What is the smallest structural and functional unit of the body?

Cell – performs all vital processes; foundation of tissue structure.

Name the four main tissue types.

Epithelial, connective, muscle, nervous – each with specialised functions.

What term describes the body’s ability to maintain stable internal conditions?

Homeostasis – regulates temperature, pH, and fluid balance.

Which tissue forms the outer covering of the mouth and lines the oral cavity?

Epithelial tissue – provides protection and secretion.

What is connective tissue responsible for?

Support and binding – includes bone, cartilage, fat, and blood.

What are the two major parts of the human skeleton?

Axial and appendicular – axial includes skull and spine; appendicular limbs.

Which bone forms the lower jaw and supports lower teeth?

Mandible – only movable skull bone, important for speech and chewing.

Which paired bone forms the upper jaw and supports the upper teeth?

Maxilla – houses upper tooth sockets and forms part of the hard palate.

Name the fibrous membrane covering bones.

Periosteum – supplies blood and nerves for bone growth and healing.

Which mineral is essential for strong bones and teeth?

Calcium – stored in bone; regulated by parathyroid hormone and vitamin D.

What type of bone forms the outer hard layer?

Compact bone – dense and strong for protection.

What is the inner spongy bone called, and what does it contain?

Cancellous bone – contains bone marrow producing blood cells.

What process repairs bone after extraction or injury?

Ossification – osteoblasts form new bone tissue in socket healing.

Which part of the mandible contains tooth sockets?

Alveolar process – holds roots of the lower teeth.

What is the name of the joint that allows mouth opening?

Temporomandibular joint (TMJ) – hinge and gliding articulation.

Which bones protect the brain?

Cranial bones – including frontal, parietal, temporal, occipital.

What is the main function of the vertebral column?

Support and protection of spinal cord; maintains posture.

What is a suture in the skull?

Immovable joint connecting skull bones, e.g., coronal suture.

How many bones form the adult human skull?

22 bones – 8 cranial and 14 facial.

Which facial bone forms the cheek prominence?

Zygomatic bone – articulates with maxilla and temporal bone.

What is the main function of muscle tissue?

Movement – voluntary or involuntary contraction for body actions.

Which muscle elevates the mandible during chewing?

Masseter – powerful jaw muscle for closing the mouth.

Which muscle assists the masseter in jaw elevation?

Temporalis – fan-shaped muscle aiding bite force.

What is the function of the medial pterygoid muscle?

Assists elevation and side movement of the mandible.

Which muscle is responsible for opening the mouth?

Lateral pterygoid – pulls the mandible forward and down.

Name the group of muscles responsible for facial expression.

Facial muscles – controlled by the facial nerve (cranial nerve VII).

Which muscle raises the upper lip to expose teeth during smiling?

Levator labii superioris.

Which muscle surrounds the mouth and controls lip movement?

Orbicularis oris – closes, puckers, or shapes the lips.

Which muscle pulls the corners of the mouth downwards (frowning)?

Depressor anguli oris.

What muscle forms the cheek wall and aids in blowing or chewing?

Buccinator – compresses cheeks during mastication.

Which type of muscle is under voluntary control?

Skeletal (striated) muscle – controlled consciously.

What type of muscle makes up the heart?

Cardiac muscle – involuntary, striated, self-contracting.

What type of muscle is found in the digestive tract?

Smooth (involuntary) muscle – controls peristalsis.

Which artery supplies blood to the head and neck?

External carotid artery – key branches nourish oral tissues.

Which artery specifically supplies the teeth and jaws?

Maxillary artery – a branch of the external carotid.

What vein drains deoxygenated blood from the face?

Facial vein – joins the internal jugular vein.

Which venous network drains the upper and lower jaws?

Pterygoid venous plexus – connected to dental veins.

Why must dental nurses understand venous drainage of the face?

To prevent spread of infection via the facial and cavernous sinuses.

What is the function of lymph nodes?

Filter lymph and defend against oral and systemic infection.

Which lymph nodes first drain the lower lip and chin?

Submental nodes – key in early detection of oral infections.

What is the main function of the nervous system?

To coordinate and control body activities through electrical impulses.

Which are the two main divisions of the nervous system?

Central (brain & spinal cord) and Peripheral (nerves throughout the body).

What is the functional unit of the nervous system?

Neuron – transmits nerve impulses.

Which part of a neuron carries impulses away from the cell body?

Axon.

Which part receives incoming impulses?

Dendrites.

How many pairs of cranial nerves are there?

Twelve pairs (12).

Which cranial nerve supplies sensation to the teeth and jaws?

Trigeminal nerve (CN V).

Which branch of the trigeminal nerve supplies the upper teeth?

Maxillary branch (V2).

Which branch supplies the lower teeth?

Mandibular branch (V3) → Inferior alveolar nerve.

Which cranial nerve controls muscles of facial expression?

Facial nerve (CN VII).

Why is the trigeminal nerve important in dental practice?

It carries sensory fibres for dental pain & anaesthesia.

What does the autonomic nervous system control?

Involuntary functions like heart rate, saliva flow, and digestion.

Which autonomic division stimulates saliva production?

Parasympathetic nervous system.

Which division prepares the body for stress (“fight or flight”)?

Sympathetic nervous system.

Which area of the brain controls respiration and heart rate?

Medulla oblongata.

Which structure allows air to pass from nose to lungs?

Trachea → bronchi → bronchioles → alveoli.

Where does gas exchange occur in the lungs?

Alveoli – oxygen enters blood, carbon dioxide leaves.

What muscle is essential for breathing?

Diaphragm – contracts to expand thoracic cavity.

Why is airway management vital during dental treatment?

Prevents aspiration & ensures oxygen supply under supine position.

How can anxiety affect a patient’s breathing?

May cause hyperventilation or shallow breaths, requiring reassurance & calm instruction.

What is the main function of the digestive system?

Breakdown and absorption of nutrients for body energy.

Which enzyme in saliva begins starch digestion?

Amylase (ptyalin) – produced by salivary glands.

What is the purpose of the tongue in digestion?

Assists chewing, swallowing, and taste sensation.

What role does saliva play in oral health?

Lubricates food, neutralises acids, and prevents decay.

Which gland produces watery saliva rich in amylase?

Parotid gland.

Which gland produces mixed mucous and serous saliva?

Submandibular gland.

Which gland produces sticky mucous saliva aiding speech and swallowing?

Sublingual gland.

What organ detoxifies local anaesthetic drugs and produces bile?

Liver.

Which organ stores bile?

Gallbladder.

What is the function of the pancreas?

Secretes digestive enzymes and insulin for blood sugar regulation.

Which hormone regulates blood calcium and bone strength?

Parathyroid hormone.

Which endocrine gland controls overall metabolic rate?

Thyroid gland – produces thyroxine.

Which endocrine gland secretes adrenaline during stress?

Adrenal glands.

Which organ removes waste products from the blood?

Kidneys – filter and form urine.

Why must dental nurses understand renal function?

Because drugs and anaesthetics are excreted via the kidneys.

What is the function of the immune system?

Defends the body against infection and foreign substances.

Which type of white blood cell fights bacterial infection?

Neutrophils.

Which immune cells produce antibodies?

Lymphocytes (B-cells).

Which part of the lymphatic system filters harmful substances?

Lymph nodes.

How does diabetes affect wound healing?

Slows tissue repair due to poor circulation and reduced immunity.

Why is it important to record vital signs in dental patients?

To detect stress, anxiety, or underlying systemic issues.

What is the normal adult resting pulse rate?

60–100 beats per minute.

What is the normal adult blood pressure range?

Around 120/80 mmHg.

Why is homeostasis important in dental care?

Maintains stable body function during stress or treatment.