NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**What’s that Sound?**

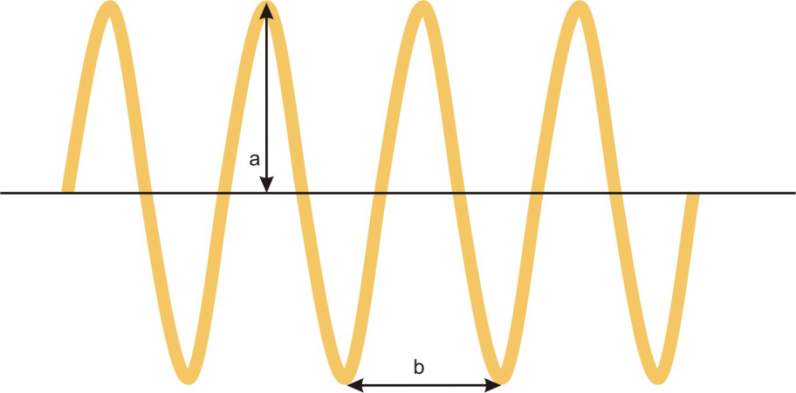
**Sound is especially important for marine mammals**. In today’s activity, you’ll learn about bioacoustics, properties of sound waves, and the characteristics of marine mammal sound. You’ll learn enough to identify the species of your own marine mammal mystery sound!

1. Acoustics is the study of \_\_\_**sound**\_\_\_\_\_.
2. Bioacoustics combines \_\_**biology**\_\_\_\_ and \_**accoustics**\_.
3. Provide three reasons why marine mammals use sound underwater.
   * + 1. **Locating Food**
       2. **Reproduction**
       3. **Predation**
4. Sound is a \_**wave**\_\_ that travels 5 times\_**faster**\_\_\_ in water than air.

**Change in pressure from peak to trough; the loudness of a sound**

1. Label and define the following:

**Amplitude**

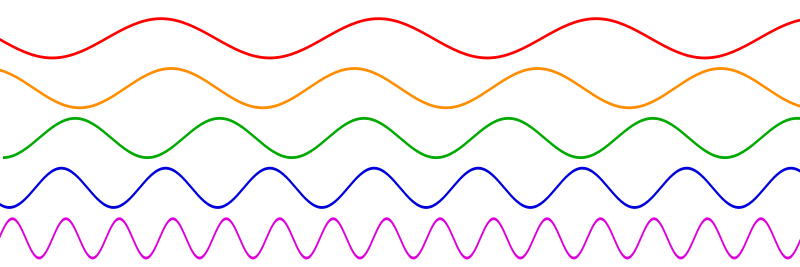


**Distance from one crest to the next or one trough to the next**

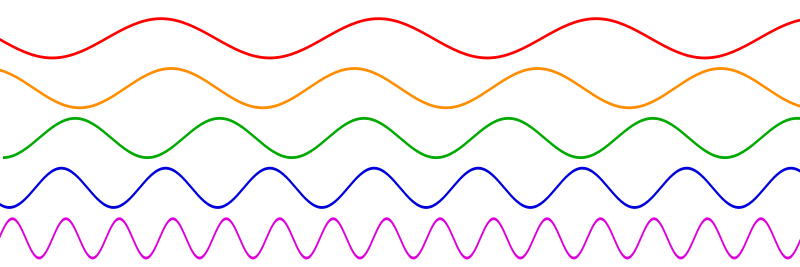
**Wavelength**

1. Frequency is the number of \_**wavelengths**\_\_ per \_\_**second**\_\_\_.
2. Which wavelength has the highest frequency? Lowest? The most energy? The last amount of energy?

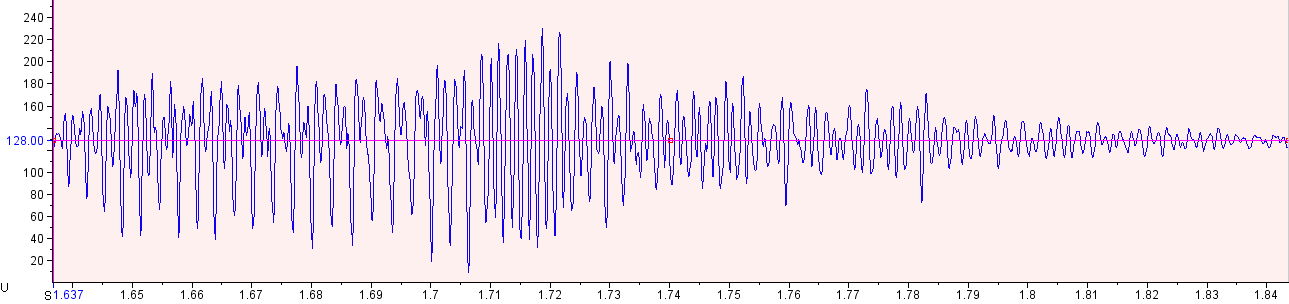
Long wavelength = **high / low** frequency = **high / low** energy



Short wavelength = **high / low** frequency = **high / low** energy



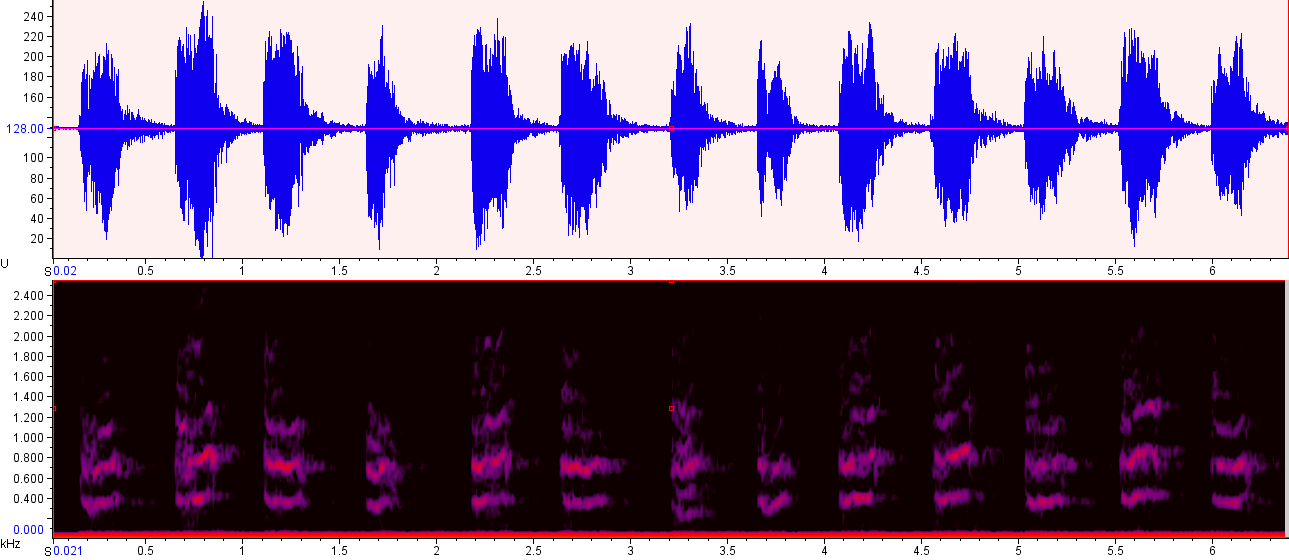
1. Low frequency sounds travel \_\_**farther**\_\_\_\_\_than high frequency sounds underwater.
2. A waveform (example below) shows \_**pressure**\_\_\_ fluctuations over \_**time**\_\_, with amplitude indicating \_**loudness**\_\_\_\_\_.



Pressure (db)

Time (seconds)

1. A spectrogram (example below) shows \_**frequency**\_ over\_\_**time**\_\_, with color indicating \_**loudness**\_\_\_\_, or \_\_\_**intensity**\_\_\_\_.



Time (seconds)

Frequency (kHz)

1. Peak Frequency is the frequency with the most \_**power**\_\_.
2. Marine Mammal Bioacoustics Review Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Marine Mammal Group** | **Example** | **Common Frequencies** | **Use** |
| Mysticetes  (baleen whales) | blue whale | **Low frequency** | **Communication** |
| Odontocetes  (toothed whales) | Bottlenose dolphin | **Mid –high freq.**  **Very high freq.** | **Communication**  **Sonar** |
| Pinnipeds  (seals & sea lions) | CA sea lion | **Low-high freq.** | **Reproduction and communication** |