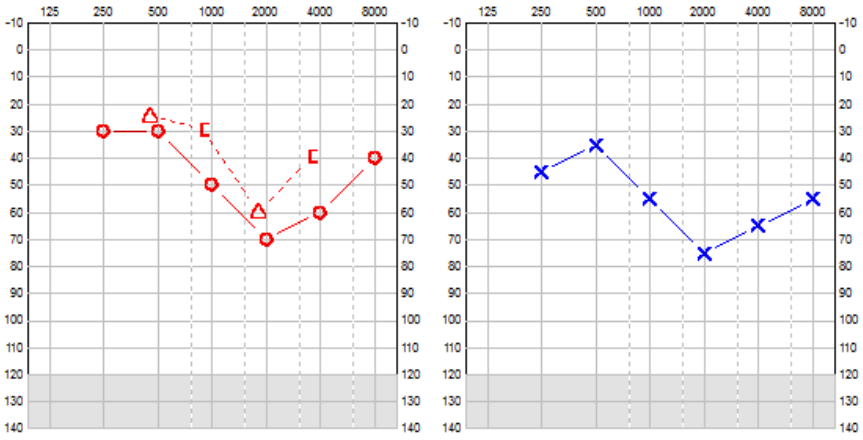
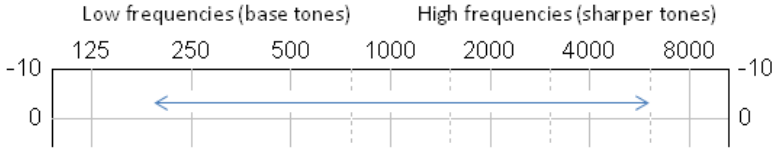
How to read your hearing test results

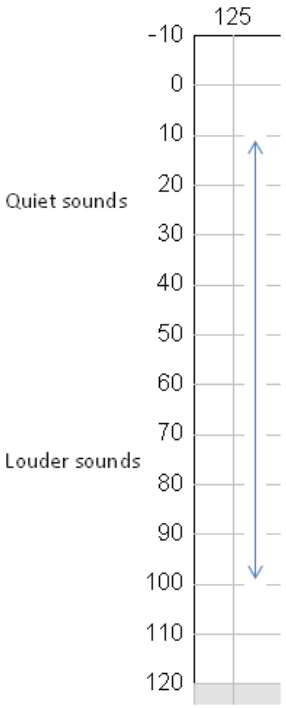
Please see the graph below, or what we refer to as an ‘audiogram’. You can see lines, one with circles and one with crosses. The line joined together by crosses represents the hearing in the **left ear**, and the line joined together by circles represents the hearing in the **right ear**.

It’s a little confusing because the right ear is on the left graph! It is traditionally set out this way so that it is the correct way around for the audiologist who is facing you, your right ear is on their left side and your left ear is on their right side.



As we go across the top of the graph, we have the different frequencies or ‘pitches’ (measured in hertz, or Hz). Think of it like a piano, we have the base tones on the left end and the high tones at the right end.

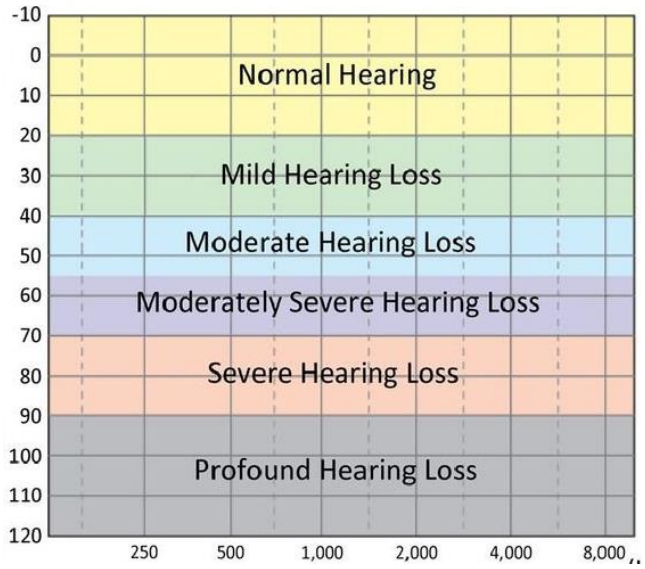




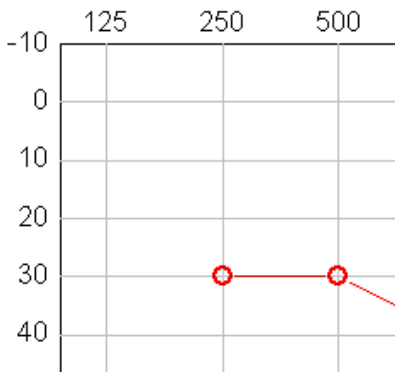
As we go down the graph, we have the different levels of sound (measured in decibels, or dB). The higher the decibel level, the louder the sound.

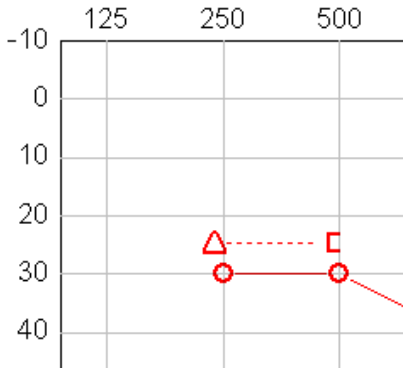
On the audiogram, we plot the quietest sound (beep) that you were able to hear at each different frequency. This is the ‘hearing threshold’.

The audiogram below gives you an idea of the different levels of hearing loss and where on the graph they would appear. It is probably a reverse of what you might expect: the quiet sounds are at the top and the loud at the bottom!



In the example below, the quietest beep that was heard at 250Hz in the right ear (a very low pitched sound) was 30dB (so there is a mild hearing loss at this pitch). The same level was heard at 500Hz also.





The circles and crosses represent the hearing levels through the traditional headphones, known as air conduction. The triangle and '⊏' symbols represent the hearing levels through the tighter headphone that goes behind the ear, known as bone conduction.

When we perform the bone conduction part of the test, we are transmitting the sound directly into the inner ear. This means that we can work out exactly what part of the ear the hearing loss arises from and therefore classify the type of hearing loss it is.

We test the hearing using the second bone conduction headphone to establish whether the hearing loss is 'sensory neural', 'conductive' or 'mixed'.

Definitions

Types of hearing loss

Sensorineural: this type of hearing loss is usually permanent and originates in the cochlea or 'inner ear'. There are many causes of this type of hearing loss, such as genetics, illness before birth or during childhood, certain medications, damage to the inner ear from an accident or noise damage.

Conductive: this type of hearing loss can be temporary or permanent and happens due to a blockage or problem with the transmission of sound through to the inner ear. In this case the inner ear is normal, but the sound cannot correctly reach here to be heard properly. Sometimes, surgery can be done to relieve the problem or blockage. Hearing aids can be used in the meantime to help sound push past the blockage, or can be fitted long term as an alternative to surgery.

Mixed hearing loss: this is a mixture of both a sensorineural and conductive hearing loss as above.

Levels of hearing loss

Within normal limits (-10 to 20dB): hearing is normal for an average human adult.

Mild (20-40dB): there is a small degree of hearing loss, so quiet sounds like whispering and leaves rustling may not be heard. Hearing conversation in a quiet environment may be manageable, but may be more difficult at a distance or somewhere noisy.

Moderate (40-70dB): this degree of hearing loss will cause difficulty hearing mild and moderately loud sounds such as human voices, footsteps or a toaster popping. Many household sounds may be missed or appear far away. Conversation in quiet may be manageable, but some words can be missed. In the presence of background noise, communication will be much more difficult.

Severe (70-95dB): a severe hearing loss may noticeably affect a person's ability to communicate with others. In conversation, a person with a severe hearing loss will need others to speak with a clear raised voice and may sometimes still mishear words. Conversations in groups and in background noise can cause them to feel very lost. A person with a severe hearing loss can miss most household sounds such as the doorbell and telephone ringing, and may struggle to hear sounds such as a baby crying or a vacuum cleaner. They also may rely on lip reading in conversation, whether consciously or subconsciously.

Profound (95+dB): a profound hearing loss refers to very little or no hearing. Conversation will be very difficult in noise and in quiet, and people with a profound hearing loss may rely on lip reading or using sign language, even with the use of hearing aids. They may not be able to hear very loud noises like music at a rock concert or a jet plane, or it may be very faint.

Mixture of different degrees at different frequencies (mild to moderate, mild to severe etc.): Many patients do not have a ‘flat’ hearing loss across all pitches. If this is the case, some sounds can be heard much easier than other sounds: a person can hear a knock at the door quite easily, but will miss hearing the birds singing. In conversation, some people may hear voices but will miss the clarity of what is being said, causing everything to sound muffled. In quiet, a person with a mild to severe hearing loss may manage fine if the speaker has a clear voice, but will struggle much more in the presence of background noise.