

SECTION
2

Reinforcement

The Senses

Directions: Study the following diagram. Then label the parts of the eye using the correct terms from the list.

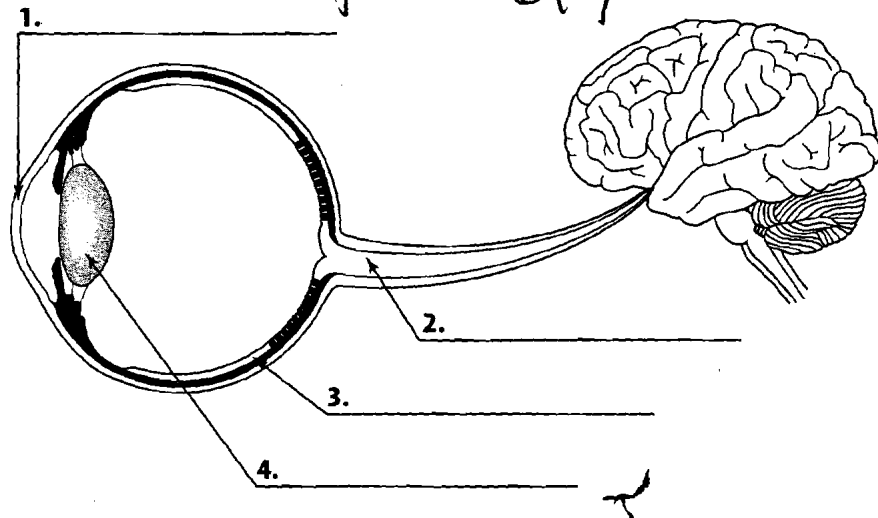
retina

cornea

optic nerve

lens

p. 610-617



Meeting Individual Needs

Directions: Answer the following questions on the lines provided.

5. Using the terms with which you labeled the figure, describe how light entering your eye becomes an image you see.

6. What are the three main sections of the ear?

7. What is the cochlea and what does it do?

8. In what cells does a smell impulse begin?

9. What five basic taste sensations do the taste buds have?

10. How do your senses help you maintain homeostasis?

SECTION
1

Enrichment

I Can't Hear What I'm Seeing

Many people have a hard time reading simple words on a page. People with this problem are usually very intelligent but have a nervous system problem called dyslexia [dis-lex-ee-ah]. Dyslexia is a word that is used to describe many different types of reading problems. One of the main problems for people with dyslexia is that they cannot see the letters and words on the page correctly. They appear backwards or out of order.

Doctors and scientists once thought the problem started in the brain itself. They incorrectly thought the problem was due to brain damage. Some thought that certain brain cells did not work as well as they should. Now, new research is helping us understand what really causes some types of dyslexia.

Stimuli

When stimuli enter the brain they are decoded into signals that we recognize, like the sound of a dog barking or the sight of a ball. New information about people with dyslexia shows that, for them, certain kinds of stimuli do not get translated properly by the brain.

Genetic Trait

Almost 98% of the people with this disorder are male. This leads researchers to believe that this form of dyslexia is a genetic trait.

Many of the boys and men with dyslexia suffered numerous ear infections as children.

The Inner Ear and Dyslexia

Using these observations, researchers and doctors are looking at a possible connection between the inner ear and dyslexia. It is thought that the inner ear may have been damaged or does not properly interpret stimuli. You may already know that the inner ear is important for balance and coordination. A problem with the inner ear may prevent some people from unscrambling the signals that come into a particular part of the brain.

One of the leading scientists in this area of research is Nobel Laureate Sir Robert Barany. He has designed a test to measure inner ear dysfunction. His data, along with the fact that people with dyslexia are usually very intelligent and do not have brain damage, gives hope to millions of people with the disorder. This research has led to this particular kind of dyslexia being called Cerebellar Vestibular dysfunction. (Cerebellar refers to the cerebellum of the brain, and vestibular refers to the vestibule of the inner ear.) New ways of teaching people to read and to adjust to their reading problems may be near.

1. What are people with certain types of dyslexia unable to do very well?

2. What did doctors and scientists think caused dyslexia?

3. Some scientists think there is a genetic cause for dyslexia. Why do they think this?

4. The most common type of dyslexia is the brain's inability to sort out visual stimuli of letters and words on a page. Where does this inability seem to start?

