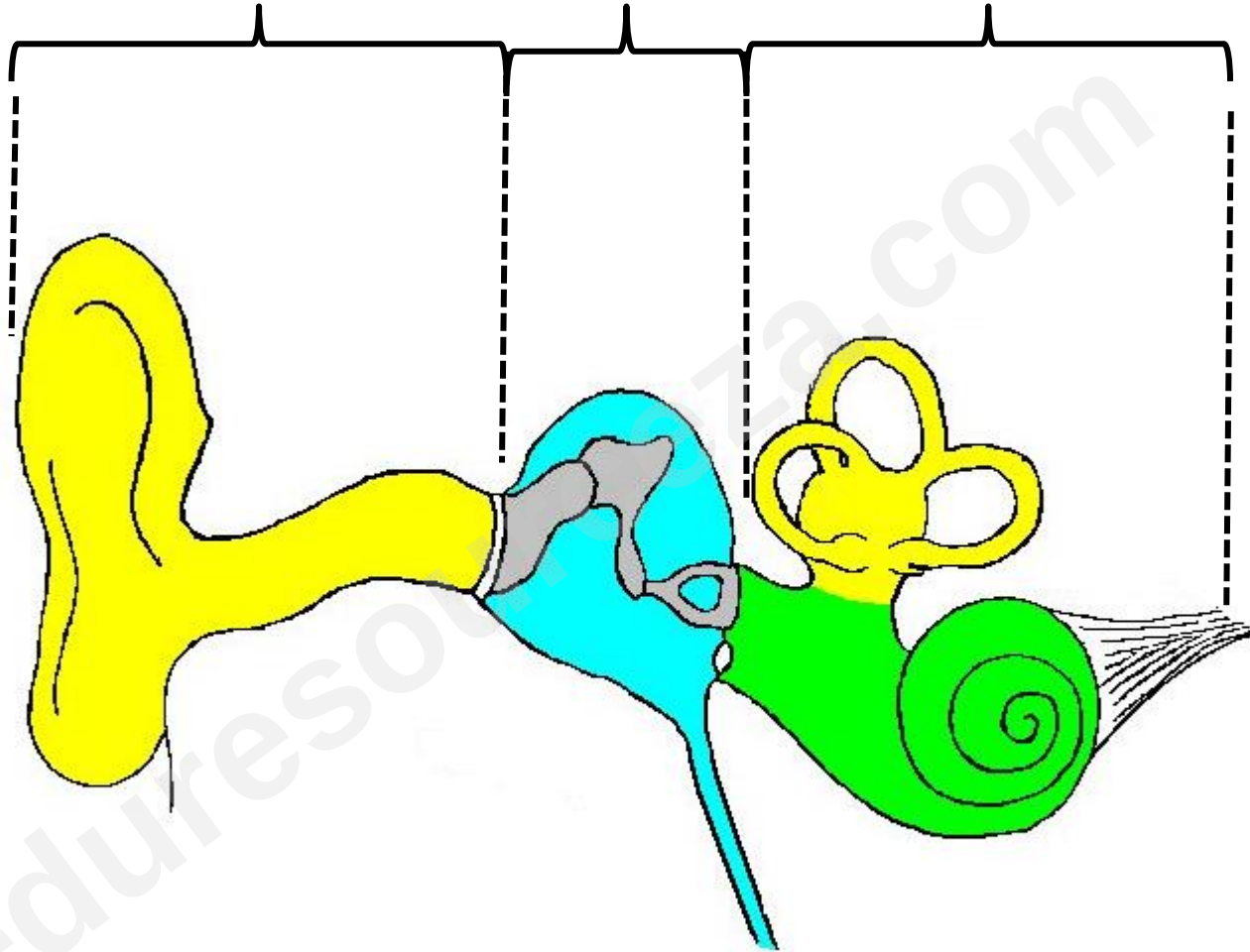




THE EAR

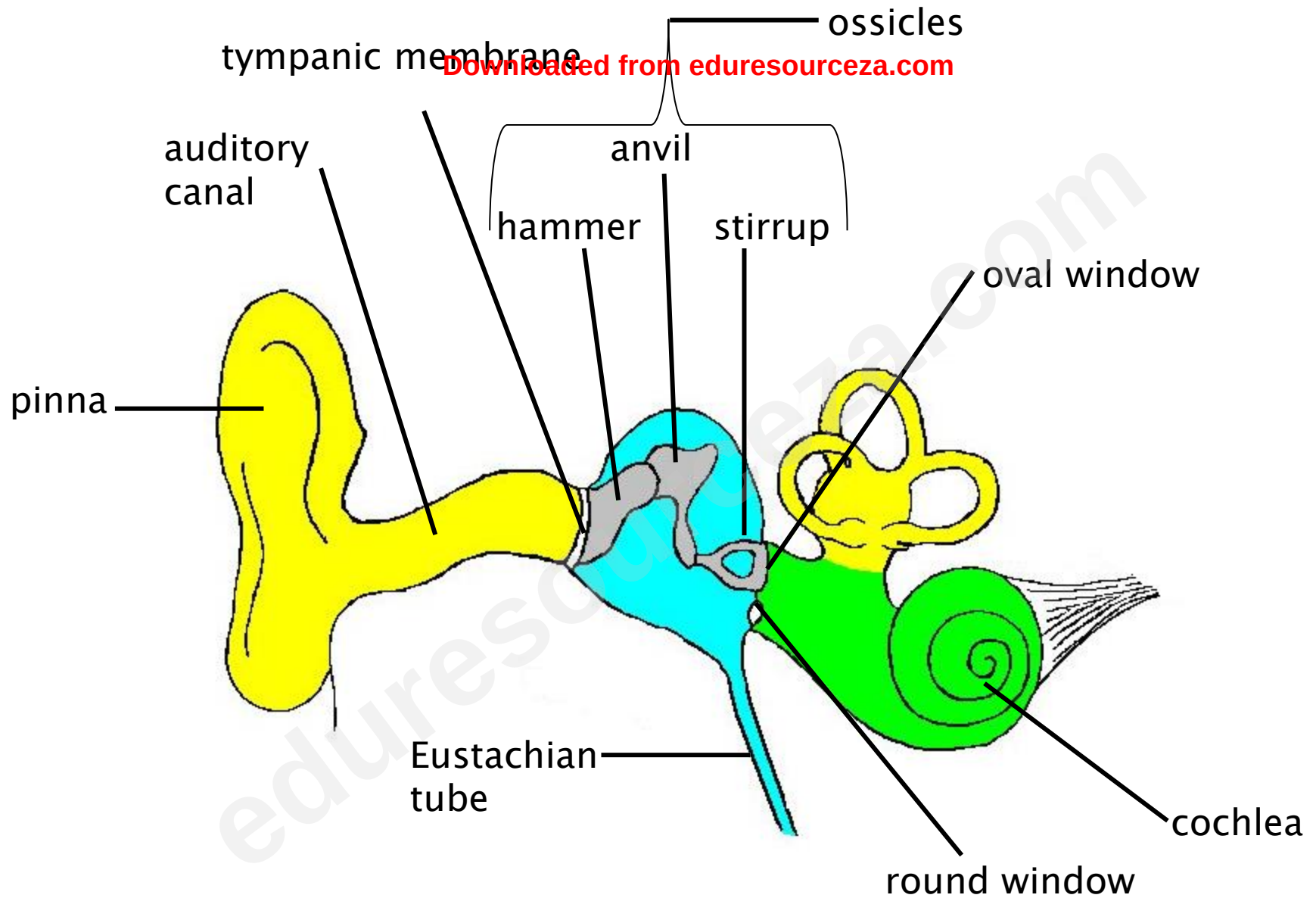
Hearing and Balance

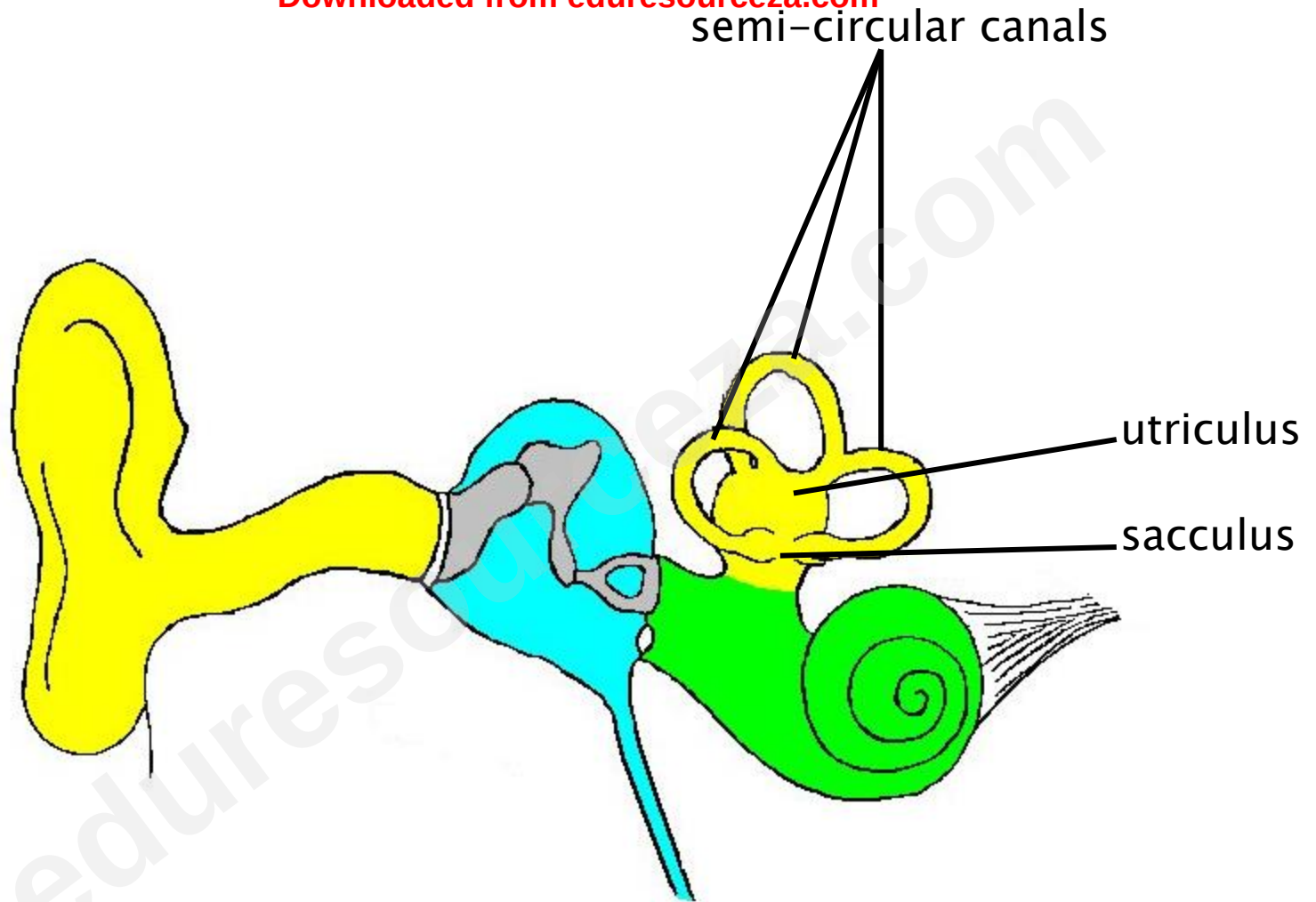
Outer Ear Middle Ear Inner Ear

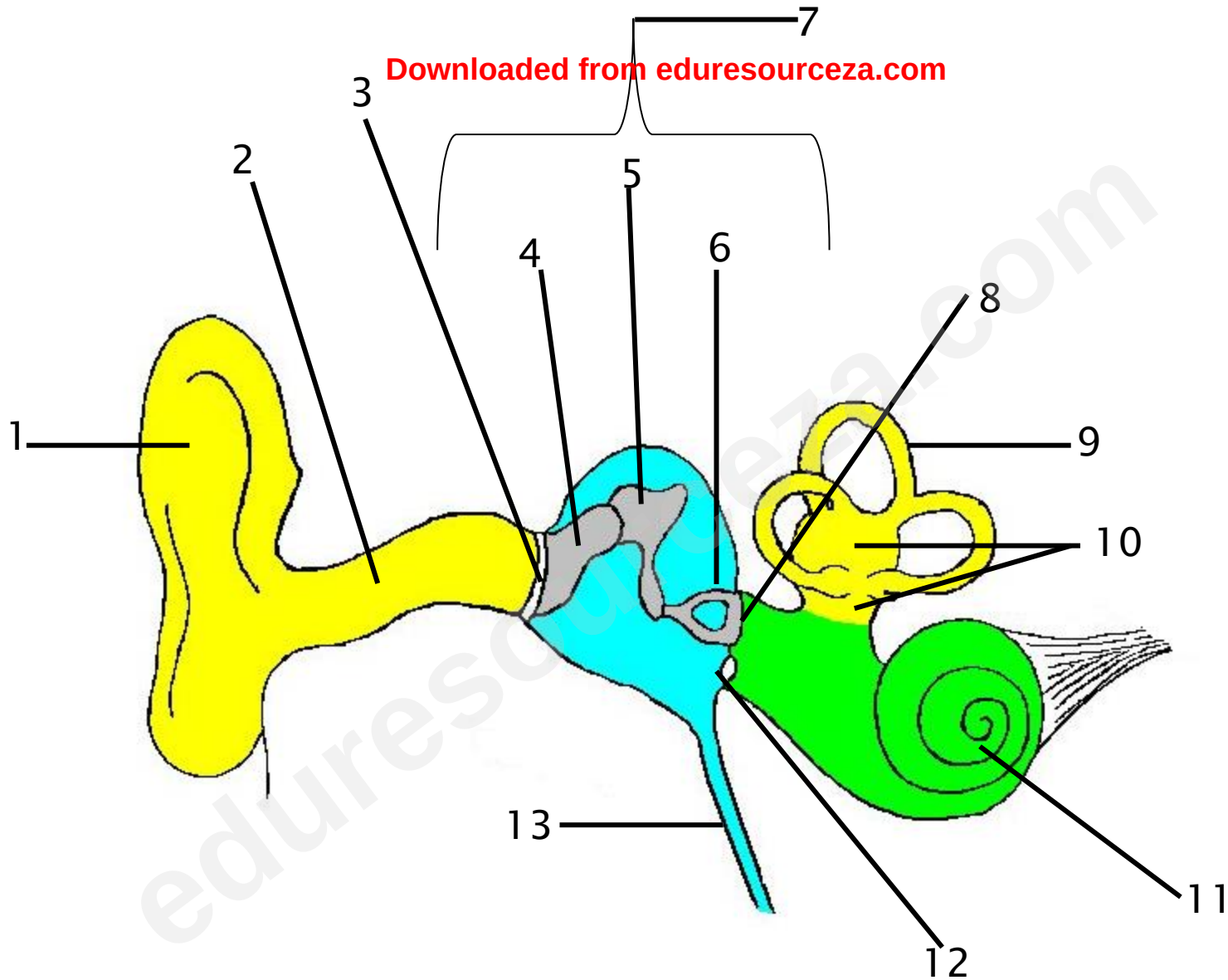


The Three Regions of the Ear

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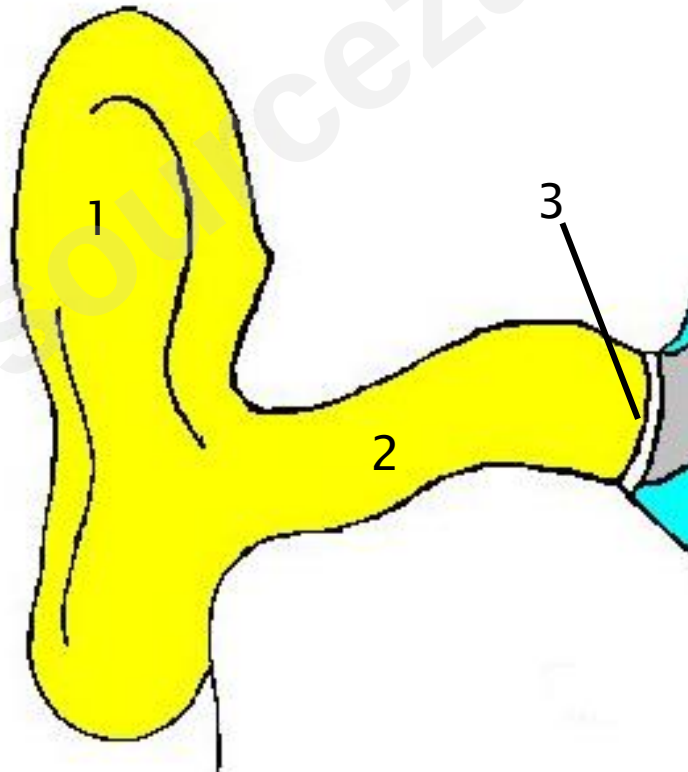


The Process of Hearing

Step 1

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- Sound waves reach the ear and are trapped by the pinna (1)
- The sound waves are directed down the auditory canal (2)
- until they reach the tympanic membrane (3) which then vibrates

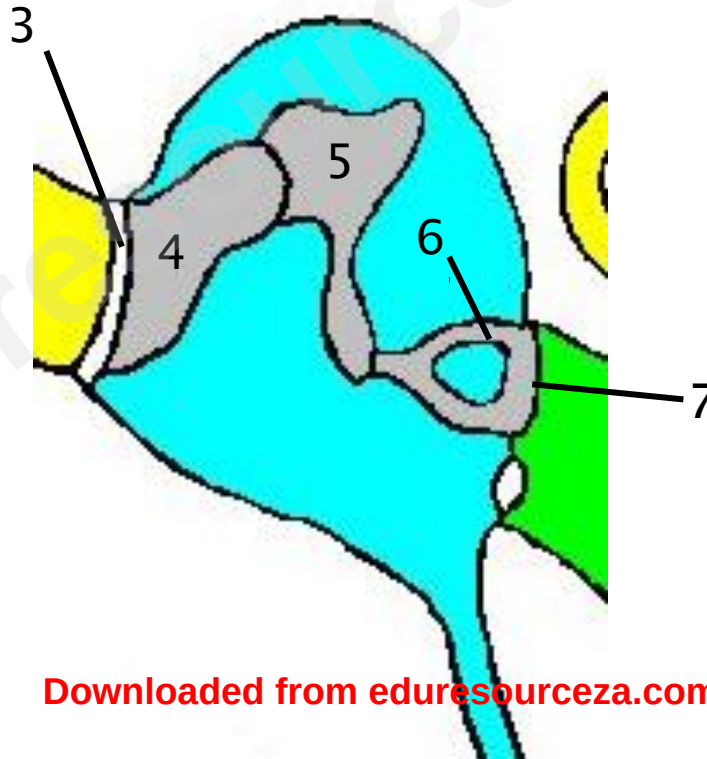


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Step 2

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- The vibrations are transferred from the tympanic membrane (3) to the hammer (4), anvil (5) and stirrup (6).
- These ossicles intensify the sound waves
- The ossicles then cause the oval window (7) to vibrate

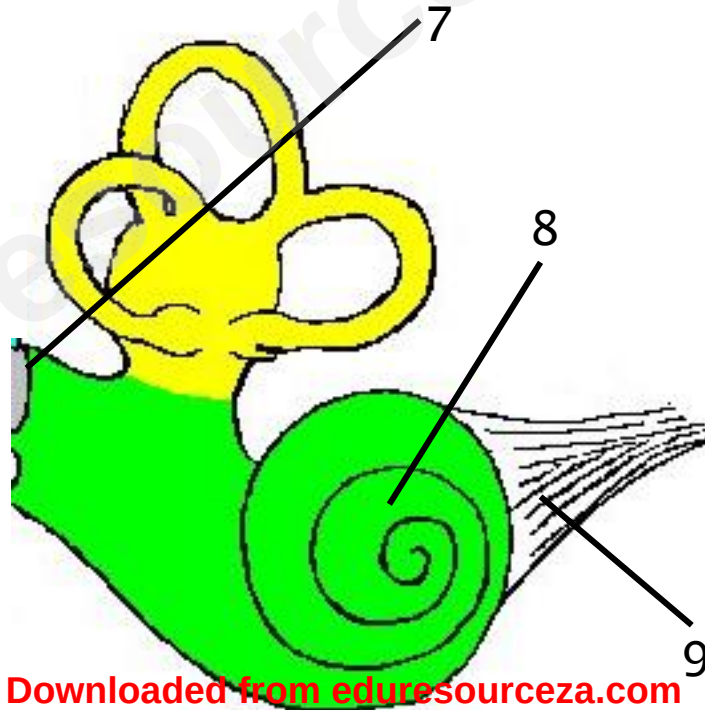


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Step 3

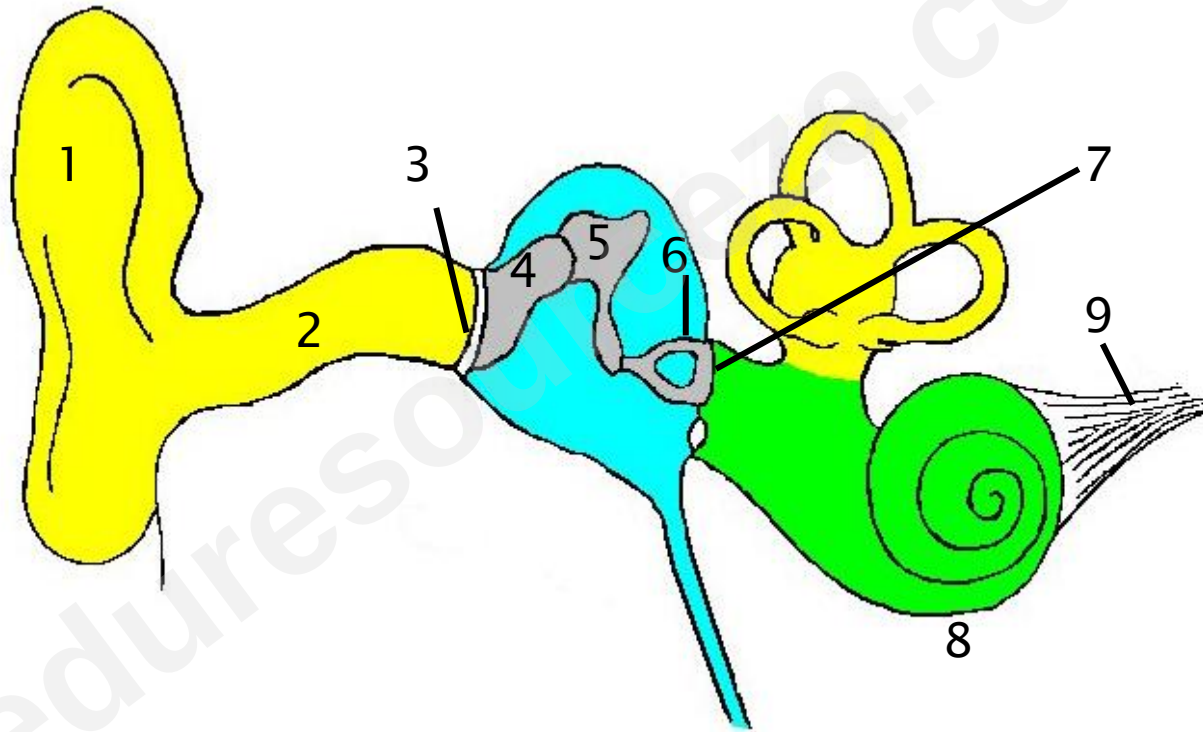
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- The oval window (7) causes a movement in the fluid of the cochlea (8)
- The movement of this fluid stimulates the receptors for hearing called the Organ of Corti
- This stimulus is converted into an electrical impulse
- which is then transmitted by the auditory nerve (9) to the brain where it is interpreted.



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Revise the process of hearing



Balance

Sensing changes in speed and direction

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Sensing changes in the position of the head

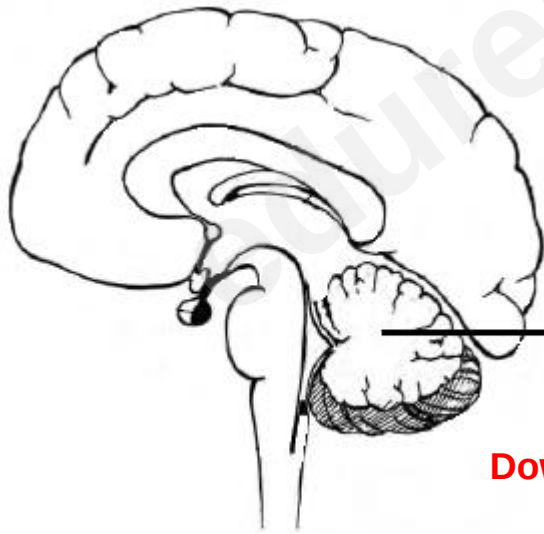
Semi-circular canals with endolymph

ampullae containing cristae

Sacculus and utricle containing maculae



All impulses from the organs of balance are sent along the auditory nerve to the cerebellum to be interpreted.



cerebellum

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Revise the structures in the ear concerned with balance

Structures concerned with changes in speed and direction	1. _____ 2. _____ 3. _____
Structures that detect the position of the head.	1. _____ 2. _____ 3. _____
Structure that transmits the nervous impulses	_____
Part of the brain that receives the nervous impulses	_____

