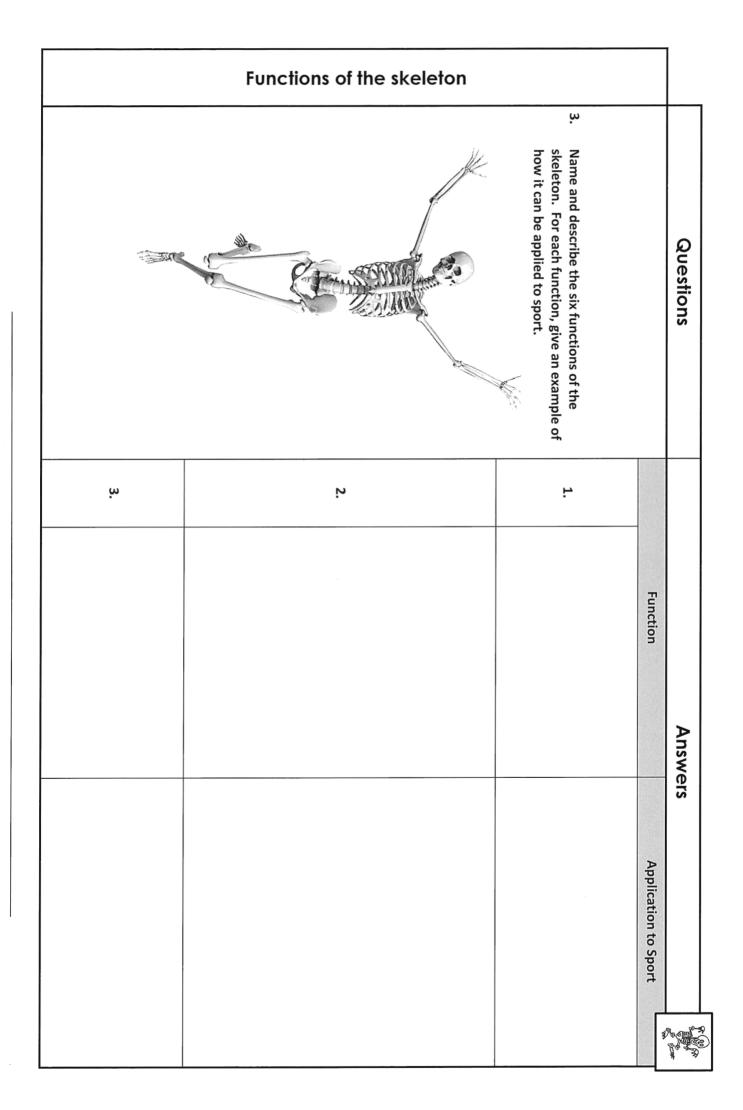
Location of major bones $rac{1}{2}$ 1.1 Applied Anatomy and Physiology — Bridging Activities Heckmondwike Grammar School – A Level – Year One diagram provided. Name the bones of the skeletal system in the **Questions Answers**

Location of major bones (continued)		
2. Identify the bones of the hand and foot on the diagrams given.		Questions
Foot:	Hand:	
		Ans
		Answers
	*	And the second



Functions	of the skeleton	(continued)		
	3. Name and describe the six functions of the skeleton. For each function, give an example of how it can be applied to sport. (continued)			Questions
	Şī	4.	Function	Ans
			Application to Sport	Answers

Т	ypes of synovial joir	nt and type ball-and-					ıt hir	ıge j	oints and	
			6.				.		4.	
		Name the types of movement that can be conducted at a hinge and ball-and-socket		•	either the joint, or the bones that make up a joint.	Fill in the gaps in the table, identifying		A synovial joint is the most common joint in the human body. What is the definition of a synovial joint?	Questions	
	Hinge		Type of joint		Ball-and-soc		Hinge: Knee			
			Movement		Ball-and-socket: Shoulder			Type of Joint		
			Definition					oint		Ar
			Sporting example	Pelvis, Femur		Humerus, Radius and Ulna		Articulating bones		Answers

Types of synovial joint and types of movement at hinge joints and ball-and-socket joints (continued)								
		(continued)	6. Name the types of movement that can be conducted at a hinge and ball-and-socket joint. Then, provide a definition for each movement and provide a sporting example of each.				Questions	
		socket	Ball-and-			Type of joint		
						Movement		
						Definition	Answers	
						Sporting example	Francoura de Son	

Types of synovial joint and types of movement at hinge joints and ball-and-socket joints (continued)

.8	7.	
What is the purpose of cartilage in a joint?	What is the role of a ligament and a tendon, and how does this aid physical activity and sport?	Questions
		Answers

The	oles of n	nent	in	Location of major muscle groups	
	sports skill that would require that muscle to work as the agonist.	For each of the given muscles, suggest a		 Label the skeletal muscles of the body to the right. 	Questions
Biceps	Pectorals	Deltoid	Muscle		
			Physical activity and sporting example of use		Answers



Abdominals Abdominals Quadriceps Quadriceps Triceps sports skill that would require that muscle to work as the agonist. Gluteals Gastrocnemius Gastrocnemius
Answers

		Th	e ro	les d	of muscles in movement (co	ontinued)		
		6.			. .	4.	ÿ.	
		Identify the agonistic muscle(s) that cause movement at the shoulder.			Label the origin and the insertion of the biceps on the image of a biceps curl (right).	What is the muscle that works alongside the agonist and antagonist to help stabilise the origin of an agonist during movement?	Antagonistic pairs of muscles create opposing movement at joints. Define 'agonist' and 'antagonist'.	Questions
Extension	Flexion	Adduction	Abduction	Movement			Agonist:	
				Agonistic muscle(s)				Answers
				Antagonistic muscle(s)			Antagonist:	vers

			vem		nued	ontir	s of i	role			
Questions		 Identify the agonistic muscle(s) that cause movement at the elbow. 			8. Identify the agonistic muscle(s) that			 Identify the agonistic muscle(s) that cause movement at the knee. 			
Answers	Movement Agonistic muscle(s)	Flexion	Extension	Movement Agonistic muscle(s)	Abduction	Rotation	Extension	Movement Agonistic muscle(s)	Flexion	Extension	
	Antagonistic muscle(s)			Antagonistic muscle(s)				Antagonistic muscle(s)			

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Lever systems 5 Draw and label a second-class lever system. Give an example of each part of a lever system. Define a 'load', or 'resistance', in a lever system. What is an 'effort' in a lever system? Define the 'fulcrum' in a lever system. Questions Fulcrum Effort Load **Answers**



Movement Analysis



Lever system	s (continued)	
7. Draw a third-class lever system.	6. Draw a first-class lever system and label the resistance arm and effort arm.	Questions
		Answers
		M

	Lever systems (continued)		
	8. To the right are three images of sporting movement. Identify the lever system being used in each image, and label the components of the lever on the image.		Questions
Fulcrum:	Fulcrum:	Fulcrum:	
Effort:	Effort:	Effort:	
Load:	Load:	Load:	Answers
·		Type of lever system	
			W.

	Lever syst	tems (continu	ed)				
	13.	12.	11.	10.	9.	9.	
clas give (Us	Give	Why	mec mov	Why adv	≕	;	
class lever system and identify the components of your given example. (Use different examples from those given in Question 8.)	Give sporting examples of a first-, second- and third-	Why are third-class lever systems considered to have a mechanical disadvantage?	Why does a second-class lever system have a mechanical advantage? What effect does this have on movement?	Why does a first-class lever system have a mechanical advantage? What effect does this have on movement?	Write an equation that represents mechanical advantage.	Define 'mechanical advantage'.	Questions
Second-class Third-class	First-class						Answers
							*

	Planes and axes of movemer	nt				
16. Name and define the three axes of rotation a body can move in.	15. Label the three planes of movement on the diagram.		14. Define the 'sagittal', 'frontal' and 'transverse' planes of movement. Transverse Sagittal Frontal Frontal Transverse			
		Transverse	Frontal	Sagittal	Answers	

	Plane	s and ax	es of mov	rement (continued)	
	occurring in.	18. For the following sporting movements, state		17. Label the axes of rotation on the diagram. (Can you notice the mistake in the textbook?)	Questions
SOCIETALE TIEX	A long jumper performing their run-up		A diver performing a somersault		Answers
Axis:	Plane:	Axis:	Plane:		s

	Plo	ines and	l axes of	movemen	t (contin	ued)	·				
19. For the following sporting movements, state which plane and axis each movement is occurring in. (continued)											
	Running		A cartwheel		A footballer performing sidesteps in a warm-up		A discus thrower spinning	Answers			
Axis:	Plane:	Axis:	Plane:	Axis:	Plane:	Axis:	Plane:	ers			

Movement analysis (Extension)



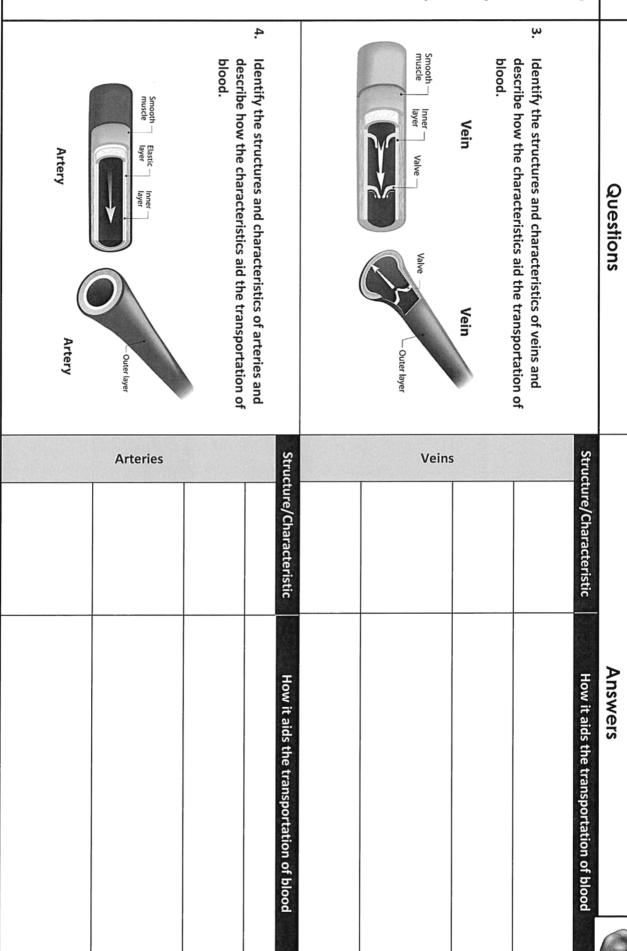
				•	•			-		
			2.						:	
		Perform a movement analysis on a footballer's elbow during a throw-in.						Fill in the answers to the right, to perform movement analysis on the shoulder of the cricket bowler below.	Questions	
Lever system (at the elbow):	Axis of movement:	Plane of movement:	Movements at elbow, and agonist muscle causing movements:		Axis of rotation:	Plane of movement:	Movements at the left elbow	Movements at the left shoulder		
				Prepa (prepa	-				Movement	An
			ment	aration iring to					nt	Answers
			Movement Agonist	Preparation phase (preparing to throw)						S
			Movement Agonist	Execution phase (throwing)					Agonist(s) muscle(s) causing movement	
			hist							

	Movement analysis (Extension)																
									<u></u>		off.	Fill in the answers to the right, to perform movement analysis of a standing vertical jump as the athlete moves from the squat to taking					Questions
Axis of movement:	Plane of movement:	Agonist muscle:	Movement type:	Type of joint:	Bones forming the hip joint:		Axis of movement:	Plane of movement:	Antagonist muscle:	Agonist muscle:	Movement type:	Type of joint:	Bones forming the knee joint:		Lever system:		
						Нip								Knee		Ankle	Answers

Movement analysis (Extension) performs the straddle jump shown. gymnast (below) to analyse how she Perform a movement analysis on the Questions Bones of the shoulder: Antagonist muscle(s): Plane of movement: Plane of movement: Axis of movement: Axis of movement: Movement type: Movement type: Agonist muscle: Agonist muscle: **Answers** Shoulder

Structure and function of the cardiovascular system 2. What are the roles of veins, arteries and capillaries? 1.1b) Cardiovascular and Respiratory Systems system'. Explain what is meant by the term 'double circulatory **Questions** Capillaries: Arteries: Veins: **Answers**

Structure and function of the cardiovascular system (continued)



Structure and function of the cardiovascular system (continued) 5. the structure aids gas exchange. Describe the structure or characteristics of capillaries and how ALVEOLUS GAS EXCHANGE Oxygen in Questions Capillaries **Answers**

	S	truc	ture	e an	d fu	ınct		of th			iovo	ascular	system	1	
	9.	8. 7.	/	6.	5.	4.		11. 3.	12.	1.	8. Label the diagram of the heart from 1–12.	from.	7. Name two other major veins that supply the	6. What is the name of the vein that receives oxygenated blood from the lungs and transports it to the left atrium of the heart?	
12.	11.	10.	9.	8.	7.	6.	5.	4.	3.	2.	1.			·	Answers

Г

Structu	ıre	and	d fu	nction	of the	cai	rdio	vascular s	system (co	ontinue	ed)	
 Within the human body, blood is made up of red blood cells, white blood cells, platelets and plasma. State the role of red blood cells in the human body. 		cardiac output'.			9. Describe the cardiac cycle and the pathway of blood through the heart as deoxygenated blood returns from the body.							Questions
	Cardiac output	Stroke volume	Heart rate									Answers

Structure and function of the respiratory system 4. 2. Explain how gas exchange takes place at the atmosphere to the blood, by adding Where does gas exchange take place? What is meant by the term 'gas exchange'? component. numbers 1-5 next to each relevant Identify the pathway of air in order from the Questions Mouth/nose **Bronchiole** Bronchi Alveoli Trachea **Answers**



Stru	octure	e ar	nd func	tion of	the res	piratory	systen	n (continue	∍d)	
	9.	.∞		7.		6.		'n		
The volume of air that is displaced during normal inhalation and normal exhalation, measured in ml.	Name the type of volume being described below:	Define 'breathing rate'.	exhales at rest.	Describe the roles of the intercostals, rib	inhales at rest.	Explain how the structure of the alveoli allows gas exchange to take place. Describe the roles of the intercostals, ribcage and diaphragm when a person			Questions	
			Diaphragm	Intercostals	Diaphragm	Intercostals	Profound blood supply	Thin-walled	Large surface area	
										Answers

	iore and	function of the respirat (continued)	ory system	
13. Explain why occurs.		11. Identify tidal trace (right).12. Continue the how tidal voluments.	10. Define 'min	
Explain why the change you drawn in Q12 occurs.		Identify tidal volume on the spirometer trace (right). Continue the spirometer trace to illustrate how tidal volume will change as exercise begins.	Define 'minute ventilation'.	Questions
		Volume (L)	•	
	Time (s)			Answers



Aerobic an	d anaerobic	exercis	е		>
6.		ω 4.	2.		
Give a sporting example of an athlete who competes anaerobically. Justify your answer.	Give a sporting example of an athlete who competes aerobically. Justify your answer.	Define 'anaerobic exercise'. Write an equation to show anaerobic exercise.	Define 'aerobic exercise'. Write an equation to show aerobic exercise.	Questions	1.1c) Energy for Exercise
				Answers	ise

Aerok	oic and an	aerobi	c exercise	(continue	d)							
	7. Tick whether the following are considered aerobic or anaerobic exercise and justify your choices.											
Triple jump	500 m swimming	50 m swimming	Half marathon running	Long-distance rowing	Sport							
					Aerobic (✓)							
					Anaerobic (✓)	Answers						
					Justification	75						

Short-term effects of exercise ω 2 and the respiratory system that allow exercise on the cardiovascular system of exercise, in relation to an athlete. an athlete to continue performing. exercise? temperature when we begin to production and, as a short-term effect Explain the impact of lactic acid Describe the short-term effects of Why do the muscles increase in 1.1d) Effects of Exercise on the Body Systems. Questions Cardiovascular responses **Answers** Respiratory responses

Short-term	effects of e	exercise (continued)		
	Using t graph, rate be race.	4. The fol for 20-1 rate be 4 × 100			
	Using the information in the graph, analyse Shannon's heart rate before, during and after the race.	The following graph shows data for 20-year-old Shannon's heart rate before, during and after the 4 × 100 m relay.			Questions
		10 minutes 5 minutes 2 minutes [before race before race]	190 180 180 180 180 180 180 180 180 180 18	Shannon's heart rate during the relay race	Answers



Lon	g-term (training) ef		cise ————————————————————————————————————	
	Apply to examples of sports in your answer.	 List the long-term effects of exercise on the muscular system and explain how each can impact performance in sport. 		Questions
			Long-term effect	
			Impact on performance	Answers

Long-term (training) effects of	exercise (continued)	
	6. Outline the long-term effects of aerobic exercise and anaerobic exercise on the cardiovascular and respiratory systems.		Questions
Respiratory	Ca	Aerobic and anaerobic adaptations	Answers

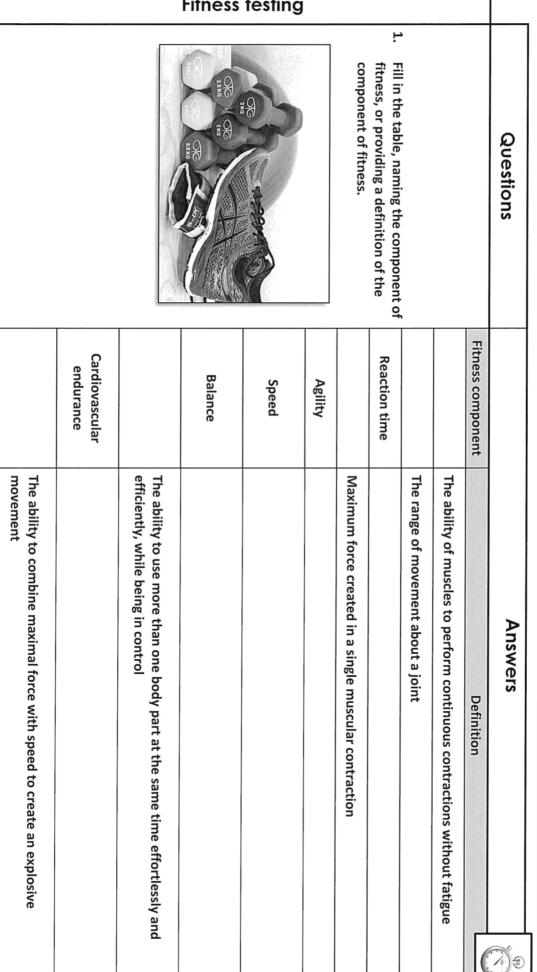
Long-term (training) effects of exercise (continued)			
ò	7.		
Explain the benefit of improved rate of recovery, a long-term effect of exercise.	Explain the benefit of increased bone density, a long-term effect of exercise.	Questions	
		Answers	

Long-term (training) effects of exercise (c	ontii	าบе	d)			
.0						
The tables given (right) show the One Rep Max results (Figure 1) and press-up test results (Figure 2) for three athletes, during relevant weeks of an eight-week training programme. Using the table provided, analyse the effectiveness of the training programmes on the three athletes and suggest whose training programme was most effective at improving the fitness components the tests aim to improve.						Questions
	Athlete 3	Athlete 2	Athlete 1	Athlete	Figure 1: One Rep Max results table	
	35 kg	30 kg	60 kg	Week 1	Rep Max r	
	45 kg	27 kg	65 kg	Week 4	esults tabl	
	50 kg	32 kg	70 kg	Week 8	Ю	An
					Fig	Answers
	Athlete 3	Athlete 2	Athlete 1	Athlete	gure 2: Pre	l'S
	7 reps	15 reps	5 reps	Week 1	Figure 2: Press-up test results	
	14 reps	15 reps	10 reps	Week 4	esults	
	14 reps	15 reps	18 reps	Week 8		



Fitness testing

Physical Training



			Fitne	ss test	ing (c	ontinu	ed)				
			THE WASHINGTON	244 33 544 13 2 13 2 13 2 13 2 13 2 13 2 13 2 13		component and justify your answer.	 For each of the components of fitness, name a sport that requires that fitness 				Questions
Cardiovascular endurance	Power	Coordination	Balance	Speed	Agility	Strength	Reaction time	Flexibility	Muscular endurance	Fitness component	
										Sporting example	
										Justification	Answers

Fitness testing (continu	ed)		
, ⁵	4.	ω	
Describe the benefits of, or reasons for, testing an athlete's fitness.	Explain whether a long jumper would benefit from having a very good reaction time.	Would a 50 m sprint swimmer need high levels of muscular endurance? Justify your answer.	Questions
			Answers
			70) (

		Fitness	testing) (c	ontinued)	
9.	.00			7.	è.	
Provide a brief summary of what an athlete has to do in the 30 m Sprint Test.	Name the test that is used to measure speed.		to measure flexibility.	Name and describe the test used	Explain the possible limitations of fitness testing.	Questions
		Protocol	Equipment	Test		Answers
					Γ	70

	Fitness te	sting (conti	nued)		
12. Describe the protocol of the Stork Stand Test which measures the balance component of fitness.	protocols of this test.	11. Identify the test being shown by the image. Name what component of fitness the test measures	 Name the component of fitness that can be measured using a handgrip dynamometer. Describe the protocol of this test. 		Questions
	Protocol	Fitness component	Protocol	Fitness component	Answers

	Fitness testing (continued)		
۵	13. Draw a sket Illinois Agili Below it, de	14. An athlete could use the Max (1RM) test to test component of fitness?	15. Once 1RM is used to ass
Questions	Draw a sketch to illustrate how the Illinois Agility Test is completed. Below it, describe the protocol.	An athlete could use the One Rep Max (1RM) test to test which component of fitness?	Once 1RM is established, how is it used to assess strength?
Answers			

Fitne	ss testing (continued)	
17. Name and describe another fitness test that can be conducted to assess cardiovascular endurance.	16. The Multistage Fitness Test is commonly used as a method of testing cardiovascular endurance. Identify any equipment required to complete the Multistage Fitness Test, and describe the protocol of the test.	Questions
Name of fitness test:	Equipment Protocol	
		Answers
		7

			Fitness testing (continued)	
using the test.	component of fitness is assessed	19. Provided on the right is the protocol of a fitness test. Name the fitness	18. Name and describe two tests used to test a person's muscular endurance.	Questions
Fitness component:	Test:	Protocol	Protocol	
		An athlete throws a ball against a wall for 30 seconds. The ball is thrown and caught using opposite hands. The number of times the ball is thrown and caught is counted and used as a score.		Answers

	Fitne	ess te	esting (continued)		
answer.	22. For each of the following tests, suggest whether it is appropriate / not appropriate for the athlete it has been matched to. Justify your		21. Name and describe two tests that can be conducted to assess the power of an athlete.	20. Strength can be tested by conducting the grip strength dynamometer test and the One Rep Max (1RM) test. What are the differences between these tests?	Questions
Sit-and-reach test	One Rep Max test	Fitness test	Name of test 1:		
Dancer	Triathlete	Sport athlete			Α
		Appropriate or not appropriate (justify your answer)	Name of test 2:		Answers

Answers Questions Ethness test Sport athlete Appropriate or not appropriate (justify your answ guest whether it is appropriate / not appropriate for the athlete it has been matched to. Justify your answer.	Fitne	ess testing (continued)			
Sport athlete 100 m sprinter Pole vault High jumper					Questions
A.	Vertical jump test	Ruler Drop Test	Illinois Agility Test	Fitness test	
Appropriate or not appropriate (justify your answ	High jumper	Pole vault	100 m sprinter	Sport athlete	
rer				Appropriate or not appropriate (justify your answer)	Answers

Fitnes	s testing (continued)		
	22. For each of the following tests, suggest whether it is appropriate / not appropriate for the athlete it has been matched to. Justify your answer. (continued)		Questions
Grip dynamometer	Cooper 12-minute swim test	Fitness test	
Race walking	Olympic diver	Sport athlete	
		Appropriate or not appropriate (justify your answer)	Answers
			(/6)

Answers Answers Normative data for the wall throw test = 15-16-year-olds. Age Excellent Above Average Ave						23.			
Answers t - 15-16-year-olds. Above Average Average 25-29 wall-throw 34	Questions					Ashton, a 16-year-old aspiring tennis player, takes part in the wall-throw	test.	Using the information, analyse how Ashton's data compares to normative data.	
Average 25–29 Wall-throw 34	Ans	Normative data for the wall throw test – 15–16-year-old	Excellent	> 35	Ashton's data for the wall-throw test.	Participant	Ashton		
	swers	ds.				Wall-throw test results	34		

Principles of training 2. ω sporting performance from training. training using the FITT principle. Explain how overload can occur within principle of training could be Give a sporting example of how each training to maximise improvements in Name and outline the principles of **Optimising Training Questions** 0 R P 0 S æ S Н т **Answers**

Optimising training					
4. Briefly describe each of the seven types of training and state what fitness component(s) the training improves, and then give an example of a sport or an athlete each training method would be suitable for.					
4. Plyometric	3. Interval	2. Fartlek	1. Continuous	Training type	
				Description	Ansı
				Fitness component training improves	Answers
				Sporting example	

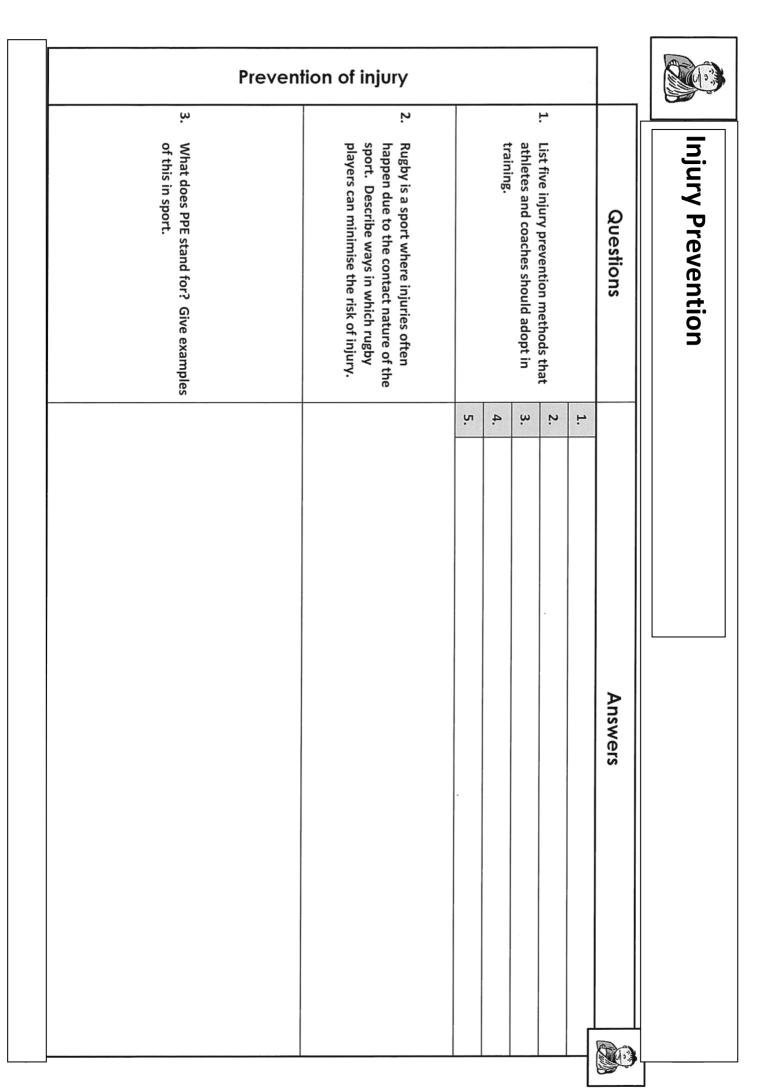
		ntinuea)	sing training (cor	Optimi	
		4.			÷.
Questions		Briefly describe each of the seven types	component(s) the training improves and then give an example of a sport or an athlete each training method would be suitable for. (continued)		What considerations should be made when completing continuous training?
	Training type	5. Circuit	6. Weight	7. HIIT	
Ans	Description				
Answers	Fitness component training improves				
	Sporting example				

Optimising training (continued)						
	session.	 Using specific examples, apply the principles of training to a circuit training 			6. Interval training involves changing the intensity of exercise. Suggest the ways in which intensity can be manipulated.	Questions
R	P	0	S	Application to a circuit training session		Answers
				Example		

			Optim	ising t	raining (c	ontinue	ed)			
		8. Outline five components that should be part of a warm-up.					 Using specific examples, apply the principles of training to a circuit training session. (continued) 			Questions
U	4	ω	2	Д	-1	Н	_	п		
									Application to a circuit training session	Answers
									Example	

9. Describe the physiological aims or benefits of warming up to an athlete. 10. Plan a warm-up for a footballer prior to a match. 11. Describe two important components that should be included in a cool-down. 1.		optimising training (continued)						
2 F	Questions	.9	10.					
	Answers				1. 2.			

Optimising training (continued)				
	13. Plan an appropriate cool-down for a hockey player.	12. Describe the benefits of a cool-down for an athlete.	Questions	
			Answers	
			1	



		Prevention of injury	(continued)	
7.	6.	'n	4.	
What is a risk assessment?	What is the difference between a strain and a sprain?	What is meant by employing an 'appropriate level of competition'?	Suggest the importance of a runner wearing the correct footwear.	Questions
				Answers

Questions Hazard How it could be minimised A sports hall can have many potential hazards. Just three hazards and suggest how they could be minimised. Hazard How it could be minimised How it could be minimised How it could be minimised How it could be minimised.	Preve	ention of injury (continued)	
Answe			Questions
Answers How it could be minimised		Hazard	
		How it could be minimised	Answers

Prevention of injury (continued)					
11. List other hazards that can be observed on playing fields and artificial outdoor areas.	10. How can the weather become a hazard for playing on fields and artificial outdoor areas?	Questions			
Artificial Outdoor Areas	Playing Field		Answers		