

Name: _____

Date: _____ Period: _____

Sound Waves Lab

Learning Objectives:

- Explore and draw conclusions about the nature, properties and behaviors of sound waves.
 - Use the simulation to develop your own definition of frequency and amplitude.
 - Describe how frequency and amplitude affect the sounds we hear.
 - Given a description of a sound like “high pitched and loud”, describe the amplitude and frequency.
1. Discuss examples of things that make the different types of sounds listed in the table below.
Write your examples in the table below.
 2. Open **Sound** simulation from the icon on your computer.
Use the **Listen to a Single Source** tab. Turn on the **Audio Enabled** so you can hear the sound.

Create the sounds in the table below!

| Sound | Example of something that makes this sound | Explain how you used the simulation to make the right noise | Draw what the sound waves look like in the simulation |
|-------------------------------|--|---|---|
| Case A: Loud, High-pitched | | | |
| Case B: Soft, High-pitched | | | |
| Case C: Loud, Low-pitched | | | |
| Case D: Soft, Low-pitched | | | |


3. Which cases in Question #2:
- Have a high frequency? _____
 - Have a large amplitude? _____

Explain what controls pitch, and what controls loudness.

4. **Creating Sounds ...**

- **Compare** how you would have to **move the speaker** to produce the sound in each case.
- **Describe the motions below.**
- Be sure to describe what is different about each one.

Is this sound
**Low or high
pitch?**
Loud or soft?

| Sound | | |
|---|---|--|
| Case E: Low Frequency, Low Amplitude |  | |
| Case F: High Frequency, Low Amplitude |  | |
| Case G: Low Frequency, High Amplitude |  | |
| Case H: High Frequency, High Amplitude |  | |

5. **Develop rules** for what effects frequency and what effects amplitude to explain your observations from Question 4.

6. Some of your friends are confusing frequency and amplitude. How would you describe these terms in **your own words or pictures** to help your friends understand each one?