Building a Sound Booth

Names: __________________________________________________________

Problem

How do different materials affect the ability of sound to travel?

Hypothesis

I think that the combination of ______________, ______________ and ____________ will make the poster board box most sound proof because _________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

Building Materials

• Poster board (2’ x 3’)
• Scissors
• Ruler
• Pencil
• Elmer’s Glue
• ~30 cm of duck tape
• **Choose 3 of the following materials:**
  • 50 jumbo cotton balls
  • 40 wide popsicle sticks (6” x ¾”)
  • 20 paper towels
  • 30 tissues
  • 1 large sheet of construction paper (2’ x 3’)

Building Instructions

1. Begin by tracing the outline of the box on the poster board as follows:
2. WAIT for your teacher to come around and approve your trace
3. Cut out the box and fold on the dashed lines
4. Paste your materials ONLY on the inside of the poster board
5. Fold the box so that it is has all but one side closed
6. Cut the duck tape into four pieces by cutting the tape on the dashed lines as shown below

7. Place the duck tape on the outside of the box along the open edges to seal the box
8. Write your group members names on the box
9. Place materials into the sound booth as is specified in your approved blueprint

Testing Materials

- Computer or device that can play audio
- Small speaker
- Sound meter
- Homemade platform to sit sound booths down into for a better seal (optional but very helpful in obtaining accurate results)

Testing Instructions

1. Have your teacher connect a computer or audio playback device to a small speaker
2. Place the speaker inside the sound booth with the booth positioned like an upside down cup
3. Play a small segment of a song or audio clip with the sound meter placed outside of the booth but next to it
4. Record the maximum decibel level reached for the small audio clip for each group in the Data section below (Make sure that the same audio clip is played when testing each sound booth)
5. Present your sound booth to the class by describing your design in detail and specifying your materials
6. Listen to each group explain how they designed their box
7. Write down a description of each group's design and make sure to note the supplies used

Data

<table>
<thead>
<tr>
<th>Group Number</th>
<th>Design Description</th>
<th>Sound Level (dB)</th>
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<tbody>
<tr>
<td>1</td>
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<td>7</td>
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</table>
# Results

1. Compare your results with the best performing box in the classroom
2. If your group did not perform the best then your hypothesis is not correct

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**Conclusion**

My hypothesis was _______________ because _________________.

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