

Vancouver Community College

Biology 1200

Instructor Maria Morlin

March 2021 – hybrid course

Lab instructions for:

- **Senses lab (remote)**

# Senses lab (remote)

## Objectives

- Investigate a number of senses, including hearing and proprioception, and vision.
- Become familiar with terminology around the senses.

# Methods

1. We used zoom. Students followed instructions given by the instructor, and answered questions.
2. Students used a variety of online tests this time.

# Review investigation of the following senses

- Vision
- Hearing
- Proprioception

Read the following in the lab manual for explanation these tests (pg 48-53)

- Visual acuity
- Astigmatism
- Eye dominance
- Proprioception

# Use these resources for review – this is basically what we did on Backchannel Chat including polling questions

- **Rods and Cones** – phototransduction.
  - <https://www.youtube.com/watch?v=dhd2fja0LZ4>
- Where does phototransduction primarily take place?
  - Photoreceptor cells, brain cells
- In the dark, sodium ions flow into rod cells
  - True false
- In the light, a decrease of neurotransmitter acts as a signal that light is present
  - True false
- Rhodopsin is made up of:
  - Opsin and retinal, collagen and vitamin a
- **Colour blindness:**
  - <https://www.colormatters.com/color-and-vision/what-is-color-blindness>
- The most common kind of colour blindness is:
  - Red-green, blue red, green blue
- More males 1/12 have colour blindness than females because it is inherited as a recessive trait on the:
  - X chromosome, Y chromosome
- **Hearing:** The interactive ear: <https://www.amplifon.com/uk/interactive-ear/index.html>
- Make a flow chart from this interactive activity. Draw the flow chart with six boxes. Write Pinna in the first box, and auditory nerve in the last box. Start with the outer ear. Click on the little blue + sign and a circle comes up. Drag the circle to the right from the pinna to the auditory nerve, writing each structure in your chart. Here are the structures: put them in order in your chart. Upload the picture.
  - Pinna, ear canal, eardrum, ossicles, fluid of the cochlea, auditory nerve
- Put your cursor over the dots and see what all the structures are called and their function. As a treasure hunt exercise find the following and note the function. Find the facial nerve. Go to the middle ear and find the auditory or eustachian tube, the incus, the malleus. Now go to the inner ear and find the: semicircular canals and the cochlea, and write down their functions.

Look through a triangle of their hands **for eye dominance**, demonstration shown here:

<https://www.youtube.com/watch?v=4Gbkca4RM-4>

Which is your dominant eye?

<https://www.essilor.com/en/vision-tests/test-your-vision/>

Do these eye tests. **Visual acuity, astigmatism, light sensitivity, near vision 1, colour vision.**

Questions: What does the test with the radiating dark lines test?  
Astigmatism. Visual Acuity

(Light sensitivity is if your eyes experience discomfort in bright light)

### After images

<https://faculty.washington.edu/chudler/after.html>

Receptors for certain wavelengths get saturated, so you can't see those colours for a few seconds.

Quiz: human eye structures:

<https://www.sporcle.com/games/smac17/human-eye-anatomy>

Warm and cold receptors:

Get three bowls/tubs of water. 1 hot but tolerable to touch, 1 cold, and 1 room temperature.

Go and put your right hand in the warm water for 20 seconds, then put it in the room temperature water for a couple of seconds and come back to the computer.

Do that again but start with your left hand in the cold water for 20 seconds, and then in room temperature.

How does it feel? Why?

Test your proprioception.

On a piece of paper, write your name with your eyes open once,

Write your name with your eyes closed once.

Field Sobriety Tests. (police officers use) :

- Close your eyes. Touch your nose with each of your index fingers.
- Sequential finger touching. With your eyes closed, touch each of your fingers to your thumb, starting with your forefinger.

Here is a 1.5 minute video on proprioception

<https://www.youtube.com/watch?v=PMm7G0il5oc>

If you are a dancer, you always practice in a mirror because your proprioception can be 15% off.