



Problem 15. Hearing range

Team Nitro

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Statement of the problem:

Explain the structure of the ear. **What is Sound?** Two important properties of sound.

Suggest a problem to investigate the lowest and highest audible frequencies for specific species of societal groups. Experiments that can be done for finding hearing of animals and humans. Checking the range of hearing between different animals. The

human ear is the auditory and balance organ that detects and analyzes sound by transmitting or converting sound waves into electrochemical impulses and creates a sense of balance in us. Two important properties of sound are frequency and intensity.

did not include the proposed statement in the presentation

Theory

Pros:

- +explained how the sound is transmitted through the ear
- +explained what sound is
- +the parameters of the sound (the intensity and the frequency)

Overall:

Average

Cons:

- did not tell if there are difference of the ears of different animals,
- didn't include hearing ranges for the animals
- didn't include the difference between the human and animal hearing

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Experiment

Pros:

- + chose the weber's method and the Rinne test which are acknowledged methods to study the properties of hearing
- + determined the hearing range for 4 types of animals
- + observed that dogs with larger ears hear more from

Overall:

Below average

Cons:

- there is no hypothesis
- did not explain why the weber's method and Rinne test were selected and for what purpose;
- too few subjects (only 5 of each type)
- did not study the extreme frequencies (highest and lowest) that can be heard, only two particular values for the humans experiment;
- did not include any photos or videos for the hearing experiment on cats, horses and rabbits;

Conclusions

Pros:

Cons:

- conclusions were taken after too few subjects were tested
- the conclusions were incorrectly taken from poorly done experiments
- no hearing range

Overall:

Below average

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Discussion topics

- how age influences the hearing range
- how did you measure the highest and lowest frequencies that were heard by the animals? what was the experimental method?
- what were weber's method and rinee's test used for?



DISCUSSION