



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY**

Name(s) Hercules Gonsalves	Project Number J2204
Project Title What Are the Effects of High Audio Frequencies on Pogonomyrmex barbatus?	
<p style="text-align: center;">Abstract</p> <p>Objectives The purpose of this project is to investigate whether or not different audio frequencies will repel Pogonomyrmex barbatus (also known as Red Carpenter ants). This is a second year project, the reason I am doing this research is because I want a better understanding of why ants are repelled or effected by sound. While I was researching my first year project, I found a video. While watching the video, a bunch of ants were walking around a phone. When the phone rang, the ants walked around the phone clockwise in perfect unison.</p> <p>In my experiment, I will use two connected ant farms, a phone, a speaker, a sugar block, and ants. I will use the connected ant farms to keep my ants in a secure area so they don t wander off. I will use the phone to play different frequencies. I will use the speaker to project the sound. Finally, I will use the ants as the test subject.</p> <p>First, I will put the ants in the ant farm. Second, I will put the sugar cube to one side of the ant farms so the ants will rotate in a solid motion. Third, I will play an audio frequency too high for me to hear. Fourth,I will watch the ants for one minute and see how many ants stopped rotating to the attractant. Fifth, I will record my data. My control for the project will be no sound.</p> <p>My experimental test variable is the different audio frequencies. I will play 5 different frequencies on the phone. After one minute I will change the sound. I will do this five times.</p> <p>From my investigation, I hope to prove that ants will be repelled away from the noise. Ants communicate through a series of vibrations, and frequencies too high to hear produce more vibrations than low frequencies, therefore it will repel the ants.</p> <p>Methods Materials: Ants Double ant farm Speaker Phone Water feeder Tunneling sand Tunnel starter tool Procedures:</p>	
Summary Statement As measured by the time it took to effect all ants completely, I found that ants show neutral signs of being effected in any way by audio frequencies.	
Help Received I bought the ant farms myself and my science teacher assisted me on all my testing and observing.	