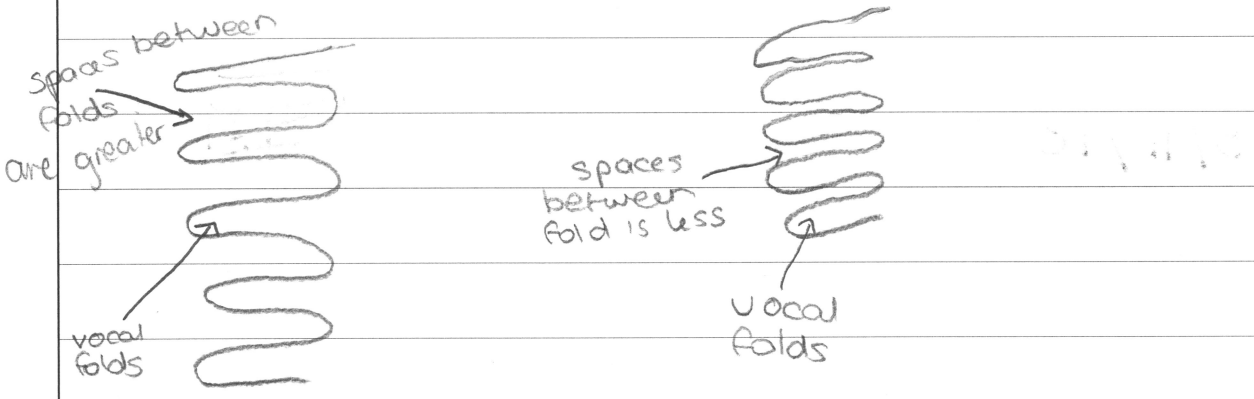
Start here.

a.)

| Organ / sense | Fish | Mammals | Insects |
|---|---|---|---|
| | Ears / hearing | • Skin / touch<br>• Ears / hearing | touch |
| How it works | Vibrations are sent through the ears which are recognised by the cochlea and then sent to the auditory nerve and interpreted by the brain | Human Mammals can feel vibrations on their skin as it is sensed by nerves sent to the CNS, and recognised as vibrations.<br>Humans can also sense vibrations through the ear. they enter, recognised by cochlea, the auditory nerve sends the signal to the brain and it is received as sound waves. | Insects can sense vibrations through feeling them, usually in the way they create the vibrations themselves. They probably |

b) High Low




c) i) retina

ii) the structure of cones varies depending on the location on the retina as they have different amounts of light on them and as such, their role will differ.

iii) Rhodopsin in rods of the eye has the role of dealing with the light hitting the cones; it helps to regnonize and process the light.

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d) i) - • the animal may have suffered bleeding into the brain as a result of the trauma from the fall, which would mean the animals brain would not be functioning correctly and it would have no action potentials in X region of the brain

• region X of the brain may be severely damaged or dead, as a result of trauma from the fall (eg hit its head during the fall) or the aftermath of the fall (eg was deprived of oxygen after fall). So it will have no action potentials until it begins to heal, if it does.

ii) Firstly, it is possible the mammal could die from the trauma or the resulting problems from the fall. It could be brain-damaged, which would change its temperant, and it also could be visually challenged or blind as Region X appears to be close to the visual processing area of the brain.

e) Our understanding of the eyes and ears has increased as time and technology has advanced and this has allowed for improvements & the development of technologies relating to the eyes and ears.

3D movies are one example of how development in understanding of the eyes has allowed for increased technology ~~regard~~ For example, when it became known that each ~~image~~ eyes sees a different image, known as binocular vision, yet a small field overlaps, this sense of depth perception is what has allowed us to make use of 3D technology. "~~One~~ 3D glasses are worn to ensure that one image is seen by one eye & the other image is seen by the other" This also shows how linked the brain is in working with the eyes and sight; the brain must work to put the two images together to ensure that an accurate representation of what is on screen is shown.

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Understanding the way the ear works, particularly in relation to the way sound is received and the way sound shadows work, has also allowed for technologies surrounding the ear to advance, such as the use of surround sound.

Sound is carried in waves, of which humans can hear a range of 10-20000 hz ~~Hz~~ of. The frequency, wavelength and pitch all alter the way the wave is created and the way it is ~~created~~ heard. Surround sound "allows sounds to be produced in different areas ... ~~and~~ so that ... audience feel like they are at the centre of action"... shows that our understanding of how sound is carried, and ~~the~~ the brain for example, it processes sounds arriving at different times seperately which allows for a different interpretation of the sound, has allowed for new technologies to develop.

Our understanding of the ~~Eye~~ and ear has led to development of new technologies, such as 3D & surround sound.

You may ask for an extra Writing Booklet if you need more space.