

WOLFRAM MATHEMATICA

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<https://www.physics.smu.edu/olness/www/26fall1320/lab/>

Download 05_SoundLab_2026_V02.nb and open with Mathematica. (The .pdf version is just for comparison)

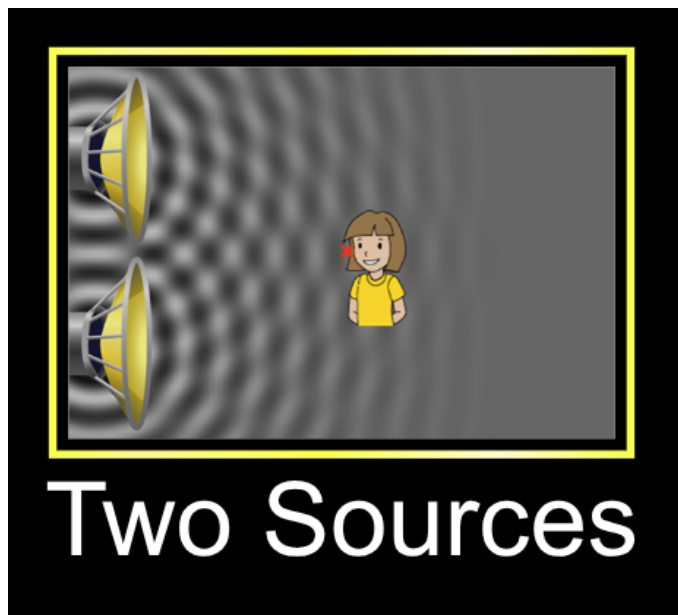
- *) Look at the different phases of the waves. Try your own. Comment.
- *) Listen to the beats. Try different values.
- *) Listen to the interfalls. Try different values. Which sound good?
- *) Comment on the standing wave.
- *) Try the synthetic trumpet & clarinet. Comment

https://phet.colorado.edu/sims/html/sound-waves/latest/sound-waves_all.html



Sound Waves

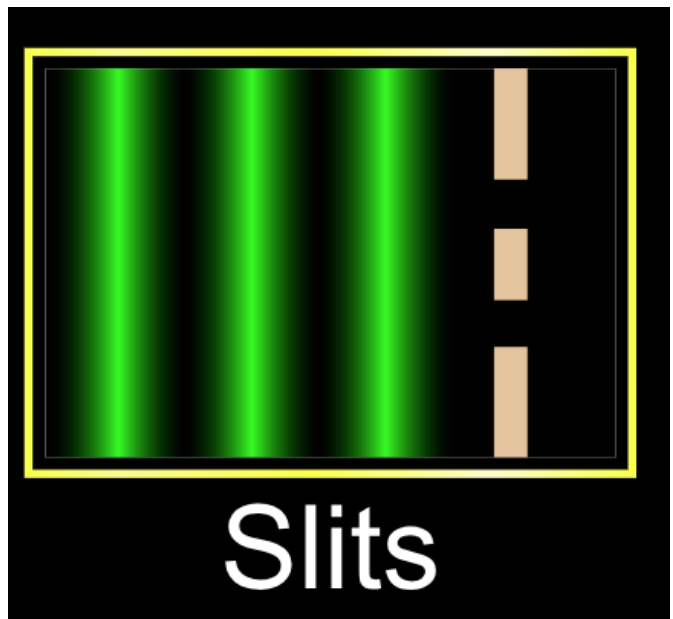
<https://phet.colorado.edu/en/simulations/sound-waves>



Find loud and soft regions.
How do the patterns change with frequency

Wave Interference

https://phet.colorado.edu/sims/html/wave-interference/latest/wave-interference_all.html



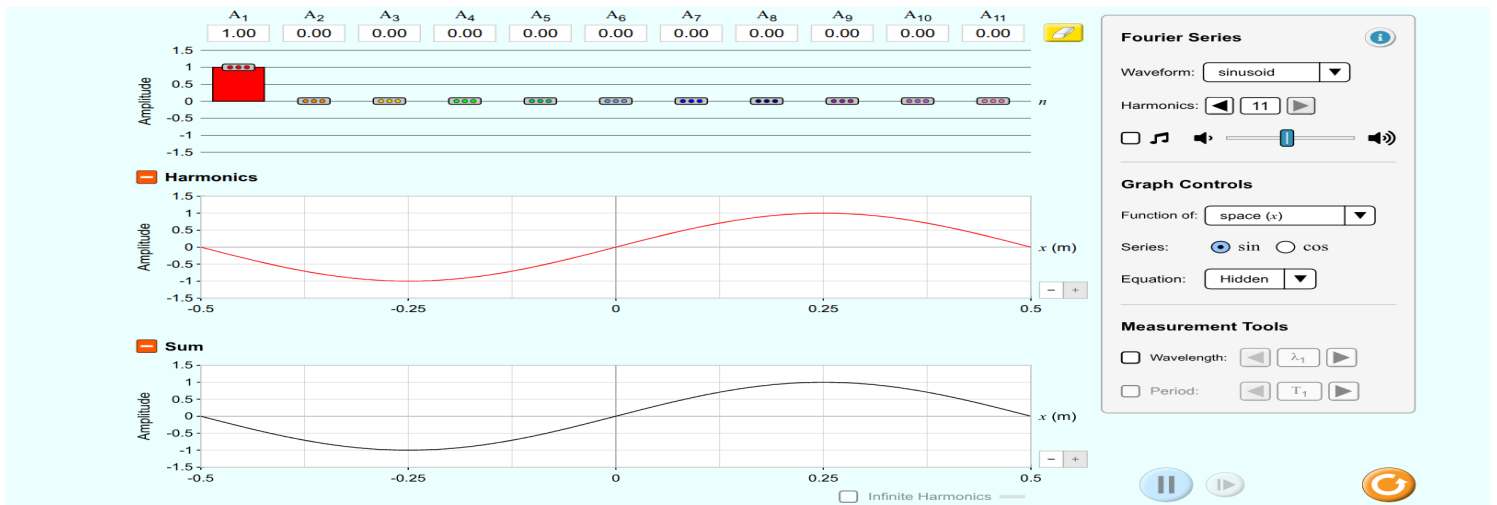
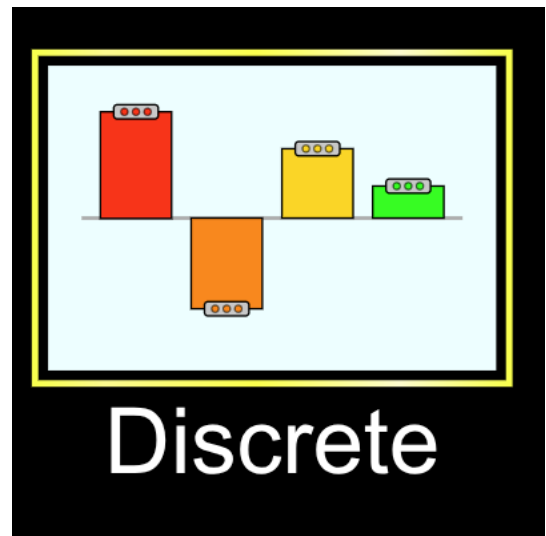
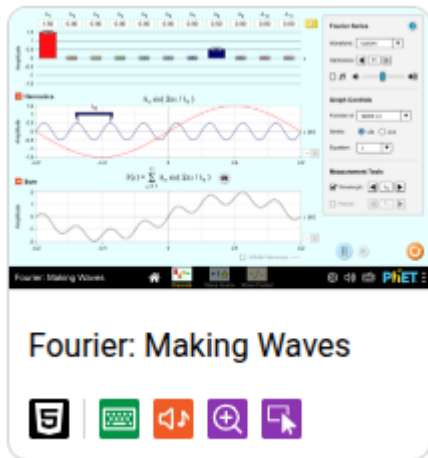
First try one slit.

How do things change with frequency, width?

Try 2 slits.

How do things change with frequency, width?

Fourier: Making Waves



Build your own Saw-Tooth wave. Square Wave.
Compare with the built in version.
Test subjective tones by removing the lower harmonics.