



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> Elena Marie S. McConnell	<b>Project Number</b> <b>J2022</b>
<b>Project Title</b> <b>The Affect of pH on Blue Lake 274 Bean Growth</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The hypothesis that I am presenting is that bean plants that are watered with higher levels and the lower levels of pH will not grow as fast or healthy as the ones in the middle, around pH 7.</p> <p><b>Methods/Materials</b> <b>Materials</b> Bean seeds,Jiffy Pots,plastic cups,pH UP &amp; DOWN,soil,Water,pH strips,5 one gallon sterilized jugs,5 gardening pots,measuring device,marker,labels,Ruler,Notepad. <b>Methods</b> Mix pH solutions.Use pH strips to make sure the pH is correct.Mark jug with pH number. Use 25 small Pots to start the seeds,five pots per pH labeled.Fill each pot with soil with 4 seeds. Place plants by inside where they get sunlight. Water with marked plastic cups,water daily, water the same amount for each pot. Measure growth rate each day, Record data. Transplants plants into larger pots. Water plants with 7 oz,of water,Increase to 14 oz. when they double in size.</p> <p><b>Results</b> The first sprout was from pH six and had the highest average in the beginning. Most of the time pH seven had the highest average and the other plants followed close behind.The last bean plant to sprout was from pH five and it had the shortest average in the beginning, but after time it caught up to the other plants.Most of the time pH five and pH nine were growing at the slowest rate as my hypothesis indicates.All the plants look healthy and are beginning to sprout flower buds.</p> <p><b>Conclusions/Discussion</b> All the plants appeared healthy, there only slight differences in growth rates.There appears to be flower buds on all the plants which are the beginning of bean pods.The pH six plant containers sprouted first,but all the pH plants have basically been growing at the same pace since the beginning.Currently pH seven is growing at a slightly faster rate and pH nine is growing the slowest. My hypothesis was on the right track though because I hypnotized that the bean plants watered with a pH in the middle would do better, my data indicates this. There was not a significant difference in growth rates and was not as dramatic as I thought it would be.If I had more time I would also measure and compared the growth rates of the bean pods. Although it appears that the pH 7 did better, I would need to do additional studies and experiments to</p>	
<b>Summary Statement</b> The Affect of pH on Blue Lake 274 Bean Growth	
<b>Help Received</b> My Mom helped with the poster and my Dad helped with the materials, methods and graph.	