



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Robert W. McRae, Jr.</b>	<b>Project Number</b> <b>J0113</b>
<b>Project Title</b> <b>How the Adding of Weight Affects the Speed of the Hovercraft</b>	
<b>Abstract</b> <b>Objectives/Goals</b> After constructing a hovercraft, my experiment will test how weight added affects the speed of the hovercraft. <b>Methods/Materials</b> First I constructed a hovercraft using supplies purchased at local retail shops. After construction I tested the amount of time it takes the hovercraft to travel the distance of 15 meters. The weights used for the testing were from my gym set and each weight weighed 4.5 kg (10 lbs). The measurement of time was in seconds using a stop watch and the results were documented on data sheets that I developed prior to testing. <b>Results</b> The control tests established the amount of time it took to travel 15 meters with no extra weight just my weight of 40.5 kg (90 lbs). As weight was added the results varied due to different factors, however there did appear to be an increase in time once the hovercrafts weight-distribution / level-balance point was established. The factors that affected testing the most were driver error and the plywood used to construct the hovercraft's platform. Navigating the hovercraft was difficult because of the drift of the craft causing me (the driver) to assist the craft with my feet. <b>Conclusions/Discussion</b> The hovercraft constructed made it through a tremendous amount of tests. It did carry my weight plus an extra 81kg (180lbs) for a total of 121.5kg (270lbs) and still had the ability to travel 15 meters.	
<b>Summary Statement</b> I constructed a hovercraft using a leaf blower, a 55 cm propeller blade, a scooter engine and supplies out of my garage; then tested to see how it performed when different amounts of weights were added to it.	
<b>Help Received</b> Science teacher, Mrs Debbie Beckett, for encouragement; My father, for taking me for supplies and guiding me in construction and timing the trials while I drove; My mother, for taking pictures and filming the trials; My sister for the use of her scooter engine and for proofing some of my papers.	