



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Jonathan E. Lee	Project Number S1614
Project Title Centripetal Acceleration of an Object in Circular Motion	
Abstract Objectives/Goals This project will demonstrate the affects of centripetal force has on an object and the effects that Newton#s three laws on motions has on an object moving in a circular motion. I will conduct several experiments to measure the centripetal force generated by varying the mass and radius of the orbiting object, and compare this value with the calculated amount of forces that should have be created. I will also show the effects of centripetal forces in two visual demonstrations Methods/Materials Centripetal Force Apparatus: Used a digital tachometer to measure the rotation speed of the rotating mass and compare it to the values for centripetal force determined by using a weight set to move the mass the same distance. Materials Centripetal Force Apparatus, Digital Tachometer, 12-volt motor, Variable Motor controller, Rule Centripetal Force Apparatus II: Determine the affect of changing the mass of the orbiting object to centripetal force. Materials: Wooden dowel, slotted weight set, Steel fishing leader line, assorted lead fishing weights and stopwatch Demonstration #1: This demonstration will show what centripetal force will do to water in a glass as it is traveling in a circular motion. Materials: Wooden Planks, rope, Plastic Cup, Water Demonstration #2: This demonstration will show the centripetal force acting on a car as it travels through a curve. Materials: wooden planks, clear plastic, aluminum rod, fender washers, sprngs, screws, nuts. Results Tables, charts and photographs to support Newton's three laws of motion. Conclusions/Discussion Centripetal Force Apparatus: Changes in the orbiting radius or mass of the orbiting object a affect on a rotational period. Shorting the radius or decreassing the mass decreased the roational period or RPM. Demonstrations: The moving vechicle demonstration showed to force acting on a mass as the car was making a turn. The force always pushed away from the center of the turn. With the water demonstration, as it was swung, it creates centrifugal force, which pushes the water	
Summary Statement Centripetal Acceleration of an Object in Circular Motion	
Help Received Teacher (John Shirajian), mother and father.	