



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> Wyatt B. Myers	<b>Project Number</b> <b>J1815</b>
<b>Project Title</b> <b>Does the Position of the Center of Mass Affect the g-Forces of an Object?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to determine if the G-forces will change when I change the position of the center of mass.</p> <p><b>Methods/Materials</b> I constructed a centrifuge with an Erector set that had four positions to hold a Wii Nunchuk. The Wii Nunchuk has an accelerometer that senses gravitational forces. I connected the Wii Nunchuk to a microcontroller that interfaces with the computer. I put the centrifuge in motion and recorded data three times from each mark on the centrifuge.</p> <p><b>Results</b> I observed that if the mass is closer to the center of gravity then the g-force is changed. But it is such a small change you wouldn't notice it.</p> <p><b>Conclusions/Discussion</b> I thought that changing the position of the center of mass, that the g-forces on a separate object would change, which it did, but my data showed that it was such a small change you wouldn't notice. The results shocked me at first, until I thought about it and realized that it did make sense because the model is small. Even though the changes were not very noticeable, I think if the project were on a real to life scale that you might notice the changes.</p> <p>I could improve my experiment by making it a more accurate speed on each turn or changing the process of collecting data.</p> <p>If I do this experiment again I would change how I would place the sensor, and get a more accurate sensor.</p>	
<b>Summary Statement</b> My project is about finding the link between the position of the center of mass and the amount of g-forces.	
<b>Help Received</b> My science teacher, Mrs. Conrad helped me keep organized; My Dad encouraged me; My Mom cut paper, helped with lay out and printing for the display board; she also helped my purchase supplies.	