



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Elise M. Rico	Project Number J0620
Project Title The Effects of Soil Types and Soil Compaction on the Percolation Rate of Toxic Chemicals	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Determine an average percolation rate of toxic chemicals on different soil types and compacted soil types.</p> <p>Methods/Materials Using 5 soil types (farming/agriculture, playground/sandbox, canal/clay, potting/mulch, landscape/med.), weigh 10 oz. of ea., pour in PVC pipe, then pour in 1 oz. lighter fluid. Allow to percolate for 15 sec., push out w/smaller pipe, light from top, measure how far flame is burning w/ruler. Record data, repeat 10 times w/ea. soil. Repeat above procedure, only this time compact soil in pipe before pouring in lighter fluid.</p> <p>Results My results showed that non-compacted soils had a higher percolation rate than compacted soils. Non-compacted potting/mulch had the lowest average percolation rate with a 4.45 in. average. Non-compacted agri/farming soil had the highest rate with a 5.55 in. average. Compacted potting/mulch had the lowest rate with a 3.80 in. average. Compacted landscape/med. soil had the highest rate with a 4.80 in. average.</p> <p>Conclusions/Discussion I learned that potting/mulch soil had the lowest toxic percolation rate in both compacted & non-compacted soils. Most of the toxic fluid was absorbed on the top layer of the soil. We should all educate ourselves on the harmful effects toxic chemicals can cause humans, animals and our environment. We should find alternatives to using harmful chemicals. If we all do our part, we can save our environment for our future.</p>	
Summary Statement Investigate the percolation rate of toxic chemicals on various soil types.	
Help Received Dad helped with board, Mom helped type, teacher/lab tech. helped research, comp. tech. helped with graphs.	