

Block that Noise!

Name: _____

Student worksheet

Date: _____

Directions: follow the directions on this worksheet to design and test your sound-insulating container.

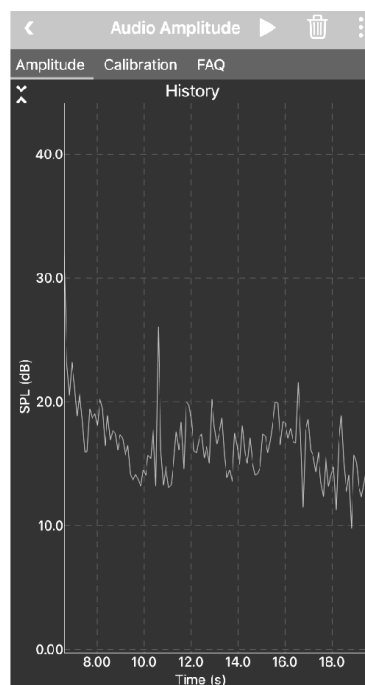
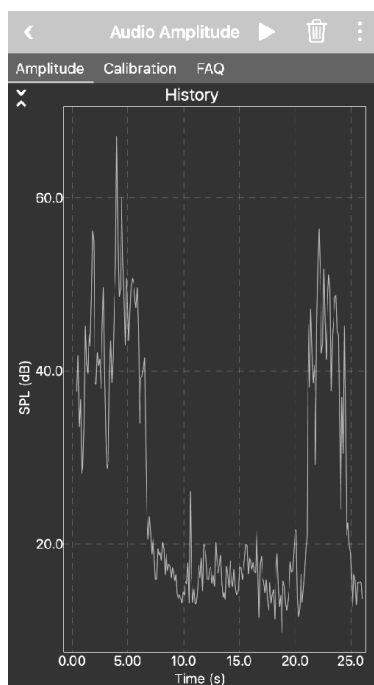
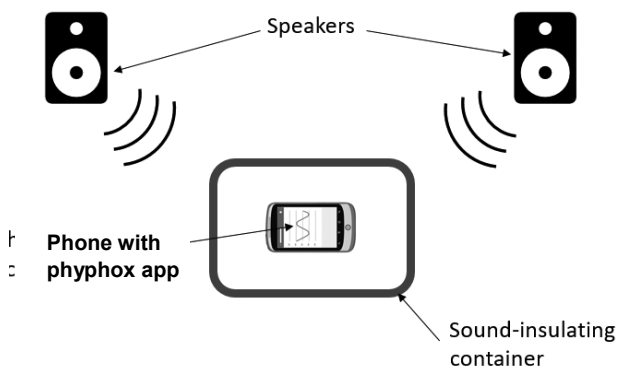
1. Design

Use the space on this page to draw sketches of some ideas for your sound-insulating container before you start building it. Label the materials you will use. You might come back to this page to modify your sketch or make a new one as you test and re-design your container.

2. Test

Follow these steps to test your sound-insulating container. After testing, try to modify your design to make it better and repeat these steps. Record the results for each test in the data table.

- Take your container to the testing station.
- In the phyphox app, open the audio amplitude function. You will have to calibrate your sensor before taking any measurements. Follow your teacher's directions to do that. Then press the play button to start a measurement. If you need help using the app, ask your teacher.
- Place the phone inside your container.
- Place the container inside the area marked at the testing station.
- Play white noise on the speakers at the testing station for a fixed amount of time. Do not adjust the volume of the speakers.
- Stop the white noise, remove the phone from your container, and stop recording. Make sure to save your data.
- Review your data. From your graph, crop the beginning and end of your trial so it only shows the part with constant white noise. You can do that by zooming into the relevant section of the graph. If you need help doing this, ask your teacher.



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- h. Record the average decibel value in the data table. You will need to export your data from the app to determine the average decibel values of your recordings. You can either export your data as a .csv or Excel file. Open the exported file in a spreadsheet program such as Excel or Google Sheets. Once you have the data in a spreadsheet use the Average function to determine the average decibel value of your recordings. Make sure to only use the part with the constant white noise of your recording to calculate the average decibel value.

Test #	Average decibel value
1	
2	
3	
4	
5	

3. Reflect

After everyone in your class has finished testing, answer the questions below.

- How well did your design work relative to other groups?
- What parts of your design worked well?
- What parts of your design could you improve?