Year 10 GCSE Revision - Physical Education
Paper 1 – Fitness and Body Systems

Topic	Areas for Revision	Key questions
1.1 The structure and functions of the musculoskeletal systems	**Functions of the Skeleton for Sport** Protection of vital organs Muscle Attachment Joints for movement Storing Calcium and phosphorus Red and White blood cell production MRSPJS	How does each function of the skeletal system help a sports performer to keep performing in their sport?
	Classification of bones Long Short Flat Irregular	How does each bone type play a key role in sporting activities?
	The Structure of the skeletal System (including vertebral column)	
	Joints Pivot Hinge Ball and Socket Condyloid	Which types of movement are available at each joint? Think of sporting examples which show each type of movement in action
	Joints and Movement Flexion & Extension Adduction & Abduction Rotation Circumduction Dorsi-Flexion & Plantar-flexion	
	Ligaments and Tendons	
	Muscles Types Voluntary Involuntary Cardiac	Think of 3 examples of involuntary muscles
	Location and role of the main voluntary muscles	Draw the diagram of the human body and label all the main voluntary muscles

	Antagonistic Pairs **Fast and Slow Twitch muscle fibres** Type I Type IIa Type IIx	Using examples (e.g. a bicep curl) explain how antagonistic pairs work together to create movement Think of two sportspeople who participate in very different sports, for example Usain Bolt and Mo Farah. Consider which you associate fast twitch fibres with and which would you associate slow twitch fibres with? Explain why?
1.2 The structure and functions of the cardio-respiratory system	**Important functions of the cardiovascular system** **The Heart** The structure of the heart (Tri before you Bi) Tricuspid and Bicuspid How the hearts pumps blood **Blood Pressure** First Phase – systole Second Phase Diastole **The Structure of Blood Vessels** Arteries (A = Away from the heart) Veins Capillaries **Blood Distribution** Vascular Shunting Vasoconstriction	Describe three important functions of the cardiovascular system? Draw a picture of the heart and label it Draw a diagram showing how deoxygenate blood gets oxygenated again. Correctly label the blood vessels. Take a second to concentrate on your heartbeat. Can you identify the phases the heart is going through? Can you explain the terms systole and diastole? Can you name list the differences and similarities between veins and arteries? Use a sporting example to explain how vascular shunting tasks place (Use the terms Vasoconstriction and vasodilation in your answer)

	Vasodilation	
	Red & White blood cells, platelets and plasma	Why are the two main jobs of the respiratory system?
	The Respiratory System	
	Inhaled and exhaled air	Recall how much oxygen and carbon dioxide is in inhaled and exhaled air
	Vital Capacity and Tidal Volume	Explain the difference between vital capacity and tidal volume?
	Main Components of respiratory system	Draw a diagram showing the main components of the respiratory system. Label each key component.
	Structure of alveoli Gas exchange	Explain how oxygen is diffused from the alveoli into red blood cells in order to oxygenated blood
	How the cardiovascular and respiratory systems work together Oxygen debt Your body at rest and at work The impact of exercise	Using a 400m sprint explain how oxygen debt occurs? Define V02 max and explain what happens to a performers VO2 max following a sustained period of regular exercise?
1.3 Anaerobic and aerobic exercise	**Energy** Aerobic respiration Anaerobic respiration Lactic Acid	

	Energy Sources Fats Carbohydrates (Complex & Simple) Free Sugars	Recall the equations for aerobic respiration and anaerobic respiration? Explain why a football player needs to balanced diet? Explain how different energy sources are needed for different types of physical activity?
1.4 The Short and Long Term effects of exercise	**Effects on the muscles (Fatigue & Cramp)** **Effects on heart** Heart Rate How heart rate varies Maximum heart rate Stroke volume Cardiac Output **Effects on you breathing** **Interpreting graphs**	Read pages 40 -45 in the textbook. Summarise your knowledge by telling a friend/parents the key concepts in under 1 minute.
2 Planes and axes of movements	**Planes** Sagittal Planes Frontal Planes Transverse Planes **Axes** Frontal axis Vertical axis Sagittal axis	Use sporting examples to explain the difference between the planes of movement and then the axes of movement?
3.1 The relationship between health and fitness and the role that exercise plays in both	**Health, Exercise, Fitness & Performance** **The relationship between fitness and health**	Recall the correct definitions of health, exercise, fitness and performance? Can someone be fit but not healthy?
3.2 The components of fitness, benefits for sport and how fitness is measured and improved	**The five components of fitness** Cardiovascular fitness Muscular Strength Muscular Endurance Flexibility Body Composition (including BMI)	Explain how each component of fitness is used in a different sporting example.

	Agility Balance Co-ordination Power Reaction time Speed **Fitness tests** Cooper 12-minute run test Harvard Step test Hand Grip Strength Test One Minute Press Up Test One Minute Sit Up test 30m Sprint Vertical Jump/Sargent Jump Test Sit & Reach	Link the correct components of fitness to the correct fitness test Could you describe how each test looks like and how it is completed?
3.3 The principles of training and their application personal exercise /training programmes	**The principles of training** Individual needs Specificity Progressive overload FITT Overtraining Reversibility Thresholds of training	Explain how each principle of training is important to a training programme? Think of two very different sports performers, e.g. Antony Joshua and Jessica Ennis, how would they apply the principles of training to their training programmes?
3.4 The long term effects of exercise	**Long term effects of aerobic and anaerobic training** **Effects and benefits for the musculo-skeletal system** **Effects and benefits for the cardio-respiratory system**	
3.5 How to optimise training and prevent injury	**PARQ** **Preventing Injuries** Warm up & Cool Down Protective Equipment and Clothing Checking Equipment and Facilities Playing to the rules of competition	What is the difference between and overuse and an acute injury?

	Injuries that occur in physical activity and sport Concussion Fractures Dislocations Sprains Torn Cartilage Sort Tissue Injury **RICE** **Performance Enhancing Drugs** Anabolic Steroids Beta Blockers Diuretics Narcotics and Analgesics Peptide Hormones, including EPO Growth Hormones Stimulants Blood Doping	Choose two sports and think of ways in which injuries are prevented in those sports? Explain how and why RICE would be used in relation to a sprain in football? Create a table. For each performance enhancing summarise the: 1. Reasons for taking the drug 2. Sports associated which each drug 3. Side Effects for each drug