



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> Amy J. Zhao	<b>Project Number</b> <b>J1825</b>
<b>Project Title</b> <b>How Does the Length of the Pendulum, Mass of the Bob, and Amplitude Affect the Period of the Pendulum?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My objective was to learn how the length, mass, and amplitude of a pendulum affected the period. I believed that the length was the only variable that affected the period, and that the mass and amplitude had no effect. <b>Methods/Materials</b> Nine pendulums with varying mass and lengths were constructed out of clay and string, using a musical stand to hold it. Five of them were used to correlate between the length and the period. One of those pendulums together with another three was used to correlate between the mass and the period. The last one was used to correlate between the amplitude and the period. The period and length used constant mass and amplitude, while the period and mass used constant amplitude and length. The period and amplitude used constant length and mass. Using those nine pendulums, seventy-five trials were conducted. <b>Results</b> It turned out that when the length increased, the period also steadily increased. However, when the mass and amplitude changed, the period was still constant as compared to the increase in the correlation between length and the period. When I calculated the acceleration of gravity using the results from the experiment, I compared it to the calculations using theoretical values and formulas, which turned out to be pretty close. <b>Conclusions/Discussion</b> My conclusion is that when the length increases, the period also increases, as opposed to the period still being constant when the mass and amplitude increases.	
<b>Summary Statement</b> My project is about how length, mass, and amplitude affect the period of pendulums.	
<b>Help Received</b> Dad helped with experimentation and understanding/explaining the concepts of pendulums (formulas,etc) : I directed experimentation, however	