Name(s)

Shane Wilbur

Project Number

J1726

Project Title

Given the Same Stimulus, Does the Type of Liquid Placed in a Wine Glass Affect the Frequency of the Note Produced?

Abstract

Objectives

The objective is to determine if different liquids placed in a crystal wine glass would emit different notes when tapped with a metal spoon or rubbed on the rim with a wet finger. I predict that the denser the liquid, the lower the sound.

Methods

Five identical crystal wine glasses were filled with the same measure of liquids varying densities: water, whole milk, regular Coca-Cola, cooking oil, and corn syrup. Each glass was struck with a metal spoon and rubbed on the rim with a wet finger to produce a note. The frequency of each note was identified using a Korg CA-2 chromatic tuner and verified with my keyboard. Each test was repeated 3 times.

Results

Striking the glass or rubbing the rim produced the same tone because each glass vibrated at a specific pitch regardless of what started the movement. Different liquids did produce different notes; however, some notes were duplicated, and all were very close on the musical scale. Two of the liquids with higher viscosity produced a higher note then two other liquids with lower viscosity.

Conclusions

The general trend of my testing answered my question but did not provide full support for my prediction. Since I followed the scientific method thoroughly and repeatedly, perhaps further research would provide insight into my results. This experience created more questions than answers and lead me to carry out two more experiments, included in this project. Being a musician (guitar and piano), I was curious in investigating sound production and how sound can be manipulated.

Summary Statement

I wanted to determine if different types of liquids placed in crystal glasses produced different notes.

Help Received