



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Samuel F. Thorne	Project Number J0624
Project Title What Soil Properties Cause the Biggest Sinkhole When Mixed with Water?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To find out which mineral causes the biggest sinkhole when mixed with water.</p> <p>Methods/Materials For my experiment, I covered the bottom of a container with six inches of sand. I punched two holes in each side of the container. Two tubes were placed in the holes of the container. I made a small pocket of the mineral in the sand. I placed the two tubes in the center of the mineral pocket. I covered the mineral pocket with sand until the container was 3/4ths full. Two syringes were hooked to the opposite ends of the tubes. I pumped 200 milliliters of water into the pocket (the water had to be pumped into the container at the same rate). Then I observed how much the sand had sunk and measured any sinkhole with a ruler. I repeated the experiment three times per mineral.</p> <p>I used the following materials: Two syringes, two tubes, limestone, gypsum, salt, sulfur, duct tape, plastic container, sand, water, ruler, pocket knife and a funnel.</p> <p>Results Salt worked the best. It averaged sinking 1 and 2/8th inches. Gypsum worked the second best. It averaged sinking 7/8th of an inch. Limestone worked the third best. It averaged sinking 3/8th of an inch. Sulfur did not cause a sinkhole.</p> <p>Conclusions/Discussion My conclusion is that salt caused the biggest sinkhole. I also discovered that gypsum and limestone caused sinkholes. However, sulfur did not cause a sinkhole. My hypothesis that salt would cause the largest sinkhole was correct, however, I was wrong in my hypothesis that limestone would work better than gypsum. Gypsum caused twice as big of a sinkhole as limestone. I achieved my objective of finding which mineral caused the biggest sinkhole because I discovered that salt, gypsum and limestone all caused sinkholes and sulfur does not.</p>	
Summary Statement I tested four soil properties to determine which properties caused the biggest sinkhole when mixed with water.	
Help Received Dad helped pump the water into the container during the experiment. Mom helped with the typing.	