Sound Lab using LabPro

Name: _____

Get a LabPro and microphone, and then connect to a computer. **Setup the Sensor** through the **Experiment** tab if necessary.

1. Say "AAAAAAAA" smoothly into the microphone and hit **Collect**. Once you get a graph that you think is quality, print it out, label it #1 and include it with your report.

a) Would you say this is a periodic wave? Support your answer with characteristics.

b) How many waves are shown in this sample? Explain how you determined this number.

c) Relate how long the probe collected data to something in your everyday experience. For example: "Lunch passes by at a snail's pace." Or "Science class flies by as fast as a jet by the window."

d) What is the period of these waves? Explain how you determined the period.

	Period (s)	Frequency (Hz)	Wavelength (m)
Person 1 Hum			

e) What is the frequency of these waves? Explain how you determined the frequency.

f) Calculate the wavelength assuming the speed of sound to be 340 m/s. Relate the length of the sound wave to something in the class room.

g) What is the amplitude of these waves? Explain how you determined amplitude.

h) What would be different about the graph if the sample were 10 times as long? How would your answers for the questions a-g change? Explain your thinking.

i) What would be different about the graph if you change the sample rate? Test your ideas. Copy the graph and label it #1i).

2. Now have someone else in your group say "AAAAAA" into the microphone. Copy the graph and label it #2. Compare and contrast the two people's wave patterns. Be specific in your answer. For example: determine the characteristics that you did for the first person (# of waves, frequency, period, amplitude, and wavelength) and include any qualitative observations.

3. Collect data for your straw instrument. Copy the graph and label it #3. Compare and contrast the waves made by human voice.

4. If you use the same straw instrument to collect data for a louder sound, what changes would you expect on the display from the sample in #3?

a. Test your ideas. Copy the graph and label it #4.

b. What did you do to make the sound louder? Compare and contrast the waves collected for the softer sound to those collected for the louder sound.