

# Wk 34 Musical Instruments

name: \_\_\_\_\_

## 2. Natural Frequency, Forced Vibration & Resonance

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1. What is natural frequency?

2. What affects it?

3. a) What types of objects tend to have low natural frequencies?

b) What types of objects tend to have high natural frequencies?



4. Which of the guitars in the Mariachi band plays the lowest notes?  
How do you know?



5. Match up the speakers to the:

\_\_\_ Woofer (low)

\_\_\_ Midrange

\_\_\_ Tweeter (high)

6. You've just bought a sub-woofer. When you pick it up do you expect it to be heavy or light?

7. Rank these things from highest natural frequency to lowest:

\_\_\_ A piece of chalk.

\_\_\_ The floor of this classroom.

\_\_\_ A building.

\_\_\_ The table you are working at.

\_\_\_ An atom.

1. What is forced vibration?

2. What is resonance?

3. Match up the vibrations with the thing most likely to resonate with it.

\_\_\_\_\_ Eardrum

a) Vibrations from a car driving by.

\_\_\_\_\_ Window

b) A high-pitched human scream.

\_\_\_\_\_ Wall

c) The bass from a stereo.

3. When the person in the next room plays their stereo, why do you only hear the bass?

4. Why do you think Mr. Mont choose the 500 Hz tuning fork to put on your skull a few weeks ago?

5. Apparently, opera singers can shatter fine crystal wine glasses. How do you think they do it?

6. How can resonance be dangerous?