



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Ivan B. Marin</b>	<b>Project Number</b> <b>S0104</b>
<b>Project Title</b> <b>Objects of Different Size Fall Rate</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The purpose of this experiment is to determine if objects of the same weight, but different volumes fall at the same rate in different conditions. <b>Methods/Materials</b> Obtain the shapes sphere, cylinder, triangle, square, cone, and rectangle. Obtain two 100-ml graduated cylinders and one 500-ml graduated cylinder. Drop the objects into corn syrup, glycerin, and pancake syrup. Use the equation $\text{drag} \times \text{time} = \text{constant}$ to find the constant speed of each object and to observe if objects of the same weight, but different volumes fall at the same rate. <b>Results</b> Objects of the same weight, but different volumes do not fall at the same rate because the volume affects the descent (if it has more mass it takes up more space). Other factors such as the surface area of the object, mass of the object, and others offset the descent of an object. <b>Conclusions/Discussion</b> These results are proven in real life when objects are dropped into a vacuum. The drag, when an object moves through the air, the force of air resistance acts in the opposite direction slowing the descent. If a coin and a feather were dropped from the same height they would drop at a constant velocity until the drag balances the objects. Heavier objects will have to travel at a faster rate because the drag is large enough to balance the object. That is why heavier objects fall first than lighter objects. In fact, the heavier object probably hit the ground before they reached terminal velocity. Terminal velocity is the constant velocity of a falling object on which the forces are balanced.	
<b>Summary Statement</b> The purpose of this experiment is to determine if objects of the same weight, but different volumes fall at the same rate in different conditions.	
<b>Help Received</b> Mother helped make the board; Mr. Corigliano helped find the materials; Mrs. Starika helped with the math; Friend helped type report.	