



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Travis R. Campbell</b>	<b>Project Number</b> <b>J0306</b>
<b>Project Title</b> <b>Is Bigger Faster? How Pulley Diameter Affects Rim Speed</b>	
<b>Abstract</b> <b>Objectives/Goals</b> To find the effects of various diameters of pulleys on the outside travel (rim) speed of the pulley using a constant turning speed (RPM). <b>Methods/Materials</b> 3 different sized pulleys: 4" diameter, 3" diameter and 2" diameter, a motor, a Variable Frequency Drive (VFD), a tachometer, pens, pencils and paper and calculator. The method is to use a tachometer to test the rim speed of each pulley at various motor speeds and then take the average of the tests to determine how the size of the pulley affects the rim speed (FT/M). <b>Results</b> The 4" diameter pulley had the highest rim speed, the 3" had the second highest, and the 2" had the slowest rim speed. <b>Conclusions/Discussion</b> My results proved my hypothesis was correct that the larger the diameter of the pulley, the faster the rim speed would be. Other variables could be added to the testing such as chains, sprockets and belts to further prove this theory of mechanical advantage. These results can be applied in any situation involving motors, pulleys, shafts and wheels such as ATV's, vehicles, and factory equipment.	
<b>Summary Statement</b> My project tested different diameter pulleys with a motor to determine how the size of the pulley affected the rim speed.	
<b>Help Received</b> My father and grandfather helped me obtain the materials needed for testing. My mother helped me with my writing and laying out my presentation.	