



West Park School

Physical Education

GCSE Examination Summer 2024

In readiness for your GCSE examination in **Physical Education** you must **LEARN** and **REVISE** the following content and skills:

Paper 1

Topic	Area
The skeletal system and how it can affect performance in sport	Functions applied to performance in physical activities and sports: Protection of vital organs, muscle attachment, joints for movement, platelets, red and white blood cell production, storage of calcium and phosphorus Classification of bones and how function of bone type is relevant to performance in physical activities and sports: Long, Short, Flat, Irregular Location and names of bones: 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)
The characteristics of joints and the types of movement possible at each	Movement possibilities at joints dependent on joint classification: Flexion, extension, adduction, abduction, rotation, circumduction, plantar-flexion, dorsiflexion Classification of joints: Pivot (neck – atlas and axis), hinge (elbow, knee and ankle), ball and socket (hip and shoulder), condyloid (wrist) Role of ligaments/tendons
The Muscular system	Muscular system – classification and their roles when participating in physical activity and sport: Voluntary muscles involuntary muscles, cardiac muscle Location and function of: Deltoid, biceps, triceps, pectoralis major, latissimus dorsi, external obliques, hip flexors, gluteus maximus, quadriceps, hamstrings, gastrocnemius and tibialis anterior Antagonistic muscle pairs: Definitions of terms (agonist and antagonist) Gastrocnemius and tibialis anterior acting at the ankle plantar flexion to dorsiflexion; and quadriceps and hamstrings acting at the knee, biceps and triceps acting at the elbow, and hip flexors and gluteus maximus acting at the hip – all flexion to extension

	<p>Fast and slow twitch muscle fibres and how fibre type impacts on their use in physical activities: type I, type IIa and type IIx</p>
<p>The Cardiovascular system</p>	<p>Function applied to performance in physical activities: Transport of oxygen, carbon dioxide and nutrients, clotting of open wounds, regulation of body temperature</p> <p>Structure of the cardiovascular system applied to performance in physical activities: Atria, ventricles, septum, tricuspid, bicuspid and semi-lunar valves, aorta, vena cava, pulmonary artery, pulmonary vein, and their role in maintaining blood circulation during performance in physical activity and sport</p> <p>The two phases of the heart – systole and diastole: blood pressure and how it is affected by exercise</p> <p>Arteries, capillaries and veins: Structure of arteries, capillaries and veins and how this relates to function and importance during physical activity and sport in terms of: blood pressure; oxygenated; deoxygenated blood and changes due to physical exercise</p> <p>Vascular shunting: To understand the mechanisms required (vasoconstriction, vasodilation) and the need for redistribution of blood flow (vascular shunting) during physical activities compared to when resting</p> <p>The function and importance of components of blood for physical activity and sport: Red and white blood cells, platelets and plasma</p>
<p>The Respiratory system</p>	<p>Composition of inhaled and exhaled air and the difference between the two at rest and when exercising</p> <p>Lung volumes and change in tidal volume due to physical activity and sport: Vital capacity and tidal volume</p> <p>Location of main components and the role in movement of oxygen and carbon dioxide into and out of the body: Lungs, bronchi, bronchioles, alveoli, diaphragm</p> <p>Structure and function of alveoli: Structure of alveoli Process of gas exchange Impact of varying intensities of exercise (aerobic and anaerobic)</p> <p>Aerobic and anaerobic exercise: The use of glucose and oxygen to release energy aerobically with the production of carbon dioxide and water, the impact of insufficient oxygen on energy release, the by-product of anaerobic respiration (lactic acid)</p>

Short term effects of exercise and the relevance of this to the player/performer	<p>Muscular: lactate accumulation, muscle fatigue</p> <p>CV: heart rate, stroke volume and cardiac output</p> <p>Respiratory: on depth and rate of breathing</p>
Lever systems and their use in physical activity and sport	<p>First, second- and third-class levers</p> <p>Mechanical advantage and disadvantage in sport and physical activity: In relation to loads, efforts and range of movement of the body's lever systems and the impact on sporting performance</p>
Planes and axes	<p>Sagittal plane about the frontal axis when performing front and back tucks or piked somersaults</p> <p>Frontal plane about the sagittal axis when performing cartwheels</p> <p>Transverse plane about the vertical axis when performing a full twist jump in trampolining</p>
Warm ups and cool downs	<p>The purpose and importance of warm ups and cool downs to effective training sessions and physical activity and sport</p> <p>Phases of a warm up and their significance in preparation for physical activity and sport</p> <p>Activities included in warm ups and cool downs</p>
Components of fitness and the relative importance of these components in physical activity and sport	Cardiovascular fitness (aerobic endurance), muscular strength, muscular endurance, flexibility, body composition, agility, balance, coordination, power, reaction time, and speed
Fitness tests – theory and practice	Fitness testing: cardiovascular fitness – Cooper 12 minute tests (run, swim), Harvard Step Test; strength – grip dynamometer; muscular endurance – one-minute sit-up, one-minute press-up; speed – 30m sprint; power – vertical jump; flexibility – sit and reach; agility – Illinois agility test
Principles of training	Individual needs, specificity, progressive overload, FITT (frequency, intensity, time, type), overtraining, reversibility, thresholds of training (aerobic target zone: 60–80% and anaerobic target zone: 80%–90%, calculated using Karvonen formula)
Methods of training for specific components of fitness, physical activity and sport	Continuous, Fartlek, circuit, interval, plyometrics, weight/resistance. Fitness classes for specific components of fitness, physical activity and sport (body pump, aerobics, pilates, yoga, spinning) The advantages and disadvantages of different training methods
Long term training effects on the musculo-skeletal system	Benefits to the musculo-skeletal system: increased bone density; increased strength of ligaments and tendons; muscle hypertrophy; the importance of rest for adaptations to take place; and time to recover before the next training session Impact on performance in different types of activities
Long term training effects on the cardio-respiratory system	Benefits to the cardio-respiratory system: decreased resting heart rate; faster recovery; increased resting stroke volume and maximum cardiac output; increased size/strength of heart; increased capillarisation; increase in number of red blood cells; drop in resting blood pressure due to more elastic muscular wall of veins and arteries; increased lung

	capacity/volume and vital capacity; increased number of alveoli; increased strength of diaphragm; and external intercostal muscles Impact on performance in different types of activities
Identification of injury, treatment and common sports injuries	Concussion, fractures, dislocation, sprain, torn cartilage and soft tissue injury (strain, tennis elbow, golfers elbow, abrasions) RICE (rest, ice, compression, elevation)
Injury prevention in sport and physical activity	Injury prevention through: correct application of the principles of training to avoid overuse injuries; correct application and adherence to the rules of an activity during play/participation; use of appropriate protective clothing and equipment; checking of equipment and facilities before use, all as applied to a range of physical activities and sports
Performance enhancing drugs – types, advantages and disadvantages	Performance-enhancing drugs (PEDs) and their positive and negative effects on sporting performance and performer lifestyle, including: anabolic steroids; beta blockers; diuretics; narcotic analgesics; peptide hormones (erythropoietin (EPO); growth hormones (GH)); stimulants; blood doping

Paper 2

Topic	Area
Physical, emotional and social health	<p>Physical: how increasing physical ability, through improving components of fitness can improve health/reduce health risks and how these benefits are achieved</p> <p>Emotional: how participation in physical activity and sport can improve emotional/psychological health and how these benefits are achieved</p> <p>Social: how participation in physical activity and sport can improve social health and how these benefits are achieved</p>
Lifestyle choices can affect a person's health	<p>Lifestyle choices in relation to: diet; activity level; work/rest/sleep balance; and recreational drugs (alcohol, nicotine)</p> <p>Positive and negative impact of lifestyle choices on health, fitness and well-being, e.g. the negative effects of smoking (bronchitis, lung cancer)</p>
A sedentary lifestyle and its consequences	<p>A sedentary lifestyle and its consequences: overweight; overfat; obese; increased risk to long-term health, e.g. depression, coronary heart disease, high blood pressure, diabetes, increased risk of osteoporosis, loss of muscle tone, posture, impact on components of fitness</p>
Balanced diet and role of nutrients	<p>Role of macronutrients: (carbohydrates, proteins and fats) for performers/players in physical activities and sports, carbohydrate loading for endurance athletes, and timing of protein intake for power athletes</p> <p>Role of micronutrients: (vitamins and minerals), water and fibre for performers/players in physical activities and sports</p> <p>The correct energy balance to maintain a healthy weight</p> <p>Hydration for physical activity and sport: why it is important, and how correct levels can be maintained during physical activity and sport</p>

Optimum weight and how it affects performance in sport	<p>The factors affecting optimum weight: sex; height; bone structure and muscle girth</p> <p>The variation in optimum weight according to roles in specific physical activities and sports</p>
Classification of skills using continua	Open–closed, basic (simple)–complex, and low organisation–high organisation continua
Forms of practice	Massed, distributed, fixed and variable
Goal setting	<p>SMART targets and the value of each principle in improving and/or optimising performance:</p> <p>Principles of SMART targets (specific, measurable, achievable, realistic, time-bound)</p>
Types of guidance	<p>Visual, verbal, manual and mechanical</p> <p>Advantages and disadvantages of each type of guidance</p>
Mental preparation for performance	Warm up, mental rehearsal
Types of feedback	Intrinsic, extrinsic, concurrent, terminal
PARQs	The use of a PARQ to assess personal readiness for training
Factors impacting on participation in physical activity and the impact on participation rates, considering personal factors	Gender, age, socio-economic group, ethnicity, disability
Commercialisation and the media	The relationship between commercialisation, the media and physical activity and sport
Advantages and disadvantages of commercialisation	The advantages and disadvantages of commercialisation and the media for: the sponsor; the sport; the player/performer; the spectator
Sporting behaviours	Sportsmanship, gamesmanship, and the reasons for, and consequences of, deviance at elite level
Deviance in sport	Review performance-enhancing drugs. Consider other types of deviancy in sport