

Temperature of Air in our Classroom Lab

Purpose:

To determine the ambient (air) temperature of our classroom.

Hypothesis:

Materials & Method:

Set up as shown in labeled diagram below. Generally Follow page # 439 of text

Observations:

Design an observation chart Complete the observation chart. Include sample calculations beneath chart. Note: The textbook talks of 'resonance'. When you have 'resonance', you have the standing wave. As discussed in class, a standing wave has 2x the original amplitude, so the sound wave will be loudest when you have a standing sound wave set up!

Analysis:

Answer b) and c) (Knowledge & Understanding mark)

Answer d) e) and f) together with Conclusion (Application mark)

Conclusion:

Respond (provide an answer) to the purpose.

Criteria	Level 1	Level 2	Level 3	Level 4
K & U (b & c) E 2.7 - analyze & explain conditions for standing waves	- attempts to draw & explain resonant (standing) air column waves Errors or omissions present	- able to draw & explain resonant (standing) air column waves with some errors.	- able to draw & explain resonant (standing) air column waves with a few errors.	- able to draw & explain resonant (standing) air column waves with no error or <u>1 very minor one.</u>
Application (d & conclusion) E 2.3 – conduct inquiries re: λ , v & freq.	- attempts to determine the speed of sound & temperature of air. Significant errors / omissions	- able to determine the speed of sound & temperature of air with some errors errors.	- able to determine the speed of sound & temperature of air without any errors.	- able to determine the speed of sound & temperature of air without any errors.
Application (e,f) A1.8, A1.9 Identify sources of error & suggest improvement	- identifies 1 reasonable source of error without suitable improvement (or vice versa)	- can identify 1 reasonable source of error and suggest suitable improvement.	- can identify 2 reasonable sources of error and suggest suitable improvements for each.	- can identify 3+ reasonable sources of error and suggest suitable improvements for each.

Note: human error (your mistakes) are not valid 'sources of error'. I.e: measuring or calculating incorrectly is human error, not a source of error. A valid source of error is something that is happening in the experimental design or equipment that you believe is reasonably influencing your calculations and/or conclusion.