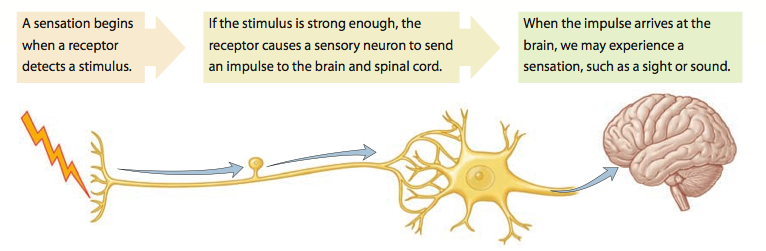
**Somatic and Special Senses**

**Station 1 – Vocab!**

|  |  |
| --- | --- |
| **General Vocab** | |
| *Word* | *Definition* |
| **Somatic Senses** |  |
| **Special Senses** |  |
| **Sensory Receptors** |  |
| **Sensation** |  |
| **Projection** |  |
| **Sensory Adaptation** |  |

****

|  |  |  |
| --- | --- | --- |
| **Types of Sensory Receptors** | | |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 7.34.15 AM.png*** |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 7.34.37 AM.png*** |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 7.34.26 AM.png*** |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 8.00.34 AM.png*** |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 8.00.41 AM.png*** |

What type of receptor is responding when:

* You stub your toe? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* You’re eating a delicious cupcake? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* You step into a hot tub? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Station 2 – Somatic Senses**

**\*Pain**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 7.34.15 AM.png*** |

**Pain Receptors and Adaptation:**

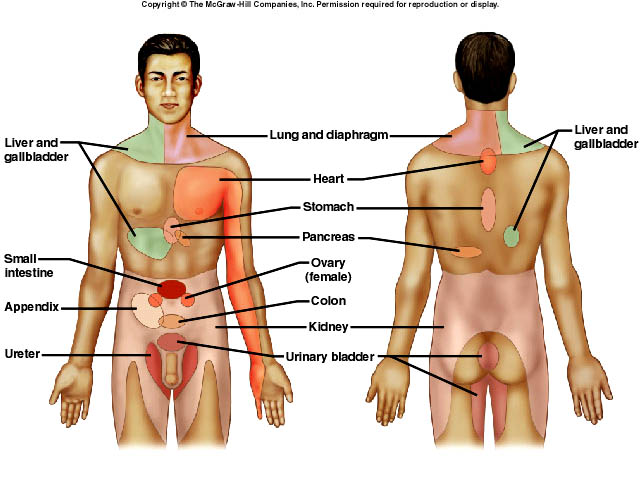
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Visceral Pain (Pain in the Organs):**

* The only sensation that your organs produce is pain.
* Not well localized (broad feeling of pain)
* Could illicit ***referred pain*** sensations

|  |  |
| --- | --- |
| **Referred Pain** | |
| **Definition** |  |
| **Why does it occur?** |  |
| **Example(s)** |  |



**Types of Pain Fibers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of Fiber** | **Myelinated or No?** | **Type of Pain Sensation** | **Location of fibers/pain** | **Example** |
|  |  |  |  |  |
|  |  |  |  |  |

**\*Temperature**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 7.34.37 AM.png*** |

**Types of Thermoreceptors - Warm Receptors vs. Cold Receptors**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Location* | *Active Temperatures* |
|  |  |  |
|  |  |  |
|  | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

**\*Touch**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 7.34.26 AM.png*** |

**Types of Mechanoreceptors - Meissner’s Corpuscles vs. Pacinian Corpuscles**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Location* | *Detection* |
|  |  |  |
|  |  |  |

**Two-Point Discrimination Lab**

**Pre-Lab Questions**

1. Do you think that mechanoreceptors are distributed evenly across the body? Why or why not?
2. Which areas on the human body are most sensitive to touch?
3. If a person’s sensitivity to touch was below normal, what might this indicate to the neurologist?

**Procedure**

You and your partner will be taking turns performing the 2-point discrimination test on various parts of the body. Each partner will have each body part tested and should fill in their data table accordingly.

1. Place the test subject’s left hand palm-up and motionless on the table. Have the test subject close his/her eyes and turn their head away. Instruct them to say “One” or “Two” depending on the number of points of contact felt on the area being tested.
2. Start with the caliper closed at 0 mm.
3. Gently touch the caliper to the test subject’s fingertip.
   * *Make sure that the two points are applied simultaneously*
4. The test subject should indicate if they feel one or two points.
5. Move the caliper out to 1 mm and repeat Steps 3 & 4.
6. Continue moving the caliper out 1 mm until the test subject feels 2 points.
7. The test subject should record the number in their data table.
8. Switch roles.
9. Using the left side of the body, repeat Steps #2-9 for the remaining body parts on your data table. |

***Note: The measurer should occasionally test for reliability of the subject’s responses by randomly touching with just one point.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Body Part** | **2-point Threshold** |  | **Body Part** | **2-point Threshold** |
| Scalp |  | Wrist |  |
| Forehead |  | Back of Hand |  |
| Cheek |  | Tip of Thumb |  |
| Back of Neck |  | Tip of Index Finger |  |
| Lower Back |  | Front of Knee |  |
| Upper Arm |  | Back of Knee |  |
| Elbow |  | Front of Lower Leg |  |
| Forearm |  | Back of Lower Leg |  |

**Station 3 – Taste**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 8.00.34 AM.png*** |

**Taste:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Taste Buds:**

* Location: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* # of chemoreceptors: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4 Primary Taste Sensations**

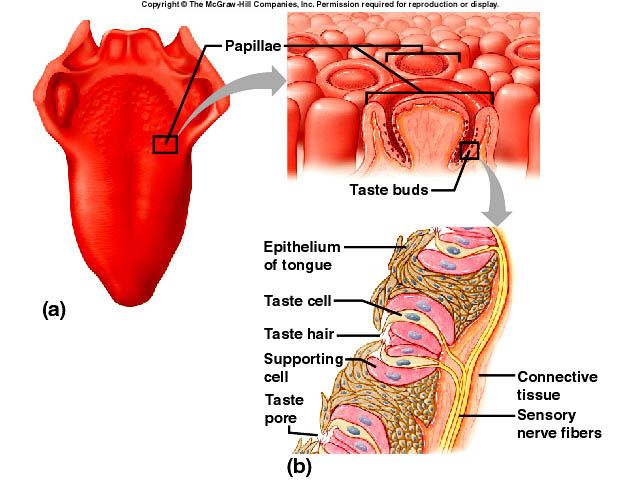
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Possible 5th sensation:

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**What about spicy food?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Station 4 – Smell**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 8.00.34 AM.png*** |

**Smell:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Olfactory Nerve Pathways**

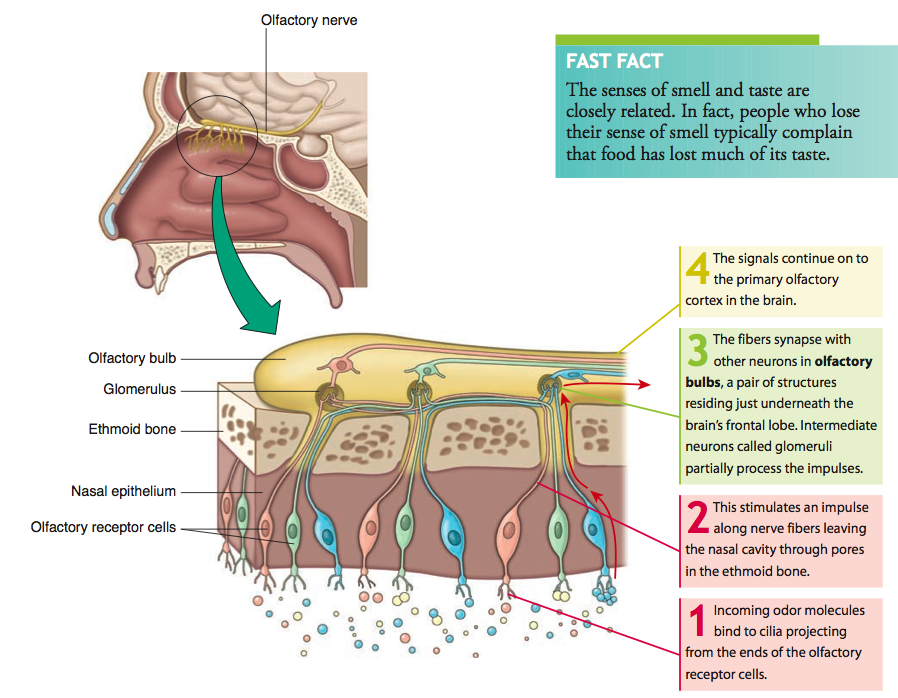
* Once olfactory receptors are stimulated, nerve impulses travel along the:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Once the stimulus reaches the olfactory cortex in the cerebrum, it may continue on to other locations in the cerebrum and brainstem, including the limbic system.
  + Explains why: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Olfactory Receptors and Adaptation:**

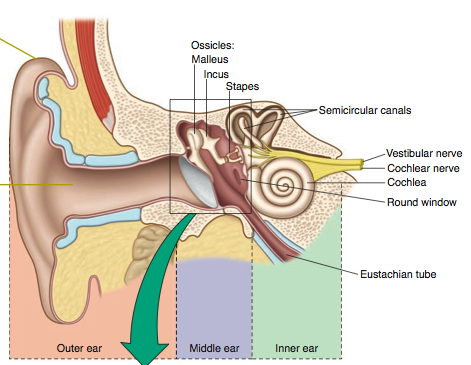
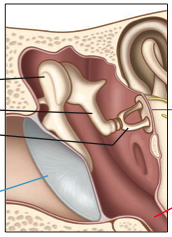
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

****

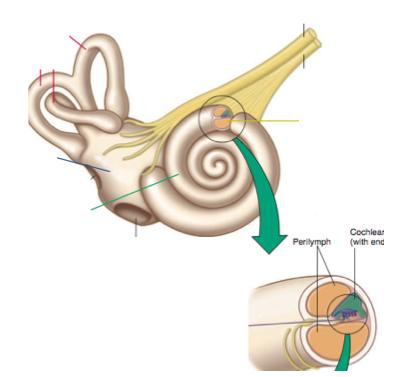
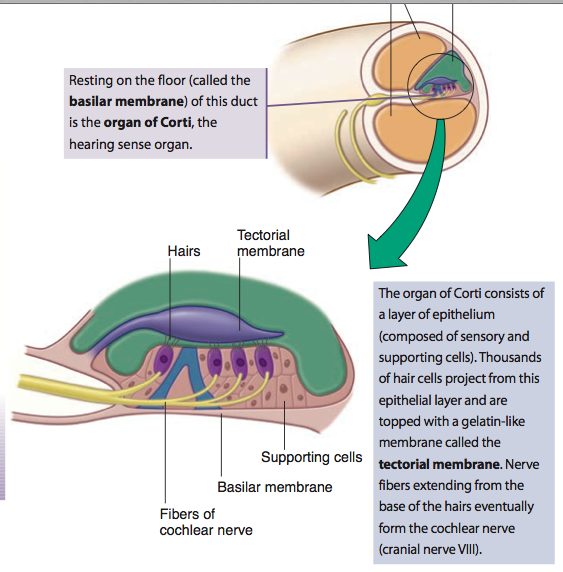
**Station 5 – Hearing**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 7.34.26 AM.png*** |

*****Lable each part of the ear AND give a brief explanation of its function.*

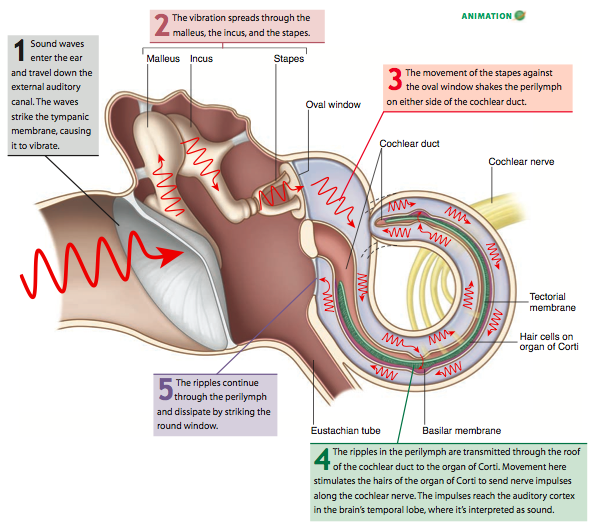
**Outer Ear**

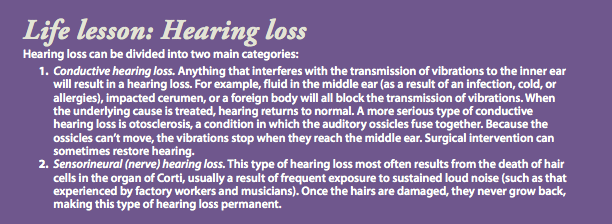
**Middle Ear**

**Inner Ear**

**Organ of Corti**

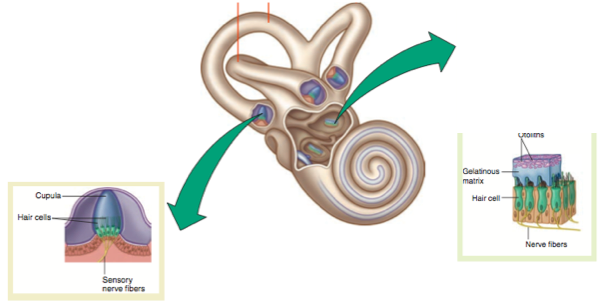
**How We Hear Sound**



****

**Station 6 – Balance and Equilibrium**

|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 7.34.26 AM.png*** |

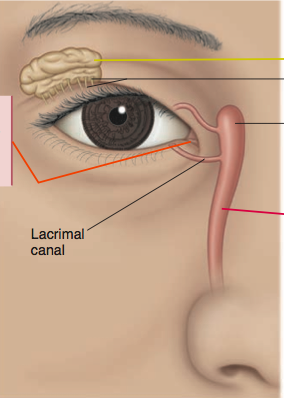
****

|  |  |  |
| --- | --- | --- |
|  | **Dynamic Equilibrium** | **Static Equilibrium** |
| **Organ** |  |  |
| **Sensation** |  |  |
| **Picture** | **Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-15 at 5.05.26 PM.png** | **Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-15 at 5.05.32 PM.png** |

**Station 7 – Vision**

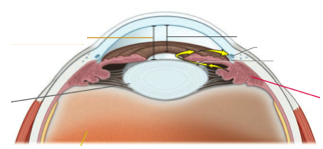
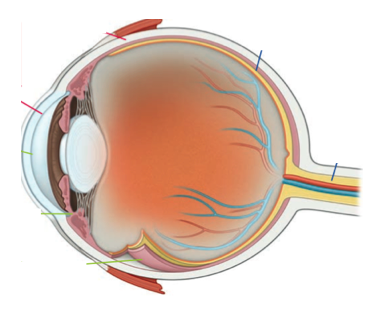
|  |  |  |
| --- | --- | --- |
| *Type of Receptor* | *Responds to:* | *Picture* |
|  |  | ***Macintosh HD:Users:jsteffen:Desktop:Screen Shot 2018-02-13 at 8.00.41 AM.png*** |

**Accessory Structures of the Eye**

*Label each accessory structure of the eye AND give a brief explanation* *of its function.*

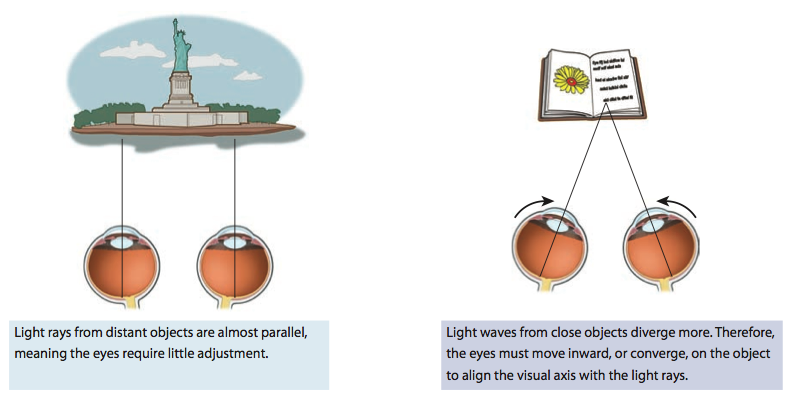
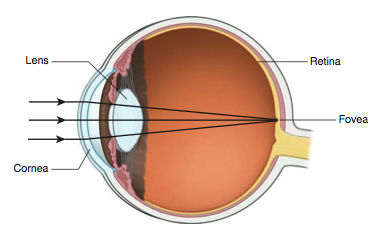
**Structures of the Eye**

*Label each structure of the eye AND give a brief explanation of its function.*



**Forming an Image**

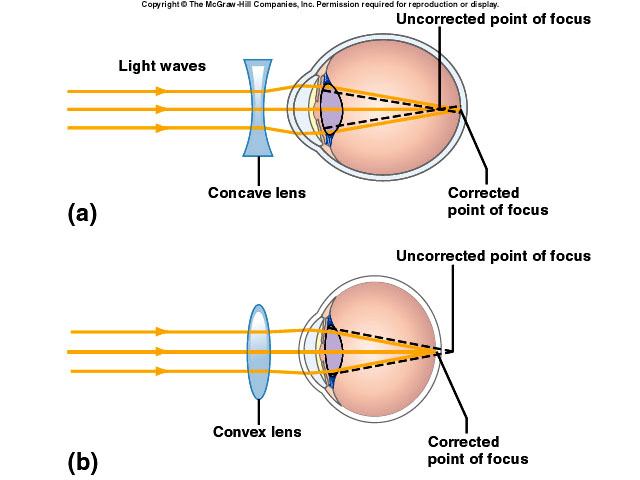
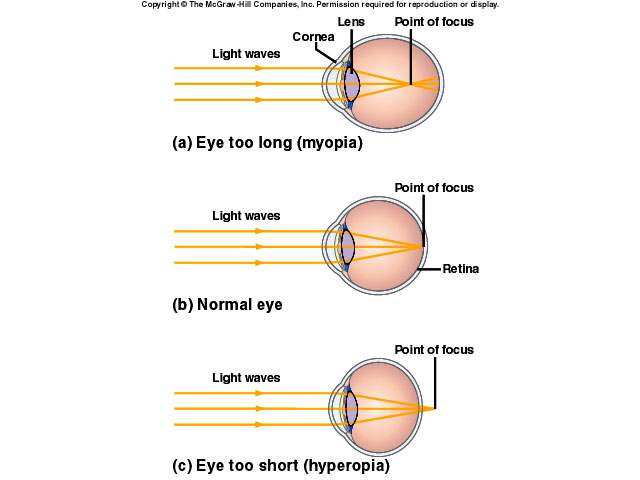
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



***Refraction Convergence***

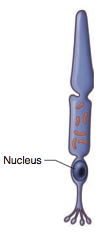
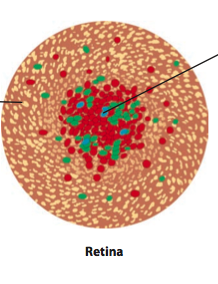
**Clinical Application**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lenses correct nearsightedness
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lenses correct farsightedness

**Type of Photoreceptors – Rods vs. Cones**

|  |  |  |
| --- | --- | --- |
|  | **Rods** | **Cones** |
| **Location** |  |  |
| **Active in:** |  |  |
| **Responsible for:** |  |  |
| **Color vision?** |  |  |

****

****

**Rods Cones**