CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
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Project Number
J1222

Project Title
Wire/String Telephone

Abstract

Objectives/Goals
This experiment tested which wire/string transmitted audible sounds the best.

Methods/Materials
1) Materials: two tin cans that are identical in terms of size and shape, 18 gauge copper wire, aluminum wire, steel wire, and nylon string, a tape recorder, paper, and a pen. 2) Drill a small hole in the bottom of the cans. 3) The string and wires lengths should be twenty-five feet long with two inches extra material. 4) Bend one inch of the copper wire at each end and slip that bent part through the hole in each can. 5) The speaker will hold one can, and the listener will hold the second can and walk away from the speaker until the wire/string is taut. 6) Put one can up to the listener#s ear and the other can up to the speaker#s mouth. 7) The speaker will then say the twenty-five words using the same tone of voice and speed. 8) The listener will write down the words he heard as each one is said by the speaker. 9) Repeat steps 4-8 for each wire/string. For the nylon string, a knot needs to be tied at each end. 10) Record the data and see which material allowed the most words to be correctly heard by the listener. 11) Conclude which material is best for transmitting sound waves.

Results
Both the steel wire and nylon string had the same number of words heard correctly. I decided to perform the test again using a tape recorder to say the words so that there would be a more consistent tone of voice. I played the tape 4 times, using a different material each time. In the second test the nylon string had the most words heard correctly.

Conclusions/Discussion
In test two show the nylon string had the most words heard correctly. The steel wire in test two had all of the words heard, but not correctly. The copper wire and aluminum wire didn#t have that many words heard correctly in either test and had a lot of words not heard at all. In many cases, the word that was heard was very close to the correct word and often rhymed with it. I can conclude from this that each material transmitted the sound the same, but may have had problems from the speaker#s manner of speaking. My hypothesis was wrong. The material that did the best was the material that I thought would do the worst, the nylon string. I think that my hypothesis was incorrect because I could not pull the wire taut enough and I could not keep my tone of voice the same or my pronunciation clear enough.

Summary Statement
This experiment tested which wire/string held taut between two tin cans transmitted audible sounds the best .

Help Received
My mom helped me with the layout of the board and she reviewed my reports.