TRY IT!

THE HUMAN BODY AUGMENTED REALITY BOOK

DEAR INQUIRER,

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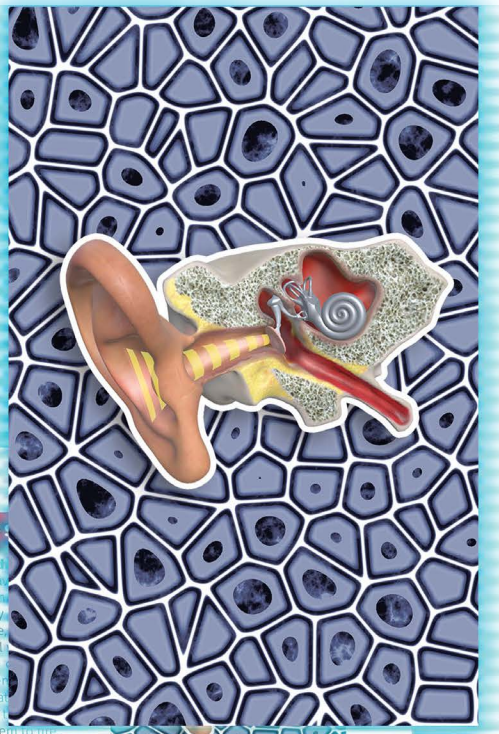

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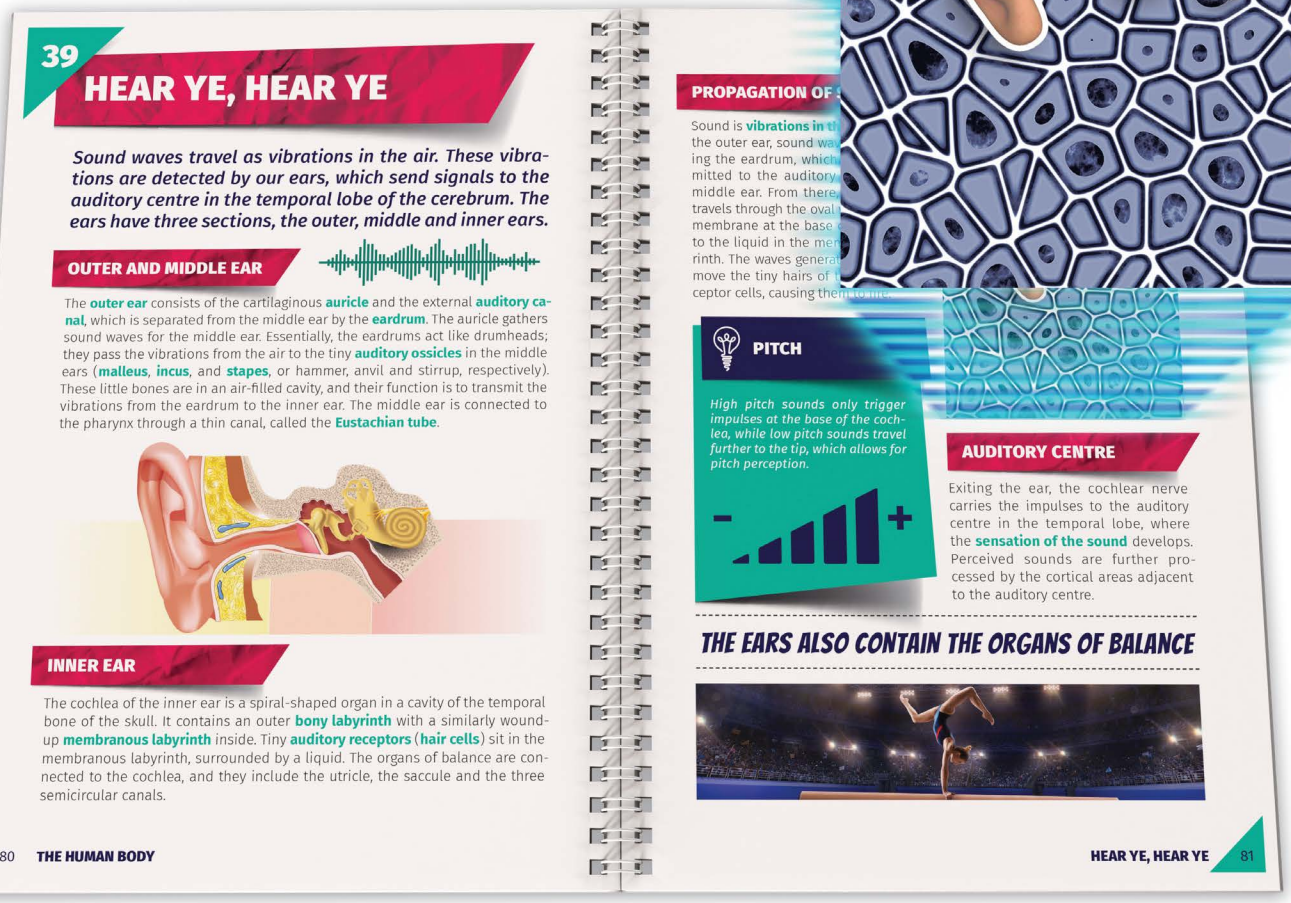

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HEAR YE, HEAR YE

Sound waves travel as vibrations in the air. These vibrations are detected by our ears, which send signals to the auditory centre in the temporal lobe of the cerebrum. The ears have three sections, the outer, middle and inner ears.

OUTER AND MIDDLE EAR

The **outer ear** consists of the cartilaginous **auricle** and the external **auditory canal**, which is separated from the middle ear by the **eardrum**. The auricle gathers sound waves for the middle ear. Essentially, the eardrums act like drumheads; they pass the vibrations from the air to the tiny **auditory ossicles** in the middle ears (**malleus**, **incus**, and **stapes**, or hammer, anvil and stirrup, respectively). These little bones are in an air-filled cavity, and their function is to transmit the vibrations from the eardrum to the inner ear. The middle ear is connected to the pharynx through a thin canal, called the **Eustachian tube**.

INNER EAR

The cochlea of the inner ear is a spiral-shaped organ in a cavity of the temporal bone of the skull. It contains an outer **bony labyrinth** with a similarly wound-up **membranous labyrinth** inside. Tiny **auditory receptors** (**hair cells**) sit in the membranous labyrinth, surrounded by a liquid. The organs of balance are connected to the cochlea, and they include the utricle, the saccule and the three semicircular canals.

PROPAGATION OF

Sound is **vibrations in t**
the outer ear, sound wa
ing the eardrum, which
mitted to the auditory
middle ear. From there
travels through the oval
membrane at the base
to the liquid in the mem
rinth. The waves generat
move the tiny hairs of
ceptor cells, causing them

PITCH

High pitch sounds only trigger impulses at the base of the cochlea, while low pitch sounds travel further to the tip, which allows for pitch perception.

AUDITORY CENTRE

Exiting the ear, the cochlear nerve carries the impulses to the auditory centre in the temporal lobe, where the **sensation of the sound** develops. Perceived sounds are further processed by the cortical areas adjacent to the auditory centre.

THE EARS ALSO CONTAIN THE ORGANS OF BALANCE