



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

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Project Title Sound Extermination	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this experiment is to measure and compare two different sound frequencies once the materials are put in front of it.</p> <p>Methods/Materials Acoustic foam (2$\frac{1}{2}$ x 12$\frac{1}{2}$ x 12$\frac{1}{2}$), Circular Glass (7 in. Diameter), Silicone rubber (#$\frac{1}{8}$ inch thick), Plastic Jar (8 in. Length), and two speakers to expose the sound. We made our own powerful speaker and we also had to solder the wires to the speaker.</p> <p>Results The results matched most of the hypothesis. The acoustic foam was the best for soundproofing because of its soft but strong properties. The hypothesis was wrong because the foil would do better, but it was one of the worst material for soundproofing. The foil did not do so well because it was not a stronger source of metal and not sturdy enough to withstand the sound frequencies tested with. The #$\frac{1}{8}$ of an inch rubber did very good when it was tested for 10,000 hz but in 20,000 hz it was not the best in soundproofing. The rubber did bad in 20,000 hz because it was not dense enough to withstand the soundwave force.</p> <p>Conclusions/Discussion Most of the results supported the hypothesis. The acoustic foam would be the strongest for soundproofing because it is made of lightweight and strong compounds. The aluminum foil would be good for soundproofing but the hypothesis was wrong. The aluminum foil was actually the worst material for soundproofing probably because of its very thin and lightweight design and not sturdy enough to withstand a sound frequency of 10,000 Hz and 20,000 Hz.</p> <p>An issue that could have happened during the testing phase could be a wrong setting that was put on the sound frequency level meter. Another issue that could have happened is if the converted data from Hz to Db went wrong but each material was tested 5 times for each sound frequency so most likely the results would be correct.</p>	
Summary Statement My experiment is about how sound travels through substances.	
Help Received I customized a speaker and I also had to solder the two wires to the end of the speakers. My science teacher checked over our work to make it better and improved.	