



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Matthew M. Zarachoff	Project Number J0235
Project Title Does the Size of a Flywheel Affect How Much Energy It Can Store?	
Abstract Objectives/Goals The purpose of my experiment was to test the relationship between the diameter of different flywheels of equal mass and the energy they each could store. I believe that the larger the diameter of the flywheel, the more energy it will store. Methods/Materials I constructed five flywheels of varying diameters and equal mass out of particleboard. I also made a test set-up consisting of a motor with a hub and axle to which I attached each flywheel. I then spun each flywheel at the same speed, as measured by a speed sensor, and measured the energy discharged with a chart recorder. Each flywheel was tested five times. Results The largest diameter flywheel consistently discharged the greatest amount of energy, while the smallest diameter flywheel discharged the least amount of energy. Conclusions/Discussion The size of a flywheel does affect how much energy it can store. The larger the flywheel diameter, the more energy it stored. Looking at the graph of my results, I was disappointed to see that the energy produced by the largest diameter flywheel did not follow a linear upward slope. This may have happened because there was too much mass taken off this flywheel during the sanding, it ended up with the least mass of all the flywheels.	
Summary Statement My project was about testing the relationship between the size of a flywheel and the amount of energy it can store.	
Help Received Friends and family helped me with machining various parts.	