Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour\_\_\_\_\_\_\_\_\_\_\_

**Sound Vibrations Station 2: Virtual Oscilloscope**

**Directions:** You will need a Chromebook to complete this activity please make sure you are using the Chromebook that is assigned to you. You will test different pitches and different volumes using an online oscilloscope. For this activity, you will convert the sound into a digital signal using the computer microphone. An online, virtual oscilloscope will help you develop an understanding of what sound waves look like. An oscilloscope is an electrical testing device used to measure and “see” the frequency of an electrical signal over time. Non-electrical signals such as sound or vibration can be converted to electrical signals and displayed on a screen using a microphone.

**Task steps:**

1. Go to <https://academo.org/demos/virtual-oscilloscope/> (also on my blog)

2. A small window towards the top of the screen will pop up that looks like  
https://lh5.googleusercontent.com/fTrhW6oEnTwUTWRiZwkUy0RYUuCIBEptEEcDPiubN0Zs4xeXDFBu8h8UVajfkthlgmAOCRsnmzuG79rtto8-QefUSyIfCalgfpxNs_feuXQAYjsQFuckD1g52p6gPOxQ_SSCv-fS

3. Click “Allow”

4. Once you have the oscilloscope on the screen, look to the toolbar on the right, and click on INPUT dropdown menu and switch to “Live Input”.

5. Experiment with high pitched notes and low pitched notes using your voice and Observe the effects on the oscilloscope. You need to make a high, low, loud, and quiet sound, select “freeze live input” and draw what you see!!

6. Below construct two diagrams a low vs. high pitch diagram and a loud vs. soft sound diagram.

|  |  |
| --- | --- |
| High pitch | Low pitch |
| Loud | Quiet |

**Directions: Answer the following questions on a separate piece of paper using compete sentences with a restate. Attach your questions before turning in.**

1. What happens to the sound waves on the oscilloscope when you input a loud sound ?

2. What happens to the sound waves on the oscilloscope when you input a soft/quiet sound?

3. What is similar between your two diagrams?

4. What is different between your two diagrams?

5. How does sound travel?

6. What patterns can we observe about sound?

7. How is sound created?

8. Show Ms. Murphy your student connect and get her signature.

X\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Show Ms. Murphy your student record keeping and get her signature.

X \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_