



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Benjamin Lee	Project Number J1813
Project Title Repulsive Fruits	
Abstract Objectives/Goals This controlled study investigated the diamagnetic property of fruits. Diamagnetism is the property of a substance being repelled by both poles of a magnet. This phenomenon exists in materials that are often considered non-magnetic. The aims of the experiment were to investigate: 1) Whether grape and strawberry moved under the influence of a magnetic field because of their water content. 2) Whether a plastic vial was diamagnetic. 3) Whether the surface area and weight of the material tested affected its diamagnetic properties. Methods/Materials Method: Strawberry, grape, and raisins were tested under the influence of neodymium, a rare-earth magnet. Each material was placed on a Styrofoam platform floating on a tub of water with tracks made of dental floss. The negative test control was the floatation platform without any test substance except for a dry or wet toothpick and the positive test control was the highly diamagnetic pyrolytic graphite. The time taken for each material to move 30 centimeters was recorded. Results were tabulated, graphed, and analyzed. Results All test substances except for the dried raisin moved. The flat graphite moved the fastest among the test substances. When the thin graphite was tested, it had the penultimate slowest median time of 32.15 s. The slowest moving test substance that completed the course was the empty plastic vial with a median time of 33.70 s. When the plastic vial was filled with water, it moved slower than the fruits. When the raisin was rehydrated, it completed the course with the second fastest median time. The scatterplots showed mixed results of the materials tested in relation to its surface area and weight. Conclusions/Discussion The fruits moved, likely because of their water content. Plastic and water were shown to have diamagnetic properties. The surface area and weight could influence the diamagnetism of the substance.	
Summary Statement This experiment was to show the diamagnetic properties of fruits, plastic, and whether surface area and weight affected the results.	
Help Received Father helped acquire the materials, recorded time during the experiment and assisted in board assembly.	