



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.) Charles E. Lewis	Science Fair Use Only
Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) Gear Up!	J0116
Preferred Category (See page 5 for descriptions.) 1 - Applied Mechanics/ Structures & Mechanisms/ Manufacturing	Division <input checked="" type="checkbox"/> Junior (6-8) <input type="checkbox"/> Senior (9-12)
Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
<p>Objective: For my project I wondered if the choice of gears on a bicycle affects the amount of force delivered to the tires.</p> <p>Materials and Methods: A bathroom scale was placed between a wall and a 21-speed mountain bicycle. The force on the scale was measured 5 times for each gear combination by having the rider apply his entire body weight to the pedals.</p> <p>Results: The gear combination with the lowest gear ratio consistently exerted the largest amount of force.</p> <p>Conclusions: My conclusion is that gear ratios have a large effect on the force that is delivered to the tires. The lower the gear ratio, the higher the force.</p>	
Summary Statement (In one sentence, state what your project is about.) My project investigates the relationship between gear ratio and force on a mountain bicycle.	
Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. My dad helped me record the data and my neighbors Rob and Karen lent me their scale.	