

STEM Sound Investigation Design A Sound Proof Box Student Inquiry Sheet



Name	Class	Date	
Engineering and Design Challenge			
Sound control is a big issue for scien nary sound control. Unwanted noise erty values down because of the con- staff are always trying to reduce noise hear casual conversations in adjoinin times people have secrets that they v specific individuals hear the conversa sounds, some spies are busy trying to	ce and a big business in can ruin an important sc stant roar of cars and tru- e from airplane engines. Ig apartments that make want to keep from others ation. And, while many a to hear those seemingly h	society. Making movies takes ex ene. Traffic noise on freeways ke cks. Aeronautical engineers and People in some apartment buildir peace and quiet seem impossible. They are faced with how to talk re engaged in trying to eliminate hidden sounds.	traordi- eeps prop- airport ngs can e. Some- so only unwanted
Getting rid of unwanted sounds is the They are looking for engineers to inve lenge, you are invited to design a box container no larger than 30x30x30 cr when it is on the loudest ring setting? <u>least</u> and <u>contains sound so that it ca</u>	Primary business of the ent new ways to eliminate that can "hide" the sour n that is so soundproof t The box that wins this c annot be heard from 6 me	"Silence Is Golden" sound proof e unwanted sounds. In this design ids of a cell phone. Can you build hat you can't hear a cell phone ri ompetition will be the one <u>that we</u> eters feet away.	company. n chal- d a box or ng even eighs the
Use the engineering and design proc predict have promise for blocking sou other groups that are working on the mation gathered from other groups.	ess in building this box. Ind energy. Build and te same problem. Redesig	Create a plan. Try some ideas th st a prototype. Exchange your fir n your box based upon your data	າat you າdings with and infor-
At the conclusion, issue a report about your designs and testing results.	ut "Principles of Sound A	batement" that you can defend b	ased upon

Planning Guide for Designing and Building a Sound Capture Box

a. What is the design problem?

- b. What are some ideas you have to solve the problem? List your ideas and draw pictures of them.
- c. Build a prototype (a first attempt) of your idea. After building a prototype, list what worked and what did not.
- d. Meet with other design teams. Share your results with each other. What new ideas did you gather after meeting with other design teams?
- e. Based on what you have learned from your tests and talking to other teams, redesign your box and retest it.
- f. Summarize what worked. What problems still need to be solved to get the perfect soundproof box? What should you do differently?