



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Natalya Kostandova	Project Number J0116
Project Title What Affects the Windmill Power?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project was to determine what factors have the affect on the power produced by a windmill. My hypothesis is that the speed and the angle of the wind, the mass, the length, and the amount of the blades, and the presence of the hole between the central support beam and the blades will affect the windmill power.</p> <p>Methods/Materials First the research was done on the given subject. Then 11 different windmill models which differed one from another with one property were built. The block was built, and the strings of the same length were attached to each windmill and led through the block. One of two objects was attached to the end of the string. As the fan was turned on, the windmill began to spin and the object was lifted up. As it reached the top of the block, the time it took to get to the top was measured and the experiment was repeated 5 times with each model and each object. Then one time was dropped, and the average was found. The average time of two windmills were compared, and if they differed, the characteristic which was different in the compared windmills (ex: different masses) did affect the windmill power.</p> <p>Results From the experiment I found out that the mass, amount, angle of the wind, and the presence of the wind do have an affect on the power produced by the windmill.</p> <p>Conclusions/Discussion The power that the windmill produces depends on the air density, speed and the angle of the wind, amount, mass, shape, and the length of the windmill blades, the height of the windmill tower, type of windmill, and the presence of the hole between the center of the windmill and its blades. The conclusion supported my hypothesis, but the hypothesis wasn't full.</p>	
Summary Statement My project was about the different factors which affect the windmill power.	
Help Received My mother helped me to measure the amount of time it took the windmill to lift the object up; my brother explained how each tool I need to build my models worked; my teacher advised.	