



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Megan N. Kawakami	Project Number J0920
Project Title Is There More Resistance on a Magnetic Levitation Train or a Train on Wheels?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My project was to determine whether a magnetic levitation train has more or less resistance than a train on wheels. I believe that magnetic levitation train has less resistance.</p> <p>Methods/Materials I constructed a model train with magnets on one side and wheels on the other side attempting to keep the train symmetrical. I placed magnets on a circular plate creating a track for my train. I aligned a plastic sheet supported by golf tees to form a guardrail that the train could be guided with. I constructed a lever arm to push on the train using a roller skate bearing for rotation. I attached a scale to the lever arm to measure the amount of force needed to push the train. I made a cardboard surface to cover magnets that would be used to compare the train on wheels. I placed the magnetic train on the track and used the lever arm to push train around track at a constant speed. I recorded the scale readings at various locations along the track. For the wheeled experiment, I placed the cardboard on top of the magnets. I placed the wheeled train on the track and used the lever arm to push train around track at a constant speed. I recorded the scale readings at various locations along the track.</p> <p>Results The maglev train had consistently lower scale readings than the wheeled train. This demonstrated a lower resistance requirement to push the train.</p> <p>Conclusions/Discussion My conclusion is that the maglev train had less resistance, proving my hypothesis.</p>	
Summary Statement My project measured the resistive differences between a train utilizing magnetic levitation versus rolling wheels.	
Help Received Father helped to cut wood, pay for supplies, helped to record scale readings.	