



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> Kyle D. Chao	<b>Project Number</b> <b>J0206</b>
<b>Project Title</b> <b>Band At Tension: Measuring Potential Energy in a Stretched Rubber Band</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My project is to determine the relationship between the stretching of a rubber band and how far and fast an object would travel. In the process, I am investigating the relationship between potential energy and kinetic energy. <b>Methods/Materials</b> I made a cannon basically out of paper towel roll, rubber band, and Ping-Pong balls. I put a Ping-Pong ball into the roll and shot it out by stretching and releasing the rubber band. I measured the distance the ball traveled and the time it took to travel. I experimented with different weights of balls and different angles of the cannon using wood blocks for different angles. I calculated the kinetic energy of the ping pong ball by weighing the ball and calculating its velocity. I calculated the velocity by dividing the distance traveled by time. <b>Results</b> The experiment results showed that the farther the rubber band is pulled back, the farther the ball will travel. Also, it showed that a heavier ball would not travel as far as a lighter ball. Furthermore, at 30° angle, the ball traveled farther than at 0°, 10°, or 20° angle. Lastly, the velocity increased as the rubber band is stretched farther. Because the velocity is increased, therefore the kinetic energy is increased. <b>Conclusions/Discussion</b> The experiment showed that the farther the rubber band is pulled back, the farther the ball will travel. Also, it supported that a heavier ball will not travel as far as a lighter ball and that at a 30° angle, the ball traveled farther than at smaller angles. When the rubber band is let go the stored potential energy of the rubber band becomes the kinetic energy of the moving ball.	
<b>Summary Statement</b> My project investigates the potential energy in a stretched rubber band and how it relates to kinetic energy of a ball when the band is released.	
<b>Help Received</b> My dad and mom helped me get all the supplies. My Dad helped cut the baseboard and wood because of the sharpness of the blade.	