Unit 1 Anatomy and Physiology

Core vocabulary of BTEC SPORT

What? **Securing task**: Become really confident in the language of Anatomy and Physiology. Below is a table of key vocabulary for this unit. We have identified some of the key vocabulary for each of the five body systems and colour coded these (Skeletal System/ Muscular System/Respiratory System/Cardiovascular System/Energy Systems).

How?

1. Make flash cards for all the colour coded words and learn their definitions.
2. Read through the list of words and for any new/unfamiliar words make flash cards to learn their definitions.
3. Self-quiz yourself using your flashcards. If you get the definition correct put to one side, if you get the definition wrong make a separate pile to revisit until you can recall the definition confidently and in full.

Why?

The more confident that you are with the key terms and vocabulary, the more easily you will able to absorb new concepts and apply to sporting examples. This will also significantly boost your ability to engage with the language of Sport Science. It is will also improve the quality of your written work. You will be tested on these words.

KEY WORD / WORDS	DEFINITION
Abdominals	Muscles found in the front of the stomach
Abduction	Movement of a body part away from the midline of the body
Adduction	Movement of a body part towards the midline of the body
Aerobic respiration	Energy system that requires oxygen to break down glucose
Aerobic glycolysis	The first stage of aerobic metabolism, converts carbohydrates into pyruvic acid using oxygen.
Agonists	Another name for prime mover. The muscle that produces the desired joint movement
Air passage	The route the air takes to get from the air to the lungs
Aerobic respiration	The process of producing energy using oxygen.
Aerobic capacity	The maximum amount of oxygen that can be consumed during maximal exercise.
Anaerobic activity	Activity where your body uses energy without oxygen.
Anaerobic respiration	The process of breaking down glucose without oxygen to produce energy.
Anatomical positions	Used to describe the location of bones
Alveoli	Small sacs of air that are responsible for gaseous exchange.

Anaerobic respiration	Energy system that works in the absence of oxygen.
Antagonists	The muscle that relaxes while the agonist is working
Anterior	To the front / in front
Aorta	Body's main artery.
Arthritis	Is a condition where there is an inflammation within a synovial joint, causing pain and stiffness.
Arteries	Carry blood away from the heart, and with the exception of the pulmonary artery they carry oxygenated blood.
Arterioles	Have thinner walls than arteries. It adjusts blood flow to the capillaries in response to differing demands of oxygen.
Atria	These are the upper chambers of the heart. They receive blood returning to your heart from either the body or the lungs.
Articulation	Where two or more bones meet
Articular cartilage	On the ends of the bones – provides a smooth and slippery covering to stop the bones rubbing.
Atrioventricular node	Located in the centre of the heart between the atria and the ventricles.
Asthma	Is a common condition where the airways of the respiratory system can become restricted making it harder for air to enter the body.
Axial Skeleton	The main core or axis of the skeleton consisting of the skull, the thoracic cage and vertebrae column.
Axis	A centre line through any body or object
Appendicular skeleton	Bones that are attached to the axial skeleton. These consist of upper and lower limbs, shoulder gridle and pelvic gridle.
Atria	They receive blood returning to your heart from either the body or the lungs
Ball & socket	A rounded head of a bone fits into a cup shaped cavity of another bone, allow the widest range of movement
Biceps	Muscle found in the front of the upper arm
Bicuspid valve	One of 4 valves in the heart situated between the left atrium and the left ventricle.
Blood cell production	Within the bones, bone marrow produces both red and white blood cells
Blood pressure	Pressure exerted by blood on inner walls of arteries
Body systems	The different systems that make up the human body, i.e. skeletal system, muscular system, respiratory system etc
Body temperature	The degree of heat or cold of the body
Breathing system	The parts of the body used to help us breathe i.e. lungs, diaphragm etc
Bronchi	Branches of the trachea and carries air to the lungs
Bronchioles	Are small airways that extend from the bronchi and connect the bronchi to the alveoli.
Bursa	Small fluid-filled sac which provides a cushion between the tendons and the bones, preventing friction. Bursa are filled with synovial fluid.

Bundle of His	Specialist heart muscle cells that are responsible for transporting the electrical impulsesfrom the AVN.
Calcium	A soft white substance found in bones and teeth
Cancellous bone	Light and porous bone material that has a honeycomb or spongy appearance.
Carbon dioxide	A colourless, odourless gas that humans and animals breathe out
Cardiac muscle	Muscle that is found only in the heart
Cardiac hypertrophy	This is the enlargement of your heart over a long period of time.
Cartilage	A strong, flexible substance found around the joints and in the nose and ears
Chemical control	Control breathing are the continually changing levels of oxygen and carbon dioxide in the blood.
Circulatory system	The body system that includes the heart, blood vessels & blood
Circumduction	This is a circular movement that results in a conical action
Clavicle	The collar bone, found below the neck & above the chest
Concentric contraction	Muscles will shorten as the muscle fibres contract. Positive phase of a muscle contraction.
Coronary Arteries	Blood vessels that supply oxygenated blood to the heart muscle.
Cramp	Cramp is the sudden involuntary contraction of your muscle.
Dehydration	Excessive moisture loss
Deltoids	Muscle found in the shoulder
Diaphragm	The muscular wall that separates the lungs from the stomach
Diastolic Pressure	Pressure on the blood vessel walls when the heart is relaxed between beats and is filling with blood.
Diffusion	The process by which a substance such as oxygen passes through a cell membrane either to get into the cell or to get out of the cell.
Distal	Away from the root or origin (the distal of the arm is towards the shoulder)
Delayed onset of muscle soreness (DOMS)	Pain felt in muscles 24-48 hours after taking part in strenuous activity.
Deoxygenated blood	Blood without oxygen (Containing Carbon Dioxide)
Dorsiflexion	An upward movement, as in moving the foot to pull the toes towards the knee in walking.
Eccentric contraction	Muscle return to its normal length after shortening against resistance. (negative phase of a muscle contraction).
Electronic transport train	The process will create 34 molecules of ATP from glucose.
Endurance	The ability to put up with a difficult situation for a period of time

Energy	The physical strength to do active things
Epiglottis	Is a small flap of cartilage at the back of the tongue which closes the top of the trachea when you swallow.
Epiphyseal plates	Ends of the bone which contain growing plates which allow the bone to grow longer.
Epiphyseal line	When the bone is fully formed the head/end of each bone fuse with the main shaft creating the epiphyseal line.\
Excretory organs	Parts of the body that get rid of waste products
Expiration	Expiration occurs when the intercostal muscles relax.
Extension	Angle of the articulating bones is increased
Fast Twitch Muscle Fibres Type IIa	Muscles fibres are fast contracting and produce greater force and are resistant to fatigue. Suited for speed, power and strength activities (100m sprint)
Fast Twitch Muscle Fibres Type Iix	Muscles fibres are fast contracting and produce greater force and are resistant to fatigue. Suited for speed, power and strength activities in stop/start activities (football, rugby) however these fatigue more readily.
Femur	The long bone found in the thigh
Fixator muscles	Stop any unwanted movement throughout the whole body by fixing or stabilising the joint or joints involved.
Fixed joint	Joints that do not move. An example of this is the cranium.
Flat bone	Thin, flattened and slightly curved with a large surface area.
Flexion	Angle of the articulating bones is decreased
Freely moveable joint	Allow a wide range of movement
Function	Its purpose or natural action
Gaseous exchange	The movement of gases (oxygen and carbon dioxide) across the respiratory membrane. From the alveoli to the blood
Gastrocnemius	Muscle found and the back of the calf
Gliding	Formed where flat surfaces glide past one another
Glucose	A type of sugar found in plants and that animals and people make in their bodies from food to provide energy
Glycogen	Stored form of glucose
Gluteals	Muscles found in the bottom
Hamstrings	A group of three muscles found in the back of the thigh
Health	Complete state of physical, mental and social well-being and not merely the absence of disease
Heart	Is a unique hollow muscle and is the pump of the cardiovascular system.
Heart beat	The filling of and emptying of the heart with blood

Hinge	Only allows movement in one plane i.e. the elbow only allows movement back and forth
Humerus	The long bone found in the upper arm
Horizontal flexion	Bending the elbow while the arm is in front of your body.
Hypertrophy	Increase in muscle size
Hyper-extension	Involves movement beyond the normal anatomical position in a direct opposite to flexion.
Hypoglycaemia	Abnormally low level of glucose in your body.
Immoveable	Allow no observable movement
Insertion	Where the muscle finishes, the attachment to the bone that moves
Isometric contraction	Length of the muscle does not change and the joint angle does not alter. Holding a static position.
Inferior vena cava	A vein that recievs deoxygenated blood from the lower body to empty into the right atrium.
Intercostals muscles	The respiratory muscles, attached to each rib to allow the chest to expand and contract during breathing
Inferior	Below
Inspiration	Inspiration is the process of breathing air into the lungs
Insulin	The hormone produced by the pancreas that allows glucose to enter the boy's cells, where it is used as fuel for energy.
Involuntary (smooth)	Muscle movements that are not consciously controlled
Irregular bone	Have complex shapes – the bones of the spinal column.
Joint	Where two bones meet
Kyphosis	The excessive outward curve of the thoracic region of the spine resulting in a hunchback appearance.
Krebs cycle	Second phase in the process of anaerobic metabolism.
Lateral flexion	The movement of bending sidewards
Lactic acid	A waste product, produced when glucose is broken down in the absence of oxygen
Lactate	Experience an uncomfortable burning sensation in your muscles during high-intensity exercise
Larynx	Has ridged walls of muscle and cartilage which contains the vocal cords and connects the pharynx to the trachea.
Lateral	Away from the midline or axis
Latissimus dorsi	Big muscle found in the back
Ligaments	A piece of tough tissue in your body which connects your bones

Long Bones	The bones found in the limbs. They have a shaft known as the diaphysis and two expanded ends known as the epiphysis.
Lungs	The organs of respiration, the human body has two
Medial	Towards the midline or axis, an imaginary line down the centre of the body
Micro tears	During resistance training such as weight training, your muscles are put under stress to the point that tiny tears occur in the muscle fibres.
Mitochondria	The part of the cell in the body where aerobic repiration takes place.
Moveable	Allow movement
Movement	The bones of the skeleton provide a large surface area for the attachment of muscles.
Muscle fibres	Make up muscle. Two types: Type 1 “Slow twitch” and Type 2 “Fast twitch”
Muscle tone	The continuous and passive partial contraction of the muscles. It helps maintain posture
Nasal Cavity	When you breathe in, air enters through the nasal cavity through the nostrils.
Neural control	Breathing is a complex process that is largely under involuntary control by the respiratory centres of your brain.
Origin	Where the muscle starts from, usually the end that is fixed
Ossification	Process in which bones are formed.
Osteoblasts	Cells which bring calcium to your bones.
Osteoclasts	Cells which remove unnecessary calcium.
Osteoporosis	The weakening of bones caused by a loss in calcium or a lack of vitamin D.
Oxygen	A colourless and odourless gas in the air.
Oxygenated blood	Blood containing oxygen
Parasympathetic nervous system	Relaxes the body and inhibits or slows many high energy functions.
Participation	Be involved in, join in, take part
Patella	The knee cap, found at the join between tibia and femur
Pectorals	Muscles found in the front of the chest
Pelvis	The hips, provide protection for the reproductive organs
Performance	Comprises an event in which one group of people (the performer or performers) behave in a particular way for another group of people (the audience).
Pharynx	The Pharynx is a small tube that measures approximately 10-13cm from the base of the skull to the level of the sixth cervical vertebra.
Pivot	Only allows rotational movements, one bone rotates around another

Plantar flexion	A movement that points the toes downwards by straightening the ankle.
Plasma	Plasma carrys carbon dioxide, dissolved as carbonic acid.
Platelets	Function of platelets is clotting to prevent blood loss.
Posture	The position or manner in which you hold your body
Posterior	To the rear / behind
Pressure points	Specific areas in the body that are extremely sensitive to pain
Prime movers	Another name for he agonist. The muscle that produces the desired joint movement
Protection	The skeleton provides protection for the internal organs
Proteins	A substance that is found in milk, eggs and meat and that is needed by the body for growth
Proximal	Near to the root or origin (the proximal of the arm is towards the shoulder)
Pulse	The regular beat
Pulmonary Artery	Carries deoxygenated blood from the heart back to the lungs.
Pulmonary Vein	Carriers oxygenated blood from the lungs to the left atrium of the heart
Quadriceps	A group of four muscles found in the front of the thigh
Radius / ulna	The 2 long bones found in the forearm, radius is on the thumb side
Red blood cells	The main function of red blood cells is to carry oxygen to all living tissue.
Respiration	Your breathing
Ribs	The bones that form the cage to protect the heart and lungs and used in respiration
Rotation	The bone turn around its axis within the joint
Saddle	Joint is shaped like a saddle with the other bone resting on it like a rider on a horse. Movement is back and forward
Scapula	The shoulder blade, a flat bone found at the top of the back
Scoliosis	The abnormal curvature of the spine either to the left or to the right.
Semi- Lunar Valves	The Aortic valve is situated between the left ventricle and the aorta.
Sesamoid bones	Specialised function usually found within a tendon. The bones provide a smooth surface for the tendon to slide over. The largest sesamoid bone is the patella in the knee joint.
Shape	The skeletal system gives the body its shape
Short bone	Small, light, strong, cube shaped bones consisting of cancellous. (see cancellous)

Sinoatrial Node (SAN)	Referred to as the heart's pacemaker and is located within the wall of the right atrium.
Skeletal muscle	A voluntary muscles which is under conscious control.
Skeletal system	The system of bones in our body
Skill	The knowledge and ability that enables you to do something well
Slightly moveable joint	Allow a small amount of movement
Slow Twitch Muscle Fibres Type 1	Muscles fibres that contract slowly and with less force. Slow to fatigue and suited to long duration aerobic activities (marathon runner).
Smooth Muscle	Involuntary muscle that is involuntary and is located in your digestive system.
Sternum	The breastbone found in the centre of the chest
Strength	Your physical energy and the power of your muscles
Superior Vena Cava	A vein that receives deoxygenated blood from the upper body to empty into the right atrium of the heart.
Support	The skeleton provides a rigid framework to the body giving it shape and providing suitable sites for attachment of muscle
Sympathetic nervous system	Prepares the body for intense physical activity and is often referred to as the 'fight or flight' response.
Synergist	Muscles that work together to enable the agonists to operate effectively.
Synovial	Type of joint that contain synovial fluid
Synovial membrane	The capsule lining that releases synovial fluid.
Synovial Fluid	A viscous liquid that lubricates the joint and reduces the friction between the bones.
Systolic pressure	Pressure exerted on your artery walls when your heart contract and forces blood out of the heart and into the body.
Technique	Particular method of doing something
Tendons	A strong cord of tissue that connects muscle to bone
Thoracic Cavity	This is the chamber of the chest that is protected by the thoracic wall
Tibia/ fibula	The 2 long bones found in the lower leg, tibia is known as the shin bone
Tidal Volume	Tidal volume is the term used to describe the volume of air breathed in and out with each breath.
Total Lung Volume	Is your total lung capacity after you have inhaled as deeply and as much as you can, after maximal inspiration.
Trachea	The windpipe, made from cartilage and extends from the larynx to the bronchi
Trapezius	Muscle found in the back of the neck and top of the back
Triceps	Muscle found in the back of the upper arm
Tricuspid Value	Situated between the right atrium and the right ventricle.

Vital Capacity	Is the amount of air that can be forced out of the lungs after a maximal inspiration.
Ventricles	Pumping chambers of the heart.
Voluntary (skeletal)	Muscle movements that are under conscious control
Warm down	A gradual decrease in the intensity of the exercise until the bodies physiological functions return to their resting state
Warm up	Practice or exercise gently to prepare for an event or activity
Waste products	Substances that are created through other processes that the body does not need
Water (fluids)	A clear, colourless, odourless and tasteless liquid that is necessary for all plant and animal life
White blood cells	Component of blood that protects the body from infections.