

Week 1: The Healthy Body

Anatomy- study of body structures

Gross anatomy- study of large body structures e.g. heart lungs

Microscopic anatomy- study too small to be seen by the naked eye need to use microscope

Physiology- study of body function. Relates to the operation of specific organ systems

Levels of structural organisation

chemical - e.g. atoms, carbon

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cells

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tissues - e.g. epithelial, connective, smooth, blood vessel

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organs – e.g. stomach, liver, heart

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organ system – e.g. digestive system

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organism

The organ system:

Body System	Major structures	Function
Integumentary	Skin, hair, nails, glands	External protection, production of Vit D, sweat and oils and sensory perception
Skeletal	Bones, joints	Protect and support organs. Provide frame for muscles to attach for movement.
muscular	Skeletal muscles	Allows movement and production of heat.
Nervous	Brain, spinal cord, nerves	Responds to changes. Stimulates muscles to contract and glands to secrete.
Endocrine	Hormone producing glands	Secretes hormones that regulate body functions
Cardiovascular gland	Blood vessels, heart	Heart pumps blood transporting it throughout the body
	Spleen, thymus, lymphatic	Involved in protecting body from

	nodes & vessels	infections
Respiratory	Lungs, bronchi, trachea and nasal cavity	Provides Oxygen supply to body and removal of Carbon dioxide
Digestive	Oral cavity, oesophagus, liver, stomach, small intestine, large intestine, rectum, anus	Breakdown of food and absorption of nutrients into bloodstream.
Urinary	Kidney, ureter, urinary bladder, urethra	Elimination of wastes from blood and regulates water and electrolyte balance of the blood
Reproductive	Testis, penis, prostate gland, uterus, vagina, ovaries, mammary glands	Testes produce sperm and hormones. Ovaries produce eggs and hormones. Overall function is to produce an offspring through the union of egg and sperm. Development occurs in uterus.

Necessary life functions:

- Movement e.g. muscle contraction
- Reproduction
- Responsive (nerves enable you to feel and adapt)
- Growth (increasing size)
- Digestion (food broken down)
- Metabolism
- Excretion (removal of waste)

Survival needs:

- Nutrient
- Oxygen
- Water
- Normal body temperature (36.5-37.5)
- Atmospheric pressure

Directional terms;

Term	Definition	Term	Definition
Superior	Top/above	Inferior	Bottom/below
Anterior (ventral)	Towards the front of the body e.g. heart to spine	Posterior (dorsal)	Towards the back of the body e.g. spine is posterior to the heart
Medial	Towards the middle of the body e.g. chest to arms	Lateral	Away from the midline e.g. arms to chest
Intermediate	between 2 points e.g. forearm ←elbow→upper-arm	Anatomical (straight up)	Facing forward, palms facing forward, thumbs pointing outwards away from the body, feet straight forward and slightly apart, arms to the side of your body
Proximal	Closer towards the point of origin e.g. shoulder to elbow	Distal	Further away e.g. hand to elbow
Superficial	Towards the surface e.g. skin to muscle	Deep	Inside e.g. heart to ribs

Body planes:

- i. Sagittal plane- divides body into left and right
- ii. Frontal plane- line dividing the front and back body parts
- iii. Transverse Plane- divides the body into superior and inferior parts
- iv. Oblique plane- diagonal line through the body
- v. Midsagittal- equal left and right
- vi. Parasagittal- off-centre divide of the left and right side

Body cavities;

2 main divisions =

1. Dorsal cavity which consists of cranial & vertebral cavity
2. Ventral cavity which consist of thoracic & abdominopelvic cavity

Name an organ located in the following body cavities:

- i. Cranial cavity- brain
 - ii. Vertebral cavity- spinal cord
 - iii. Pleural cavity- lungs
 - iv. Pericardial cavity- heart
 - v. Abdominal cavity- digestive organs
 - vi. Pelvic cavity- rectum, reproductive organs, pelvic cavity& bladder
- *all separated by the diaphragm

Membranes in the Ventral Cavities

The ventral cavities are lined with a serous membrane.

- i. Serous membrane- embedded in the body wall with the parietal peritoneum over it
- ii. Parietal serosa- lines wall of cavity
- iii. Visceral serosa – covers organs
- iv. Serous fluid - reduce friction as organs move

Organ	Cavity	Serous membrane
Lungs	Pleural	Pleura
Heart	pericardial	pericardium
Abdominal organs	abdominopelvic	peritoneum

Homeostasis is a state of internal balance. Body is constantly working to maintain homeostasis. Internal conditions are changing. When your body leaves homeostasis, feedback systems are activated to return body back to homeostasis e.g. body temperature, blood pressure, blood sugar levels.

3 main components

1. Receptors = sensors that detect the stimulus occurring to the body
2. Control centre = analyse the information sent from the receptors, compares to the set point and determines the response