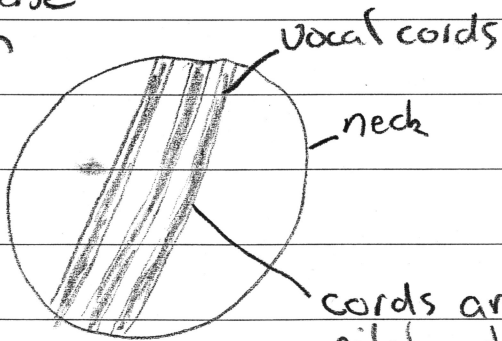


Start here. structures used to detect sounds.

a) Insects	have a form of disk located on their knees and legs that detect sound vibrations. small hair fibres on feet are also used to detect vibrations
Fish	internal ear near skull, a form of bladder is also used to detect sounds.
Mammals	external ear, large surface area creates higher detection of sound. Some mammals such as kangaroo can change the position of their ears to hear from different angles.

b) The larynx is in between the 4th and 6th vertebrae

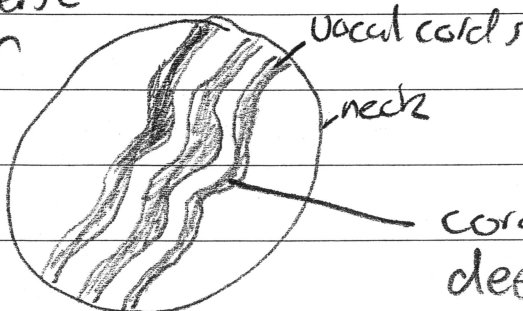
Transverse Section



Diagrams of Vocal Cords

cords are tightened causing higher pitch to be created

Transverse Section



cords are slacked, causing a deeper pitch to be created

c) i fovea

ii The location of cone cells in the eye varies accordingly to where the fovea is located. The fovea is primarily made up of cone cells to ^{create} detect the sharpest image in terms of colour.

iii rhodopsin is a chemical used to detect light and ~~send~~ transfer an electrochemical signal from the rod cell, to the optic nerve, in which the signal is then sent to the brain. Without rhodopsin, the eye cannot function properly.

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a) an action potential is characterised by the breaching of a threshold (more than -70mV) leading to a chain reaction of events resulting in a increased energy flow from axon to axon. As the organism has fallen, it appears to have damaged the action potentials ability to process. This may be because the animal may have experienced a severe concussion resulting in an faulty ratio of pottasium to sodium ions in the axon which is the balance is essential to develop a chain reaction.

Another possible cause is the concussion or head injury affected the part of the brain to the point of cell death. This would result in action potential failing as it requires a healthy balanced environment.

ii Depending on the level of injury and location of injury, the animal could be ~~more~~ blind or have hazey vision. The animal would need to learn to live with the injury as the injury is likely not to heal completely (depending on severity).

e) The eyes and ears are complex organs in the body essential for interpreting the environment around us. ~~The~~ Humans

have two eyes at the front of the face with a relatively small distance between them. This distance creates a 'binocular' effect, allowing depth perception. 3D cinemas use this effect to enhance the depth perception in the movies, giving the 3D effect. The glasses worn change the angle slightly to ~~at~~ which the screen is viewed and as a result, make the screen clearer but still maintaining the 3D effect. The two different angles in which the eyes see, allow this depth perception to be used on screen.

Surround sound is used extensively in cinemas to help develop a sense of 'being in the action'. The ear is a very sensitive organ capable of detecting a wide variety of sounds as well as the direction in which the sound comes from. The pinna, located on the outside (external) part of the ear, helps capture and direct sound waves into the auditory canal, where it reaches a tympanic membrane which amplifies the sound waves, passing the energy towards the ossicles (hammer, anvil, ~~stirrup~~^{stirrup}) which further enhances the sound. After passing the oval window as mechanical energy (tympanic membrane transformed sound energy to mechanical) the cochlea then picks up the energy and is interpreted by the organ of Corti, transforming and sending the energy as electrochemical energy to the brain for interpretation. The different angles at which the cinema surround system projects are detected by the ear (organ of Corti) and communicated to the brain ~~of~~ to where the

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sound originated from. This creates the "surround" sound effect and creates a more engaging atmosphere for the cinema.

~~Through the combination of 3D technology~~

Other technologies such as IOL (intraocular lenses) laser eye surgery, glasses and contact lenses have also been developed as a result of increased knowledge about how the eye functions. Hearing aids and cochlea implants have also been a recent development regarding the increase of knowledge about the ear. Although hearing aids still have a problem with filtering background noise, they function much like a ear would. It has a detector, amplifier and transforms the electrical signals either back into amplified sound waves or as electrochemical signals into the cochlea depending on the type of hearing aid.

People with a common eye problem such as cataracts use IOL surgery to fix the problem.

Cataracts are a result of protein buildup on the lens causing cloudiness, or haziness in vision. IOL surgery involves replacing the faulty lens with a elastic/plastic lens that serves the same function a normal lense would. Laser eye surgery can also be used to fix the problem by gradually removing layers of the protein buildup. People suffering

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from myopia or hyperopia can also be treated as a result of our increased knowledge about how the eye functions. Myopia is caused by too ~~much~~^{little} refraction of light occurring, resulting in a blurred sense of vision whereas hyperopia occurs when too much refraction occurs, resulting in the same symptom. Both can be treated through the use of glasses ~~th~~ or contact lenses which will help assist the appropriate level of refraction. Contact lenses essentially act as an improved cornea for the eye.