



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

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<b>Project Title</b> <b>Magnetic Levitation</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> A magnetically levitated vehicle has very little friction and can travel long distances given one initial push. It isn't clear to me whether the weight of the vehicle will affect how far it will travel given a fixed amount of force to propel the vehicle. My objective is to find out if adding more weight to a magnetically levitated vehicle would affect the distance it travels given a fixed amount of force applied to propelling the vehicle.</p> <p><b>Methods/Materials</b> 500 x Neodymium magnets to provide the levitating forces 2 x Aluminum "U" channel, length 117cm for the track (this serves the purpose of a mono-rail which guides the car over the track) 2 x Long wood boards for the track 1 x Wood block for levitated vehicle or "car" Wood block and strips for the "striker" (this imparts a force to propel the car) 3 x different weights ((light, medium and heavy) to use as payloads for the levitating car Low friction material to guide the car along the aluminum mono-rail</p> <p><b>Results</b> According to my data, the run with no weight added to the car, the average distance travelled was 197.1cm. With the light weight (28.4g) added as a payload, the car averaged a distance of 154.4cm. With the medium weight (56.7g) added as a payload, the car averaged a distance of 116.3cm. With the heavy weight (113.4g) added as a payload, the car averaged a distance of 66.6cm.</p> <p><b>Conclusions/Discussion</b> I conclude from my results that weight does affect the distance that a magnetically levitated car travels. My hypothesis was that the weight would affect the distance a magnetically levitated car travels given the same amount of force.</p>	
<b>Summary Statement</b> My experiment was about magnetically levitated vehicles and if weight affected the distance it travelled with the same amount of force.	
<b>Help Received</b> Dad helped build track, car and striker.	