

7. Use the terms below to complete the sentences that follow:

<i>In front of</i>	<i>Diverging</i>
<i>Converging</i>	<i>Hypermetropia</i>
<i>Behind</i>	<i>Myopia</i>

- a) In *myopia*, the clear image is formed *in front of* the retina, and distant objects appear to be blurred. *Diverging* lenses are used to correct this defect.
- b) In *hypermetropia*, the clear image is formed *behind* the retina and nearby objects appear to be blurred. *Converging* lenses are used to correct this defect.

8. Fill in the following table:

Receptor organ	Stimulus	Processor	Signal	Conductor	Analyzer
Eye	<i>Light</i>	<i>Retina</i>	<i>Nerve impulse</i>	<i>Optic nerve</i>	<i>Visual area of the brain</i>

Student textbook, page 161

Anatomy and Physiology of the Ear (pages 156 to 160)

1. Indicate whether each part belongs to the *outer ear*, *middle ear* or *inner ear*.

- a) The three ossicles *Middle ear*
- b) The pinna *Outer ear*
- c) The cochlea *Inner ear*
- d) The auditory canal *Outer ear*
- e) The Eustachian tube *Middle ear*
- f) The semicircular canals *Inner ear*
- g) The eardrum *Middle ear*
- h) The vestibule *Inner ear*

2. Indicate which part of the ear matches each of the following descriptions:

- a) I am a simple tube that conveys sound to the eardrum. *Auditory canal*
- b) I am a channel that ends at the throat and balances air pressure on both sides of the eardrum. *Eustachian tube*
- c) We are small bones that vibrate to the rhythm of sound. *Ossicles*

- d) I am a flexible membrane that vibrates. *Eardrum*
- e) I am made of folds of cartilage covered with skin and I capture sounds. *Pinna*
- f) I am a structure that carries auditory sensations to the brain. *Auditory nerve*
- g) We are rings that contain movement receptors. *Semicircular canals*
- h) I am shaped like a snail and I contain ciliary cells that turn sound into nerve impulses. *Cochlea*

3. Name the structures in the ear that sound vibrations pass through, in order. *Pinna, auditory canal, eardrum, ossicles, vestibule, cochlea*

4. Fill in the following table:

Receptor organ	Stimulus	Processor	Signal	Conductor	Analyzer
Ear	<i>Sound</i>	<i>Cochlea</i>	<i>Nerve impulse</i>	<i>Auditory nerve</i>	<i>Auditory area of the brain</i>

Anatomy of the Skin (pages 161 to 163)

1. The skin comprises three layers: the epidermis, dermis and hypodermis. Indicate which layer each of the following cell types belongs to:
 - a) Adipose cells filled with lipid reserves *Hypodermis*
 - b) Small brown cells filled with melanin *Epidermis*
 - c) Cells that form the sebaceous glands *Dermis*
 - d) Nerve cells that receive touch, pressure and temperature *Dermis*
 - e) Dead, flattened dry cells *Epidermis*
 - f) Cells that are constantly dividing *Epidermis*
 - g) Cells of the hair follicle and sweat glands *Dermis*
 - h) Cells that produce keratin to protect the skin *Epidermis*

Physiology of the Skin (pages 164 and 165)

2. Something brushes against your cheek. Describe the pathway for the nerve impulse that lets you perceive the sensation. *Nerve endings, sensory nerve, touch area of the brain*
3. Name the four non-sensory functions of the skin. *The skin protects the body, regulates body temperature, excretes certain substances and produces Vitamin D.*
4. Fill in the following table:

Receptor organ	Stimuli (three)	Processor	Signal	Conductors (three)	Analyzer
Skin	Pressure Pain Temperature	Nerve endings	Nerve impulse	Sensory nerve Spinal cord Brain stem	Touch area of the brain

Anatomy of the Nose and Tongue (pages 167 and 168)

1. Here are some components of the chemical senses (smell and taste):

Taste bud Gustatory papilla
Olfactory nerve Olfactory epithelium
Sensory cranial nerve

Match each component with one of the following descriptions:

- a) I am a structure that contains olfactory cells. *Olfactory epithelium*

- b) I am a structure that contains taste receptor cells. *Taste bud*
- c) I route information on odours to the brain. *Olfactory nerve*
- d) I route sensations from the tongue to the brain. *Sensory cranial nerve*
- e) I am a small rounded bump on the tongue and I contain many taste buds. *Gustatory papilla*

Physiology of the Nose and Tongue
(pages 169 to 172)

- Name the four conditions a substance must meet for its smell to be perceived. *The substance must be odorant, volatile (or gaseous), sufficiently concentrated and come into contact with the cells of the olfactory epithelium.*
- Name the four conditions a substance must meet for its flavour to be perceived. *The substance must be sapid, soluble, sufficiently concentrated and come into contact with the taste buds of the gustatory papillae.*

4. Fill in the following table:

Receptor organ	Stimulus	Processor	Signal	Conduc-tor	Analyzer
Nose	<i>Odour</i>	<i>Olfactory epithelium</i>	<i>Nerve impulse</i>	<i>Olfactory nerve</i>	<i>Olfactory area of the brain</i>
Tongue	<i>Taste</i>	<i>Taste buds</i>	<i>Nerve impulse</i>	<i>Cranial nerves and brain stem</i>	<i>Taste area of the brain</i>

Student textbook, pages 188 and 189

The Skeleton (pages 173 to 181)

- The terms below correspond to the parts of the skeleton. Match each term with the correct name of the bone.

<i>Head</i>	<i>Upper limb(s)</i>
<i>Trunk</i>	<i>Lower limb(s)</i>

- Humerus *Upper limb*
 - Scapula (shoulder blade) *Upper limb*
 - Occipital bone *Head*
 - Iliac bone *Trunk*
 - Mandible *Head*
 - Vertebra *Trunk*
 - Rib *Trunk*
 - Tibia *Lower limb*
 - Sternum *Trunk*
 - Ulna *Upper limb*
 - Fibula *Lower limb*
- Indicate which part of the skeleton performs each of the following functions:
 - It protects the heart, lungs and spinal cord. *Trunk*
 - It is used for prehension. *Upper limbs*
 - It protects the encephalon and provides a passageway for the sensory and motor nerves. *Head*

- The terms below correspond to the parts of the long bone. Match each term with the correct description below:

<i>Articular cartilage</i>
<i>Growth cartilage</i>
<i>Diaphysis</i>
<i>Epiphysis</i>
<i>Yellow bone marrow</i>
<i>Red bone marrow</i>
<i>Compact bone</i>
<i>Periosteum</i>

- Central, elongated part of the bone *Diaphysis*
- Reserve of calcium and phosphorous *Compact bone*
- End of the long bone, usually rounded in shape *Epiphysis*
- Protective surface of the epiphysis *Articular cartilage*
- Tissue in the epiphysis responsible for the bone's growth (length) *Growth cartilage*
- Area where the bone's growth (thickness) occurs *Periosteum*
- Area where blood cells are produced in spongy bone, and in the middle of long bones in young people *Red bone marrow*
- Lipid reserve inside the bone in adults *Yellow bone marrow*

Muscles (pages 183 to 185)

4. Indicate whether each muscle described is a cardiac, smooth or striated (skeletal) muscle.
- a) Muscle at the top of the thigh
Striated (skeletal)
 - b) Muscles of the tongue *Striated (skeletal)*
 - c) Muscles in the walls of the bronchi
Smooth
 - d) Muscles of the atria in the heart
Cardiac
5. The terms below correspond to the parts of the muscle. Match each term with the correct description below:

Muscle cell
Epimysium
Tendon
Belly

- a) Membrane (connective tissue) that completely surrounds the muscle
Epimysium
 - b) String of whitish connective tissue that attaches the end of each muscle to a bone *Tendon*
 - c) Largest part of the muscle, in the middle *Belly*
 - d) Fibre that constitutes the muscle
Muscle cell
6. Name the three properties of muscle fibres. *Excitable, contractile and elastic*

Joints (pages 186 to 188)

7. Match each structure of the mobile joint with the correct description below:

Articular cartilage
Ligament
Synovia

- a) I am a fluid that lubricates the joint. *Synovia*
 - b) I protect the bone surfaces from friction. *Articular cartilage*
 - c) I connect the bones of a joint.
Ligament
8. Indicate which type of joint movement is defined by the following sentences. Use the word list below:

Abduction
Flexion
Rotation
Extension
Adduction

- a) The limb bends. *Flexion*
- b) The limb comes closer to the body's axis. *Adduction*
- c) The limb rotates on its axis.
Rotation
- d) The limb unbends. *Extension*
- e) The limb moves away from the body's axis. *Abduction*