



California Science Center  
**CALIFORNIA STATE SCIENCE FAIR**  
**2001 PROJECT SUMMARY**

<b>Your Name</b> (List all student names if multiple authors.) <b>Grant A. Hall</b>	<b>Science Fair Use Only</b>
<b>Project Title</b> (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) <b>The Battle of Sound</b>	<b>J0912</b>
<b>Preferred Category</b> (See page 5 for descriptions.) <b>10 - Materials Science</b>	<b>Division</b> <b><u>J</u> Junior (6-8) <u>J</u> Senior (9-12)</b>
<b>Abstract</b> (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
<p>To prevent unwanted noise people soundproof their walls. I am trying to find out in this experiment what material will stop sound the best. I think out of the four materials I decided to study (fiberglass insulation, foam peanuts, newspaper, and nothing in the walls) fiberglass will work the best.</p> <p>I decided to prove this by building a wooden frame out of nails and 2" x 4"'s covering the frame with 5/8" thick drywall, and filling the wall with one of the four insulation's. After I did that, I played a prerecorded tape on one side of the wall. On the other side of the wall I recorded the highest and lowest volume that traveled through the wall using a sound meter. I did this four times, (not counting building the wall) changing the insulation each time. I then repeated this all again (not counting building the wall) three times. Comparing results was the last thing I did to prove that fiberglass insulation would work best.</p> <p>I found out from my experiment that the fiberglass insulation did not work the best to stop sound. The material that actually stopped the sound the best was the foam peanuts. 0.71 dB was how much more sound went through the wall while I was using fiberglass insulation, compared to the foam peanuts. The newspaper stopped 1.325 dB less than the foam peanuts. Nothing in the wall stopped 3.795 dB less than the foam peanuts. This proves that the foam peanuts stops sound better than the fiberglass insulation and that my hypothesis was wrong.</p>	
<b>Summary Statement</b> (In one sentence, state what your project is about.) It determines which insulation is best at sound proofing walls.	
<b>Help Received in Doing Project</b> (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. Mother helped in recorded results, Dad designed the wall, Grandfather supplied the sound meter, and Mr. Lybarger provided engineering assistance.	