

# Answer Key

## Ear Worksheet /20

1. Match the structure with its function (Some answers will be used more than once) /10

- |  |          |                         |
|--|----------|-------------------------|
| 1. It amplifies sound                      | <u>E</u> | A- auditory nerve       |
| 2. It contains all the neurons             | <u>A</u> | B- pinna                |
| 3. It controls balance                     | <u>G</u> | C- auditory canal       |
| 4. It gathers sound waves                  | <u>B</u> | D- eardrum              |
| 5. It separates the outer and middle ear   | <u>D</u> | E- ossicles             |
| 6. The chamber filled with liquid and hair | <u>F</u> | F- cochlea              |
| 7. It stops dust from entering the ear     | <u>C</u> | G- semi-circular canals |
| 8. It vibrates with sound waves            | <u>D</u> |                         |
| 9. It is lined with hair and wax           | <u>C</u> |                         |
| 10. It brings a sound impulse to the brain | <u>A</u> |                         |

2. Explain the function of the hair and wax in the ear. capture foreign

particles + protects eardrum /1

3. Explain what is occurring when our ears feels blocked? Excess ear wax

in the auditory canal can cause ears to  
feel blocked + a problem with air pressure in eustachian  
tubes can cause ears to feel blocked (chewing /swallowing on  
plane)

4. Explain what occurs in the cochlea that allows the auditory nerve to pick up an impulse? filled with cilia + liquid which will transform

vibration into nerve impulse + send info to brain. /2

5. Explain how the semi-circular canals control balance. filled with fluid

which moves when head moves. Picked up by  
sensor cells + sent to brain. /3

6. What is the passageway a sound wave will follow to get to the brain? /1

Stimulus - Pinna - Auditory Canal → Eardrum → ossicles  
Cochlea → Nerve Cells → Auditory Nerve, Temporal Lobe.

7. When is a sound wave heard? when brain interprets /1  
signal.

Name: \_\_\_\_\_

### Worksheet: The Ear

1. Mark was born without any pinnas. Explain what the function of a pinna is and how it might affect his hearing.

Pinna collects sound and acts as a funnel to direct sound to auditory canal. Conductive hearing loss - cannot conduct sound to inner ear, sound can't travel into inner ear

2. Ruptured eardrums can be caused by sudden changes in pressure, loud noises or even physical trauma. Explain what the role of the eardrum is and how puncturing it will affect your hearing.

Vibrates in response to sound waves  
Eardrum cannot vibrate so the sound waves are not transported to cochlea = hearing loss or decrease.

3. Meningitis is known to damage the cochlea, causing deafness. How do sound waves travel through the cochlea? What is found inside the cochlea that transmit electrical signals to the cochlear nerve?

Fluid + cilia in cochlea move because of vibrations received from sound waves into nerve impulses  
Auditory nerves + neurons transmit sound to brain.

4. What components in the ear vibrate, besides the eardrum, and why are they important? (Give one of two reasons).

Ossicles + Cochlea-fluid / Cilia  
- Cause fluid in cochlea to move - moving cilia connected to nerves to send signal to brain

5. Wax buildup in the ear canal can also cause hearing loss. Explain how this happens.

Impacted wax blocks vibrations / sound waves from reaching ear drum so ↓ in sound (hearing)

6. Name the other role that the ear plays in our bodies (besides hearing):

balance

7. In what parts of the ear are the following receptors located?

a) The sensory receptors for hearing COCHLEA

b) The sensory receptors for balance vestibule + semi-circular canals

8. When we take a plane, our ears sometimes hurt because of a change in pressure in the airplane cabin. Referring to the parts of the ear involved, explain how chewing gum or swallowing can help relieve the pain?

\* To ease pressure in Eustachian tube, Eustachian tube "closes" when chewing / swallowing so pressure is relieved.