



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Elizabeth J. Bouchard</b>	<b>Project Number</b> <b>J0104</b>
<b>Project Title</b> <b>Wind Wind Go Away, Come Again Some Other Day</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My project, Wind Wind Go Away Come Again Some Other Day, is to see if specially designed sculptures can reduce and redirect the wind made by the venturi effect at the base of tall buildings and beautify the environment at the same time. The venturi effect is when wind accelerates as it is funneled through a gap, such as an alley way between sky scrapers. The venturi effect can cause wind speeds to become annoying and sometimes dangerous for pedestrians.</p> <p><b>Methods/Materials</b> I tested four different geometric shapes in a wind tunnel in front of two model buildings, one of which was 25 centimeters tall the other 27 centimeters tall. The four shapes I tested were all made of wood and at least 2.5 centimeters tall. The shapes were a slab, a triangular prism, a sphere, and a hemisphere. In order to measure my dependent variable I did two things. First I measured the wind speed directly behind each shape using an anemometer. Then I visualized the wind flow by using styrofoam beads and a digital camera.</p> <p><b>Results</b> My results prove that geometric shapes can be used to reduce the wind speed behind them. The slab shape was by far the most effective in reducing the wind speed from 7.6 kph to 0 kph. The sphere and triangular prism both reduced the wind speed to 4.3 kph. The hemisphere did the worst at 6.6 kph.</p> <p><b>Conclusions/Discussion</b> The venturi effect can be reduced and redirected by different geometric shapes and the best shape to do that, out of the shapes I tested, is a slab like shape. It is possible to use properly designed sculptures to redirect the wind flow as opposed to glass screens or cement blocks. I was not able to create a completely accurate wind tunnel with my budget and skill set. The fan speed was not accurate, the tunnel inlet air flow was not perfectly straight, and my rig was only as good as I could make it. Furthermore, my fan was not able to reach the high speeds of wind when it becomes dangerous for pedestrians. The next test I would perform would be to actually create a sculptures based on the results of my experiment and test them in a more accurate wind tunnel with a faster wind speed.</p>	
<b>Summary Statement</b> The purpose of this experiment is to see which shapes, if any, are best for lowering the severity of pedestrian level wind in a specific area.	
<b>Help Received</b> My mom helped me get materials for my project.	