



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Reilly M. Tiglio	Project Number J2132
Project Title Stop the Runoff: Investigating Benefits of Geotextiles	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Permeable pavers are an attractive landscaping tool and are beneficial to the environment. While reviewing literature on permeable pavers last year, I noticed the use of a geotextile material. It is a permeable material that prevents the bedding materials the permeable pavers sit on from combining. My hypothesis was that the geotextile material would be faster and more efficient in percolating water through the paver system.</p> <p>Methods/Materials I set up a paver system in a test box according to the manufacturer's guidelines. I used the geotextile material in the first tests. The second tests were with no geotextile material. For the third test I used a impermeable material: Visqueen. The first and second tests were repeated fifteen times. Due to the impermeability of the Visqueen, the third test could only be conducted once.</p> <p>Results The first series of tests with the geotextile material averaged 83.2% efficiency. The second series of tests with no geotextile used averaged 93.2% efficiency. The third test with the impermeable Visqueen had an efficiency rate of 0% as no water percolated. There was a significant difference of 10% efficiency between the Geotextile Material and the non-geotextile paver system.</p> <p>Conclusions/Discussion I found through the results of my testing that my hypothesis was not supported. In my geotextile tests, the water exfiltration moved through more slowly than with pavers alone. But with the geotextile material, the water was much more evenly distributed across the cloth before percolating through to the bottom of the box, so that the exfiltrated water was also cleaner sooner. This showed the geotextile material acted as a filter. I would like to perform more tests to see if the geotextile material might "clog" completely when functioning as a filter.</p>	
Summary Statement My project tested water percolation in a permeable paver system with and without the use of a geotextile material.	
Help Received Grandmother supervised me, and Modern Builders Supply helped me obtain my project supplies. Nik Paris assisted me in creating my testing device. Science teacher provided guidance and support.	