Copper Alloys in Music

Answers

1. Most instruments produce notes that have a recognisable pitch or frequency. Is this true for bells? What about for cymbals?

Bells, tubes, and triangles, for example, produce almost pure notes that can be matched on a piano.
Cymbals produce such a wide range of frequencies that no single frequency stands out.

2. There are free oscilloscope apps for phones and tablets that use the devices' built-in microphone to analyse sounds and display a trace. Use an app to compare the oscilloscope traces of instruments including a cymbal and a bell.

A microphone and bench oscilloscope is an alternative set-up for the investigation. Free phone apps mean that students can try things at home.

3. There are also low cost apps that turn your device into a frequency spectrum analyser. Compare the sounds made by a triangle, bell and cymbal. Compare the number of frequencies showing as sharp peaks.

A microphone and bench oscilloscope is an alternative set-up for the investigation. Free phone apps mean that students can try things at home.

4. Bronze is used to make bells as well as cymbals. Can you think of words that describe the sounds of bells and cymbals? Write them down in two columns. Make those sounds into the oscilloscope app on your phone and compare the traces.

Crash and splash and hiss are some examples. Visit the Zildjian website to discover more. For bells ring, ding, dong, bong, doing, ping are just some words that students might suggest. Saying or singing them into a CRO or phone with a CRO app will show how the words mimic the sounds.

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