



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Philip B. Hu</b>	<b>Project Number</b> <b>J1520</b>
<b>Project Title</b> <b>Zero Gravity Elevator Experiment</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this project was created to test or prove three laws of gravity by Isaac Newton, his first and second law of motion, and Albert Einstein, the General Theory of Relativity. <b>Methods/Materials</b> I have created an elevator shaft with an elevator car. The elevator car has an object or weight inside that weighs differently when the elevator car moves vertically. A 30 frames per second video camera will be viewing the digital readout on an electronic scale that will be weighing the weight in the car. I will be testing to calculate the different weights of the object during the ascent, and the free fall of the car. An electric drill will be propelling the car upward during the ascent. <b>Results</b> I had hypothesized that the object in the car weighed more than its initial weight while the car was moving upward at an accelerating speed. It was proven to be correct. After the car got to a constant vertical speed, I had hypothesized that the object would weigh the same as when it was not moving. That too was correct in my experimentation. During the free fall, I hypothesized that the object will have zero weight for a short period of time, and it did weigh zero for an average of about two to three frames on the video camera. <b>Conclusions/Discussion</b> When an object is moving up at an accelerating speed, the object will weigh more than its initial weight, depending on how fast the acceleration is. When an object is moving upward or downward at a constant velocity, the object will weigh the same as its initial weight. Finally, when an object is in free fall, it will weigh zero for a short period of time.	
<b>Summary Statement</b> This project was created to test or prove three laws of Isaac Newton and Albert Einstein that describe different aspects of gravity and motion.	
<b>Help Received</b> My science explorations teacher guided me through building my project and testing it. La Jolla Country School supported most of the research for my project. My mom and dad helped me transport my project to school and home every Monday and Tuesday.	