Are You Experiencing a Muffled Voice, or Having Trouble Hearing? What Mask Is the Most Effective for Sound Projection?

Tran, Lena (School: Boston Latin School)
Nguyen, Mathena (School: Boston Latin School)

With the new variant on the rise, and trauma with Covid-19, it has been ever more harder to communicate with the people we love as well as our peers. Whether you have Covid-19 and have to quarantine, or you are a teacher in a classroom who can not hear your students because the masks muffle your voice. It is also the fact that masks are covering your face, which is especially hard for people with hearing loss, as they can not read your lips or hear clear because the masks affects how you sound. At the same time, speaking too loud increases the risk of spreading Covid-19 even with masks on, as you are releasing more respiratory droplets the louder you speak! Those droplets can be in the air for as long as 14 minutes in the air and people are at greater risk just because someone is talking louder. So what is the balance? What mask works best for expressing your voice? We plan to confirm this by experimenting with different kinds of masks to determine how badly they affect how sound is perceived. Some masks we will use are disposable masks, cloth masks, K95s, and masks with a plastic front. We will use these and put them in a sound tunnel system in which we will measure the decibels of the sound through each mask. Using this data, we will be able to determine which mask muffles sounds the worst and the best, the worst ones having significant differences in decibels, and the best ones having the very low change from the original sound.

Awards Won: