

Ear Glossary

Here are some vocabulary words for your study of the ear. The numbers inside the brackets indicate the numbered part on the model.

auditory canal: (ear canal) a tube that is open on one end and closed on the other. Air in the canal transmits sound waves to the eardrum. The ear canal also protects your ear. Small hairs near its opening help keep out dirt, dust, and even small insects. [2]

auditory nerve: carries messages from nerve fibers in the cochlea to the brain [31]

auricle: rubbery, ridged, and folded part of the ear that you can touch. The auricle catches sound waves as they travel through the air. [1,3,5-9]

cochlea: curled, fluid-filled tube in the inner ear. Hairs inside the cochlea pick up vibrations from the fluid and send the messages to nerve fibers. [26, 30]

eardrum: thin piece of skin that separates the outer ear from the middle ear. It receives vibrations from the ear canal. The eardrum amplifies the vibrations (makes them stronger) and transfers them to the middle ear. [10,11]

eustachian tube: tube that connects the middle ear cavity and the pharynx (back of the throat). Though it is normally closed, it can be opened by coughing or swallowing. This tube is necessary to relieve pressure in the middle ear cavity.

incus: (anvil) one of the three tiny bones—commonly known as the hammer, anvil, and stirrup—in the middle ear. The head of the incus picks up vibrations from the malleus (hammer), to which it is attached, and transfers them to the stapes (stirrup). [18,19]

inner ear: Part of the ear where hearing takes place. The job of the inner ear is to send sound “messages” to the brain to be interpreted. Another function of the inner ear is to give you a sense of balance, enabling you to walk, ride, a bike, or just sit upright. [24-30]

malleus: (hammer) largest of the three tiny bones—known as the hammer, anvil, and stirrup—in the middle ear. The malleus picks up vibrations from the eardrum to which it is attached on one end and transfers them to the incus (anvil) to which it is attached on the other end. [15-17]

middle ear cavity: enclosed space that contains the malleus, incus, and stapes (hammer, anvil, and stirrup). It is filled with air in order to help conduct sound from the eardrum, to the middle ear bones, and to the inner ear chamber. Air pressure is relieved through the eustachian tube. [12]

middle ear: small chamber behind the eardrum. The middle ear contains three tiny bones (hammer, anvil, and stirrup) and the oval window. Each of the bones acts as a lever to the next bone, increasing the pressure of the vibration and amplifying the sound as it is transferred from the outer ear to the inner ear. Special muscles in the middle ear work to protect us from very loud noises that might damage the inner ear. [10-23]

outer ear: consists of the auricle, auditory canal, and eardrum. The job of the outer ear is to collect sound waves, amplify them, and transmit them to the middle ear. [1-9]

oval window: a piece of skin that separates the middle ear from the inner ear [25]

semicircular canals: three loop-shaped tubes located inside the inner ear on top of the cochlea. The canals give you your sense of balance and have nothing to do with hearing. [27-29]

sound: caused when air particles (molecules) vibrate (move back and forth), bumping into other air molecules. These vibrations move in sound waves through the air in all directions. When they reach the ear, they produce sensations which we recognize as sound.

stapes: (stirrup) one of the three tiny bones—hammer, anvil, and stirrup—in the middle ear. The head of the stapes picks up vibrations from the incus (anvil) and transfers the sound through its “footplate” to the vestibule of the inner ear. The stapes is the tiniest bone in the body—smaller than a grain of rice. [20-23]

vestibule: chamber of the inner ear that leads to the cochlea and the semicircular canals [24]

vibrations: back-and-forth or up and down movements that repeat over and over again

Guide to Ear Model

Use this guide to identify and locate the parts of the ear on the Ear Model.

Number on Model	Part of the Ear	Number on Model	Part of the Ear
1	auricle	18	incus (anvil) body
2	auditory canal	19	incus (anvil) long crus
3	helix (part of auricle)	20	stapes (stirrup) head
4	connective tissue	21	stapes (stirrup) crus
5	antitragus (part of auricle)	22	stapes (stirrup) crus
6	triangular fossa (part of auricle)	23	stapes (stirrup) footplate
7	crest of the helix (part of auricle)	24	vestibule
8	antihelix (part of auricle)	25	oval window
9	lobule (part of auricle)	26	cochlea
10	eardrum	27	superior semicircular canal
11	lining of ear drum	28	lateral semicircular canal
12	middle ear cavity	29	posterior semicircular canal
13	ear muscle at stapes (stirrup)	30	cochlea
14	eustachian tube	31	auditory nerve
15	malleus (hammer) head	32	carotid artery
16	malleus (hammer) crus	33	carotid vein
17	malleus (hammer) handle	34	ear muscle in eustachian tube

Are Two Ears Better Than One?

To find out the answer to this question, perform the experiments below. Use the charts to record the results of your experiments.

Experiment A

Place a chair in a spot with plenty of room around it. Sit down on the chair and close your eyes tightly. Have a friend walk very quietly in a circle around the chair. As he walks around, have him lightly clap his hands together 10 different times. Each time you hear a sound, point your fingers in its direction. Have another friend use the chart below to keep a record of how often you were correct in determining the source of the sound.

Experiment A (listening with both ears)					
Sound	Was the source of the sound correctly identified?		Sound	Was the source of the sound correctly identified?	
#1	Yes	No	#6	Yes	No
#2	Yes	No	#7	Yes	No
#3	Yes	No	#8	Yes	No
#4	Yes	No	#9	Yes	No
#5	Yes	No	#10	Yes	No

Experiment B

Do the same experiment again, but cover one ear as tightly as you can. Once more have a friend keep tally of how often you were able to correctly determine the source of the sound.

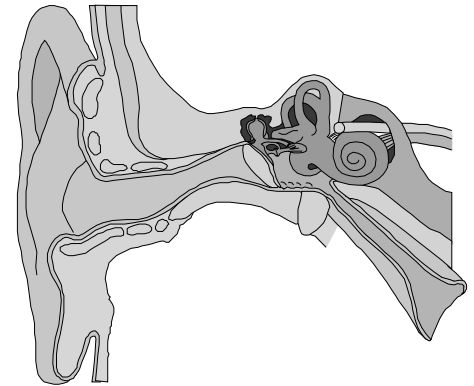
Experiment B (listening with one ear)					
Sound	Was the source of the sound correctly identified?		Sound	Was the source of the sound correctly identified?	
#1	Yes	No	#6	Yes	No
#2	Yes	No	#7	Yes	No
#3	Yes	No	#8	Yes	No
#4	Yes	No	#9	Yes	No
#5	Yes	No	#10	Yes	No

What conclusions can you draw from these experiments?

What's Your Hearing I.Q.?

Write T if the statement is true. Write F if the statement is false.

1. _____ The outer ear consists of the hammer, anvil, and stirrup bones.
2. _____ Sounds are vibrations that move through the air and produce sensation in the ear.
3. _____ The eardrum separates the middle ear from the inner ear.
4. _____ Hearing really takes place in the inner ear.
5. _____ Sound vibrations moving through the ear are collected by the auricle.
6. _____ Sound waves travel in only one direction.
7. _____ The air in the ear canal transmits sound waves directly to the oval window.
8. _____ The middle ear protects us from very loud noises.
9. _____ The semicircular canals transmit sound waves to the cochlea.
10. _____ The brain is important to the sense of hearing.



Match the part of the ear with its job or description.

- | | |
|--------------------------|--|
| _____ 11. auricle | A. curved, fluid-filled tube in the inner ear |
| _____ 12. incus | B. the tiniest bone in the body |
| _____ 13. auditory nerve | C. thin piece of skin that separates outer ear from middle ear |
| _____ 14. cochlea | D. collects sound waves as they travel through the air |
| _____ 15. ear canal | E. tiny middle ear bone that picks up vibrations from the malleus |
| _____ 16. eardrum | F. a piece of skin that separates the middle ear from the inner ear |
| _____ 17. malleus | G. protects your ear and transmits sound waves to the eardrum |
| _____ 18. middle ear | H. the largest of the tiny bones in the middle ear; picks up vibrations from the eardrum |
| _____ 19. oval window | I. the small cavity behind the eardrum |
| _____ 20. stapes | J. carries sound messages to the brain |

Name _____

Date _____

Ear Word Search

L L X T E B L H K H M J J U S K C S D W A T F L
O W D Z I E B R N N O B Q L I I O P U E X F L H
B X J R A E E L D D I M R Y K J Z J U G M R B N
N L I X P V N I R I D T Y R X V E Y Q U D N U D
U A C H F A N T W W L Q C G G Y I V U P E U C S
B Q S E M I C I R C U L A R C A N A L N T C Q U
Y H T C O C H L E A T Y C U V P P A U D J A D C
R B U Z D N U O S Q H C C N V F E W I C X J U N
C F M X T Y B V O F U L V A L P I S S E C B B I
M L W D S I D U E L C I R U A V M X Z Q R A C W
A U D I T O R Y C A N A L R L G O P F T L K J Q
C O K U N X H P H B M Q Y A X Q O T F F G H P B
N L O R H E U S T A C I A N T U B E D Q P G P Z
M S D A T S M I M X I U L Q H M X M Z D R N N X
F L U A U D I T O R Y N E R V E Q W F Z H Z Y P
Q V L E Y E L I N N E R E A R V W L I G D T Z O
P Y P X L H P X X B J M Y R F G H F F S U U U S
H E T X O L M J S K M K Z D C U Q C M M R T E T
Z I Y T U U A X L W O D N I W L A V O V E O X A
Q H S Y R S H M A M C J F Y K K V L D R J R D P
S A H D L R O O B M U A H V P B Z W E R P T G E
I V R B E C R K G U Y E K F W F K A X N N F F S
O A O N B V E S T I B U L E L D R Q I M Q W C E
E K Q D W V I B R A T I O N S I K T J M W C F S

AUDITORY CANAL

COCHLEA

INCUS

MIDDLE EAR

SEMICIRCULAR

CANAL

VESTIBULE

AUDITORY NERVE

EARDRUM

INNER EAR

OUTER EAR

SOUND

VIBRATIONS

EUSTACHIAN TUBE

STAPES

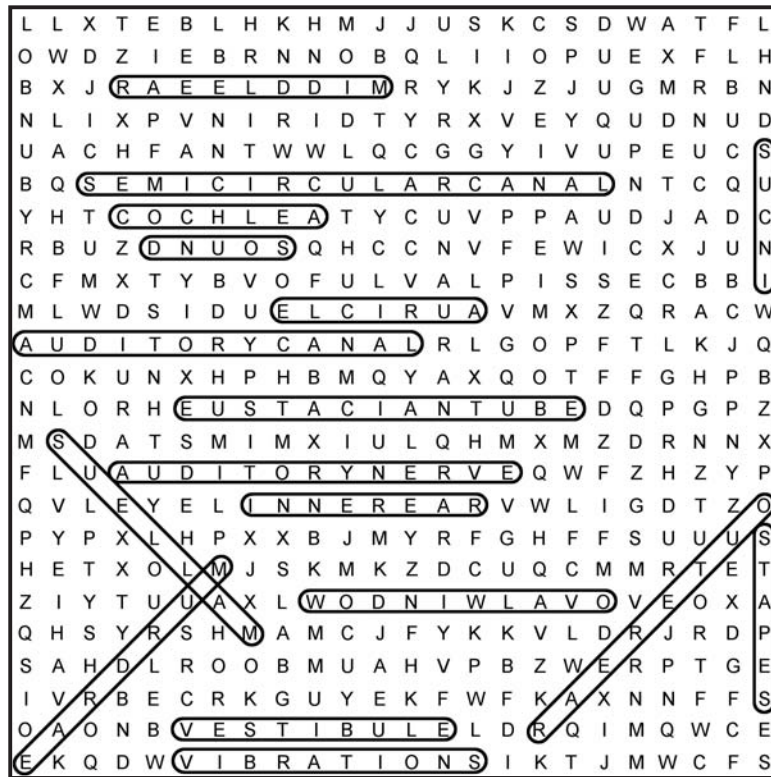
AURICLE

MALLEUS

OVAL WINDOW

Answer Sheet

Ear Word Search



What's Your Hearing IQ?

- | | |
|-------|-------|
| 1. F | 11. D |
| 2. T | 12. E |
| 3. F | 13. J |
| 4. T | 14. A |
| 5. T | 15. G |
| 6. F | 16. C |
| 7. F | 17. H |
| 8. T | 18. I |
| 9. F | 19. F |
| 10. T | 20. B |