

GCSE PE Topics

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Topic	Rationale	Knowledge acquisition <i>To know....</i> <i>...that (Declarative) how to (Procedural)</i>	Key Tier 3 vocabulary	Skills and enrichment
3.1 The relationship between health and fitness and the role that exercise plays in both	To develop knowledge of the principles of training and different training methods in order to plan, carry out, monitor and evaluate personal exercise and training programmes.	To know that fitness, health, exercise and performance are closely linked.	Fitness Health Exercise Performance	Skills: Students will develop the skills needed to apply their knowledge of fitness and training to sport. They will learn to use key fitness terminology accurately, identify the components of fitness needed for different activities, and select appropriate fitness tests. Students will analyse and interpret fitness test results, compare performance against normative data, and identify strengths and weaknesses. They will apply the principles of training, including specificity, progressive overload and FITT, when planning and evaluating training programmes. Students will also learn to select suitable training methods, calculate training zones, and explain how training can improve performance and fitness. Enrichment: Students will enrich their learning through practical fitness testing, designing training programmes and using fitness technology such as heart rate monitors. They may investigate how elite athletes train and analyse real training programmes to identify methods and principles of training. Additional opportunities include setting SMART
3.2 The components of fitness, benefits for sport and how fitness is measured and improved		To know that there are five basic health related components of fitness that help us stay physically fit. To know how each contributes to successful performance in physical activity. To know that there are six skill related components of fitness. To know how each contributes to successful performance in physical activity.	Cardiovascular fitness (aerobic endurance), muscular strength, muscular endurance, flexibility and body composition. Agility, balance, coordination, power, reaction time and speed.	
		To know the value of fitness testing, the purpose of specific fitness tests and the test protocols. To know how to select the appropriate fitness test for components of fitness and the rationale for selection.	Test protocol Validity Reliability Normative data	
3.3 The principles of training and their application to personal exercise/ training programmes		To know that applying the principles of training effectively will lead to an improvement in my fitness. To know how to apply the principles of training to a training programme. To know that there are factors to consider when deciding the most appropriate training methods and training intensities for different physical activities and sports.	Individual needs, specificity, progressive overload, FITT (frequency, intensity, time, type), overtraining, reversibility, thresholds of training Fitness/sport requirements, facilities available, current level of fitness	

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		<i>To know how</i> to select appropriate training methods and intensities based on activity, fitness level and goals. <i>To know that</i> different training methods are used to develop specific components of fitness for physical activity and sport. <i>To know that</i> there are fitness classes that are specific to developing components of fitness. <i>To know how</i> to apply different training methods to improve specific components of fitness based on advantages and disadvantages of each.	Continuous, Fartlek, circuit, interval, plyometrics, weight/resistance. Body pump, aerobics, Pilates, yoga, spinning	targets, leading warm-ups and cool-downs, and completing mini Personal Exercise Programmes (PEPs). Students will apply their knowledge to real sporting situations and reflect on their own fitness development. They may also explore careers in sport, such as physiotherapy, sports therapy, strength and conditioning, and performance analysis, helping them understand how GCSE PE links to future opportunities.
3.5 How to optimise training and prevent injury		<i>To know that</i> a PAR-Q is used to assess personal readiness for training. <i>To know how</i> to use PAR-Q results to make recommendations and amend training programmes.	Physical activity readiness questionnaire Screening	
		<i>To know that</i> injury prevention is an important part of training and performance. <i>To know how</i> to reduce the risk of injury through safe practice and preparation.	Injury prevention Overuse injury Protective equipment	
		<i>To know that</i> different injuries can occur in physical activity and sport. <i>To know how</i> to identify, treat and manage common injuries.	Concussion, fractures, dislocation, sprain, torn cartilage and soft tissue injury (strain, tennis elbow, golfer's elbow, abrasions), RICE (rest, ice, compression, elevation)	
		<i>To know that</i> performance-enhancing drugs (PEDs) can affect sporting performance and lifestyle.	PEDs, anabolic steroids, beta blockers, diuretics, narcotic analgesics, peptide hormones	

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		<i>To know how</i> PEDs impact performance positively and negatively, including health risks.	(erythropoietin (EPO), growth hormones (GH)), stimulants, blood doping	
3.6 Effective use of warm up and cool down		<i>To know that</i> warm-ups and cool downs are important for effective training sessions. <i>To know how</i> to perform effective warm-ups and cool downs and explain their benefits.	Warm up Cool down Pulse raiser Stretching Recovery	
Component 1 1.1 The structure and functions of the musculo-skeletal system	To develop knowledge of the key body systems and how they impact health, fitness and performance in sport	<i>To know that</i> the skeleton has specific functions that support performance in physical activity and sport. <i>To know how</i> the functions of the skeleton apply to movement and performance.	Protection, muscle attachment, joint, platelets, red blood cells, white blood cells, calcium and phosphorus	Skills: Students will develop the skills needed to understand and apply knowledge of the body's major systems to physical activity and sport. They will learn to identify and label the bones, joints, muscles, heart and respiratory structures required by the specification. Students will explain how the skeletal, muscular, cardiovascular and respiratory systems work independently and together to support movement and performance. They will analyse movement at joints, identify muscle actions, and apply their knowledge to sporting examples. Students will also interpret physiological responses to exercise and use scientific terminology accurately when describing body systems and their functions. Enrichment: Students will enrich their learning through practical investigations,
		<i>To know that</i> bones can be classified into different types. <i>To know how</i> to identify and classify bones.	Long, leverage, short, weight bearing, flat, protection	
		<i>To know that</i> the skeleton is made up of sections and is composed of named bones. <i>To know how</i> to identify major bones of the skeleton and describe their location.	cranium, clavicle, scapula, five regions of the vertebral column (cervical, thoracic, lumbar, sacrum, coccyx), ribs, sternum, humerus, radius, ulna, carpals, metacarpals, phalanges (in the hand), pelvis, femur, patella, tibia, fibula, tarsals, metatarsals, phalanges (in the foot),	
		<i>To know that</i> joints are classified as hinge, ball-and-socket, pivot and condyloid.	Pivot, hinge, ball and socket, condyloid, range of movement	
		<i>To know how</i> joint type determines the range and type of movement possible.	flexion, extension, adduction, abduction, rotation,	

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			circumduction, plantar-flexion, dorsi-flexion	movement analysis and real-life sporting applications. They may observe and analyse movements in different sports, identify bones, joints and muscles involved, and explore how body systems respond during exercise. Additional opportunities include measuring heart rate and breathing rate before, during and after activity, investigating the effects of exercise on the body, and analysing the physiological demands of different sports. Students may also explore careers linked to anatomy and physiology, such as physiotherapy, sports rehabilitation, medicine, exercise physiology and sports science, helping them understand the wider application of GCSE PE beyond the classroom.
		To know that ligaments connect bone to bone and tendons connect muscle to bone.	Ligament, tendon, joint stability, connective tissue	
		To know how ligaments stabilise joints and tendons enable movement during physical activity.		
		To know that there are three muscle types: voluntary, cardiac and involuntary.	Voluntary muscle involuntary muscles cardiac muscle skeletal muscle	
		To know how to distinguish muscle types based on structure, control and function.		
		To know that the voluntary muscular system is made up of named muscles located throughout the body that work with the skeleton to produce movement.	deltoid, biceps, triceps, pectoralis major, latissimus dorsi, external obliques, hip flexors, gluteus maximus, quadriceps, hamstrings, gastrocnemius and tibialis anterior	
		To know how named muscles contribute to specific movements (e.g. biceps in flexion).		
		To know that muscles work in antagonistic pairs (agonist and antagonist).	antagonistic pair agonist, antagonist contract, relax	
		To know how antagonistic pairs produce movement at joints using examples.		
		To know that muscles contain fast twitch and slow twitch fibres.	muscle fibre, type I, type IIa, type IIx fast twitch, slow twitch	
		To know how the characteristics of each fibre type influences performance in endurance and power activities.	fatigue	

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1.2 The structure and functions of the cardiorespiratory system		To know that the cardiovascular system consists of the heart, blood vessels and blood.	Cardiovascular system, heart, blood vessel, oxygen, carbon dioxide, nutrient, clotting, regulation of body temperature	
		To know how the cardiovascular system transports oxygen, carbon dioxide and nutrients, clots open wounds and regulates body temperature.		
		To know that the heart is made up of four chambers, valves and major blood vessels that work together to circulate blood around the body.	atria, ventricles, septum, tricuspid, bicuspid and semi-lunar valves, aorta, vena cava, pulmonary artery, pulmonary vein	
		To know how blood flows through the heart and around the body (double circulatory system).		
		To know that arteries, veins and capillaries have different structures.	artery, vein, capillary blood pressure oxygenated blood deoxygenated blood	
		To know how structure relates to function.		
		To know that blood flow is redistributed during exercise.	Vascular shunting, vasodilation, vasoconstriction, redistribution, working muscles	
		To know how blood is directed to active areas (working muscles) and away from inactive areas (non-essential organs).		
		To know that blood is made up of red blood cells, white blood cells, platelets and plasma.	Red blood cells, white blood cells, platelets, plasma, haemoglobin	
		To know how each component contributes to performance and health.		
		To know that inhaled air has higher oxygen and lower carbon dioxide than exhaled air.	oxygen, carbon dioxide inhaled air, exhaled air gas exchange	

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1.3 Anaerobic and Aerobic exercise		<i>To know how</i> exercise increases oxygen demand and carbon dioxide production.		
		<i>To know that</i> tidal volume and vital capacity increase with exercise.	tidal volume, vital capacity, breathing rate, breathing depth	
		<i>To know how</i> and why breathing rate and depth change during physical activity.		
		<i>To know that</i> the respiratory system is made up of the lungs, bronchi, bronchioles, alveoli and diaphragm.	Respiratory system, lungs, bronchi, bronchioles, alveoli, diaphragm	
		<i>To know that</i> alveoli have features that maximise gas exchange (large surface area, thin walls, rich blood supply).	Alveoli, diffusion, surface area, capillary, oxygen, carbon dioxide	
		<i>To know how</i> oxygen and carbon dioxide diffuse between alveoli and blood.		
		<i>To know that</i> aerobic respiration uses oxygen and glucose to release energy.	Aerobic respiration, anaerobic respiration, glucose, oxygen, lactic acid, energy	
		<i>To know how</i> lack of oxygen leads to anaerobic respiration and lactic acid production.		
		<i>To know that</i> the body uses carbohydrates, fats and proteins as energy sources.	Carbohydrate, fat, protein, energy source, intensity, duration	
		<i>To know how</i> energy sources are used depending on intensity and duration of activity.		
1.4 The short- and long- term effects of exercise		<i>To know that</i> exercise causes short-term effects to our muscular system.	muscular system lactate accumulation, muscle fatigue, lactic acid	

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		<i>To know how</i> these immediate responses support performance. <i>To know that</i> exercise causes short-term effects to our cardiovascular system. <i>To know how</i> these immediate responses support performance. <i>To know that</i> exercise causes short-term effects to our respiratory system <i>To know how</i> these immediate responses support performance. <i>To know that</i> the cardiovascular and respiratory systems work together during exercise. <i>To know how</i> oxygen delivery and carbon dioxide removal enable performance and recovery.	cardiovascular system, heart rate, stroke volume and cardiac output respiratory system, breathing depth, breathing rate oxygen uptake, oxygen transport, carbon dioxide removal, cardiovascular system, respiratory system, recovery	
3.4 The long-term effects of exercise		<i>To know that</i> long-term aerobic and anaerobic training causes adaptations to the muscular-skeletal and cardio-respiratory system. <i>To know how</i> these adaptations allow performers to exercise for longer and at higher intensities. <i>To know that</i> long-term training causes adaptations to the muscular-skeletal system <i>To know how</i> these adaptations improve strength, stability, recovery and overall performance in physical activity and sport.	Train for longer, train more intensely Muscular-skeletal system, bone density, ligaments, tendons, muscle hypertrophy, recovery, rest	Skills: Students will identify and explain the long-term adaptations that occur in the musculo-skeletal and cardio-respiratory systems through aerobic and anaerobic training. They will apply this knowledge to sporting performance, analyse the benefits of training, and use appropriate terminology to explain how adaptations improve endurance, recovery and exercise capacity.

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		To know that long-term training causes adaptations to the cardio-respiratory system. To know how these adaptations improve oxygen delivery, gas exchange, recovery and endurance performance.	resting heart rate, stroke volume, cardiac output, hypertrophy, capillarisation, red blood cells, blood pressure, vital capacity, alveoli, gas exchange, endurance performance	Enrichment: Students will investigate how training affects the body over time by analysing fitness data, athlete case studies and training programmes. They may compare trained and untrained performers, explore different sporting demands, and examine careers such as physiotherapy, sports science and strength and conditioning to extend their understanding.
2.1 Lever systems, examples of their use in activity and the mechanical advantage they provide in movement	To develop knowledge of the basic principles of movement and their effect on performance in physical activity and sport.	To know that the body uses first, second and third class levers. To know how levers operate in sporting movements with practical examples.	fulcrum, load, effort, lever, first class lever, second class lever, third class lever.	Skills: Students will develop the skills needed to analyse movement in sport by identifying lever systems, planes and axes. They will apply their knowledge to practical sporting actions, explain how movement occurs, and use biomechanical terminology accurately to evaluate performance and understand how movement contributes to success. Enrichment: Students will enrich their learning through practical movement analysis, video observation and sporting case studies. They may investigate how athletes use lever systems and movement patterns to improve performance, explore biomechanical
		To know that levers create mechanical advantage or disadvantage. To know how this affects a range of movement in sport.	mechanical advantage, mechanical disadvantage, effort, load, range of movement	
		To know that movement occurs in three planes (sagittal, frontal and transverse) and around three axes (frontal, sagittal and vertical).	sagittal, frontal and transverse plane frontal, sagittal, vertical axes	
		To know how to identify and apply planes and axes to analyse movement in physical activities.	somersaults, cartwheel, full twist	
		To know that movement in the sagittal plane about the frontal axis performs a somersault To know that movement in the frontal plane about the sagittal axis performs a cartwheel		

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		To know that movement in the transverse plane about the vertical axis performs a full twists.		principles in different sports, and consider careers in biomechanics, coaching, physiotherapy and sports science.