



# CALIFORNIA STATE SCIENCE FAIR 2016 PROJECT SUMMARY

<b>Name(s)</b> <b>Johnny Perez</b>	<b>Project Number</b>  36130
<b>Project Title</b> <b>The Effect of Material on Sound Absorption</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My project is about the effect of material on sound absorption. I believed that cotton would absorb the most sound, because it is thicker and more dense. I found some research that led me to believe more dense materials would absorb more sound. I performed my experiment by placing one of my materials on a blue tooth speaker and recorded how much sound the sound meter measured. My results have shown that sheet rock with fiber glass absorbs the most sound with an average of 35.90 (db). It is 8.47 (db) quieter than without a material, which averaged at 44.37 (db). According to the data I collected, my hypothesis was incorrect. One problem I had when performing my experiment was getting the sound meter exactly on zero because it would always register some sound. My project is useful in everyday life, because my results can be used to make noise absorbing walls for music and audio purposes as well as for quiet homes.</p> <p><b>Methods/Materials</b> I placed a boom box on the ground and set the volume to eight. I set the sound meter five meters away from the boom box. Next I turned on the boom box and attached the material in front of the speaker. I played the sound and recorded the sound level in db. I repeated this 30 times for each material.</p> <p><b>Results</b> The control group, using no material to block sound, had a sound level of 44.4 db. The less dense materials of cotton, polyester, bubble wrap and cardboard, averaged 40-43 db. The more dense materials of fiberglass, sheet rock, glass and a combination of fiberglass and sheet rock, averaged 36-39 db.</p> <p><b>Conclusions/Discussion</b> My hypothesis was not supported by the data because the results have shown that sheet rock with fiberglass absorbs more sound than cotton. If I was to do this experiment again I would make these changes: perform my project somewhere quieter and make sure no one is present, but myself and my supervisor. I would also like to test other combinations of materials such as two panes of glass. My project is useful in everyday life, because my results can be used to make noise absorbing walls for music and audio purposes as well as for quiet homes.</p>	
<b>Summary Statement</b> This project is about the effect of different materials on sound absorption.	
<b>Help Received</b> Mom helped cut some of the materials to size (fiberglass and cardboard).	