

Chapter 11

Nervous System: Special Senses

INTRODUCTION

The special senses are components of the nervous system that act as highly specialized receptors. They gather information from the external environment and send this information to the brain, where it is interpreted as a particular sensation. Each special sensory organ contains sensory neurons, called **receptor cells**, that converts the energy of the environmental stimulus into a form readable by the brain - the nerve impulse. There are four types of special sensory organs in your body: the **eye**, the **ear**, **olfactory organs** in the nasal cavity, and **gustatory organs** in the mouth. The receptor cells in each type of special sensory organ are specific to a certain type of stimulus: receptor cells in the eye are sensitive to light to provide us with the sense of *vision*; receptor cells in the ear are sensitive to mechanical vibrations, providing us with the sense of hearing, or *audation*; cells in the olfactory organs are sensitive to dissolved chemicals for the sense of *smell*; and cells in the gustatory organs are sensitive to dissolved chemicals for the sense of taste, or *gustation*. In this lab you will examine the structure of the special sensory organs and study some of their more important properties.

OBJECTIVES

At the completion of Chapter 11, you should be able to:

1. Identify the structures of the eyeball.
2. Describe how visual acuity and accommodation may be identified.
3. Describe how the blind spot may be found, and relate this to the eyeball structural organization.
4. Describe night blindness and determine recovery time.
5. Explain what colored afterimages are.
6. Identify the structures of the ear.
7. Describe the Weber test and how to determine pitch range.
8. Identify the locations of olfactory and gustatory receptors.

