



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Daniel P. Phene</b>	<b>Project Number</b> <b>J0612</b>
<b>Project Title</b> <b>How Does Soil Texture Affect Infiltration?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My goal was to learn the infiltration rates of a wide range of soils. I wanted to find out what types of soils would be best for farming.</p> <p><b>Methods/Materials</b> Materials: 9 soil samples, Marriote` Bottle, stopwatch, backup stopwatch, water, soil container (0.6 cubic feet), 250 ml beaker. Methods: Make a constant head with Marriote` bottle device, calibrate device so that the visual tube will be in mm of water applied to the soil, collect soil samples, dry, roll, and sieve soil samples (3 soil types and 3 samples of each), pack soil tank with one of the types of soils, fill Marriote` bottle with water, start applying water to soil and time application of each mm of water and record times, make a graph of the infiltration rate of water versus time; this represents the infiltration of water in the soil sample, repeat procedure steps 5 - 8 for each soil sample and each soil, collect data, analyze results, draw a conclusion, and communicate results.</p> <p><b>Results</b> The data shows that the larger the soil particles, as in the Indio Sand, the faster the infiltration rate. The one exception is in the 1st run with the Hanford Sandy Loam, which was not properly packed. When the soil was not properly packed, it had a very fast infiltration rate. The Indio Sand was somewhat inconsistent in the beginning of each run. This most likely happened because larger soil particles often have a wider range of size and so it had a variable infiltration rate. Towards the end of the first run on the Indio Sand, the infiltration rate went down really fast. At the very end of the run though, it turned out to be similar to the rest of the Indio Sands. Thus at the end of each run on the Indio Sand, the results were similar.</p> <p><b>Conclusions/Discussion</b> The results show that the soils definitely varied in infiltration rates. The clay had the slowest infiltration rate, then the fine sandy loam, and the sand had the fastest infiltration rate. Therefore, the larger particles had a faster infiltration rate.</p>	
<b>Summary Statement</b> My project tests the infiltration of 3 types of soils.	
<b>Help Received</b> Mother and father helped with Marriote` Bottle	