Temperature of Air in our Classroom Lab

****Everything up to Analysis is the same as the lab posted on the website****

Analysis:

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

Answer d) e) AND…….following question:

Extra #1. - Mrs. Hudecki will give you the actual air temperature.
a) Use this information to calculate where you SHOULD have heard the first 3 harmonics. (ie: What should L_1, L_2 and L_3 have been?). (This is 'actual L_n')
b) Calculate the % deviation for one of the harmonic lengths. Show your work.

$$\% \text{ deviation} = \frac{\text{measured } L_n - \text{actual } L_n}{\text{actual } L_n} \times 100\%$$

Extra #2 - Our best guess is that the sound generator was not producing a note of 2240 Hz as it should. Would you advise Mrs. Hudecki to spend a small amount of science money purchasing new sound generators for next semester? Ie: Is this lab a worthwhile lab? Why or why not?

Conclusion:

Criteria (questions)	**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 resonand (standing) air column waves with no error or 1 very minor one.
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 ()Extra #1 and Extra #2 A1.8, A1.9 Identify sources of error & suggest improvement	- attempts calculations and attempts giving advice.	- attempts calculations but small errors. Advice given for moving forward with some reasons.	- can calculate 'actual L_n' , % deviation and logical advice given moving forward.	- can calculate 'actual L_n' , % deviation with NO errors and logical advice moving forward with good reasons.