

Science problem of the month

A problem of hearing



Overview

Aims:

- To design and use a simple hearing test;
- To critically compare designs with others;
- To understand the work of an audiologist;

We will:

- Work as a group to design a simple hearing test;
- Learn about different types of hearing loss and how they are diagnosed;
- Act in the role of an audiologist to diagnose common hearing problems from audiograms.

Discussion

It has been estimated that in the population:

- 1 in 6 people have some form of hearing loss;
- 1 in 30 wear hearing aids;
- 1 in 10 would benefit from a hearing aid.



There are many degrees of hearing loss between hearing well and hearing nothing but there is natural deterioration with age.

A social problem

Hearing impairment can result in the following social problems:

- Difficulty participating in conversations;
- Difficulty hearing in a group situation, particularly with background noise;
- Finding men's voices easier to hear than women's;
- Needing the TV louder than other family members;
- Misunderstanding what is being said;
- Hearing better from one side than the other;
- Missing parts of conversations;
- Avoiding social situations.

(Source: Chime Social Enterprises, 2014)

Designing a hearing test

Design a short hearing test that you can use to measure hearing ranges and construct a definition of what is 'normal' hearing.



Design features

Features to consider:

- What are the key variables?
- How can sample sounds be generated easily and replicated consistently?
- What sample of people will be tested?
- Should hearing be tested for both ears independently or is the combined hearing most appropriate?
- Is the predicted answer of 'normal' hearing going to be a single measurement or a range?
- In what form might the results be best displayed?
- What health and safety controls are needed?

Audiology

Watch the video

<https://www.youtube.com/watch?v=9u9Ja4wyUaU>

and use Handout 1 to understand more about:

- The work of an audiologist;
- Different types of hearing test;
- Different types of hearing problem;
- How audiograms are used in diagnosis.

Final questions

What skills, knowledge and personal qualities are needed by an audiologist?

