1.1 Define Anatomy & Physiology

Anatomy	Physiology
The study of the structure and shape of the body and its parts and their relationship to each other	The study of how the body and its parts work or function
Gross anatomy: easily observable, can be seen with the naked eye	Many sub-divisions e.g. neurophysiology, cellular physiology
Microscopic anatomy: only seen at high magnification (Cells & Tissues)	

1.4 Homeostasis, negative & positive feedback

Homeostasis	Negative feedback	Positive feedback
The body's ability to maintain a relatively stable internal environment	Most common homeostatic control mechanism	Rather than reversing the direction of the response, creates a loop
Involves all body systems	Shuts of the original stimulus, or reduces intensity of reaction	Example is contractions in childbirth
Must be maintained for normal body functions and to sustain life	Works like a heater with a thermostat	Contractions cause pain, but the production of oxytocin creates a positive feedback loop, continuing the contractions to push baby out
Homeostatic imbalance is a disturbance in homeostasis resulting in disease, e.g., excessive sweating	if the level of something rises, control systems reduce it again	Positive feedback loops back to homeostasis through response, negative feedback reverses to homeostasis by opposing stimulus

1.4 Homeostasis, negative & positive feedback (cont)

Examples of how homeostatic imbalance affects body: imbalanced reproductive hormones could lead to infertility, imbalance of calcium could lead to osteoporosis	If the level of something falls, control systems rise it again

Communicates through neural and hormonal contriol systems: Receptor (Detects change and sends information to control centre) -> Control centre (Determines set point, analyses information and determines appropriate response)-> Effector (Carries out necessary change)

1.2 Levels of structural organisation

Chemicals - e.g. Atoms: Carbon, Hydrogen etc.

Molecules - e.g. water, sugar, protein

Organelles - e.g. mitochondria

Cells - e.g. bone cell, muscle cell

Tissues - e.g. connective

Organs - e.g. lungs

Organ system - e.g. cardiovascular

Organism - e.g. made up of many organs (humans)

1.3 Types of tissue

There are 4 types of tissue: Epithelial, Connective, Muscle & Nervous

Epithelial: Covers body surfaces and lines cavities; Forms glands; Closely packed; Always has a free surface (not covered by another tissue)

Nervous: Conducts electrical signals; Protects, binds, and supports the body and its organs; Stores energy & helps with immunity; Most abundant & widely distributed; Serves as transport system; Can be fluid, semi-solid, or solid

Muscle: Specialised cells that contract and shorten; In the process generates heat

Connective: Cells organised to provide protection, support, and 'holding together'; Detects changes to the internal and external body; Responds by generating electrical signals (action potentials)

1.5 Major organ systems and their major function

11 organ systems

Integumentary - Largest organ of the body; forms a protective layer from external environment; skin, hair, nails & associated glands (sweat, mammary, sebaceous and ceruminous

Skeletal - Support structure for your body; allows movement; makes blood cells; stores minerals

Muscular - Attached to bones or organs and blood vessels; responsible for movement

Nervous - Transmits signals between brain and body; controls ability to see, move, think, breathe etc

Endocrine - Made up of the body's different hormones; regulates all biological processes;

Cardiovascular - Supplies body;s organs with oxygen and nutrients; also carries CO2 and waste for disposal

Digestive - Breaks down food into nutrients to make those nutrients absorbable

Lymphatic - Part of immune system; protects body from illness; mainatins fluid levels etc

Respiratory - A group of organs and tissues that work together to make you breathe; moves fresh air in the body and removes CO2 waste

Reproductive - Collection of organs that allow the body to impregnate/become pregnant

Urinary - Filter blood and create urine as a waste byproduct

All work together to maintain a healthy body