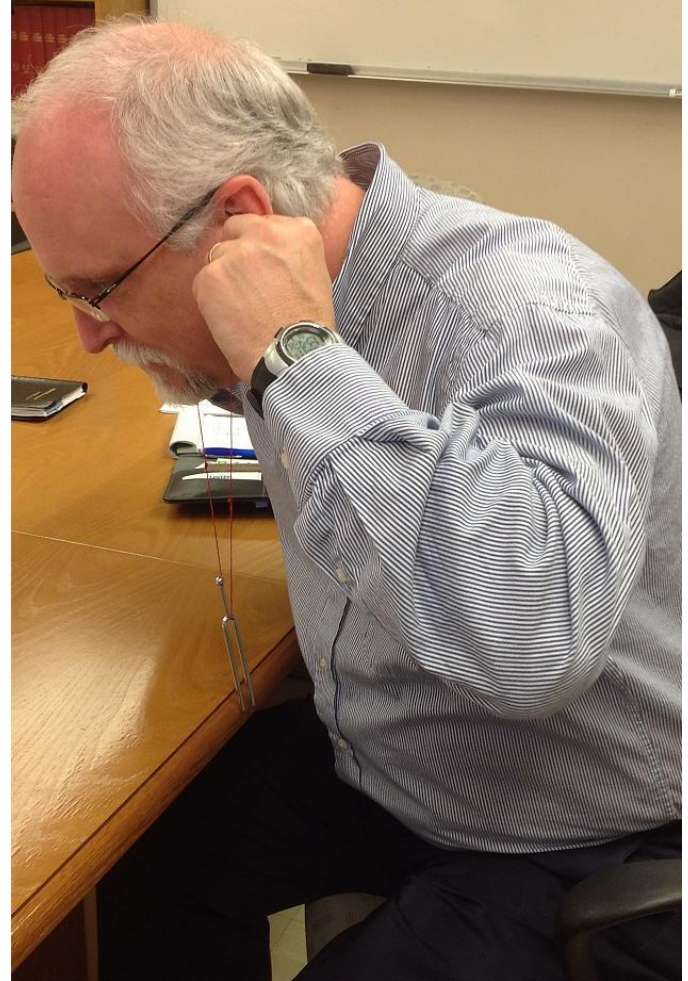
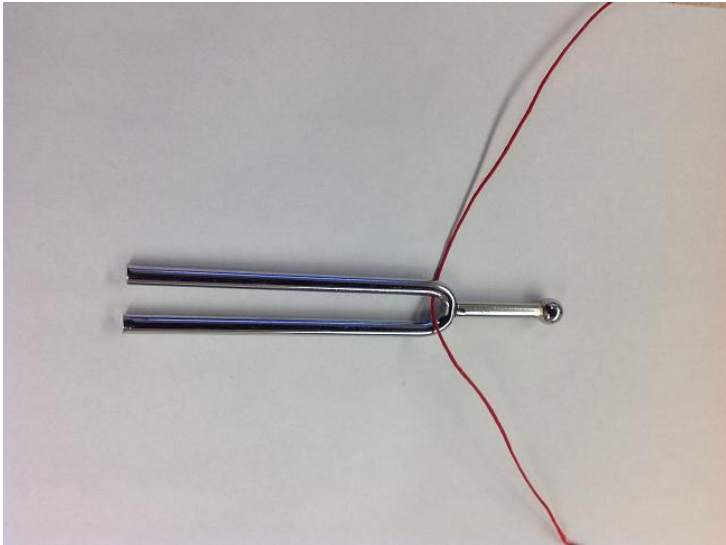


Designing a Musical Instrument

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Harriger, Venkatesh Merwade

- How is sound created?
- What causes sound to travel?
- How does sound travel?
- What is needed for sound to travel?
- What else do you know or want to know about sound?

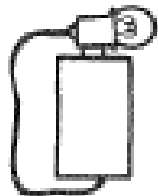
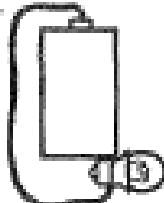
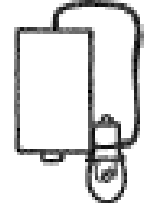


Call a friend!

- You have three phones
- Two phones of type A (labeled as A and a)
 - A is made with 4m string of type A
 - a is made with 2m string of type A
- One phone of type B (labeled as B)
 - B is made with 4m string of type B
- Use these phones to test which device gives better call quality and signal!

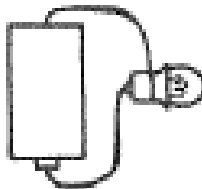
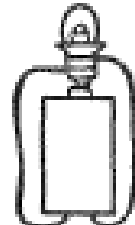
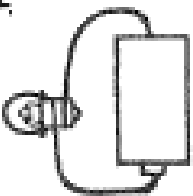
Discussion on Lesson 1

- Which phone (Type A or B) worked the best? Why?
- Is longer string better or worse compared to a shorter string? Why?

HOOK-UP	PREDICTION	
	Will it light?	Did it light?
A. 		
B. 		
C. 		

IF YOU CAN'T HOLD ALL THE WIRES DOWN, ASK A FRIEND TO HELP!



HOOK-UP	PREDICTION	
	Will it light?	Did it light?
D. 		
E. 		
F. 		

Lesson Plan 2 - Challenge

Your school is on a field trip to Indianapolis to listen to Indiana Rock Band. After reaching arriving at the concert, you were told that the band's instruments were damaged during travel. The band needs your help to design and build a string instrument with the available materials.



Challenge: Your school is on a field trip to Indianapolis to listen to Indiana Rock Band. After reaching arriving at the concert, you were told that the band's instruments were damaged during travel. The band needs your help to design and build a string instrument with the available materials. Your design must satisfy the following criteria and constraints.

- What is the goal?
- Who is the client?
- What is the design?
- What are the criteria?
- What are the constraints?

Material

Boxes of various sizes

Balloons

Different kind of strings

Glue

Duct tape

Masking tape

Scotch tape

Cups (paper, plastic, foam)

Plastic Wrap

Rubber bands

Discussion on Lesson 2

- Why some instruments produced better sound than others
- What is the effect of materials used in the design?
- What kind of changes they would make to the design to improve the quality of their instrument?
- Can you produce different volume and pitch without changing the design?