

Calendar	Big Question/ Theme/ Topic	Small Questions	Assessment Opportunities and /criteria. Teacher feedback point	Homework
Autumn 1	<b>1.1 Muscular skeletal system</b>  Knowledge and understanding of the anatomy and physiology of the muscular and skeletal systems.	1. What are the names of each bone? 2. Where is each bone located? 3. What are the different regions of the vertebral column? 4. What are the names of each muscle? 5. Where is each muscle located?  6. What are the different movement names? 7. What movement is available at each joint? 8. What movements are used in physical activity and sport?  9. What are Isotonic/eccentric, isotonic/concentric and isometric contractions? 10. How is movement or stability produced as a result of these different contractions/muscular actions during physical activity and sporting movements? 11. What are the definitions of agonist, prime mover, antagonist, fixator and synergist? 12. How do muscles take on these different roles when providing stability or movement in a variety of physical or sporting situations?  13. What are the differences between 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> class levers? 14. Where can each lever be located in the body? 15. How are levers used in sport? 16. What are the mechanical advantages and disadvantages of each lever?	How many bones of the skeleton and regions of the vertebral column can you remember? Where are their locations?  How do the muscular and skeletal systems work together?  EQ - Defining movements.  EQ – Types of muscle contractions and muscle contractions in a squat.  EQ - Using sporting examples, examine how the body uses third class levers at the elbow joint.	Find a picture of a sports person in action (make it big) and label all the major muscles and bones we have learnt.  Find a picture of a sporting movement, e.g. kicking/throwing a ball. Then label ALL the joint movements you can see occurring. Make it big to allow detail!  Find a picture of 4 different muscular actions (throw, kick, jump etc.) and for a joint of your choice label which muscles are acting as the agonist, antagonist, synergist and fixator in that movement. Also, show what type of contraction is taking place (concentric/eccentric).  Use what we have learnt about levers to first explain how the 3 different levers are used in sport. Then explain what arm action athletic throwers (such as hammer, discus and javelin throwers) use to gain mechanical advantage. Use correct terminology and diagrams!

<p><b>1.2 Neuromuscular system</b></p> <p>Knowledge, understanding and application of the anatomy and physiology and the function of the neuro-muscular system during physical activity.</p>	<p>17. What are the 3 laws of motion?      18. What is centre of mass/gravity?      19. What is moment of force?</p> <p>20. What is the difference between a response and adaptation?      21. What are the responses of the muscular-skeletal system and their benefit to performance?</p> <p>22. What are the different skeletal adaptations?      23. What are the muscular adaptations due to aerobic training?      24. What are the muscular adaptations due to anaerobic training?</p> <p>1. What are muscle fibres?      2. What are myofibrils made of?</p> <p>3. What do motor units comprise of?      4. How do nerve impulses travel to muscle fibres?      5. What are the roles of actin, myosin, troponin and tropomyosin?      6. What are the 5 stages of muscle contraction?</p>	<p>EQ - Using Newton's laws of motion, outline how a swimmer achieves initial forward momentum from a dive.</p> <p>EQ - Using Newton's law of action and reaction (third law), describe how a basketball player uses this force to perform a jump shot.</p> <p>EQ - Examine how the muscular system responds to a warm-up.</p> <p>EQ - Discuss the effect of the physiological adaptations that occur in muscle cells as a result of long-term anaerobic training. (12)</p>	<p>Choose any sport, then describe and explain how the 3 laws of motion are shown in that sport. BE DESCRIPTIVE, use pictures with arrows showing force direction etc. to help you explain. Then, for the same sport, explain how a participant's centre of mass can change during performance.</p> <p>Choose an athlete and describe what responses happen to their muscular-skeletal system as a result of exercise. Also explain how these responses aid performance. Try to give plenty of detail!</p> <p>Discuss the effect of the physiological adaptations that occur in muscle cells as a result of long-term aerobic training. (12)</p>
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Autumn 2	<p><b>1.2 Cardiorespiratory system and cardiovascular systems</b></p> <p>Knowledge, understanding and application of the anatomy and physiology of the cardiovascular, circulatory and respiratory systems in physical activity. Understanding of how they function individually and in conjunction with each other.</p> <p>Understanding of what constitutes an unhealthy lifestyle and its effects on the cardiovascular and cardiorespiratory systems.</p>	<p>1. What are the 4 chambers of the heart called?</p> <p>2. What is heart muscle called?</p> <p>3. What is responsible for the hearts conduction?</p> <p>4. What divides the heart?</p> <p>5. What are the 4 main stages of the cardiac cycle?</p> <p>6. How does blood flow through the heart during the cardiac cycle?</p> <p>7. What is the difference between systemic and pulmonary circulation?</p> <p>8. What are the differences between arteries and veins?</p> <p>9. What is the main role of capillaries?</p> <p>10. Which blood vessels are responsible for delivering blood to muscles and which return blood to the heart?</p> <p>11. What are the different heart rate values?</p> <p>12. What are the responses of the CV system to exercise and how do they benefit performance?</p> <p>13. What are the main structural adaptations that occur to the CV system?</p> <p>14. What functional adaptations occur to the CV system?</p> <p>15. How do these adaptations benefit exercise?</p> <p>16. What are the main structures of the respiratory system and where are they located?</p> <p>17. What is the function of each respiratory structure?</p> <p>18. How do we inspire and expire air?</p> <p>19. What role do pressure gradients play in breathing mechanics?</p> <p>20. What are the different respiratory values?</p> <p>21. Can you depict the values on a respiratory values chart?</p> <p>22. How do gases exchange both externally and internally?</p> <p>23. How is it that the respiratory and CV systems work in conjunction with each other?</p> <p>24. What responses occur in the respiratory system?</p>		
Spring 1				

		<p>25. What are the structural and adaptations and functional benefits of the respiratory system?</p> <p>26. Are adaptations to the CV or respiratory system more beneficial and why?</p> <p>27. What are the effects of an unhealthy lifestyle?</p> <p>28. What impacts do these effects have on the body?</p> <p>29. How can exercise help alleviate some of these effects?</p>		
Spring 2	<p><b>2.1 Diet and nutrition and their effect on physical activity and performance</b></p> <p>Knowledge and understanding of dietary manipulation for performance pre, during and post-physical activity.</p>	<p>1. How do we ensure energy balance?</p> <p>2. What are the problems associated with getting energy balance wrong?</p> <p>3. What affects a person's optimal weight?</p> <p>4. How does optimal weight vary?</p> <p>5. What are the macronutrients?</p> <p>6. What are the differences in dietary needs for power and endurance athletes?</p> <p>7. What is carbo-loading and how do we carbo-load?</p> <p>8. What is the difference between isotonic, hypotonic and hypertonic solutions?</p> <p>9. How do we hydrate for performance?</p> <p>10. What are the dangers of not hydrating?</p> <p>11. What different supplements can be used to enhance performance?</p> <p>12. How can supplementation be used to reduce fatigue?</p> <p>13. What supplements can be used for recovery?</p> <p>14. What are the advantages and disadvantages of creatine loading?</p>		
Summer 1	<p><b>2.2 Preparation and training methods in relation to maintaining and improving physical activity and performance</b></p> <p>Knowledge and understanding of preparation and training methods in relation to</p>	<p>1. What are the different components of fitness?</p> <p>2. What are the definitions for each component?</p> <p>3. How is each component used SPECIFICALLY in sport?</p> <p>4. What are the determinants of movement/running performance?</p> <p>5. What are the different principles of training?</p> <p>6. What are the definitions of each principle?</p> <p>7. How is each principle applied when formulating training plans/regimens?</p> <p>8. What is periodisation?</p> <p>9. What are the different cycles of periodisation?</p> <p>10. Why do we use periodisation?</p> <p>11. How can technology be used to monitor work rate?</p> <p>12. How can technology evaluate fitness and performance?</p>		

	<p>maintaining and improving physical activity and performance.</p>	<p>13. What are the positives and negatives of technology in fitness and performance?      14. What are the characteristics of each method of training?      15. What physiological adaptations are produced by each method?      16. What are the main advantages and disadvantages of each method?      17. Which athletes would select each method of training?</p>		
Summer 2		<p>1. What are the different fitness tests and their protocols?      2. How are they affected by validity and reliability?      3. Which tests are useful for which athletes/activities?      4. What do the results of fitness tests show us?      5. What can we do to prepare for different environments?      6. What happens to the body when exposed to different climates?      7. What adaptations happen as a result of heat exposure?      8. What are the effects of performing at altitude without acclimatising?      9. What are the main responses/adaptations caused by altitude exposure?      10. What are ergogenic aids used for?      11. What are the benefits of ergogenic aids?      12. What are the possible disadvantages of ergogenic aids?</p>		