Name: _____
Number: _____
Date: ____/____/____

Unit 13: Wave Motion and Sound
LAB: Speed of Sound in Air

Objective:

- Use graphical methods to determine the speed of sound in air

Equipment:

- PVC pipes of various lengths
- The website http://plasticity.szynalski.com/tone-generator.htm

General Information: You will create sound waves in a closed-ended tube by tapping the PVC pipes to your hand. Use the website, which generates tones and gives their frequencies, to match the sound made by the pipe with its frequency. Once you have the frequency, you can take additional steps to determine the speed of sound in air using a graphical method.

Background: Be sure to define all relevant terms and explain why your procedure will work.

Procedure:

- Create sound waves in a closed-ended tube by tapping the PVC pipes to your hand. Use the website http://plasticity.szynalski.com/tone-generator.htm to match the sound made by the pipe with its frequency.
- Describe the rest of your procedure here:

Data: Use Excel to create both a data table and a graph. If you need to do a calculation in Excel but are unsure how to program it, you can ask your teacher. Print and attach your Excel sheet.

What is the speed of sound in air according to your graphical method?

Use the website http://hyperphysics.phy-astr.gsu.edu/hbase/sound/souspe.html and a thermometer to find what the actual speed of sound in air is for the classroom.

Perform an appropriate error analysis.

Conclusion: