30.4: Procedures

You will observe and analyze sound producing systems.

1. Draw a table in which to record your data. **Do not fill in data until you have read the instructions for obtaining that data**.

Table 30.4.1: Sound System Data

System	Vibration (yes or no)	Sound (yes or no)	Energy (yes or no)
Drum & Finger			
Drum & Drumstick			
Tuning Fork & Water			

Drum Energy

2. Place several paperclips on your drum. Use your finger to tap on the drum a few times and observe both the drum surface and the paperclips. Did you observe the surface of the drum vibrate (vibration)? Did you hear sound from the drum (sound)? Did you observe energy transferred to the paperclips (energy)? Enter all of your answers for this system in your *sound system* data table.
3. Use the drumstick to tap on the drum a few times and observe both the drum surface and the paperclips. Record your observations for this system.

Sound in Water

4. Fill the beaker about ¾ full with water.
5. Use the rubber mallet to strike the tuning fork, and then closely observe the tuning fork to determine whether you are able to see it vibrating. Did you see the tuning fork vibrate (vibration)? Record your answer.
6. Use the rubber mallet to strike the tuning fork again, and bring the tuning fork close to your ear to determine whether you can hear any sound. Did you hear sound from the tuning fork (sound)? Record your answer.
7. Strike the tuning fork with the rubber mallet, and place the tuning fork into the water; be careful not to touch the beaker with the tuning fork. Did you observe energy transferred to the water (energy)? Record your answer.

Sound versus Light

> **Note**
>
> This experiment must take place in a large outdoor space.

8. Draw a table in which to record your sound versus light observations. Read the instructions for obtaining the data.

Table 30.4.2: Sound versus Light Data

	Speed Difference Observed (Yes or No)
100 Paces	
200 Paces	
300 Paces	

9. Walk to a location where there is ample space and the ground is relatively flat. Ideally, you will have about 200-300 meters of flat ground.
10. Have one person put on the gloves, hold the two wood stakes, and walk 100 paces (regular steps) from the rest of the team. Observe as the person hits the stakes together and listen for the sound. Record whether your team observed the blocks hit before hearing the sound, in your *sound versus light* data table.

11. Increase the separation to 200 paces and repeat the process of observing the blocks and listening for the sound. Record whether the team observed the blocks hit before hearing the sound, in your *sound versus* light data table. Do this again for 300 paces.

Clean-up

- Discard water outside (water plants)
- Completely dry the beaker
- Completely dry the tuning fork

Contributors and Attributions

- Template:ContribCCPhySc101L