gardens will have fertilized soil and you will connect an aquarium pump tyo one of them to recylce the water run-off back up to water again. Plant radish seeds again and then let them grow to maturity, then compare plants from the vertical garden with the pump and the one without one. Record all results <b>Results</b> My results were surprising at first becuase instead of the nitrates increasing with each level they decreased, but after further research I found that was because of the denitrification process. The nitrates from the soil becuase of a heat increase left the soil in to the air. But overall I proved my hypothesis correct. <b>Conclusions/Discussion</b> When farmer farm they fertilize, well most of that fertilizer is lost when the water strips the nutrients. Vertical gardens and recycleing cannot only help prevent water pollution of nitrates and phosphates but also save farmers money but recycling the water with all the nutrients back through the soil.	
<b>Summary Statement</b> I used vertical gardens to analyze soil quaiity and determine a method to prevent nutrient lose.	
<b>Help Received</b> I used Vertical Gardens that Sherra Vongher provided through a grant program.	