

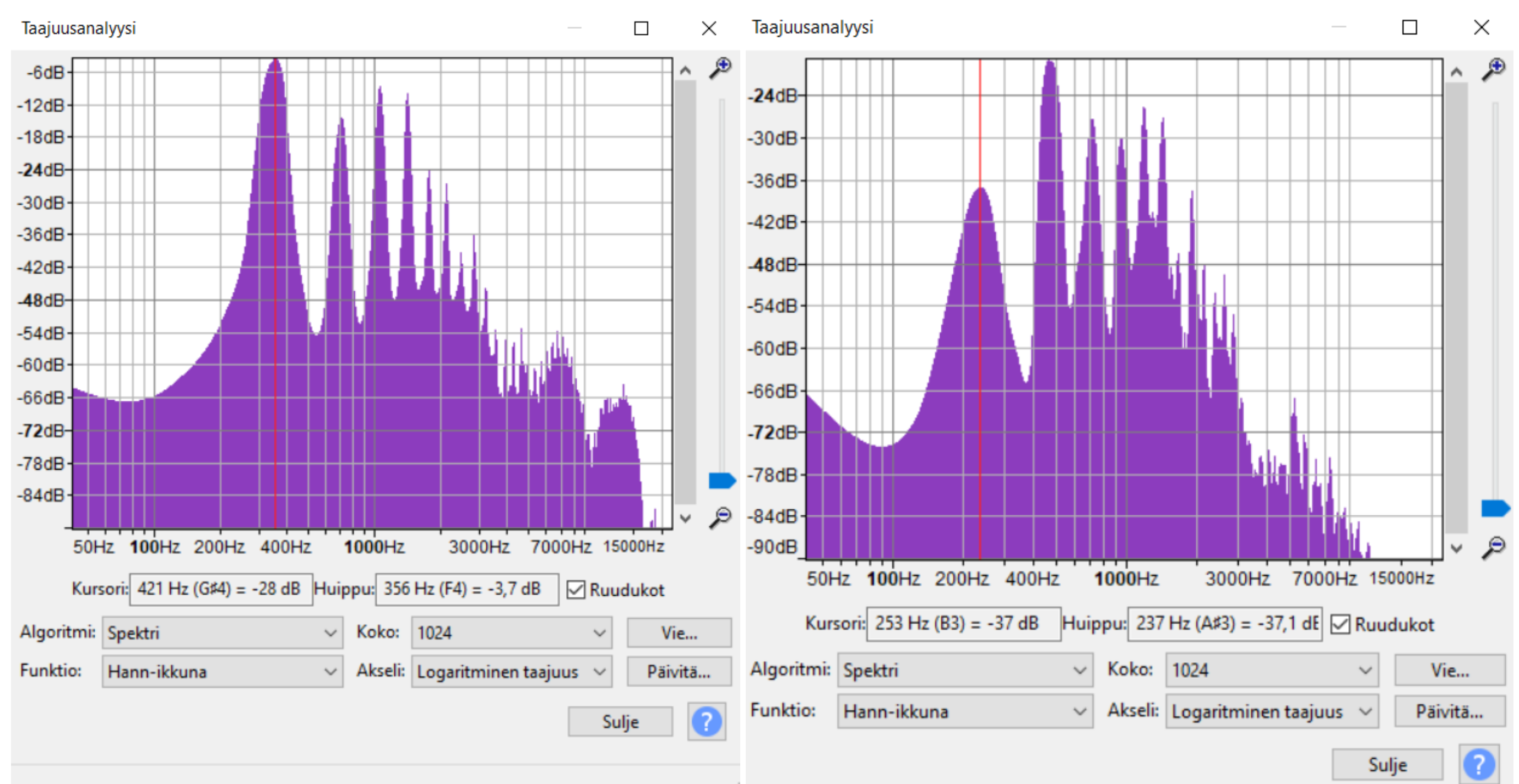
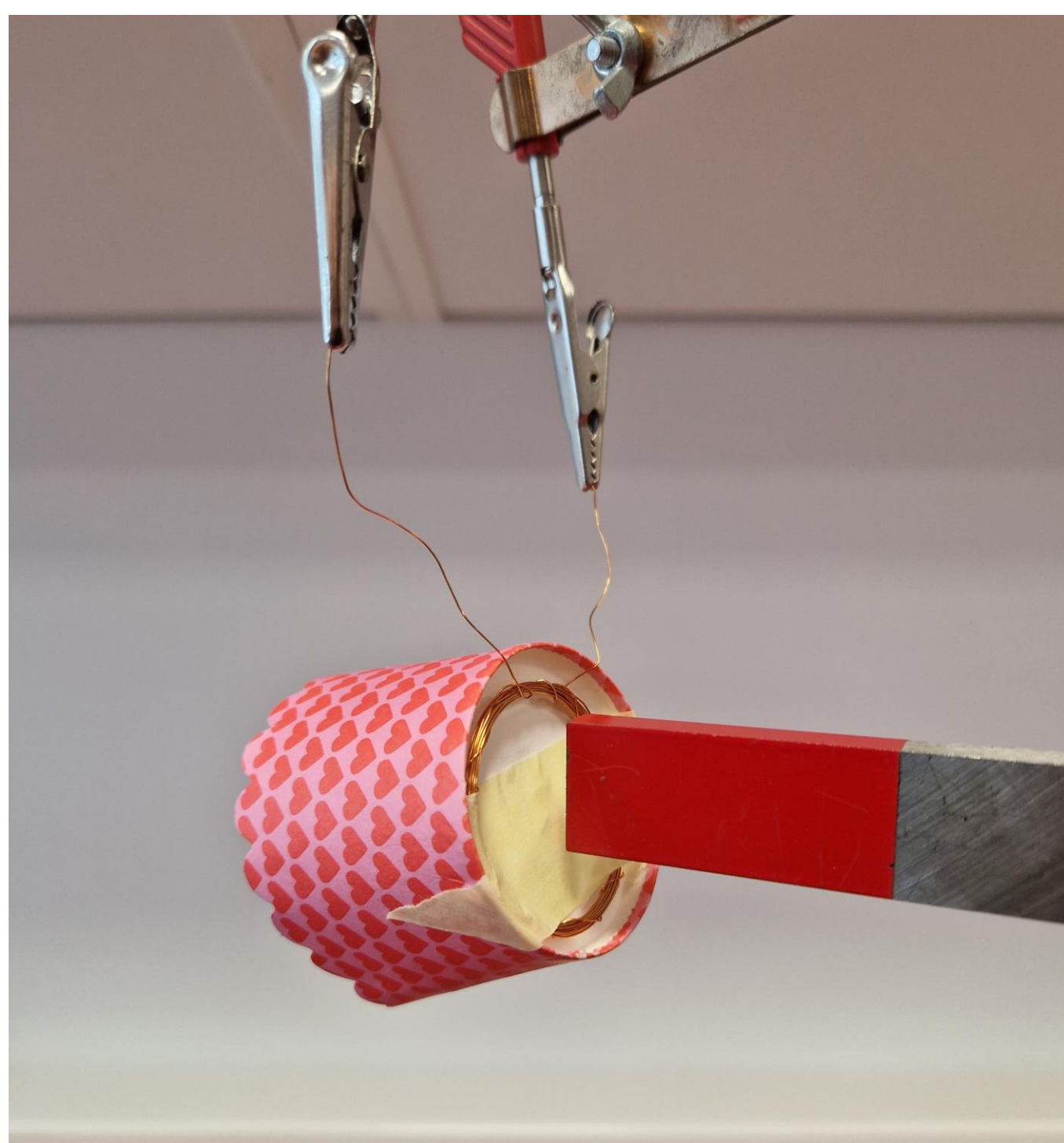
Low-Cost Experiments in STEM Education

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The Physics of Musical Instruments

A DIY way to understanding the science of sounds

If you want to find out how a musical instrument works, at some point you need to modify the instrument to see how the changes affect the sound. However, drilling extra holes to a flute or unwinding the coil of an electric guitar pick-up is not something you would want to do. This is why making your own simplified versions of musical instruments is a great option. They are low cost, easily modifiable, every student can make their own and they sound surprisingly good!



Top right: Recorders made of paper and plastic and oboes made of straws. Bottom left: A speaker/microphone made of copper wire, a magnet and a paper cup. Bottom right: Using the free software Audacity to compare the spectra of two different tones played with the same trumpet-like instrument.

Real instruments sound great and look nice, but they are expensive and the physics are often well hidden. Making your own low-cost musical instrument or piece of sound tech may be challenging, but it's fun and you will learn a lot!