

## Hong Kong Student Science Project Competition 2022

Template of Extended Abstract (Investigation)

(Word Limit: 1,000 words, Pages: 2 pages only)

**Team Number: JBPE039**

**Project Title: Using Ordinary Material for Sound Proofing in High Density Area**

**Project Type: Investigation**

**To our best knowledge and after thorough literature research, as at   30   /   06   /   2022   , there are / are no\* similar works. If there are, the reference links are as below:**

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**The enhancement our project has made for the existing related products or research is summarized as below:**

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**\*Please delete if not applicable. HKSSPC values the originality of works. Students must conduct literature research thoroughly to ensure that their works are unique, and to list relevant reference materials to complement the research or invention.**

### **I. Background**

According to study articles, an uneasy or uncomfortable atmosphere can disrupt our mood and mental health, it can even cause health problems.

At first, we thought that professional glass wool would be the best sound-insulating material. However, it turns out that tissue attained the best in our experiment, which proved our hypothesis incorrect.

### **II. Objectives**

We hope that our investigation can benefit the environment, improve our lives and solve health issues that exist in society.

### **III. Hypothesis**

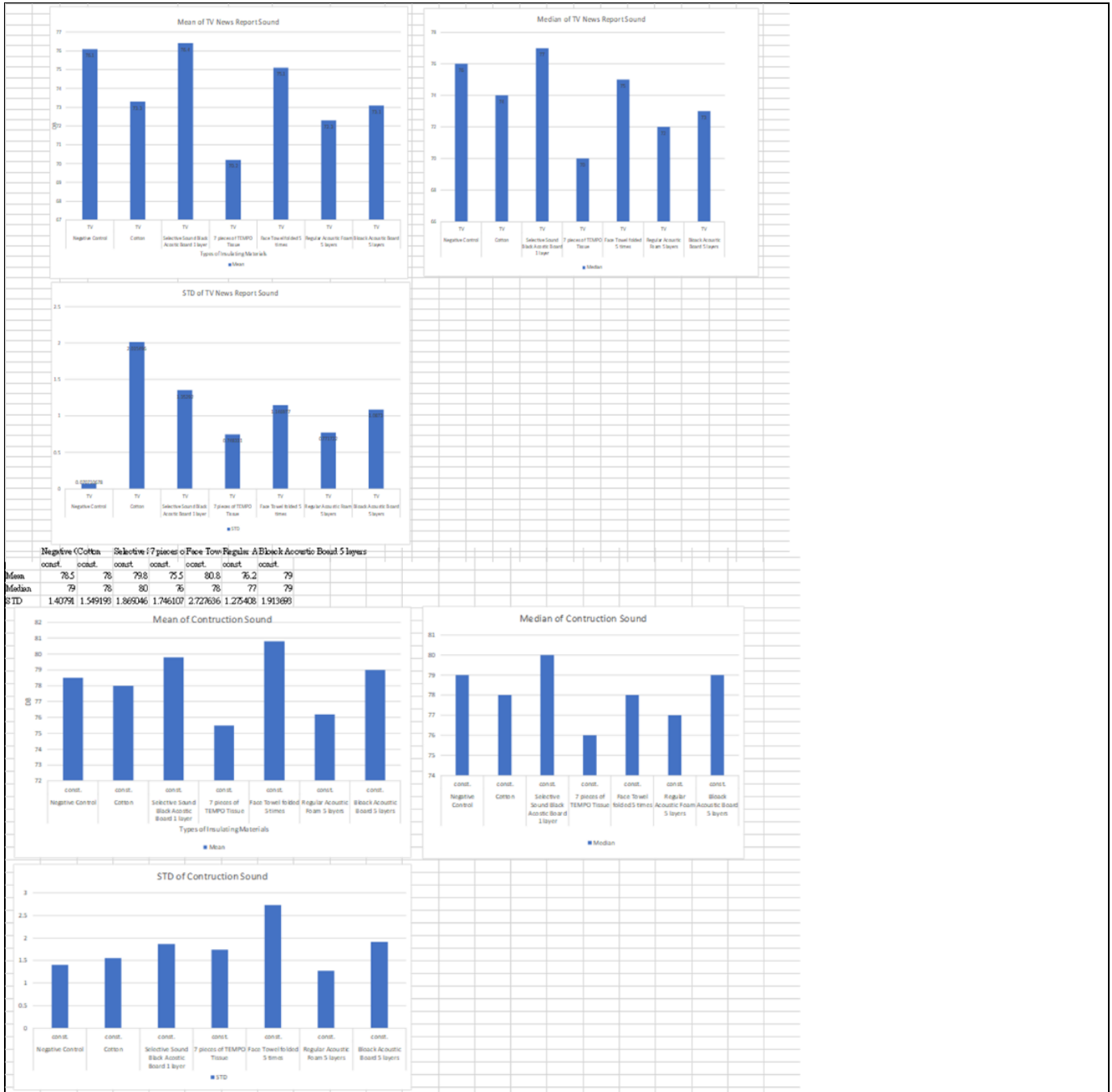
Originally we assumed that glass wool would perform the best in our experiment, however at the end we realized that tissue paper actually had the best sound insulation ability in our experiment. Therefore, we decided to compare both materials. We hypothesized that both tissue and glass fiber professional acoustic foam has similar result in blocking machinery sound and television sound.

### **IV. Methodology**

A room has been set up such that the sound speaker is placed 15 centimeters away from the sound recorder. The speaker is wrapped around by different layers of materials including, tissue, newspaper, 100% cotton cloth, professional graded acoustic foam, normal acoustic foam, cotton balls and a negative control using a clear 2mm thick glass jar.

### **V. Results**

The results demonstrate clearly that tissue provide better sound proofing result under the experimental setup in comparing with the professional graded acoustic foam for blocking both the television sound and machinery noises.



## VI. Conclusion

We can see that fibre are good sound insulating material. Through our experiment, we concluded that tissue and glass wool are the best sound insulating materials. Although the results proved our hypothesis wrong, we did an in-depth comparison of glass wool and tissue and compared their similarities and differences.

□ Our project is developed based on our school’s previous project and the enhancement is as below:

