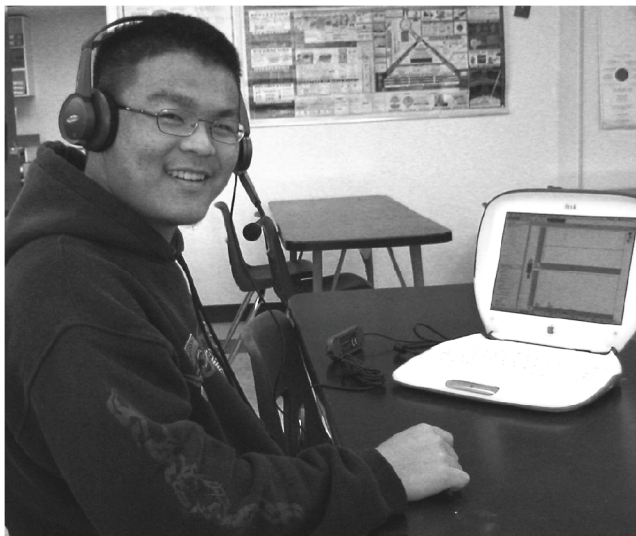


Voice Viewer

See what sounds “look like”



Materials

__ Oscilloscope or computer and appropriate software

__ Microphone or sound sensor and computer interface.

__ Tuning forks (or chimes) and hammer

__ Optional: Other sound sources (radio, etc.)

A Few Specifics

__ iBook (2001-2007)

__ MacBook (2007-)

__ Plantronics USB Headset (USB was the only way to get sound into the iBook 2000)

__ Pasco WAVEport (includes Sound Capture)

Introduction (and research)

A microphone turns sound waves into an electric signal that can be displayed graphically on an oscilloscope or computer screen.

Assembly (and practice)

Connect the microphone to the oscilloscope or connect the sound sensor and computer interface to the computer.

Computer: make sure the computer knows to accept audio input from the microphone. (Mac: choose the “microphone” icon from the control strip or activate the Sound control panel. Choose “external mic” under the USB Audio heading.)

Computer: Open appropriate software (e.g. DataStudio) and configure it to analyze the audio input. (DataStudio: “Create Experiment, then click the Setup icon and then click “Change.” Choose “SoundCapture” as your input.) Then bring up the SoundAnalyzer window and maximize it.

Adjust the display to give an appropriate image of the sound waves from a human voice (the waves should appear as complete wave forms and should be fairly “lively”).

To Do and Notice

Speak into the microphone and see what the sound waves “look like.” Try to make a constant tone. Try making louder and softer tones; higher and lower tones. Notice how the waveform varies.

What’s Going On? Research!

Research: how does the microphone turn sound waves into an electrical signal? What is the display showing: vertical axis and horizontal axis? How do loud sounds differ from soft ones? How do high sounds differ from low sounds?