Internet Assignment: Effects of Sound Waves on Cochlear Structure

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

<http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter19/animation__effect_of_sound_waves_on_cochlear_structures__quiz_1_.html>

1. What membrane in the ear do sound waves strike and what happens when they do?
2. What are the 3 bones of the middle ear called?
   1. .
   2. .
   3. .
3. What does vibration of the footplate lead to?
4. How do short wavelengths compare to long wavelengths in how they vibrate the basilar membrane?
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What type of cell detects this movement

# Anatomy of the eye

<http://www.sinauer.com/neuroscience4e/animations11.1.html>

1. What layer of the eye contains neurons?
2. What nerve carries visual information to the brain?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Where is the choroid and what does it do
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Review: what happens in capillary beds?
5. Where is the ciliary body and what does it do
6. What is the colored portion of the eye called, where is it located, and what does it do
   1. .
   2. .
   3. .
7. What forms the outermost tissue layer of the eye?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. What is the cornea and where is it
9. What is aqueus humor and where is it located? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. What does the space between the back of the lens and the surface of the retina contain?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Whats another name for bending light
12. Which 2 parts of the eye are most responsible for this?
13. Where do retinal neurons leave the eye?
14. Why do we have a “blind spot”

# Vision

<http://www.sinauer.com/neuroscience4e/animations11.2.html>

1. What is the photopigment in rods called
2. The light absorbing portion of the photopigment is called what
3. What does cis refer to
4. What is transducing
5. What activates Transducin
6. What happens as the concentration of cGMP falls
7. Ion channels are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in the dark, and closed in the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
8. What 2 ions flow into the cell to depolarize it?
9. Depolarization of photoreceptors occurs in the light / dark
10. In the light a photoreceptor becomes depolarized/ hyperpolarized causing it to become more **-**/+ which leads to an increase / decrease in release of neurotransmitter
11. In 1 word, what is an important feature of this cascade?
12. What is the vocab word for enzymes that phosphorylate things?
13. Whats the vocab word for enzymes that remove phosphate groups?
14. Rods are used to detect light / color

# Information Processing in the Retina

<http://www.sinauer.com/neuroscience4e/animations11.3.html>

1. What type of cells are connected to the photoreceptors
2. What kind of cells are connected next
3. What forms the optic nerve
4. When a spot of light enters the receptive field and lands on center (in an on-center ganglion cell), what happens to the frequency of action potentials by ganglion cells compared to when its in the surround? (you have to click and drag the light beam)
   1. On center =
   2. Off center =
5. How is this different in off-center ganglion cells
6. Whats more effective at activating a ganglion cell, uniform illumination or a small spot of light?