

VISIBLE  BODY®

Special Senses: Sensory System Primer

A nervous system lab activity using Visible Body Suite

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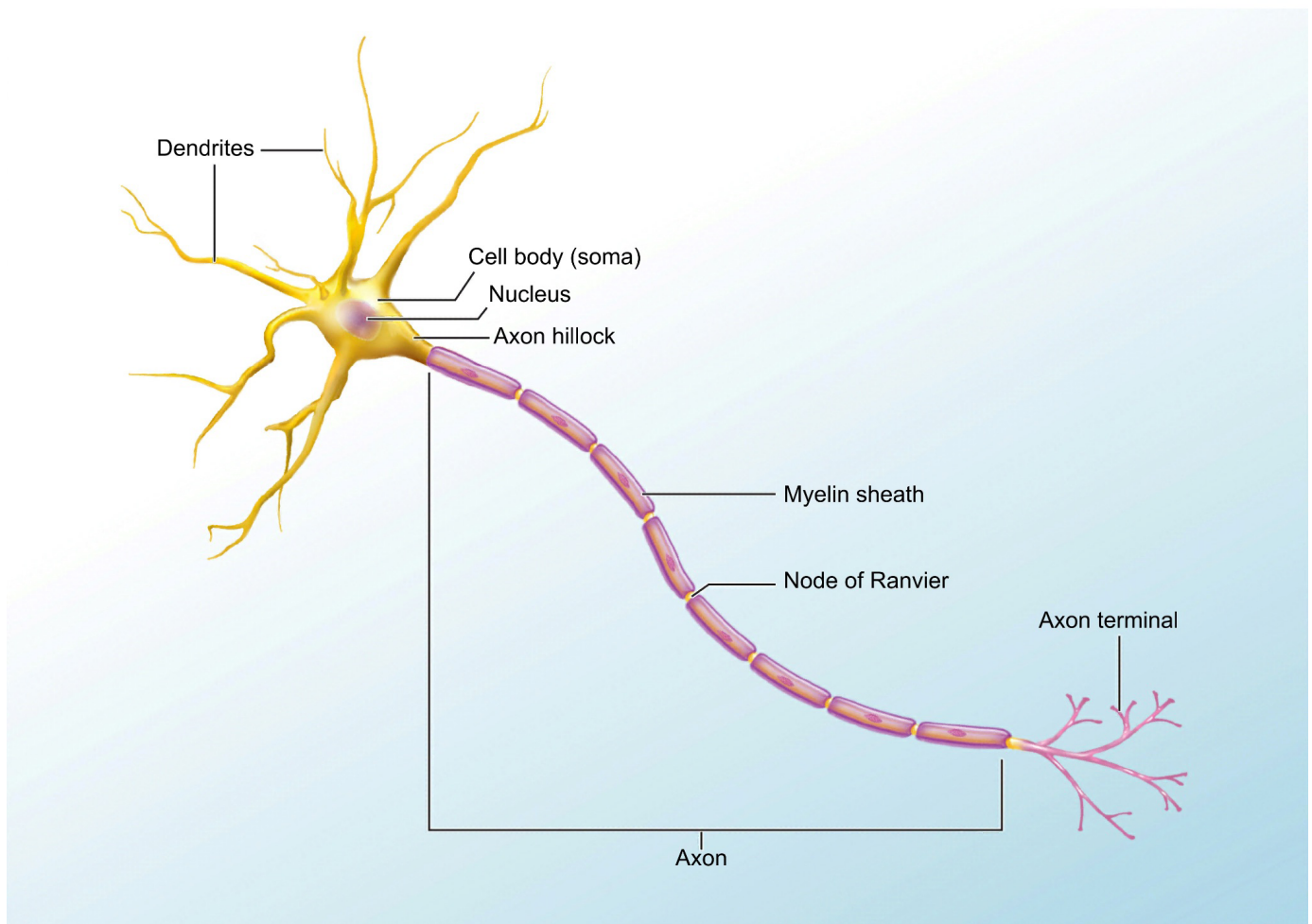
GOALS OF THE SPECIAL SENSES LAB ACTIVITIES

It would appear that a lot of your brain is involved in the sensing and processing of environmental information. In this series of lab activities, we will learn how each individual sense takes environmental information and transduces it into a neural signal, and we will learn about the pathway that information takes through the brain during various stages of processing the sensory information. We will also examine how the anatomy of these structures enables them to receive relevant environmental stimuli efficiently.

Open Visible Body Suite. From the main menu, choose Anatomy & Physiology and select the 5. Nervous System and Special Senses unit.

PART 1: NEURON ANATOMY AND FUNCTION

A. Explore module 18.2 Neuron Histology.



1. In the space below, draw a sketch of a neuron. Make sure to label the following:

- a. Dendrites
- b. Soma
- c. Nucleus
- d. Axon
- e. Myelin sheath
- f. Axon terminal



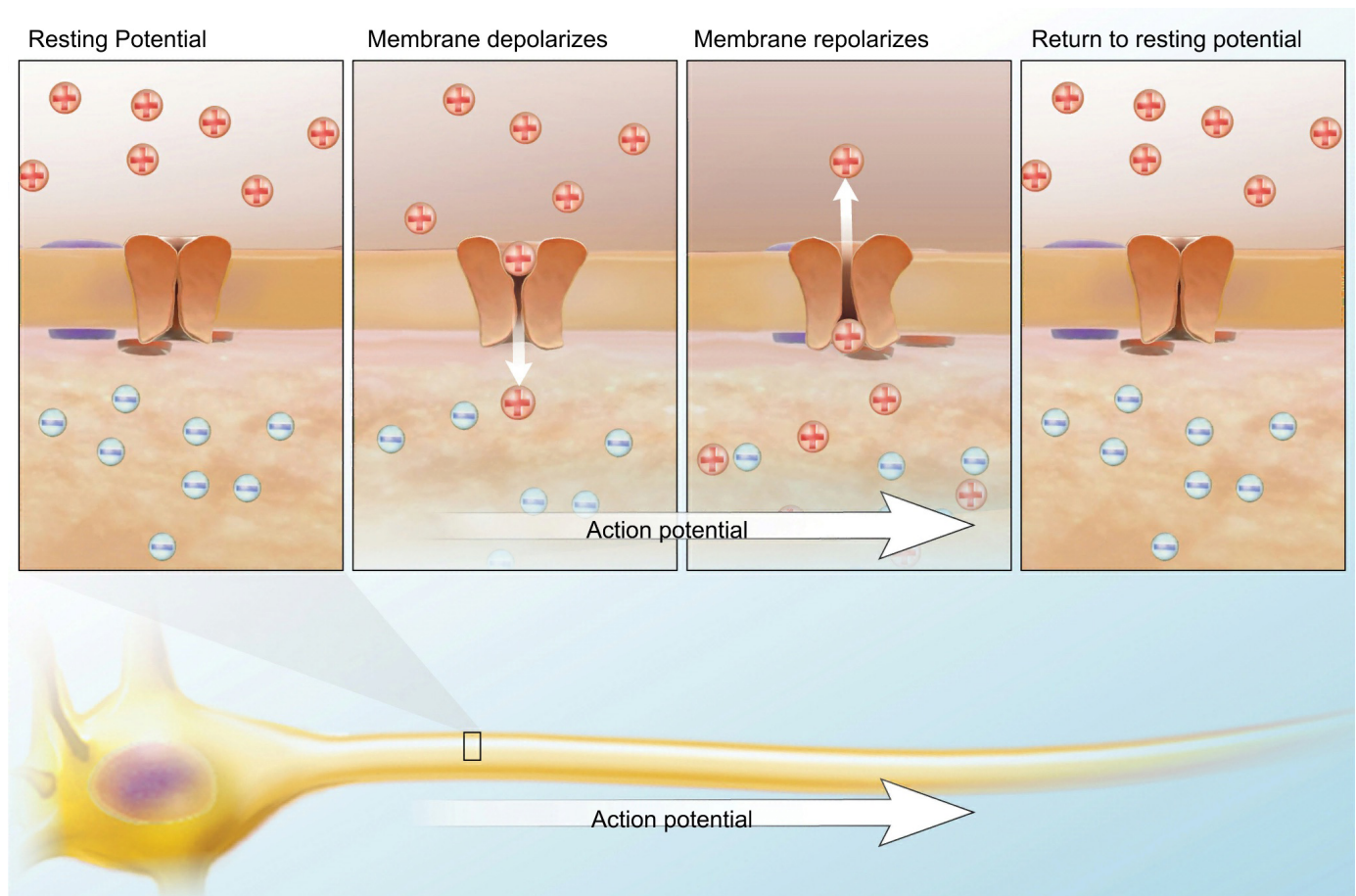
B. Watch the video for Module 18.6 Neurons and make the following observations:



1. Within the nervous system there are cells called _____ that transfer messages.
2. Before the process begins, the neuron is said to be polarized — what does this mean?
3. How does the polarization of the neuron change as a signal passes along the axon?



C. Review module 18.7 Resting and Action Potentials.



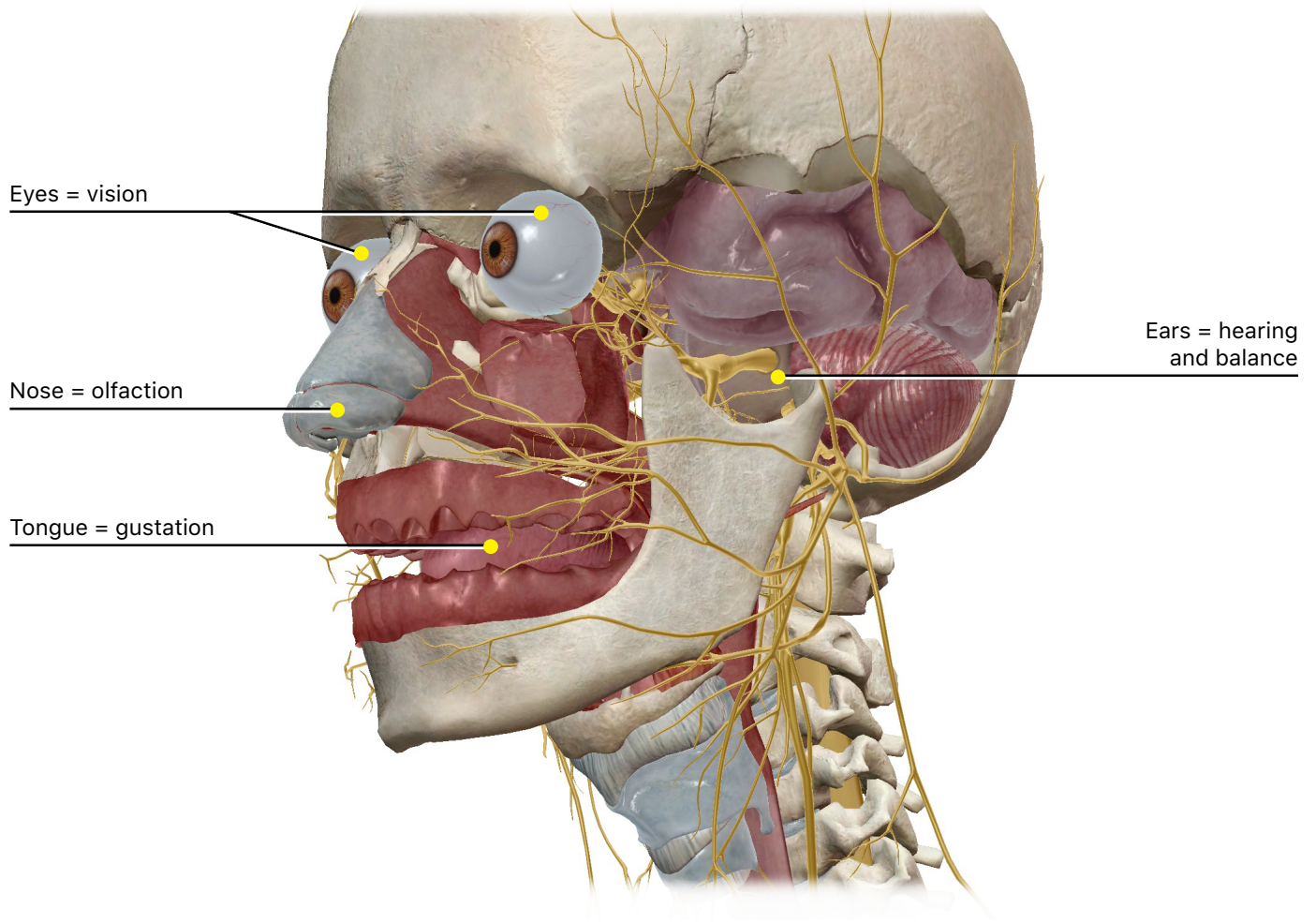
1. What happens when a neuron is stimulated to change its polarization?
2. How is this polarization restored to reach the resting state?
3. What occurs when the signal reaches the axon terminal?

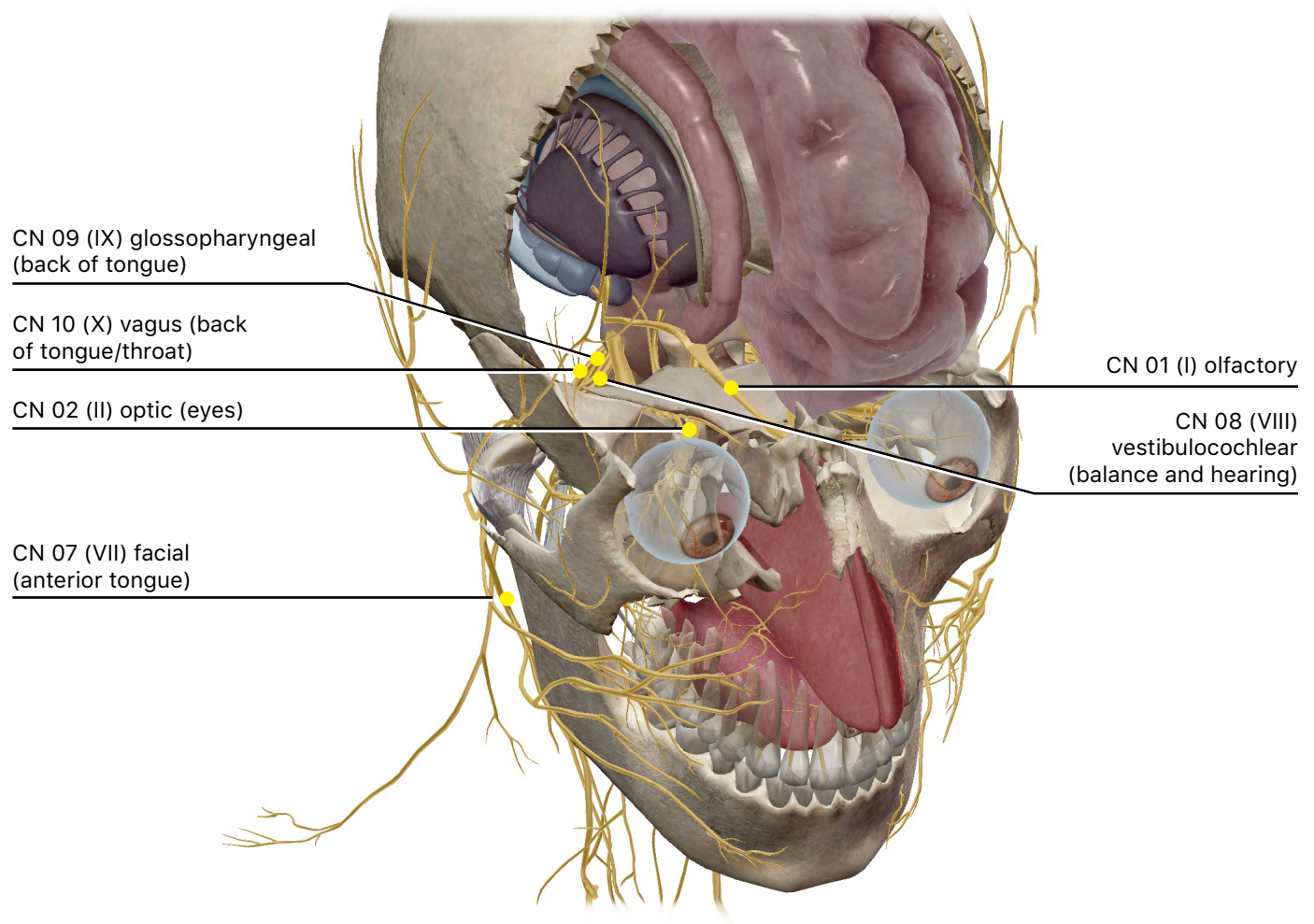
The goal of your sensory systems is to take in information from the surrounding environment and turn that information into a neural signal, which is interpreted within the brain. As you determined above, this means they must make an environmental signal, be it visual, olfactory, gustatory, auditory, or tactile, and turn that signal into an electrical impulse. Each sense has a slightly different way of doing this.



PART 2: SPECIAL SENSES

A. Study Module 23.1 Special Sensory Organs.

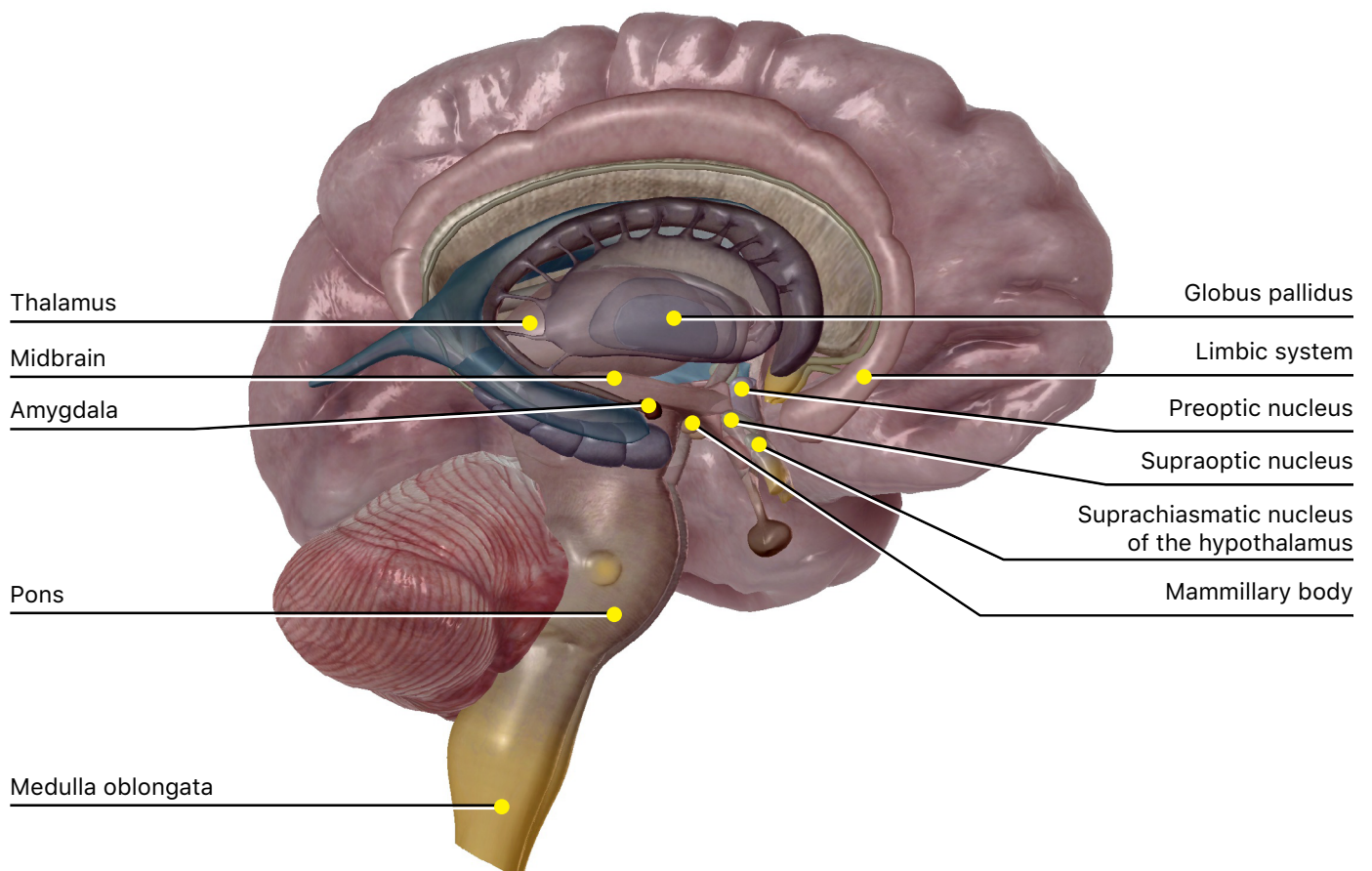
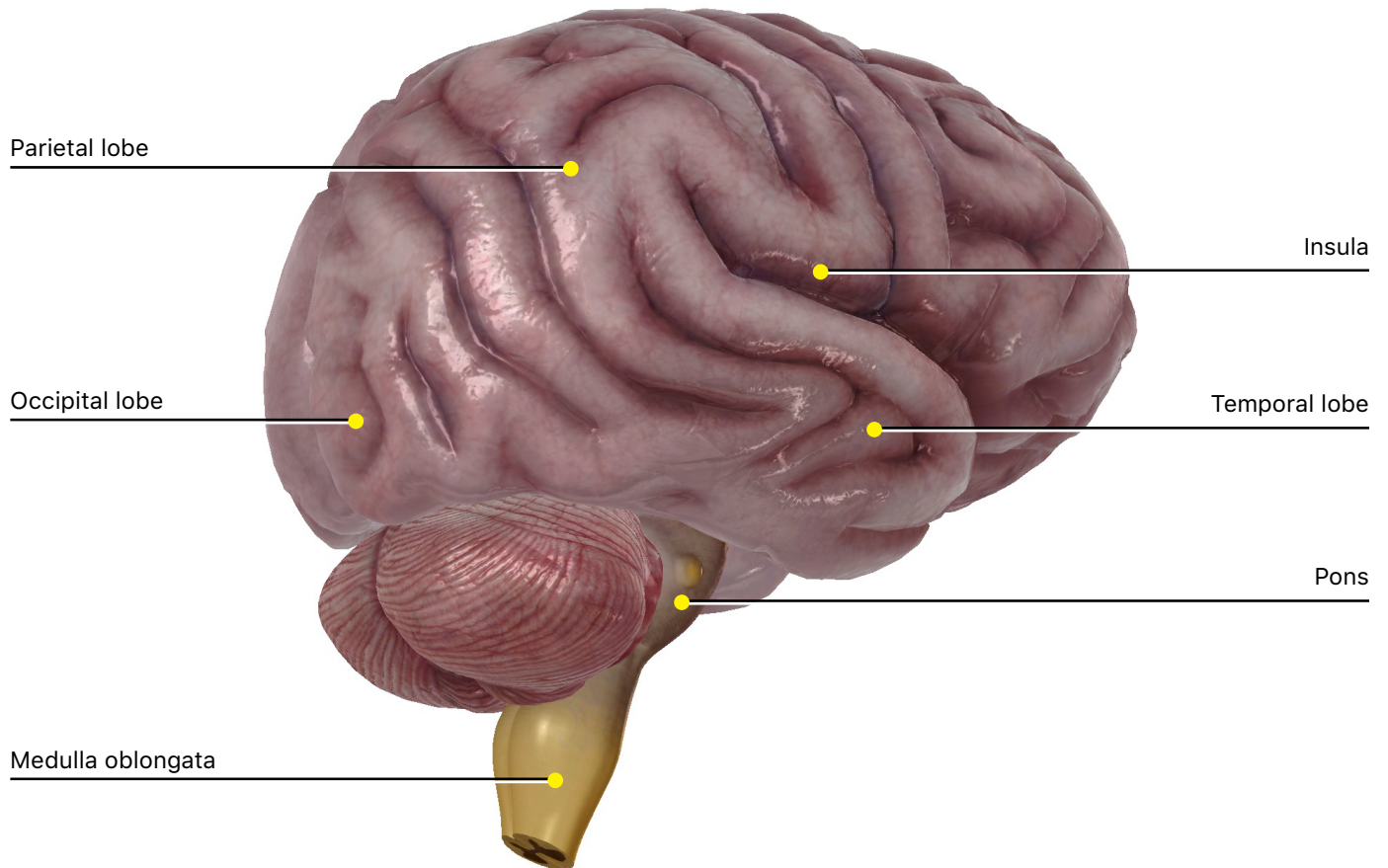




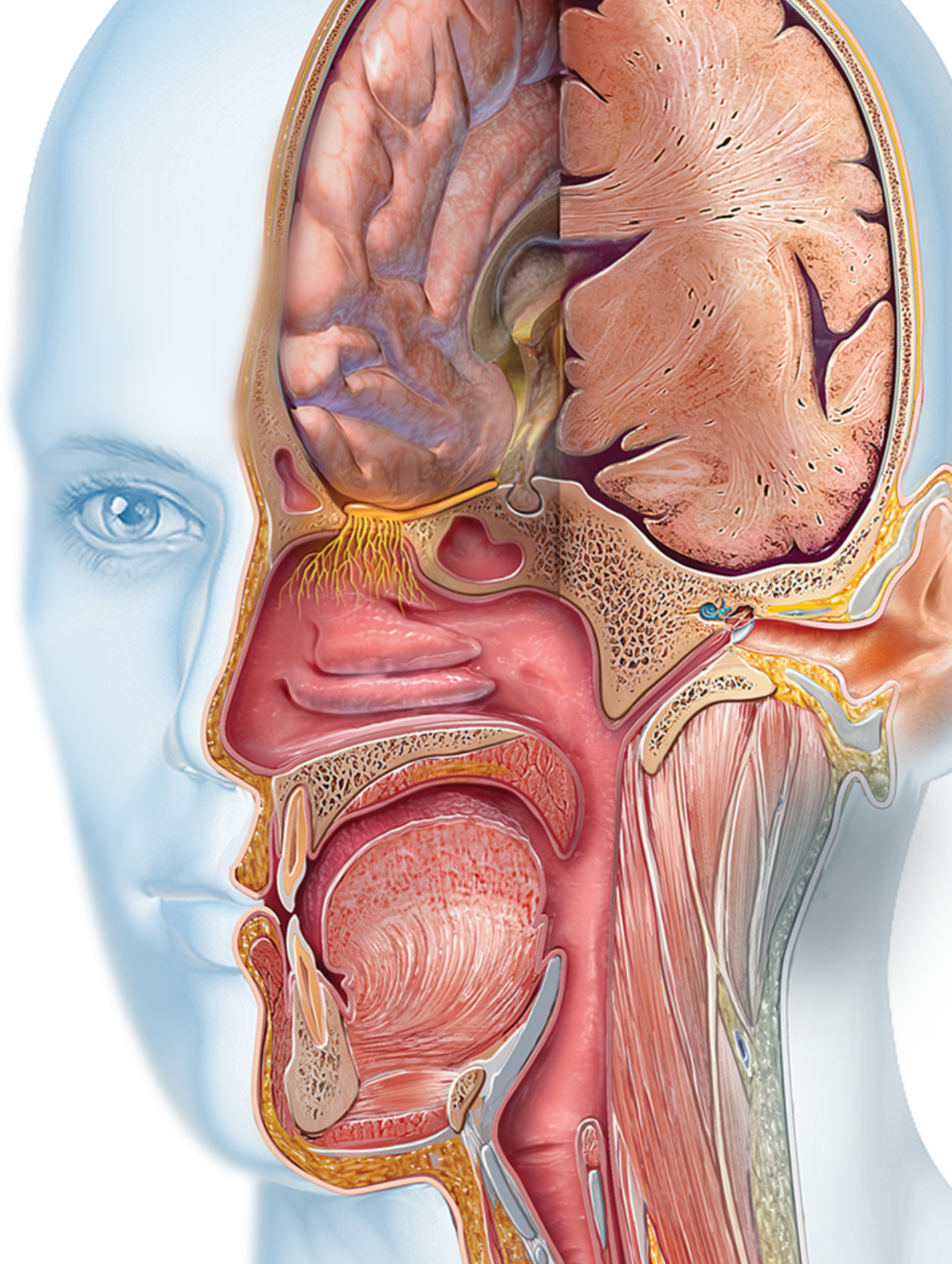
1. List the four special sensory structures and what each of them senses.

2. For each sense above, list its associated cranial nerve(s).

B. Go to 20.2 Brain Regions.



1. Examine the brain. Which structures are involved in processing sensory information? For each structure you find, state its involvement.

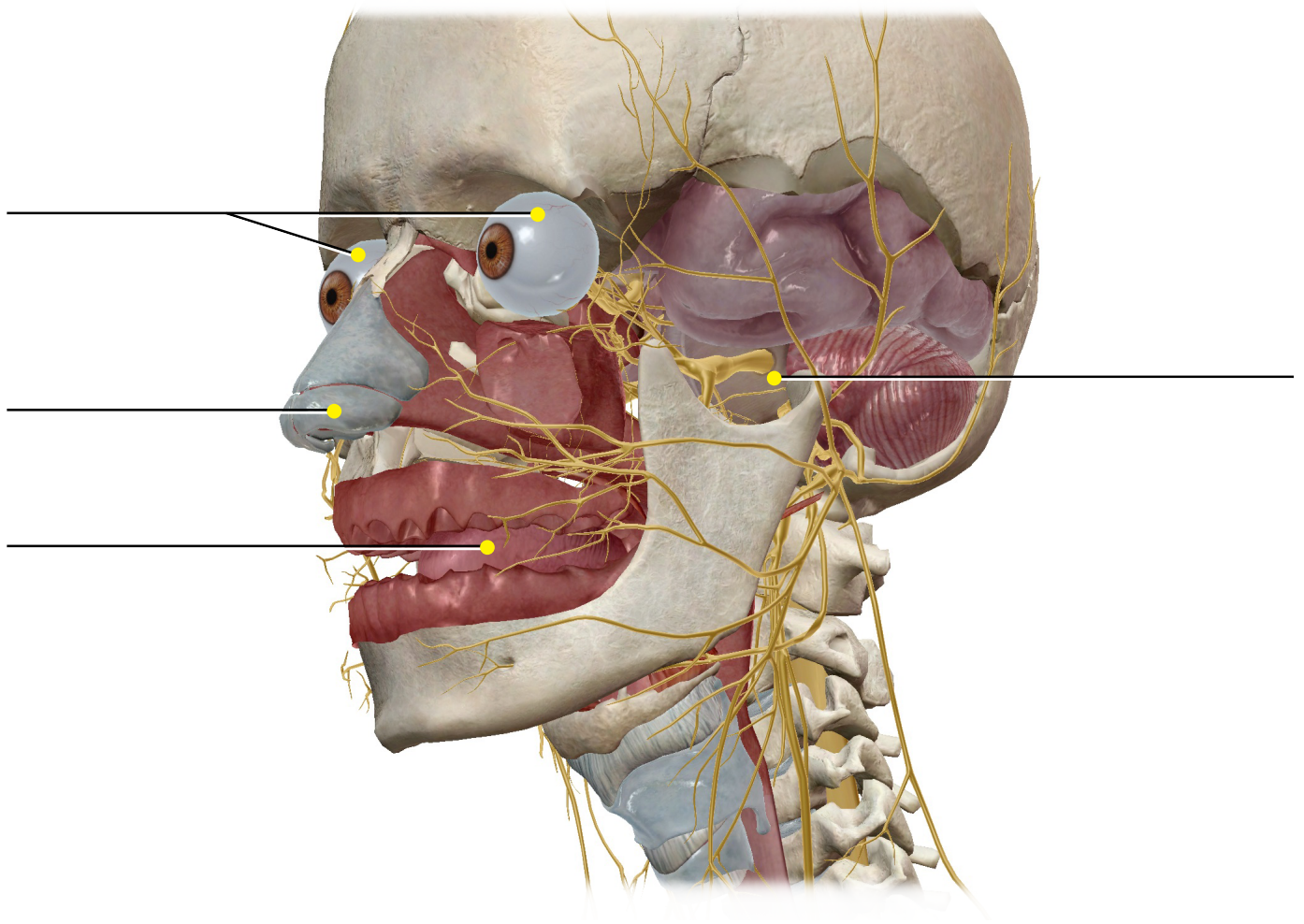


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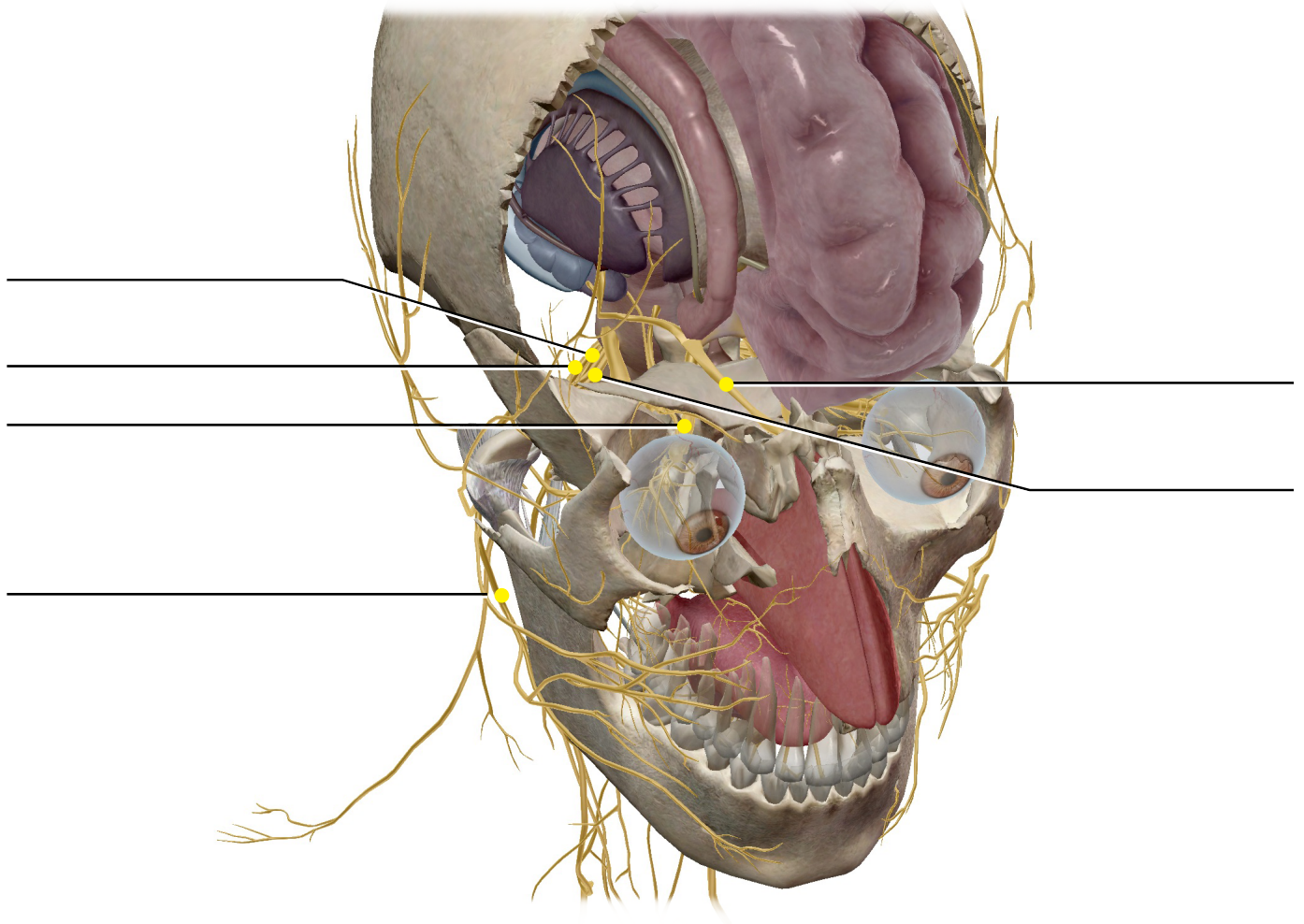
Student Practice

Label the structures in the following figures.

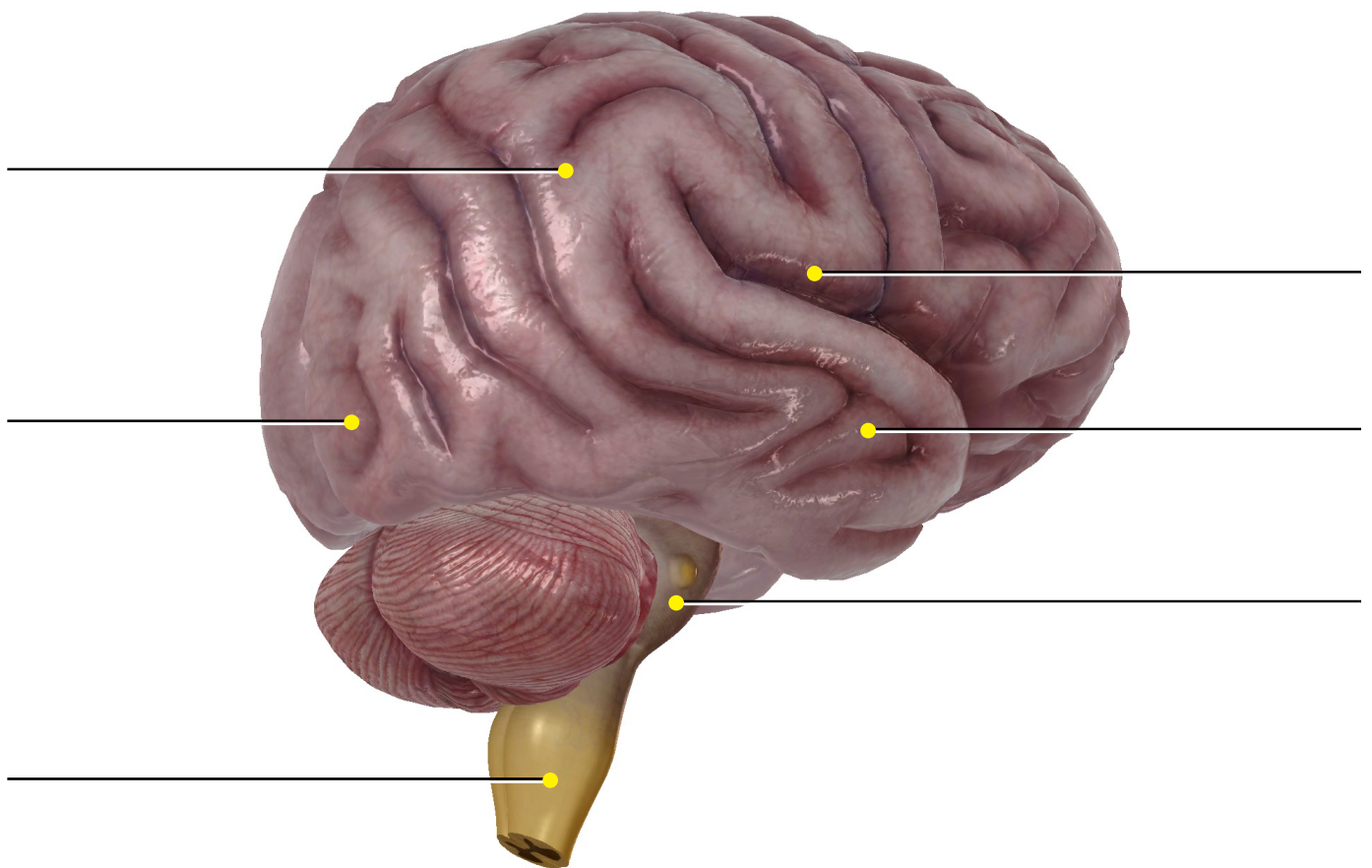
Module 23.1 Special Sensory Organs



Module 23.1 Special Sensory Organs



Module 20.2 Brain Regions



Module 20.2 Brain Regions

