Name_____ Period _____ Date _____

Ship Tracking   STEM Sims

Lesson 1: Small Ships
Ships can be tracked and identified without even looking at the physical boat itself. How does this happen? There are underwater microphones called hydrophones that can detect ship movement. Each type of ship has a specific acoustic signature and can be matched to a database of ships identifying unknown ship sounds. Are you ready to start creating the database to help identify the ships?

Doing the Science
1.   Start the Ship Tracking Simulation by clicking on the "Sim" tab.
2.   Click on the green "Learn" button.
3.   Click on "Start" on the left side of the simulation.
4.   Small ships will float across the screen. When you see a ship floating by, hover your cursor over the ship to see its acoustic signatures.
5.   Click on the ship to stop its movements and freeze its acoustic signature.
6.   Record the ship's frequency and amplitude in Table 1.
7.   Draw the acoustic signature into the table to create a database of the small ships.
8.   Clicking on "Redo" will reset the ship so that it will sail across again.
9.   Click on "Next" to continue onto the next ship.
10.   Repeat steps 3-9 for the next three ships.

Table 1.

Ship Type	Frequency (Hz)	Amplitude (dB)	Acoustic Signature
Jetski			
Rigid Inflatable			
7m Outboard			
Fishing Boat			

Do You Understand?
1. Did all of the small ships have similar frequencies and amplitudes?

2. Do you predict the medium size ships will have similar frequencies and amplitudes as the small ships?