

Beets



Iona Physics

**BEATS**

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This is more a demonstration than an experiment, since you are just fooling around, though you just might learn something by accident.

Title: BEATS

Procedure:

1. Open up Phyphox and choose the Tone Generator. Use the SIMPLE tab.
2. Set the frequency to 440 Hz and click the little arrow to listen to the tone.
3. Now set the frequency a little higher, perhaps 441 Hz, or 443 Hz, or 500 Hz.

Question 1: Could you tell, simply by ear, that the frequencies were different?

It is much easier to distinguish in-tune and out-of-tune if you listen to them together.

1. Use the MULTI tab.
2. Click on the USE MULTI TONE GENERATOR box
3. Set the first frequency to 440 Hz and the other also to 441 Hz and play them.

Question 2: What do you hear?

That loud->soft->loud is called beats.

1. Leaving the first frequency at 440 Hz, set the other to 443 Hz and play them.

Question 3: Do you still hear beats?

Question 4: Do you still hear beats when the frequencies are 440 Hz and 450 Hz?

Question 5: Do you still hear beats when you have 440 Hz and 600 Hz?

Experiment to find out when you no longer can distinguish beats and just hear the two frequencies.

Question 6: What was the greatest difference in frequencies that you could still distinguish beats?