

## Chapter 9 (Regular) Special Senses Worksheet

### General Senses

Match the type of receptor with its description and/or function.

#### Types of Receptors

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Chemoreceptors _____</li> <li>2. Mechanoreceptors _____</li> <li>3. Pain receptors _____</li> <li>4. Photoreceptors _____</li> <li>5. Thermoreceptors _____</li> </ol> | <ol style="list-style-type: none"> <li>a. Receptors that are stimulated by changes in pressure or movement.</li> <li>b. Receptors that are stimulated by changes in temperature.</li> <li>c. Receptors that are stimulated by tissue damage.</li> <li>d. Receptors that are stimulated by changes in the chemical concentration of substances.</li> <li>e. Receptors that are stimulated by light energy.</li> </ol> |
|--|--|

#### Types of General Sensory Receptors

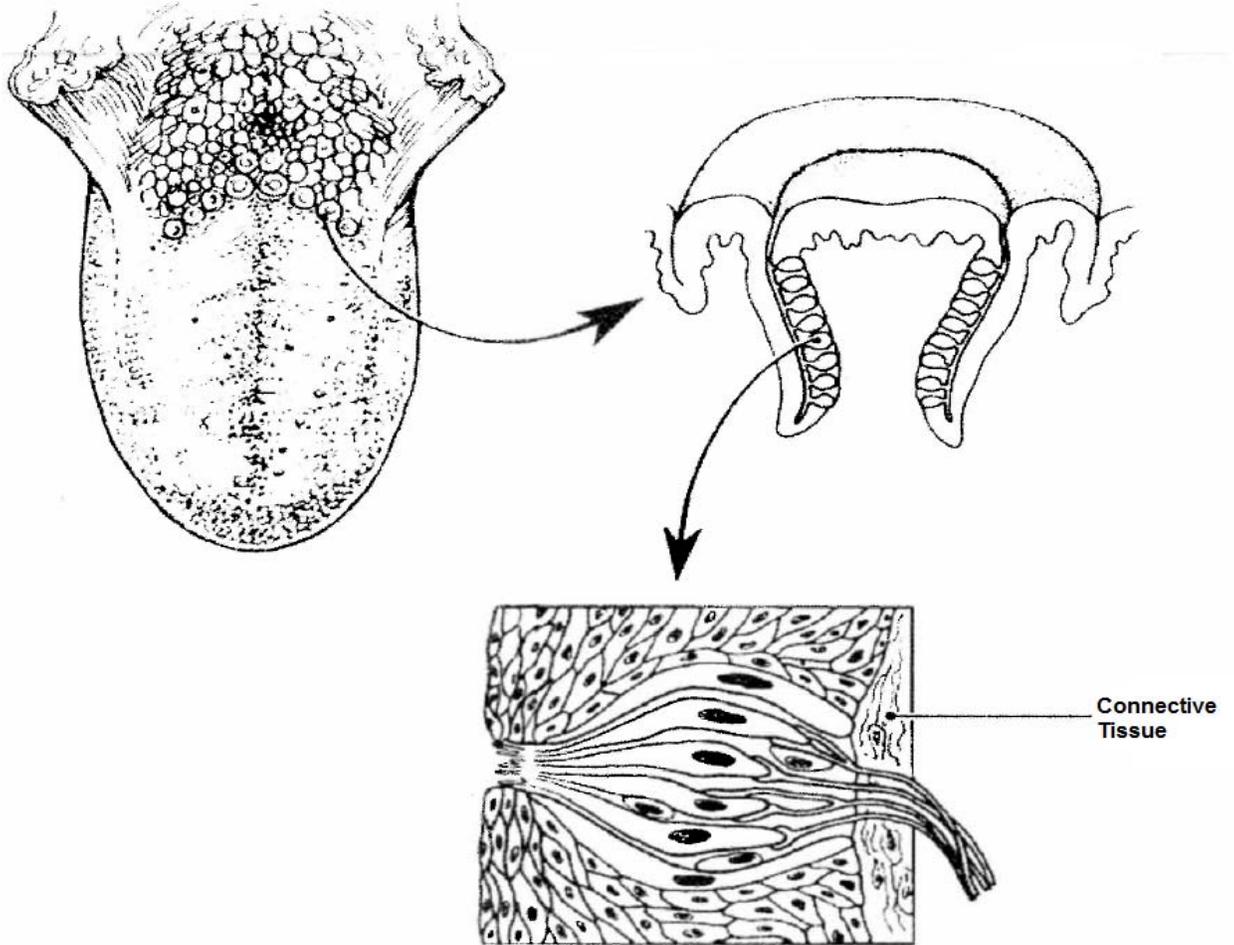
Fill in the table about general sensory receptors. The first general sensory receptor has been done as an example.

	General Receptor	Type of Receptor	Examples of Receptor	Location of Receptor	Function of Receptor
1.	Proprioceptor	Mechanoreceptor	(No specific names of proprioceptors)	Muscle	Maintain muscle tone, body's equilibrium and posture; helps us know the position of our limbs in space
2.	Cutaneous receptor		Meissner corpuscle		
3.	Pain receptor				

**Taste**

Using different colors and the list below, color and label the different parts involved with the sense of taste. Then answer the questions about the sense of taste.

- Microvilli
- Papillae
- Sensory nerve
- Supporting cell
- Taste bud
- Taste cell
- Taste pore

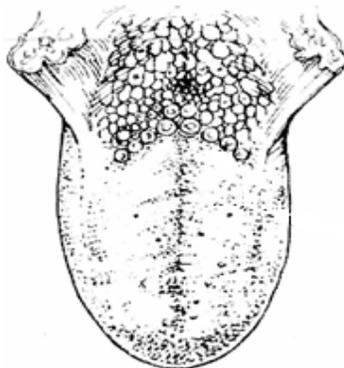


Complete the following paragraph about how the brain receives taste information.

A taste bud consists of 2 types of cells, a supporting cell and a   1   \_\_\_\_\_.  
 At the end of taste cells are   2   \_\_\_\_\_, which contain   3   \_\_\_\_\_ that bind to taste molecules. The microvilli of taste cells project through an opening called a   4   \_\_\_\_\_. When a taste molecule binds to a   5   \_\_\_\_\_, a   6   \_\_\_\_\_ is generated in the sensory nerve attached to the taste cell. These nerve impulses travel to the   7   \_\_\_\_\_ area of the cerebral cortex where the brain perceives the taste.

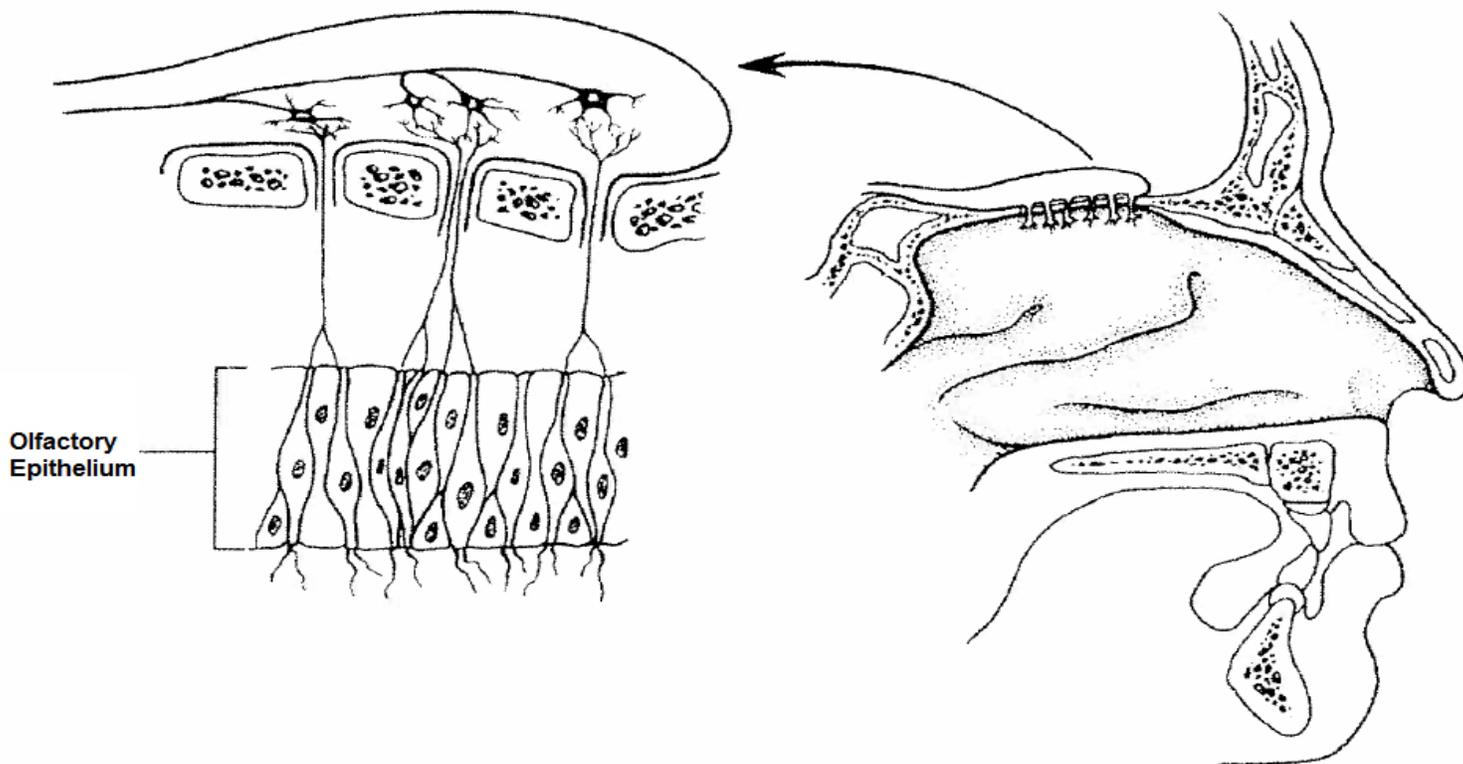
1. \_\_\_\_\_
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4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

8. **Draw, color and label the different areas of taste on the tongue.**



## Smell

Using different colors and the list below, color and label the different parts involved with the sense of smell. Then answer the questions about the sense of smell.



- |                                      |  |                                       |
|--------------------------------------|--|---------------------------------------|
| <input type="radio"/> Olfactory bulb | <input type="radio"/> Olfactory cilia  | <input type="radio"/> Sensory nerve   |
| <input type="radio"/> Olfactory cell | <input type="radio"/> Olfactory neuron | <input type="radio"/> Olfactory tract |

**Complete the following paragraph about how the brain receives odor information.**

Each   1   \_\_\_\_\_ has one type out of 1,000 different types of   2   \_\_\_\_\_.   3   \_\_\_\_\_ from like olfactory cells lead to the same neuron in the   4   \_\_\_\_\_. Odor molecules bind to receptor proteins on   5   \_\_\_\_\_ of olfactory cells. When an odor molecule stimulates an olfactory cell, the olfactory cell sends a   6   \_\_\_\_\_ up the sensory nerve fiber stimulating a like olfactory neuron located in the   7   \_\_\_\_\_. The neuron then sends its nerve impulse to the   8   \_\_\_\_\_, which sends its information to the   9   \_\_\_\_\_ area of the cerebral cortex. Its at this area of the brain where the smell is perceived.

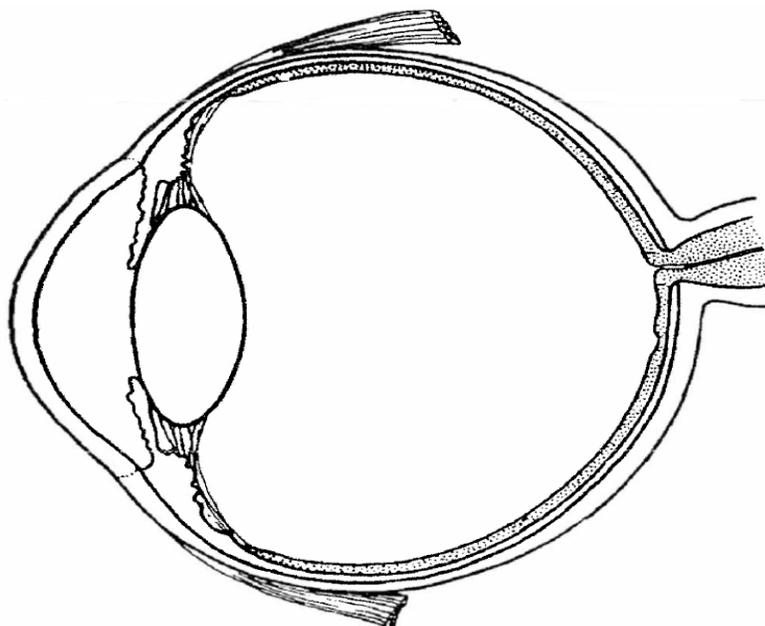
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8. \_\_\_\_\_
9. \_\_\_\_\_

**Match the following terms to their description or function.**

- |                            |   |
|----------------------------|---|
| 10. _____ Olfactory bulb   | a. A nerve cell that synapses with the sensory nerve fiber of an olfactory cell.                                      |
| 11. _____ Olfactory cell   | b. Contains receptor proteins for odor molecules.   |
| 12. _____ Olfactory cilia  | c. Nerves found in the olfactory bulb that transmits its action potential to the primary olfactory area of the brain. |
| 13. _____ Olfactory neuron | d. An extension of the brain that contains the olfactory tract.   |
| 14. _____ Olfactory tract  | e. Modified neurons found in the roof of the nasal cavity that sense smell.   |

## Vision

Using different colors and the list below, color and label the different parts involved with the sense of vision. Then answer the questions about the sense of vision.



- |                                     |                                   |  |
|-------------------------------------|-----------------------------------|--|
| <input type="radio"/> Aqueous humor | <input type="radio"/> Iris        | <input type="radio"/> Retina               |
| <input type="radio"/> Choroid       | <input type="radio"/> Lens        | <input type="radio"/> Sclera               |
| <input type="radio"/> Ciliary body  | <input type="radio"/> Optic nerve | <input type="radio"/> Suspensory ligaments |
| <input type="radio"/> Cornea        | <input type="radio"/> Pupil       | <input type="radio"/> Vitreous humor       |

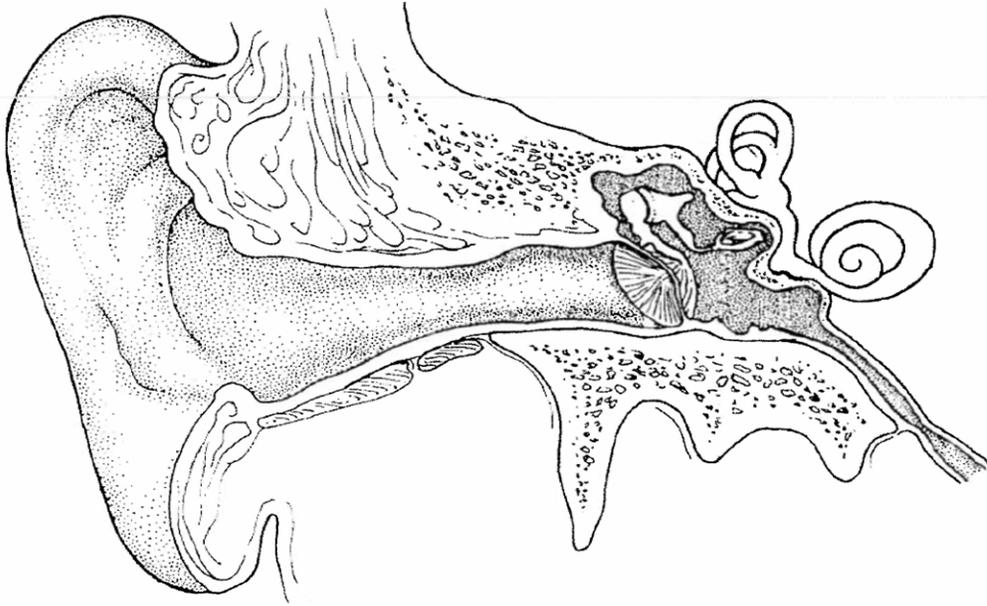
1. \_\_\_\_\_
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30. \_\_\_\_\_
31. \_\_\_\_\_

### Complete the following paragraph about how the brain receives visual information.

The   1  , the   2  , and the   3  , all focus images on the   4  . The shape of the lens is controlled by the   5  . When we view distant objects, the ciliary muscles relax, causing the   6   attached to the   7   to be taut; therefore the lens's shape is   8  . When we view near objects, the   9   contract, releasing the   10   on the   11  . The shape of the lens becomes   12  . The pathway for vision begins once light has been focused on the   13   of the   14  . The 2 types of photoreceptors on the retina are   15   and   16  . Rod cells are best suited for   17   vision. They also provide us with   18   and   19  . The cone cells are activated by   20  . They allow us to detect   21   and the   22   of an object. For us to perceive vision, light must strike the rod cells and cone cells. These cells synapse with   23   cells, which in turn synapse with ganglion cells that initiate   24  . Action potentials created in the rod cells and cone cells are passed to the bipolar neurons, which are passed to the ganglion cells. Nerve impulses created by the ganglion cells travel down sensory fibers, which assemble to form the   25  . The optic nerves carry nerve impulses from the   26   to the   27  . From the optic chiasm, nerve impulses then travel through the   28   before entering the occipital lobe. The area of the occipital lobe responsible for sensing and interpreting vision is the   29  . The visual cortex consists of the   30   and the   31  .

## Hearing

Using different colors and the list below, color and label the different parts involved with the sense of hearing. Then answers the questions about the sense of hearing.



- |                                      |                                  |   |   |
|--------------------------------------|----------------------------------|---|---|
| <input type="radio"/> Auditory canal | <input type="radio"/> Inner ear  | <input type="radio"/> Oval window         | <input type="radio"/> Stapes            |
| <input type="radio"/> Auditory tube  | <input type="radio"/> Malleus    | <input type="radio"/> Pinna               | <input type="radio"/> Tympanic membrane |
| <input type="radio"/> Cochlea        | <input type="radio"/> Middle ear | <input type="radio"/> Semicircular canals | <input type="radio"/> Vestibule         |
| <input type="radio"/> Incus          | <input type="radio"/> Outer ear  |   |   |

**Complete the following paragraph about how the brain receives auditory information.**

The process of hearing begins when   1   enter the   2   and strike the   3   causing it to move back and forth or   4  . The vibration of the tympanic membrane is transferred to the ossicles of the ear. From the tympanic membrane the vibration travels to the   5  , then to the   6  , and finally to the   7  . The vibration in the stapes is then transferred to the   8  , causing it to vibrate and pass on the pressure to the fluid within the   9   of the inner ear. Pressure waves from the oval window move through the   10   to the   11   across the basilar membrane. The movement of the basilar membrane causes the   12   of   13   embedded in the tectorial membrane to bend. The bending of the stereocilia creates a nerve impulse in the   14  . The nerve impulse will travel to the brainstem and then relayed to the   15   of the cerebrum, where the nerve impulse is interpreted as   16  .

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