# Fun with Frequencies and Phonetics

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*What was intended to be a serious and neuroscientific article instead became a barrel of family fun when sharing the original concepts with my sister led to activities that surprised and delighted us. Grab your mates and get out your earphones, the links in this article are quick activities that are better done together.*

Our senses are tuned and honed through exposure and usage as we develop. In the early years of our lives our brains are incredibly plastic (changeable), absorbing input like a sponge. In the critical period for language development, mere exposure is enough to shape brain mapping and set foundations for auditory processing and speech production. After 5 years of age and especially after puberty, acquisition of language takes more effort and phonetic range is more fixed (as demonstrated with accents).

**Sensory Illusion #1:**

Check out this quick video with a bit of phonetics fun and learning.

Teepa asks us to say the words: *dime, time, fine*, before she has us take note of the fine motor skill it takes to produce the subtle differences in speech. (Take note of your lips, tongue, and teeth as you mouth the words *dime, time, fine*.) Teepa explains that just as it requires skill to pronounce the words, it also requires skill to distinguish between those hard-consonant sounds as we are hearing them. As people living with dementia are losing the skill to discern those hard-consonant sounds and are experiencing speech as more muffled, the resulting lack of comprehension is often mistaken for hearing loss. Dementia does not affect hearing. The *huh?* of *I didn't catch that* is often assumed to be a *huh?* of *I didn't hear*. Leaning in closer and getting louder is an instinctive reaction when an older person does not get your message, but typically it's a misguided effort, as it isn't so much a hearing issue, as it is a comprehension issue. Our hearing does change as we age, but it may not be changing the way you would think.

**Sensory Illusion #2**

Yanny or Laurel

Give a listen and *see* what you hear.

Discussing content for this article with my sister, Samantha, brought to mind a silly fad that I'd heard of. I played the sound clip and stated, *it's clearly Laurel. Wait!* exclaimed Samantha, *what did you hear? Play it again….* Samantha is adamant that she hears a feminine, high-voiced *Yammi*, while my daughter, Jaime and I hear a masculine, low-voiced *Laurel*. Despite reading up on the science we are still floored.

Our senses are our means of experiencing the world we live in. We may tend to consider what we see, hear, feel, smell, and taste as impartial/objective, but instead our senses are rather subjective; dementia or not. Dementia does not cause hearing loss. If a person has hearing issues, they are independent of dementia. However, we do lose the ability to register higher frequencies as we age. Being mindful and shifting away from *Susy Sunshine* tones and/or the high-pitched strain of stressed vocal cords is good practice. What we hear can be remarkably subject to a variety of factors including age, dialect, gender, the frequencies of the sound, and even our own expectations. Another person's interpretation may not match our own. This is the nature of our individual biology.

After my sister, Samantha, recalled people using apps in school that played frequencies of sound that are either heard by those over or under 18 years of age, but not both. She said that sometimes the sound could be heard by all, but other times students or teachers would be reeling, asking, *aren't you hearing that awful sound?* We searched our friend Google and Google did not disappoint. We tested our *hearing ages* and again we are intrigued with the results.

**Sensory Illusion #3:**

**How Old is Your Hearing?**

Test your hearing age.

***Check out our results and track yours to add here***

We used my laptop with the volume at 58% and we used earbuds.

Interestingly, the intensity for Jaime and I had us pulling the buds out of our ears in discomfort early in detection, whereas Samantha took significantly longer to detect the sound and did not experience discomfort whatsoever.

Tell us about your experiences in the comments.