

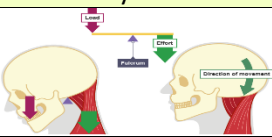
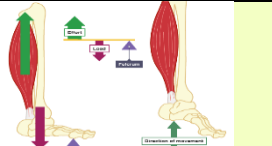
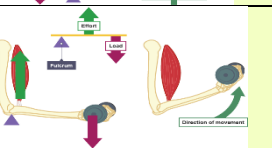
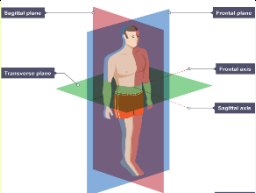
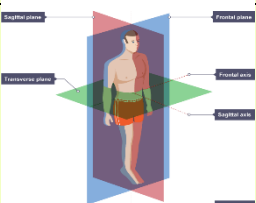
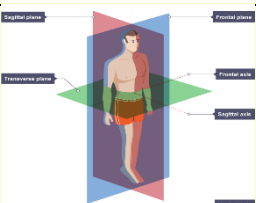
Physical Education – Core Knowledge Paper 1 (36% of your GCSE PE Grade)

	Term	Definition – Pathway A	Examples – Pathway B
1	Health	State of complete emotional, social, and physical well-being, with the absence of disease and infirmity.	
2	Fitness	Ability to meet the demands of the environment.	
3	Exercise	Form of physical activity done to maintain or improve health/fitness.	
4	Performance	The action of performing a task, including a sporting performance.	
5	Normative Data	Shows the results for 'normal' people. Data is collected from a large sample.	
6	Cardiovascular Fitness	A measure of how efficiently your body can deliver nutrients to your working muscles.	Completing a half marathon with consistent split times across all sections of the run
7	Strength	The amount of force a muscle can generate when it contracts against a resistance.	Pushing with all one's force in a rugby scrum against the resistance of the opposition pack
8	Muscular Endurance	A measure of time your voluntary muscles can contract without tiring.	A rower repeatedly pulling their oar against the water to propel the boat towards the line
9	Flexibility	The ability of your joints to move through their full range of movement.	A gymnast training to increase hip mobility to improve the quality of their split leap on the balance beam
10	Body Composition	A measure of the percentages of fat, muscle, bone, water, and vital organs that make body weight.	The gymnast has a lean body composition to allow them to propel themselves through the air
11	Agility	Ability to quickly change body position, while keeping your body under control.	A badminton player moving around the court from back to front and side to side at high speed and efficiency
12	Balance	Ability to keep your body steady, both static and moving.	A gymnast holds a perfectly still handstand when performing a floor routine
13	Coordination	Ability to use two or more body parts together, accurately, and smoothly.	A trampolinist timing their arm and leg movements to perform the perfect tuck somersault
14	Reaction Time	The amount of time taken to respond to a stimulus.	A boxer dodges a punch from their left, rapidly moving their head to avoid being hit
15	Speed	The rate at which your body can perform a movement.	A tennis player moving forward from the baseline quickly to reach a drop shot close to the net
16	Power	Strength X Speed – Perform a strong muscular contraction quickly.	A Boxer requires high levels of power to knockout their opponent

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17	Protocol	Official procedure; set way to do something. (Follow the correct protocol in fitness tests)	
18	Fitness Tests	Agility – Illinois Agility Run Test Cardiovascular Fitness – 12 Minute Cooper Run/Swim OR Harvard Step Test Flexibility – Sit & Reach Test Muscular Endurance – 1 Minute Sit Up Test OR Press Up Test Muscular Strength – Hand Grip Dynamometer Test Power – Vertical Jump Test Speed – 30m Sprint	
19	Principles of Training – SPORI	Guidelines, that, if applied, ensure that training is effective and positive. Includes; Individual Needs - Needs of the athlete/performer come first Specificity – Training should be matched to the requirements of the activity. Progressive Overload – FITT is gradually increased to ensure fitness levels improve. Overtraining – Training beyond your body's ability to recover Reversibility – Gradually losing fitness levels due to a reverse in training	
20	FITT	Frequency, Intensity, Time & Type – Ensures that a PEP uses progressive overload.	
21	Thresholds Of Training	Karvonen Formula: $220 - (\text{your age}) = \text{Max Heart Rate}$ $(\text{Max HR}) \times (60\% - 80\%) = \text{Aerobic Training Zone}$ $(\text{Max HR}) \times (80\% - 90\%) = \text{Anaerobic Training Zone}$	
22	Types of Training	Continuous, Interval, Fartlek, Plyometrics, Weight, Circuit, Fitness Classes	
23	Interval Training	Alternating stages of high and low intensity activity	+Range of COF's can be developed -Can be too demanding for some individuals
24	Fartlek Training	Terrain and speed are constantly changing	+Targets Aerobic & Anaerobic Respiration -Difficult to measure
25	Circuit Training	Involves a number of stations within a circuit	+Circuits can be designed to be sport or skill specific -Requires space & equipment

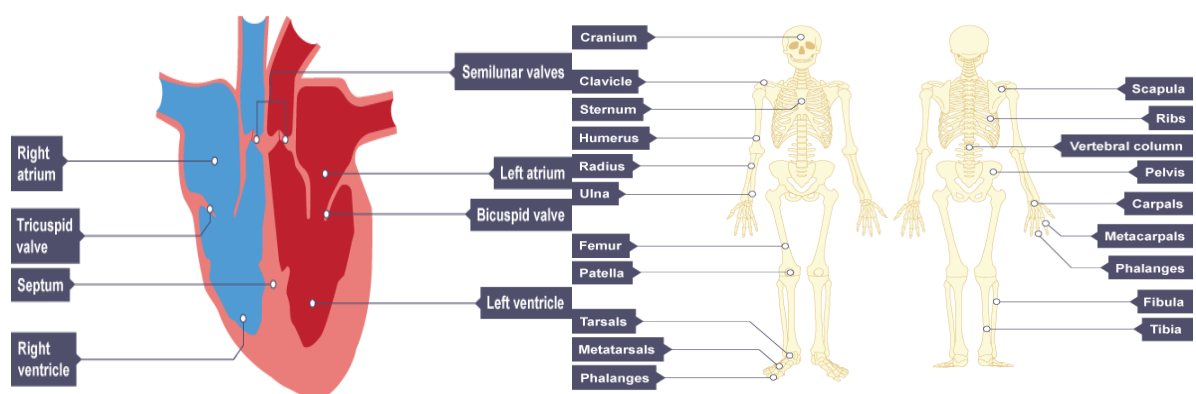
26	Plyometric Training	Exercises where muscles use maximum force in short intervals. Includes bounding, hopping & jumping	+Very effective for developing power -Can cause injury with incorrect form
27	Weight Training	Uses progressive resistance, either in the form of the actual weight lifted or number of reps	+Engaging, use of machines, body weight and free weight exercises -Financial costs
28	Continuous Training	Sustained exercise at a steady rate, without rest. Lasts a minimum of 20mins	+Targets cardiovascular fitness which is required in many sports -Tedious, loss of motivation
29	Fitness Classes	Aerobics, Yoga, Pilates, Body Pump, Spin	+Group dynamics, improves social health -Time, Cost, Transport barriers
30	PARQ	Physical Activity Readiness, Questionnaire	
31	Sporting Injuries	Concussions, fracture, dislocation, soft tissue injuries, sprain, torn cartilage, abrasions	Concussions – Impact to the head Fracture – Broken bones caused by impact, twisting or repetitive stress on the bone Dislocation – Bones are dislodged from the joint Sprain – Damage to ligaments Abrasions – Damage to the skin caused by impact and collisions Torn Cartilage – Cartilage lines the ends of bones and can be damaged through twisting motions. Due to no blood supply this cannot heal itself
32	Minimising Risk of Injury	Principles of training, Follow rules, Appropriate clothing/equipment, Check facilities and equipment, Warm up & Cool down.	
33	RICE	Treat sprains and strains	Rest, Ice, Compression, Elevation
34	Performance enhancing drugs (PEDs)	Anabolic steroids, Stimulants, Beta Blockers, Diuretics, Painkillers, Peptide hormones, Growth hormone, Blood doping	Anabolic Steroids: Sprinting, Weightlifting, Boxing Beta Blockers – Archery, Diving, Shooting Diuretics – Boxing, Horse Riding, MMA Stimulants – Power Sports, Combat Sports Narcotic Analgesics – MMA, General Sports Peptide Hormones – EPO/GH – Endurance Athletes Blood Doping – Endurance Athletes
35	Warming Up	Stage 1 – Pulse raiser	

		Stage 2 – Joint mobilisation & Stretching Stage 3 – Sport specific drills Stage 4 – Psychological warm-up	
3 6	Cooling Down	Stage 1 – Pulse lowering Stage 2 – Active static stretching	
3 7	Axis	An imaginary straight line around which a body or object rotates	
3 8	Fulcrum	The point around which the lever rotates	Object Shape - 
3 9	Load	The force that is applied by the lever system	Object Shape - 
4 0	Effort	The force that is applied by the user of the lever system	Object Shape -  
4 1	1 st Class Lever		Example – Header in Football
4 2	2 nd Class Lever		Example – Long Jump Take Off
4 3	3 rd Class Lever		Example – Bicep Curl
4 4	Mechanical Advantage	A large load can be lifted with a relatively small amount of effort (2 nd class)	
4 5	Mechanical Disadvantage	3 rd Class levers cannot lift as heavy a load with the same amount of effort, due to the position of the effort and load from the fulcrum	
4 6	Sagittal Plane & Frontal Axis		Example – Somersault
4 7	Frontal Plane & Sagittal Axis		Example – Cartwheel
4 8	Transverse Plane & Vertical Axis		Example – Dance Pirouette OR Full Twist Jump

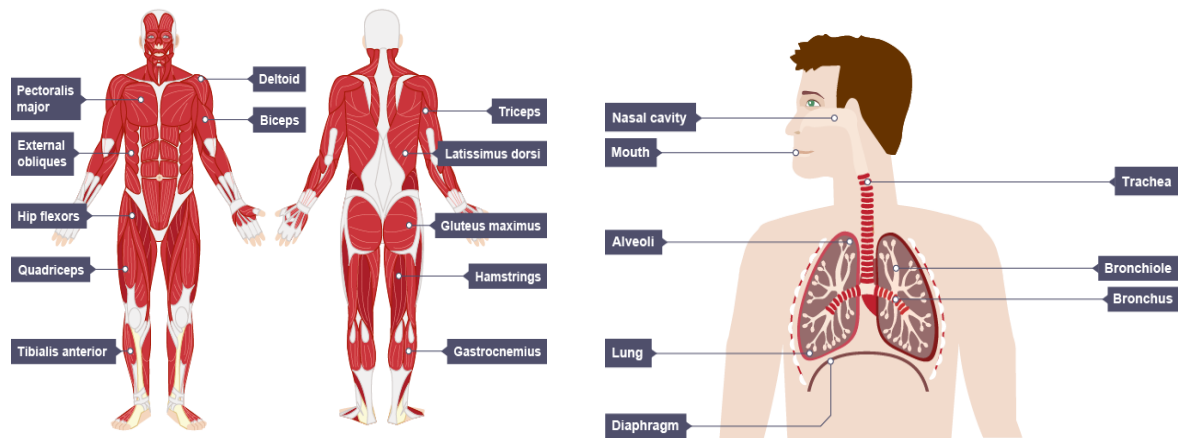
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49	Functions of the skeletal	Five important functions – Protection of vital organs, muscle attachment, joints for movement, blood cell production & mineral storage.	Acronym – Bones Make Moving Joints Possible
50	Classification of bones	Four main classifications of bones – Long, Short, Flat & Irregular	Long – Movement & Leverage Short – Weight Bearing Flat – Protection Irregular – Attachment & Individualised Functions
51	Classification of joints	Four main classifications of joints – Pivot, Hinge, Ball and Socket & Condylod.	Pivot – Neck Hinge – Ankle, Knee, Elbow Ball & Socket – Hip & Shoulder Condylod – Wrist
52	Movement types	Directions of movements at a joint: flexion, extension, adduction, abduction, rotation, circumduction, plantar flexion & dorsi-flexion.	Hinge – Flexion & Extension Ball & Socket – Flexion, Extension, Abduction, Adduction, Rotation & Circumduction
53	Ligament	Connective tissue attaching bone to bone at joints.	
54	Tendon	Connective tissue attaching muscle to bone.	
55	Types of muscle	Voluntary muscles, involuntary muscles & cardiac muscles.	Voluntary Muscles = Under our conscious control Involuntary & Cardiac muscles = Not under our conscious
56	Vascular Shunting	A process that increases blood flow to active areas during exercise by diverting blood away from inactive areas.	Vasodilation & Vasoconstriction
57	Heart Rate	Number of heart beats per minute (bpm)	
58	Stroke Volume	Amount of blood pumped out of the heart per beat.	
59	Antagonist muscle pair	A pair of muscles that work together to produce movement.	(Biceps/Triceps) (Hamstrings/Quadriceps) (Tibias Anterior/Gastrocnemius) (Hip Flexors/Gluteus Maximus)
60	Musculo-Skeletal system	Name given to the combined body system that involves your muscles and skeleton.	
61	Type I muscle fibres	Slow twitch muscle fibres. Suited to low intensity aerobic work.	E.g., Marathon Runners.
62	Type IIa muscle fibres	Fast twitch muscle fibres. Hybrid fibre, suited to lengthy anaerobic work.	E.g., 800m/1500m Runners.
63	Type IIx muscle fibres	Fast twitch (very fast) muscle fibres. Suited to anaerobic work.	E.g., 100m Runners.
64	Cardiovascular System	Contains the heart, blood vessels and blood.	1. Transport Nutrients around the body 2. Clotting of open wounds 3. Regulation of body temperature

6 5	Arteries	Blood vessels that carry blood away from the heart to muscles and organs.	Characteristics: Thick elastic muscular walls, small lumen, blood travels at high pressure
6 6	Capillaries	Blood vessels that wrap around muscles and organs so that gaseous exchange can take place.	Characteristics: One cell thin, large surface area to support gas exchange
6 7	Veins	Blood vessels that carry blood from the muscles and organs towards/into the heart.	Characteristics: Thin elastic muscular walls, large lumen, low blood pressure, valves present
6 8	Components of Blood	Blood Plasma, Platelets, White Blood Cells, Red Blood Cells	Plasma – Carry's nutrients & waste products Platelets – Clots blood WBC – Fights Infections RBC – Transports Oxygen
6 9	Gaseous Exchange	The diffusion of gases in opposite directions at the same time. Oxygen and Carbon Dioxide exchange at the alveoli.	
7 0	Aerobic Work	Working at a moderate intensity so that the body has time to use oxygen for energy production.	
7 2	Anaerobic Work	Working at a high intensity without oxygen for energy production.	
7 3	Lactic Acid	A by-product of energy production. A build-up of lactic acid results in muscle fatigue.	
7 4	Cardiac Equation	Stroke Volume X Heart Rate = Cardiac Output (SR X HR = Q)	
7 5	Cardiac Output	The volume of blood pumped out of the heart per minute.	
7 6	Tidal Volume	The amount of air inhaled or exhaled per breath.	
7 7	Respiratory Equation	Tidal Volume X Frequency = Minute Ventilation (TV X f = VE)	
7 8	Minute Ventilation	The amount of air inhaled or exhaled per minute.	



Paper 1 – Core Knowledge



	Short term effects of exercise
Cardiovascular system	Increase in stroke volume (SV); increase in heart rate (HR); increase in cardiac output (Q); increase in blood pressure (BP)
Respiratory system	Increase in breathing rate; increase in tidal volume
Cardio-respiratory system	Increase in oxygen uptake; increase in carbon dioxide removal
Energy system	Increase in lactate production
Muscular system	Increase in temperature of muscles; increased pliability; muscle fatigue

	Long term effects of exercise	Type of training
Cardiovascular system	Cardiac hypertrophy; increased stroke volume (SV); decrease in resting heart rate (HR); increase in maximum cardiac output (Q); capillarisation at the lungs and muscles; increase in number of red blood cells; increased size and strength of the heart; drop in resting blood pressure due to more elastic muscular wall of veins and arteries	Aerobic
Respiratory system	Increased vital capacity; increased number of functioning alveoli; increased strength of the respiratory muscles (internal and external intercostals and diaphragm); increased lung capacity and volume	Aerobic
Energy system	Increased production of energy from the aerobic energy system; increased tolerance to lactic acid	Aerobic; anaerobic
Muscular system	Muscle hypertrophy; increased strength of tendons; increased strength of ligaments	Resistance
Skeletal system	Increase in bone density	Resistance