

The Central Nervous System

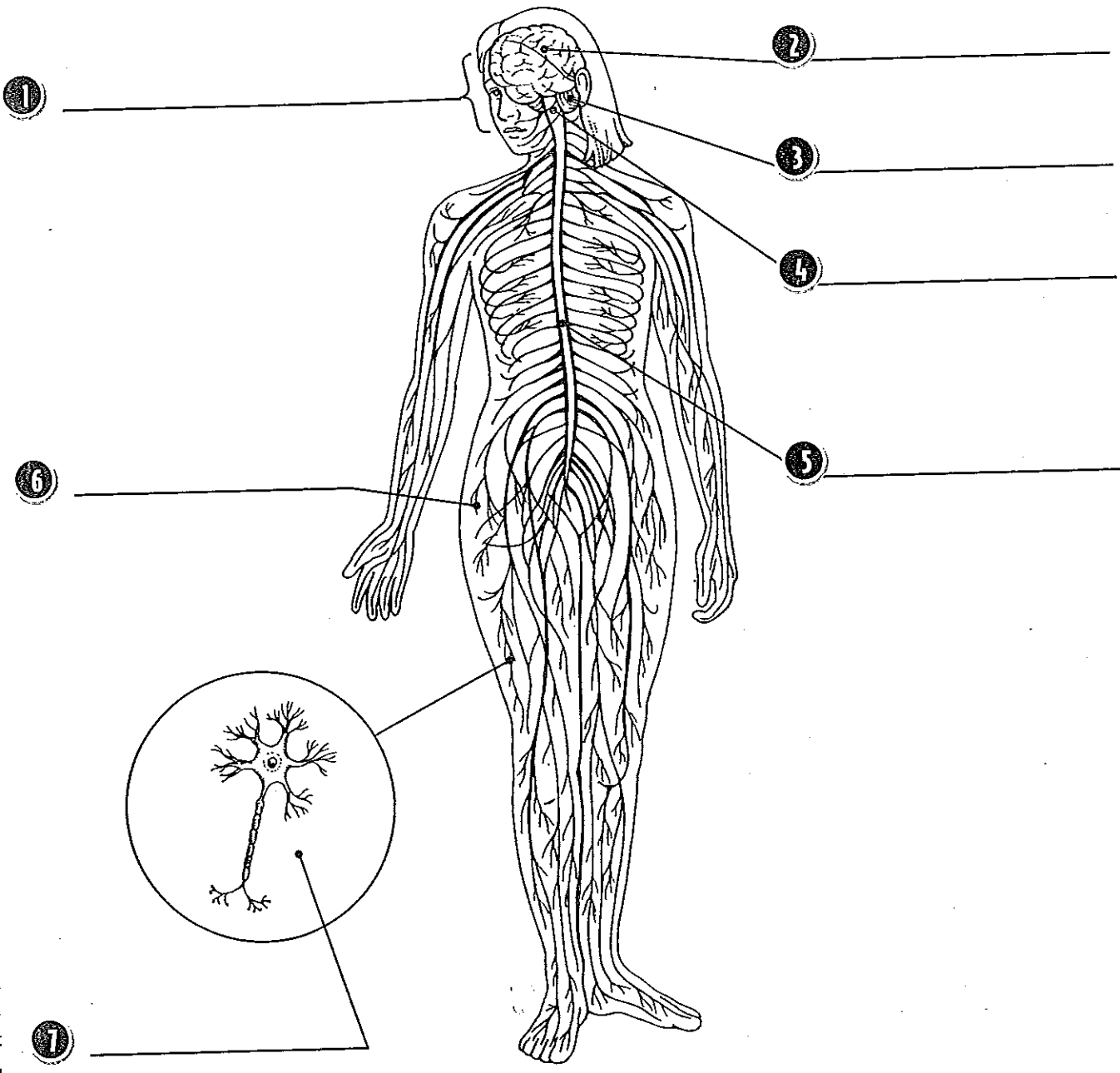
The central nervous system includes the brain and spinal cord. It processes and coordinates all information picked up by the senses and motor commands telling various body parts what to do. It is also the seat of brain functions such as memory, intelligence, learning, and emotion. Use the terms in the word box to label the diagram.

brain
nerves

cerebrum
cerebellum

nerve cell
brain stem

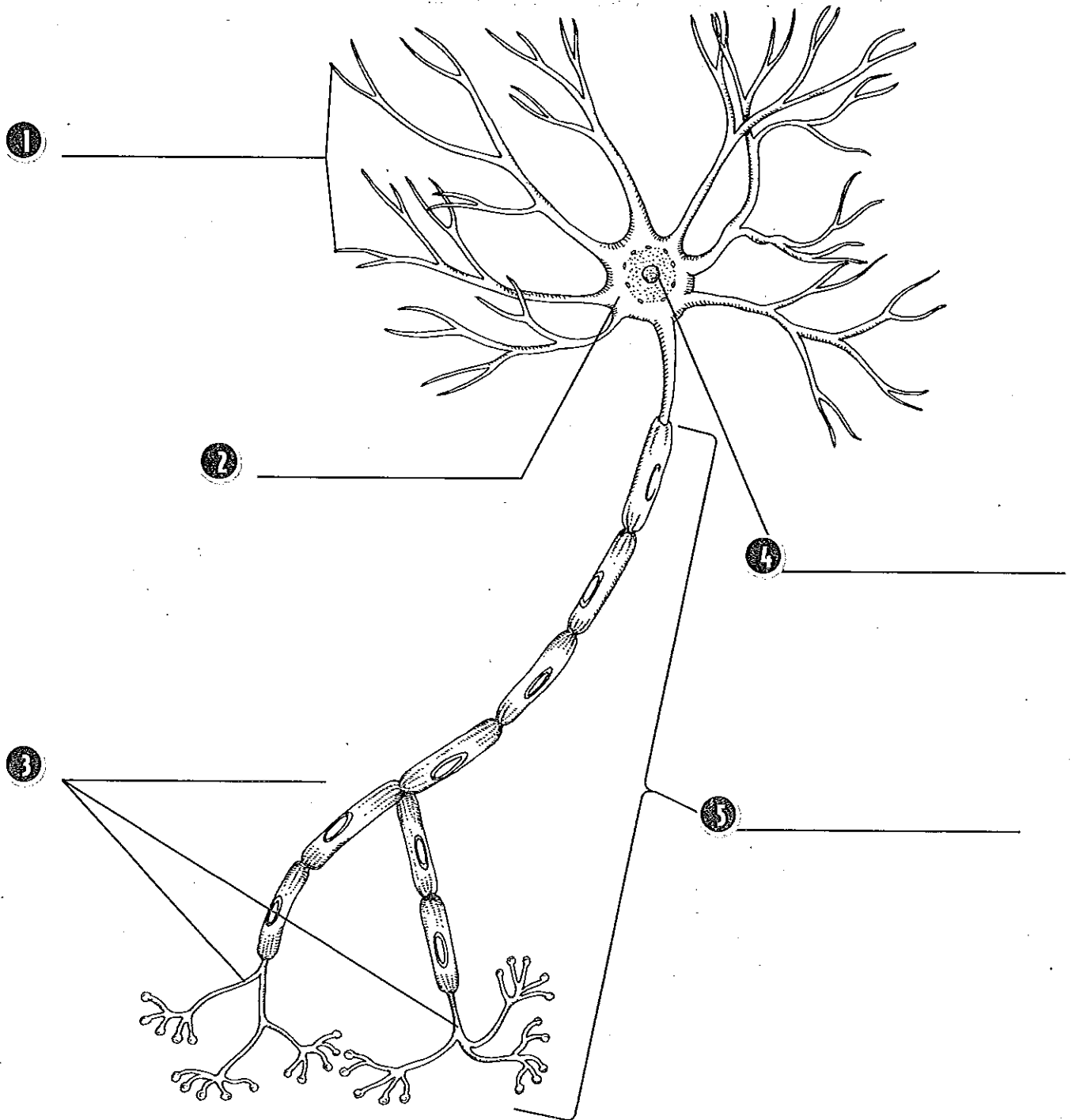
spinal cord



Neurons

Neurons are nerve cells. They collect sensory information or changes in the environment. Then they activate muscles or glands to react. Use the terms in the word box to label the diagram.

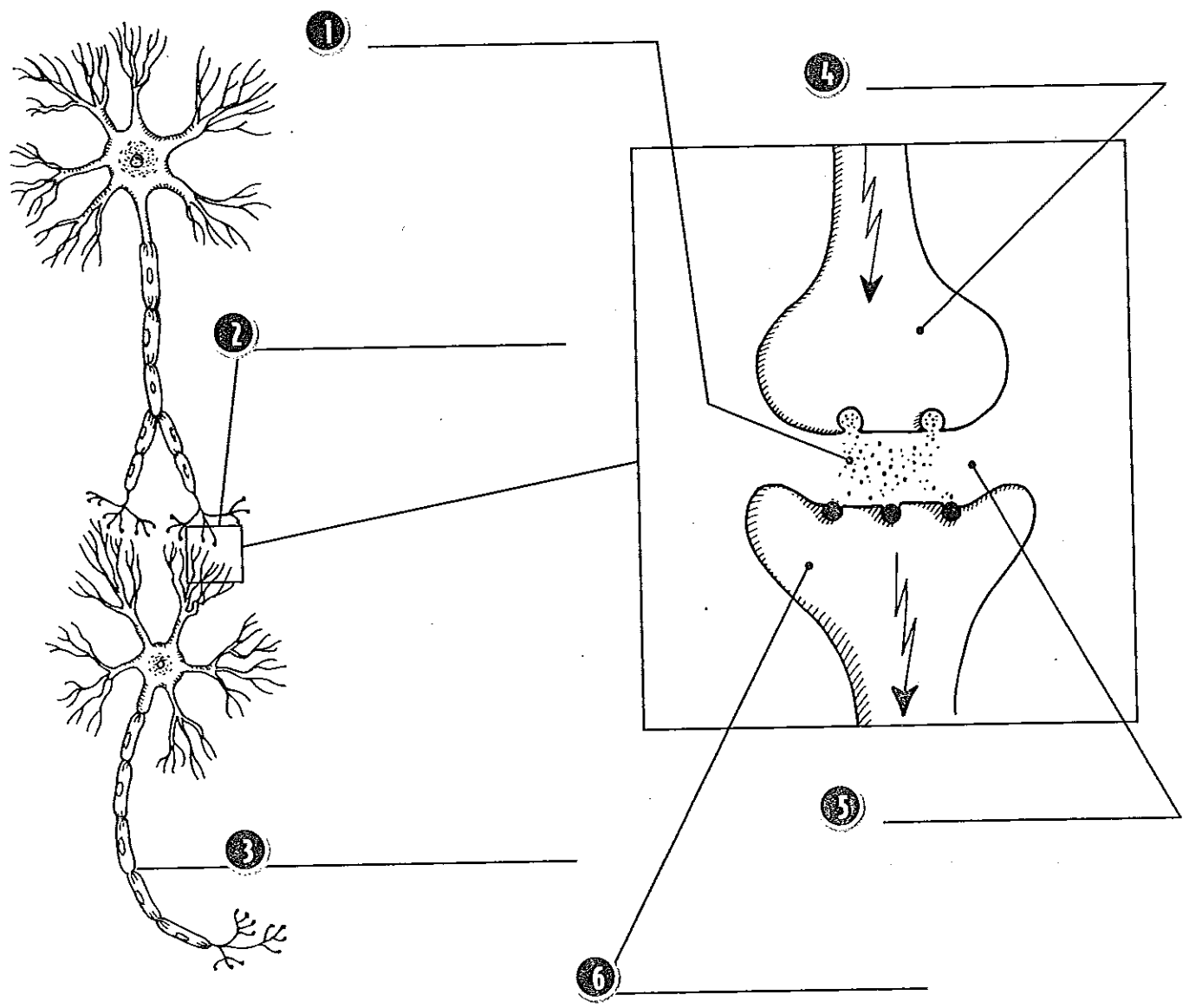
nucleus dendrites axon cell body terminal fibers



Impulse Transmitters

Neurons transfer information to and from one another through electrical impulses. These impulses pass from one neuron to another through connections called synapses. Use the terms in the word box to label the diagram.

synaptic cleft axon axon terminal transmitting molecule dendrite synapse



Nervous System Functions

Each part of the central nervous system controls certain functions of the body. Injury to any part within this system can result in impairment of the corresponding function. Match each term in the word box to its function. Then write the number of the term and function in the corresponding circle to label the diagram.

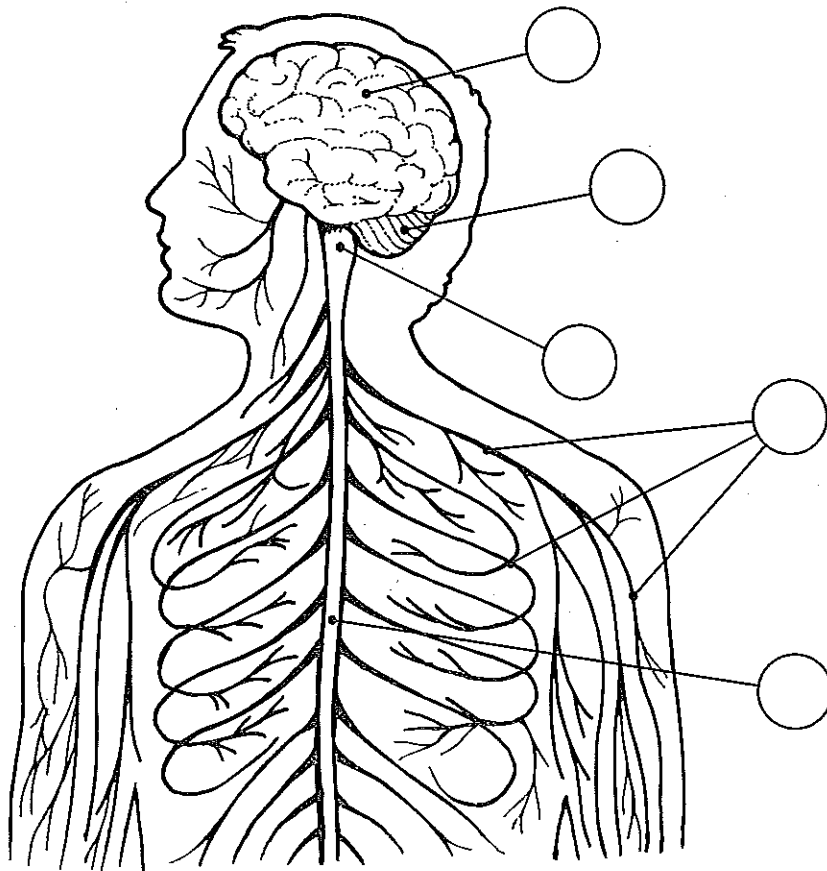
cerebrum

cerebellum

medulla

spinal cord

spinal nerves



①

_____ It controls balance and coordination of the muscles.

②

_____ It controls breathing, heartbeat, and other vital processes within the body.

③

_____ It controls thought, movement you choose to make, memory, and learning. It also processes information from the senses.

④

_____ They carry impulses between the spinal cord and body parts.

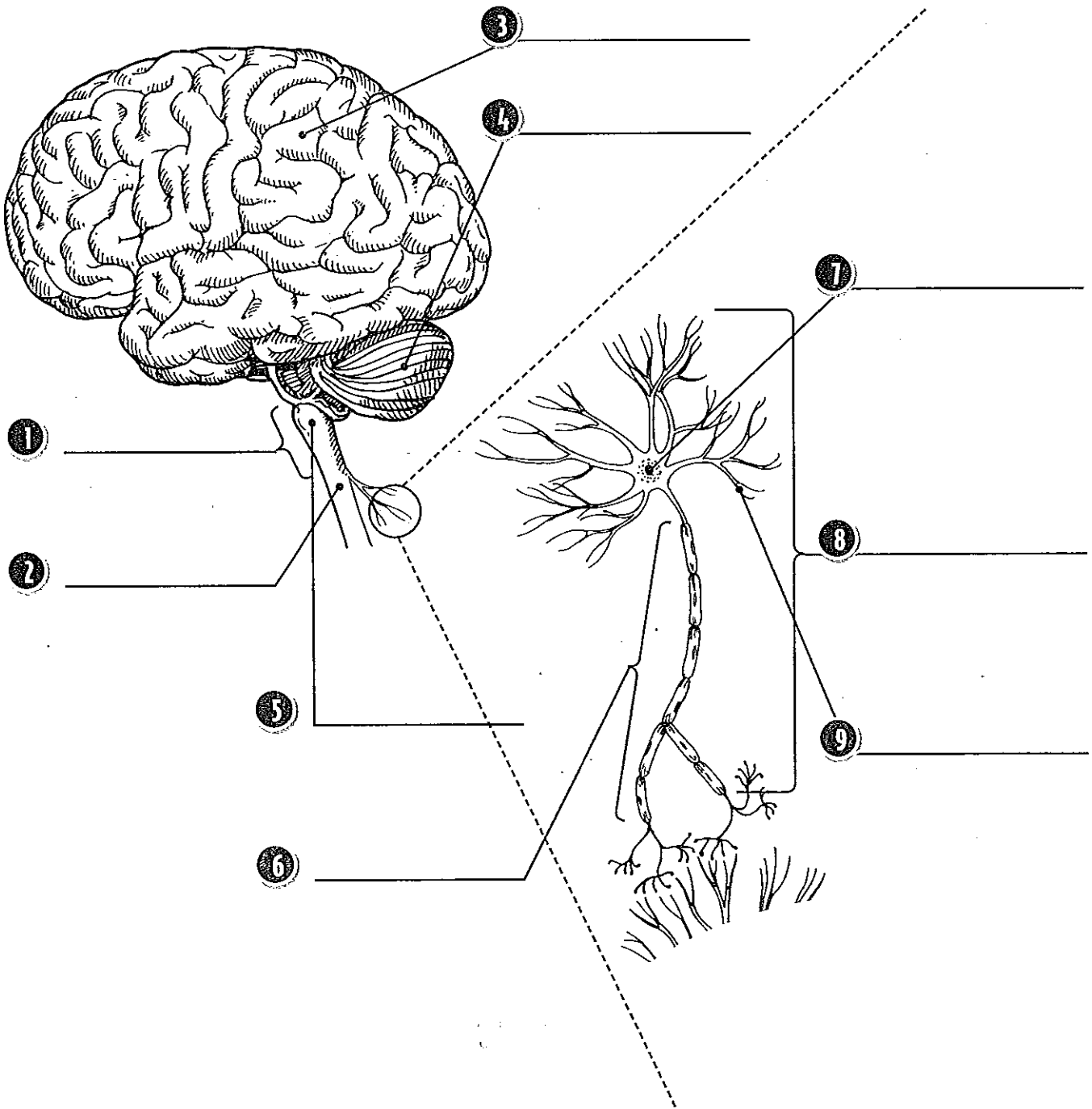
⑤

_____ It relays impulses between the brain and other parts of the body.

Central Nervous System Review

Use the terms in the word box to label the diagram.

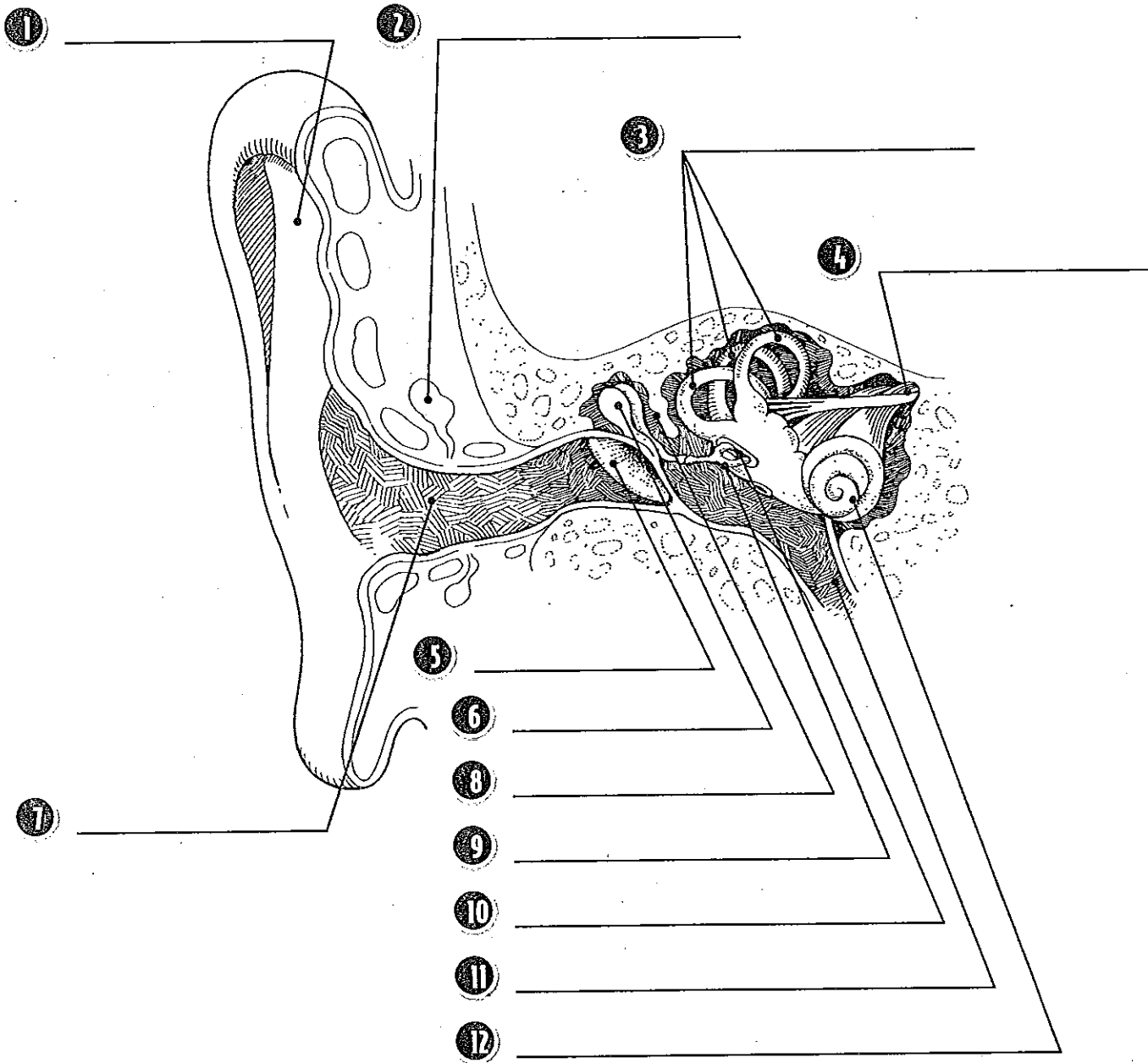
cerebrum cerebellum medulla spinal cord axon
brain stem dendrite neuron nucleus



The Ear

The ear is an organ not only of hearing but of balance as well. The ear consists of three sections: the inner ear, the middle ear, and the outer ear. The outer and middle ear function only in hearing, while the inner ear also controls balance and orientation. Use the terms in the word box to label the diagram.

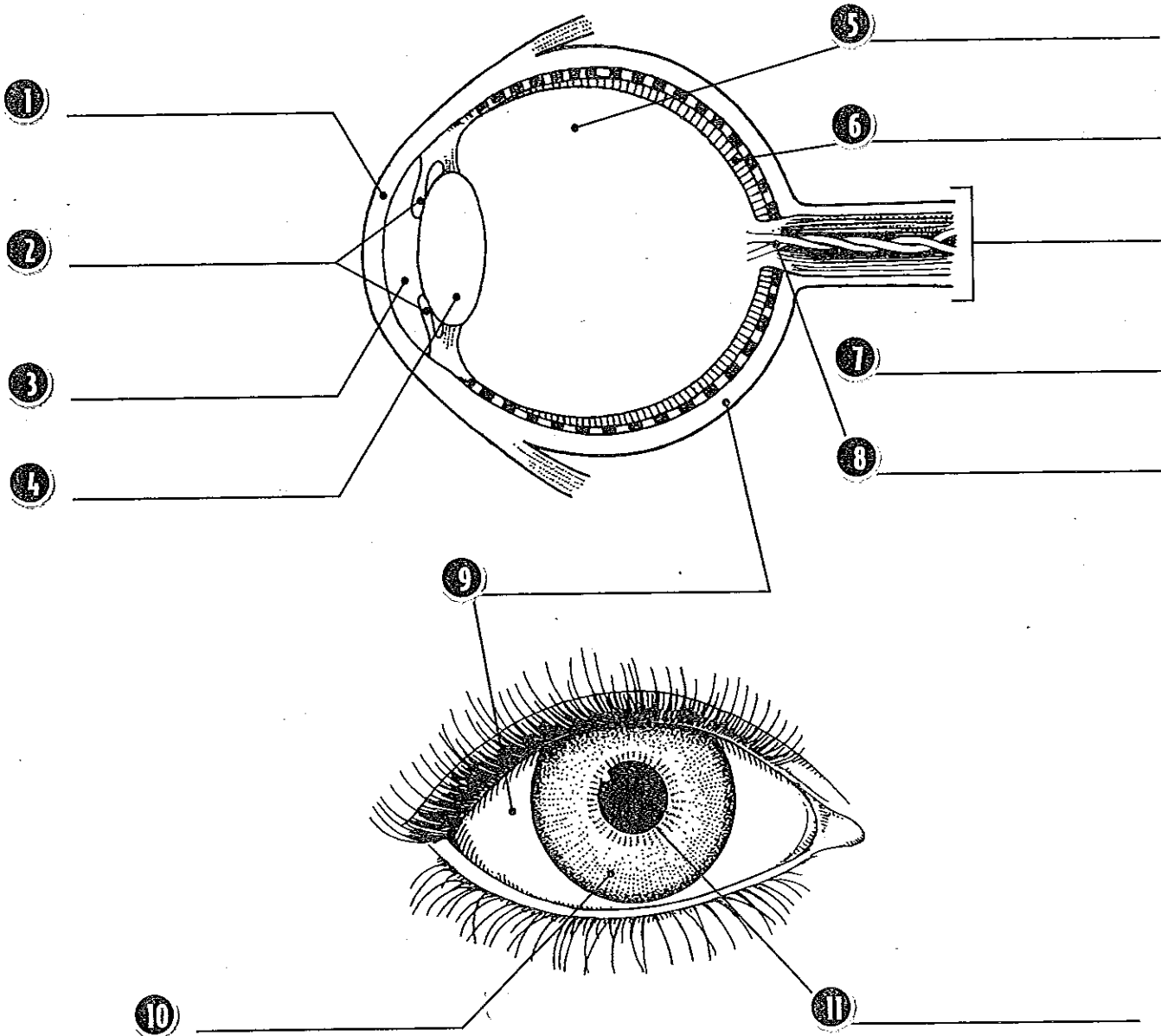
- | | | | |
|-----------------|----------------|-------------|---------------------|
| auditory canal | hammer | stirrup | semicircular canals |
| anvil | auditory nerve | oval window | eardrum |
| Eustachian tube | wax gland | auricle | cochlea |



The Eye

The human eye is a spherical structure with a pronounced bulge on its forward surface. Its function is to collect light rays and transmit them to the brain. Use the terms in the word box to label the diagram. Some words are used twice.

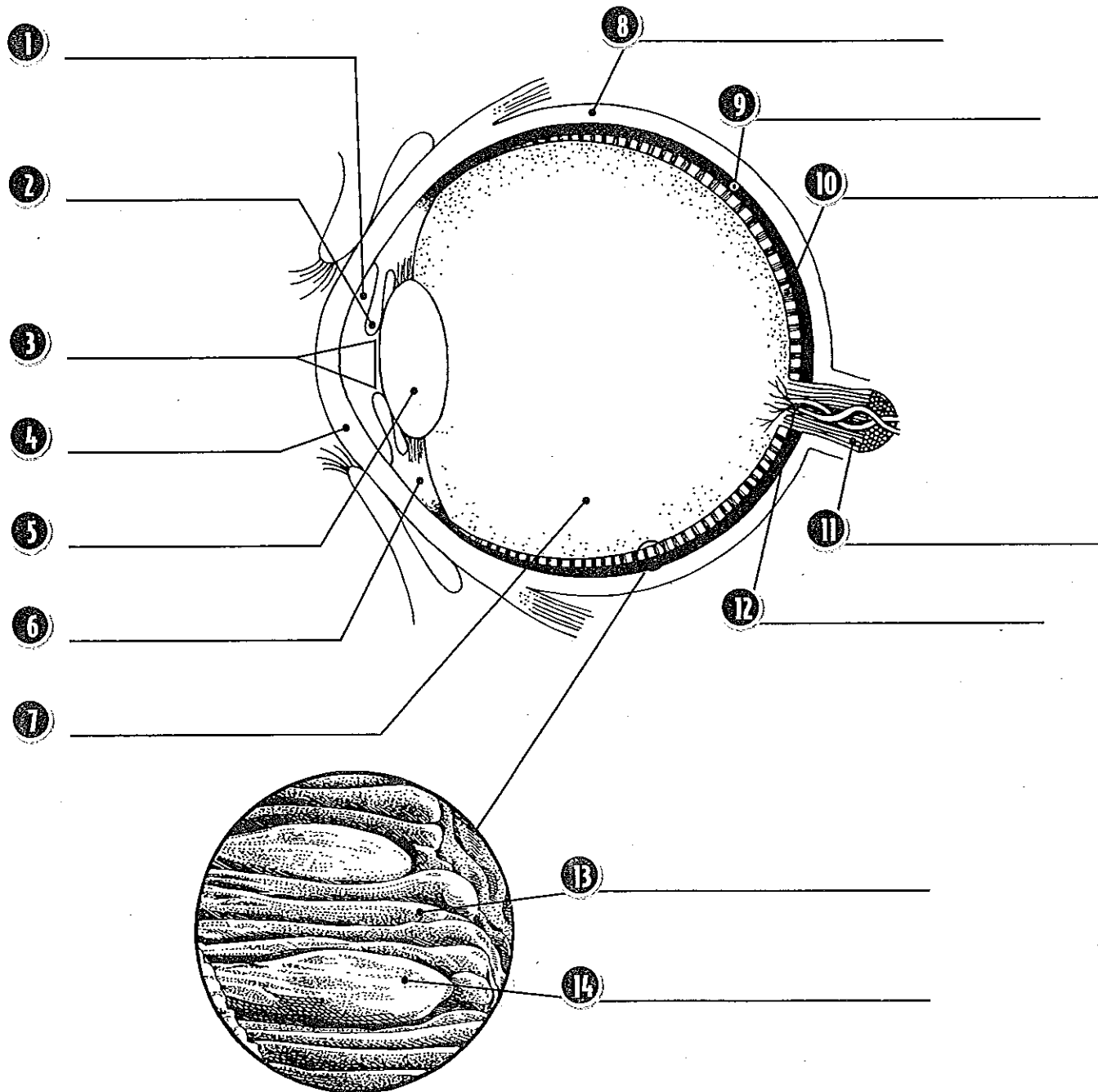
- | | | | | |
|-------------|--------|------------|---------------|---------------|
| optic nerve | iris | sclera | retina | lens |
| pupil | cornea | optic disk | vitreous body | aqueous humor |



Inside the Eye

Looking more closely at the inner parts of the human eye, there are many specialized parts that help us to see. Use the terms in the word box to label the diagram.

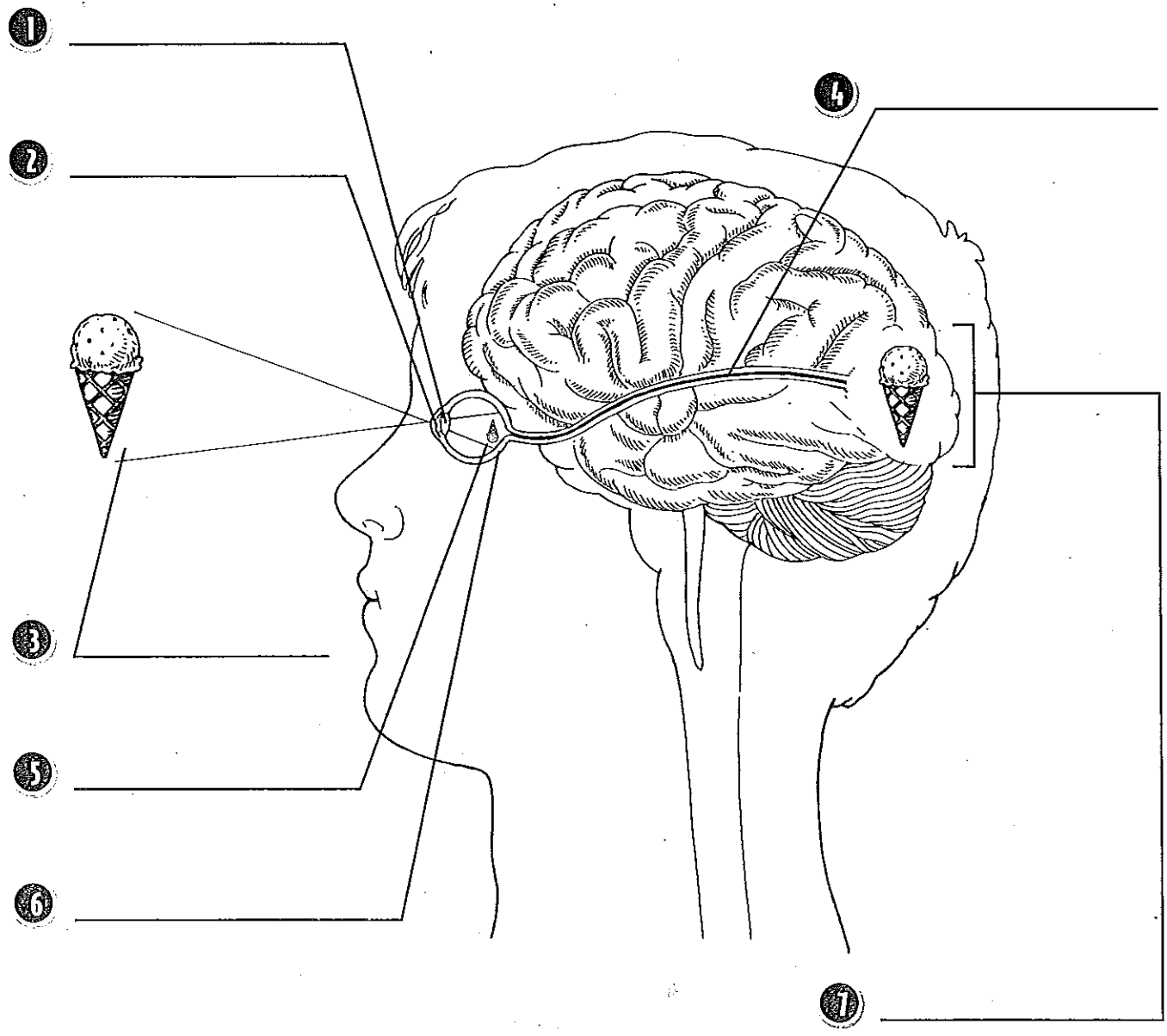
- | | | | | |
|-------------|-----------------|------------|---------------|---------------|
| optic nerve | choroid | sclera | retina | lens |
| pupil | cornea | optic disk | vitreous body | aqueous humor |
| iris | ciliary muscles | rod cells | cone cells | |



I See, I Understand

The human eye collects light rays that bounce off of objects. As the image passes through the lens, it is turned upside down. Light rays that reflect from the upper half of any object we look at are focused on the lower half of the retina. Rays from the lower half of the same object are focused on the upper half of the retina. These signals are transmitted to the brain through the optic nerve. In the brain, they are rearranged into an image that is right side up. Use the terms in the word box to label the diagram.

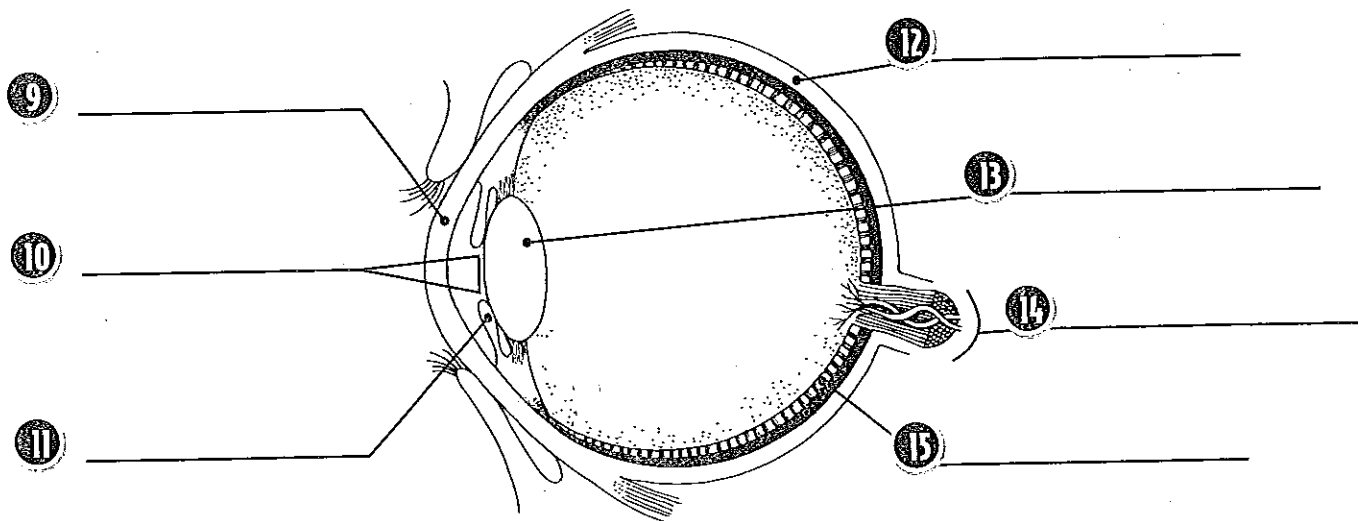
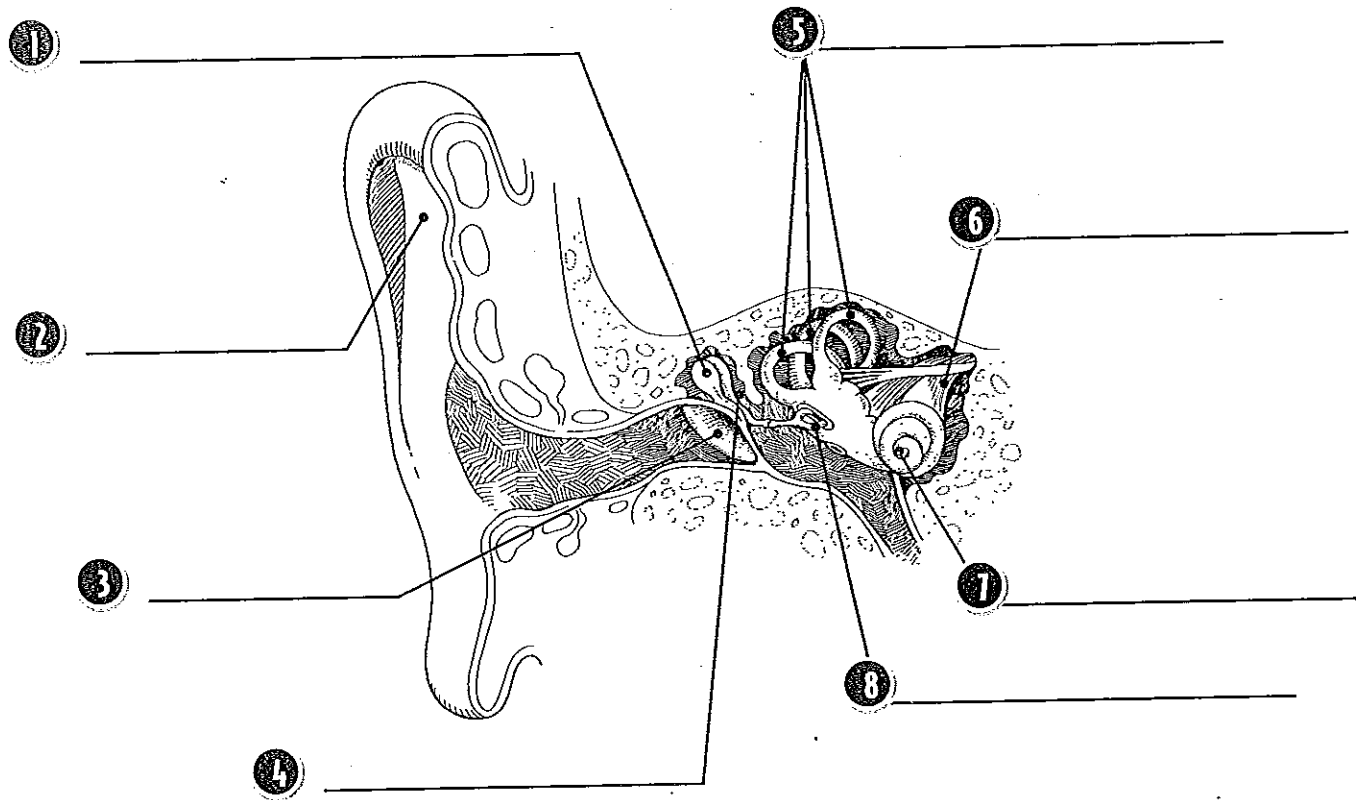
- | | | | |
|-----------------|--------|-------------------|--------|
| image of object | retina | upside-down image | cornea |
| optic nerve | lens | visual cortex | |



Ear and Eye Review

Review what you have learned about the parts of the eye and ear. Use the terms in the word box to label each diagram.

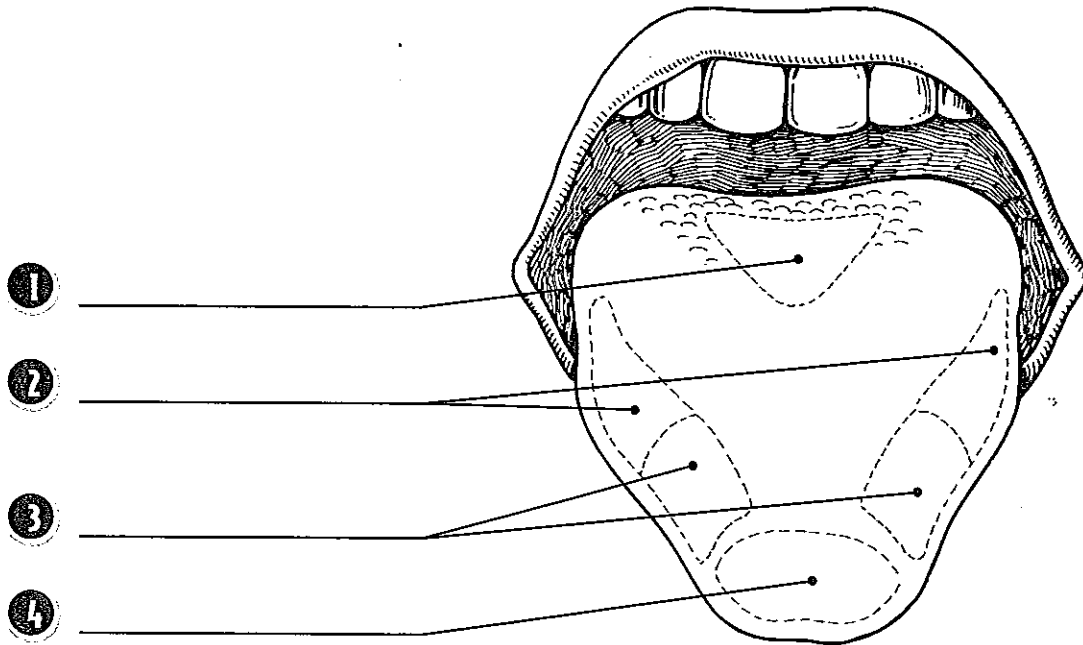
- | | | | | |
|---------|-------------|----------------|---------|---------------------|
| cornea | iris | auditory nerve | lens | sclera |
| malleus | incus | stapes | auricle | retina |
| pupil | optic nerve | cochlea | eardrum | semicircular canals |



How Does That Taste?

Taste is described by four qualities: sweetness, saltiness, sourness, and bitterness. Some scientists also think there is a fifth taste, umami. This describes the taste of amino acids present in the proteins of meat, fish, legumes, and monosodium glutamate (MSG). While all taste cells can distinguish all tastes, some seem more receptive to certain flavors than others. Use the terms in the word box to label the diagram.

salty
sweet
sour
bitter
umami



Match each term in the word box to its description.

- 5 _____ A taste sensed in table sugar, honey, berries, and melons.
- 6 _____ A taste that may be sensed in a steak, a piece of fish, or a bowl of baked beans.
- 7 _____ A taste sensed in potato chips, popcorn, and salted nuts.
- 8 _____ A taste sensed in dill pickles, vinegar, and yogurt.
- 9 _____ A taste sensed in aspirin and some other medicines.