



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Matthew C. Godkin	Project Number S0805
Project Title The Piezoelectric Floor: Electrical Energy When We Walk	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I tried to create a floor that harnessed the mechanical energy released when we walk. I thought that I could do this by putting piezoelectric elements in the floor that would be compressed and create electricity when the floor was stepped on.</p> <p>Methods/Materials I tested several different designs by applying about 29 newtons of force, the same as one of my steps. I tried to make my own piezoelectric Rochelle salt crystals by growing them. I also used piezo disks and used them to make a small floor sample. I then tested using several different pads to test on these piezo disks to maximize power output.</p> <p>Results The Rochelle salt crystal peak was 27 microwatts. The piezo disks created more than that. The best design, which had cork pads underneath the piezo disks and rubber eraser on top, generated 70 microwatts.</p> <p>Conclusions/Discussion If I were to implement this design on a larger scale, it would never pay for itself in power generated. However, I have shown that it can be done, and that with a better design it could be made to work.</p>	
Summary Statement I tried to design a floor that would generate electrical energy when walked on, using piezoelectric elements.	
Help Received Father helped theorize about idea; Uncle taught me how to solder and helped with part of the design. Math teacher helped me with statistical analysis.	