



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> <b>Madisen F. Berube</b>	<b>Project Number</b> <b>J0106</b>
<b>Project Title</b> <b>The Effect of Textures on Rocket Shuttle Drag</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this study was to find out which surface texture reduces drag the most on rocket shuttles.</p> <p><b>Methods/Materials</b> The project required the use of 4 foam cones (3.88in x 8.88in) with different textures (one smooth and 3 textured using heat to create dimpled, zig zag, and lined cones), a fixed wind tunnel approximately 8in wide and 12in tall, fan, and a spring scale (g). The spring scale measured the difference in weight for 50 trials on each cone when the fan (wind) was on versus off to determine the drag.</p> <p><b>Results</b> The zig zag textured cone had the least difference of 2.90g on average which meant there was less drag and therefore greater drag reduction. The dimpled cone had the least amount of drag reduction with an average of 5.60g difference in weight measure.</p> <p><b>Conclusions/Discussion</b> The results of the rocket cone model shows that surface texture does affect the drag. Reduction of drag is important to save fuel in order to make launching a space shuttle more cost efficient and environmental.</p>	
<b>Summary Statement</b> I tested different textures on foam rocket cones using a homemade wind tunnel to find which texture reduced drag the most.	
<b>Help Received</b> I did not receive any help while doing this project. I built and preformed this experiment by myself.	