



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Keven D. Richardson	Project Number J0229
Project Title Can You Throw with a Counterweight?	
Abstract Objectives/Goals My objective is to see if the mass of an object affects how far it travels out of a trebuchet. Methods/Materials 1 Trebuchet; 1 25 Gram Projectile; 1 50 Gram Projectile; 1 75 Gram Projectile; 1 100 Gram Projectile; 1 900 Gram Counterweight; 1 1200 Gram Counterweight; 1 1500 Gram Counterweight; Measuring Tape; Notepad to Record Data <ol style="list-style-type: none">1. Make sure that the trebuchet works properly and is ready to use.2. Put the 900 gram counterweight in the counterweight bucket.3. Launch the 25, 50, 75, and 100 gram projectile 12 times each. Record the distance each time it is launched.4. Put the 1200 gram counterweight in the counterweight bucket.5. Repeat step 3.6. Put the 1500 gram counterweight in the counterweight bucket.7. Repeat step 3.8. Find the average distance of all the launches. Results I learned that the lighter the projectile the greater distance it would go out of a trebuchet. My results were the 25 gram projectile averaged higher than the 50, 75, and 100 gram projectiles, the 50 gram projectile averaged higher than the 75 and 100 gram projectile and so on. I learned that the more weight the counterweight is the greater distance the projectile will travel. I observed that when I changed from the 900 gram counterweight to the 1200 gram counterweight each projectile went just a little bit farther than before. The same thing happened when I changed from the 1200 gram counterweight to the 1500 gram counterweight, the projectiles traveled just a little bit farther than before. Conclusions/Discussion My experiment turned out the way it did because, just like the results proved, the lighter the projectile the greater distance it will travel. My hypothesis was that the heavier the projectile the less distance it will travel, so my hypothesis was correct. The only other thing that I would like to do with this project is make a larger trebuchet and do the same thing I did with this project.	
Summary Statement My project is to see if the mass of an object affects how far it travels out of a trebuchet.	
Help Received Dad helped build trebuchet and measure the distances of the projectiles.	