



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

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| <b>Name(s)</b><br><b>William P. Edwards</b>  | <b>Project Number</b><br><br>36267 |
| <b>Project Title</b><br><b>The Impact of Weight and Surface Area on Static Friction</b>  |                                    |
| <p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b><br/>The objective is to determine whether weight or surface area has more of an impact on static friction.</p> <p><b>Methods/Materials</b><br/>I determined the static friction force between an object and a surface using an adjustable inclined plane setup. I used 4 object surface areas of the same material, 5 weights per object, and 2 surface materials for a total of 40 test cases. Each test case was repeated for 5 trials.</p> <p><b>Results</b><br/>Objects with different surface areas and weights were tested on an adjustable inclined plane to find their static friction force. The static friction force between the object and the surface is impacted by weight but not surface area.</p> <p><b>Conclusions/Discussion</b><br/>My 40 test cases showed that weight did effect friction force, but surface area had no significant impact. From this I concluded that weight impacts static friction force, but surface area does not.</p> |                                    |
| <b>Summary Statement</b><br>My data showed that the static friction force between 2 materials is dependent on weight, but not on surface area.   |                                    |
| <b>Help Received</b><br>I did all of the research, testing, analysis, and documentation. My dad helped me obtain the materials and build the inclined plane setup.   |                                    |