



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Gillian M. Healey</b>	<b>Project Number</b> <b>J0906</b>
<b>Project Title</b> <b>How Saturated Is Saturated?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To determine and compare the different saturation points and absorption ability of three soil textures; sand, sandy loam, and clay.</p> <p><b>Methods/Materials</b> Scale, oven, beakers, water, sheet trays, glass containers, water bottles, rubber bands, coffee filter, one 400g and 150g sample of each: sand, sandy loam, clay. Experiment #1- Three different soil textures were dried, weighed and saturated with water. The data was calculated to determine the saturation point of each texture as well as how the saturation points of the different textures compared to each other. Experiment #2- Three different soil textures were dried, weighted, and placed into inverted water bottles. Bottles were placed over beakers and the same amount of water was added to each and allowed to percolate through. Measurements were taken to determine the amount of water percolated vs. amount of water absorbed.</p> <p><b>Results</b> Clay had the highest saturation point and the highest absorption ability compared to sand and sandy loam.</p> <p><b>Conclusions/Discussion</b> Clay absorbs and retains the greatest amount of water compared to sand and sandy loam. This is due to its particulate size, shape, and chemical adhesion to water. Clay is made up of small, tightly fit together disc like particles that create greater surface area for water absorption. This results in expansive and contractile seasonal properties of the soil. These fundamental properties are integral to Geo-technical engineering.</p>	
<b>Summary Statement</b> I tested three different soil textures and showed that clay has the highest saturation and absorption ability compared to sandy loam and sand.	
<b>Help Received</b> I designed and performed my experiments myself. My science teacher and my father challenged me to further research how my findings could be applied to the outside world..	