



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Ishani Ghosh	Project Number J1011
Project Title The Effect of Limestone on Soil and Water	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective was to test the effect of limestone on soil and water. I believe that if soil and water have acidic content (pH) in it, then it can be reduced by addition of limestone. Increase in acid level of soil will negatively impact the growth of plants thriving in alkaline soil conditions.</p> <p>Methods/Materials Made limestone by crushing sea shells and mixed with dry plaster and water; left it inside a closed cabinet for 5 days. Poured organic soil in 24 small pots (2 Sets). Soil Sulfur was mixed to make high, medium and low acid pots with no addition to neutral pots. Placed limestone in Set 1 only as Set 2 was the control group. Planted pea seeds for germination in all the pots and kept in sunlight. Observed pea seed germination and recorded change in soil pH and plant growth. Water was collected from tap, lake and ocean. Poured water from the 3 different sources into 72 plastic cups (3 Sets, each Set having 2 Subsets). Vinegar was mixed to make high, medium and low acid cups with no addition to neutral cups. Placed limestone in Subset 1 only as Subset 2 was the control group. Water samples were kept in a cool and dry place. Recorded change in pH level of water. It may be noted that each category of pots and cups had 3 samples each to reduce the margin of error.</p> <p>Results The acidic content (pH) in soil and water were neutralized in 7 and 3 weeks respectively. The pea plants at the end of 7 weeks survived in pots containing limestone and in neutral pots. Highest and healthiest growth pattern were recorded in pots containing limestone but without acid.</p> <p>Conclusions/Discussion My conclusion is that the acidic content (pH) in soil and water were neutralized by adding limestone, thereby supporting my hypotheses. The faster change in the pH level in water as compared to soil was due to the fact that limestone gets easily dissolved in the former. The results suggest that limestone can be added to attain the desired pH level of soil and water for maximizing growth of plants thriving in alkaline soil conditions and water conditioning.</p>	
Summary Statement To test effect of limestone in modifying pH level in soil/ water and its impact on plant growth.	
Help Received Mentor - specific guidance; School Science Teacher - overall guidance; Parents - overall guidance and providing requisite materials and Uncle - helped in refinement.	