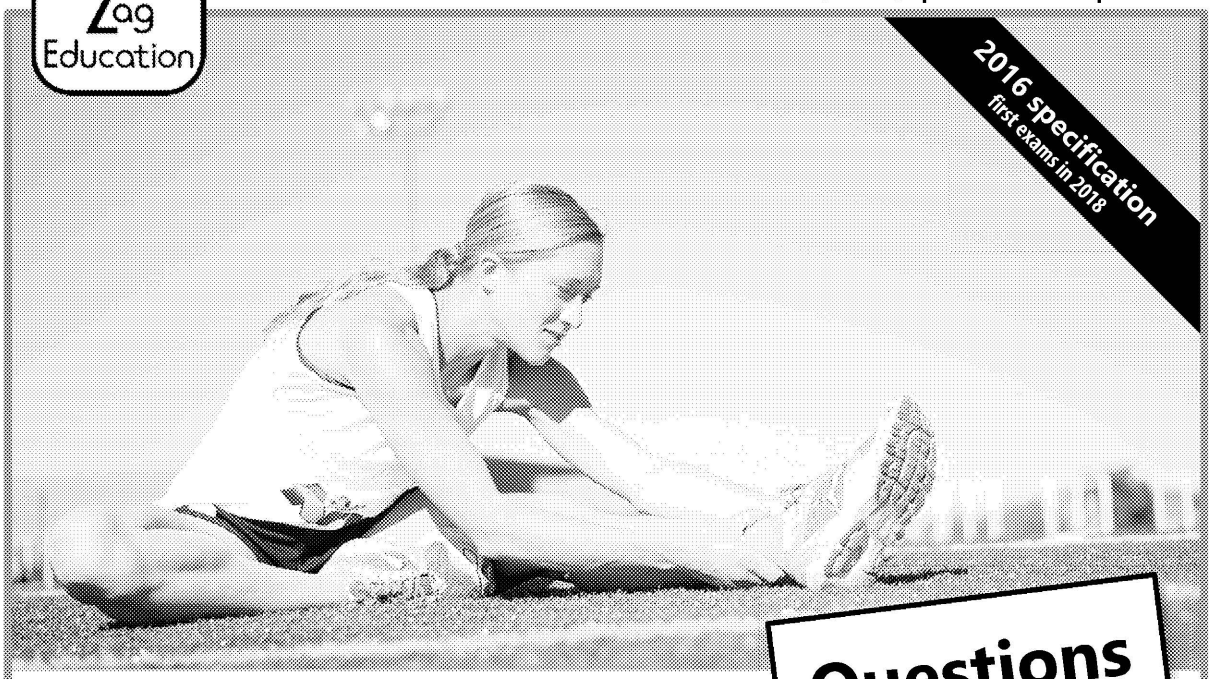
PE

GCSE (9–1) | Edexcel | 1PE0



2016 specification
first exams in 2018

Questions

Learning Grids

for GCSE Edexcel PE: Paper 1

Question Grids

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POD 8589a

Contents

Teacher's Introduction

These learning grids are a tool designed to help you deliver Edexcel GCSE PE (Paper 1). The concept is that your students are assigned a set of pages to read from their notes or a textbook, possibly for homework, and then asked to complete the relevant learning grids.

The grids are designed to ask questions in sufficient detail that your students are able to study the relevant sections and find the correct answers. Completed grids are provided so that your students' answers can be marked or checked. It may also be useful to hand these out to students during their revision to assist them with answers they cannot find.

These activities are particularly useful for weaker students who find this method of studying of great value, particularly if they find it difficult to absorb information in class.

Advantages of using these learning grids are:

- Resulting grids contain a summary of what students need to know that is useful for revision.
- They are an easy-to-set, yet valuable homework.
- They are a useful catch-up tool to help students who have missed a lesson.
- They can be used as a basis for cover lessons that require minimal preparation and minimal interaction from the cover teacher.
- They are an independent learning resource.

You may want to photocopy the sheets onto A3 paper, particularly for students with reading or writing difficulties.

This edition supports students using the following sources:

Pearson Education textbook Edexcel GCSE (9–1) Physical Education Student Book 2nd Edition by Tony Scott (ISBN 9781292129884)

and

Hodder Education textbook Edexcel GCSE PE (9–1) Third Edition by Sue Hartigan (ISBN 9781471866968)

and

Oxford University Press textbook Edexcel GCSE Physical Education by Maarit Edy and Matthew Hunter (ISBN 9780198370215)

ZigZag Education is not affiliated with Hodder Education or AQA.

Note to teachers using these Learning Grids with the Edexcel-endorsed textbooks: this resource follows the order of the specification, and helps students pick out the points which are most important for the study of PE at GCSE Level.

August 2018

Topic 1: Applied Anatomy and Physiology

1.1 The structure and function of the musculoskeletal system

Bones, structure and functions of the skeleton and synovial joints

Questions	Function	
1. Name and describe the five functions of the skeleton. Then, for each function, give an example of how it applies to performance in sport.	1.	
	2.	
	3.	

Bones, structure and functions of the skeleton and synovial joints

Questions

1. Name and describe the five functions of the skeleton. Then, for each function, give an example of how it applies to performance in sport. (continued)

4.

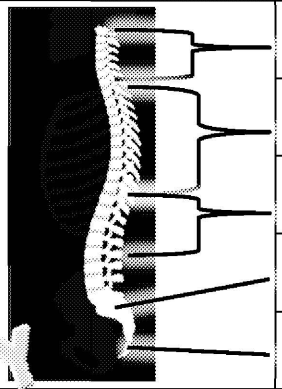
5.

Bones, structure and functions of the skeleton and synoial joints	Questions			
	2. Name the four classifications of bone and then state how each type of bone allows a sprinter to run a 100 m race.	Classification		
	3. Name and classify the bones identified to the right.	Classification	Name	

Bones, structure and functions of the skeleton and synoial joints

Questions

4. Give the names of the bones that make up the hands and the bones that make up the feet



5. Identify the five areas of the vertebral column.

6. Name the four types of joint, then, for each joint, describe using a sporting example how each joint type allows possible movement.

Hands	
Feet	

Joint name	Joint
Atlas and axis	
Elbow	
Hip	
Wrist	

Bones, structure and functions of the skeleton and synoial joints	Questions	
	7. Define each of the movements provided and then give a sporting example for how each movement can be performed.	Movement
		Flexion
		Extension
		Abduction
		Adduction
		Rotation
		Circumduction
		Plantar flexion
		Dorsiflexion
	8. What is the role of a ligament and tendon and how does this aid physical activity and sport?	Ligament
		Tendon

Topic 1: Applied Anatomy and Physiology

1.1 The structure and function of the musculoskeletal system

Muscles, movement and antagonistic pairs

Questions

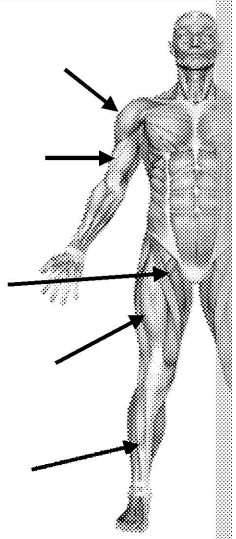
Muscle	

1. What are the three classifications of muscle and how does each aid a hockey player during a match?

Muscles, movement and antagonistic pairs

Questions

2. Label the voluntary muscles of the body to the right.



3. Antagonistic pairs of [illegible] create opposing m[illegible] joints. Define [illegible]ntagonist'.

4. Identify the agonistic muscle(s) that cause(s) movement at the hip.

Movement

5. Identify the agonistic muscle(s) that cause(s) movement at the knee.

Movement

6. Identify the agonistic muscle(s) that cause(s) movement at the elbow.

Movement

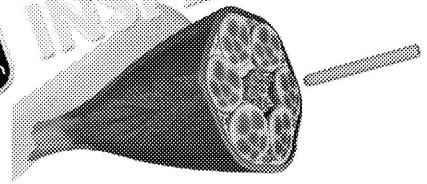
Muscles, movement and antagonistic pairs

Questions

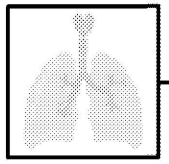
	Movement
7. Identify the agonist muscle(s) that cause(s) movement in the elbow.	

Muscle fibre type	Ch

8. Identify the three types of muscle fibre and each of their characteristics. Then, for each muscle fibre type, describe how its characteristics make it suitable for certain sports or physical activities.



9. Describe how the skeleton works with muscles to produce movement.



Topic 1: Applied Anatomy and Physiology

1.2 The structure and function of the cardiorespiratory system

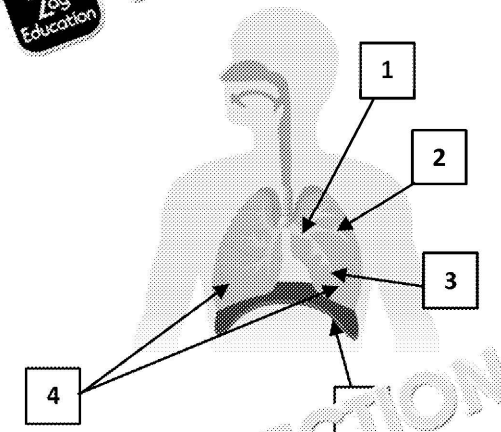
The respiritory system

Questions	
1. Identify the three gases found in inhaled air and exhaled air, and then state the composition of each gas in inhaled air and exhaled air.	Gas
2. Explain why the differences in composition of air identified in Q1 are seen.	
4. Define 'vital capacity' and 'tidal volume'.	Vital capacity Tidal volume
5. Why does tidal volume change during physical activity, and what causes this change to occur?	

The respiratory system

Questions

6. Identify the main components of the respiratory system in the diagram and then state their role in the exchange of oxygen and carbon dioxide in and out of the body.



	Name	Role in
1		
2		
3		
4		
5		

7. Explain how the structure of the alveoli allows gaseous exchange to take place.

8. How does gaseous exchange allow the body to meet the demands of exercise?

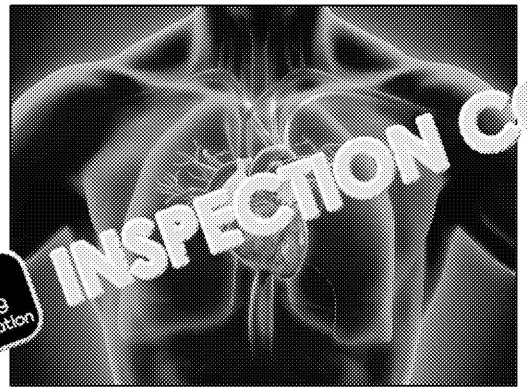
Topic 1: Applied Anatomy and Physiology

1.2 The structure and function of the cardiorespiratory system

The cardiovascular system

Questions

1. What are the three functions of the cardiovascular system and how does each function benefit physical activity performance?



2. What are the roles of the veins, arteries and capillaries?

Veins	
Arteries	
Capillaries	

The cardiovascular system

Questions	Structure/Characteristic	
3. Identify the structures and characteristics of veins, arteries and capillaries and describe how the characteristics aid the transportation of blood.	Veins	
	Arteries	
	Capillaries	

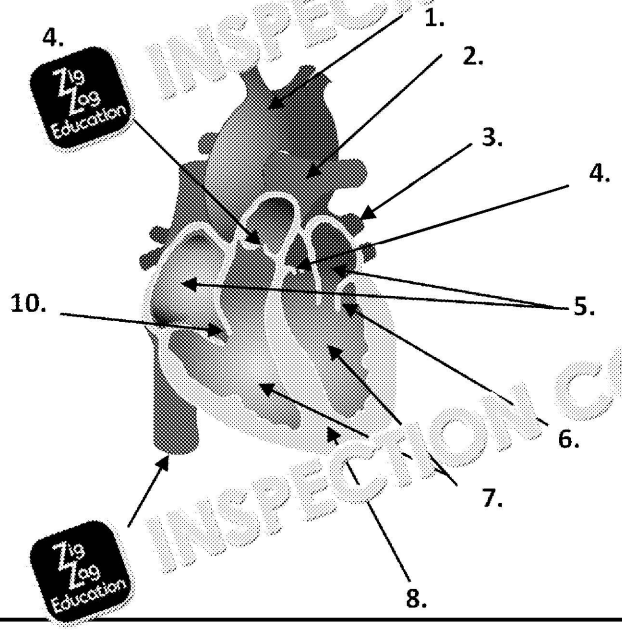
The cardiovascular system

Questions

4. in how the body redistributes blood to id exercise and physical activity by vascular shunting.

Vasoconstriction	
Vasodilation	

5. Label the diagram of the heart from 1–10 Then, state the role(s) of each struct e maintaining blood circulati g physical activity.



1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Questions

The cardiovascular system

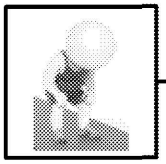
6. How do the cardiovascular system and the respiratory system work together during exercise?

Topic 1: Applied Anatomy and Physiology

1.3 Aerobic and Anaerobic Exercise

Aerobic and anaerobic exercise	Questions	
	1. Define 'aerobic exercise'.	
	2. Give a sporting example of an athlete who competes aerobically. Justify your answer.	
	3. What are the two by-products of aerobic exercise?	
	4. What two food groups are a good source of fuel for aerobic activity?	
	5. Define 'anaerobic exercise'.	
	6. Give a sporting example of an athlete who competes anaerobically. Justify your answer	
	7. What is the by-product of anaerobic exercise?	
	8. What food group is a good source of fuel for aerobic activity?	

	Questions	
Aerobic and anaerobic exercise	9. What foods are good sources of carbohydrates?	
	10. What is the equation that repr[illegible]s aerobic exercise?	
	11. Describe the aerobic energy equation.	
	12. What is the equation that represents anaerobic exercise?	
	13. Describe the anaerobic energy equa[illegible]	
	14. Expla[illegible] fats are not used as an energy source [illegible] anaerobic exercise.	



Topic 1: Applied Anatomy and Physiology

1.4 The short-term and long-term effects of exercise

Short- and long-term effects of exercise	Questions	Cardiovascular respo
	1. Describe the short-term/immediate effects of exercise on the cardiovascular system and the respiratory system that allow an athlete to continue performing.	
	2. Explain the importance of lactate accumulation and fatigue, as a short-term effect of exercise, in relation to an athlete.	

Short- and long-term effects of exercise	Questions	Aerobic and Cardiovascular
	4. Identify one long-term effect of aerobic exercise and anaerobic exercise on the cardiovascular and respiratory systems and explain how each effect results from exercise.	

Short- and long-term effects of exercise

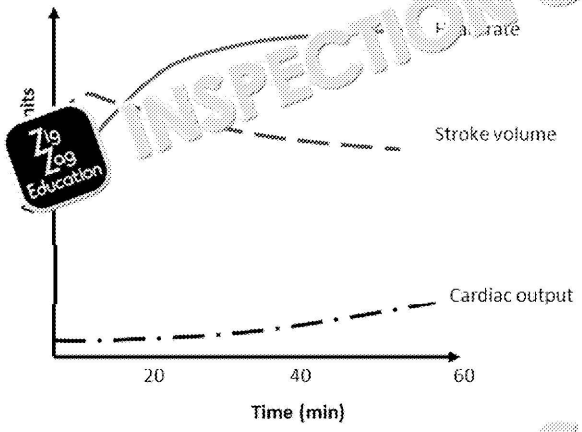
Questions

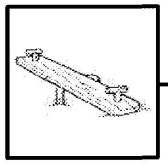
4. Define 'heart rate'.

5. Define 'st[illegible] vo[illegible]ne'.

6. [illegible]e 'cardiac output'.

7. Using the graph provided below, explain the process of cardiovascular drift during physical activity and exercise.

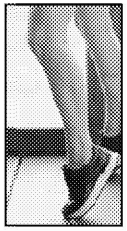
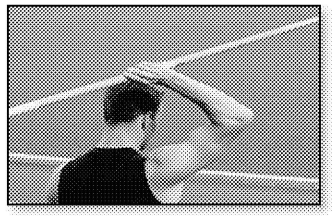




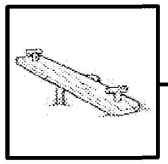
Topic 2: Movement Analysis

2.1 Lever systems and movement analysis and 2.2 Planes and axes

	Questions		
Lever systems	1. Define the 'fulcrum' in a lever system.		
	2. What is an 'effort' in a lever system?		
	3. Define a 'load', or 'resistance', in a lever system.		
	4. Give an example of each type of a lever systems		
	5. Draw and label the fulcrum, effort and load in a second-class lever system.		

Lever systems	Questions	
	6. Draw a first-class lever system and label the resistance arm and effort arm.	
	7. Draw a third-class lever system.	
	8. To the right are two images of sporting movement. Identify the lever system being used and label the component of the lever on the images.	 

Lever systems	Questions	
	9. Write an equation to represent mechanical advantage.	
	10. How does a first-class lever system have a mechanical advantage? What effect does this have on movement?	
	11. Why does a second-class lever system have a mechanical advantage? What effect does this have on movement?	
	12. Why are third-class lever systems basically said to have a mechanical disadvantage?	
	13. Give sporting examples of a first-, second- and third-class lever system.	First-class:
		Second-class:
		Third-class:

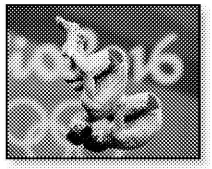
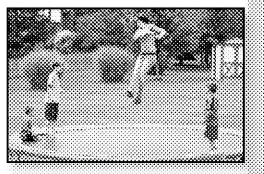


Topic 2: Movement Analysis

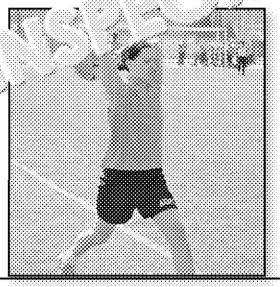
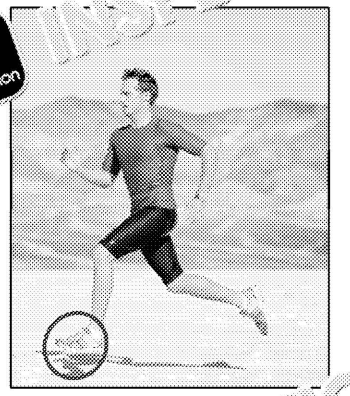
2.1 Lever systems and mo[illegible] analysis and 2.2 Planes and axes

Planes and axes of movement

Questions		
1. Define the sagittal, frontal and transverse planes of movement.	Sagittal	
	Frontal	
	Transverse	
2. Label the [illegible] planes of motion on the [illegible]ram		
3. Name and define the [illegible] axis of rotation a bo[illegible] move in.		

Planes and axes of movement	Questions	
	4. For each of the following sporting movements, state which plane and axis movement is occurring in.	A diver performing a som  A cartwheel  trampolinist performing a ful 
	5. rm a movement analysis of the lbow during the execution phase of a frisbee throw. 	Movement at elbow and agonist muscle causing movement lane of movement Axis of rotation

Planes and axes of movement

Questions	
6. Perform a movement analysis of a footballer's elbow during a throw-in. 	Movement at elbow and agonist muscle causing movement Plane of movement Axis of movement
7. Perform a movement analysis of a runner in the recovery stage of a stride. 	Movement type Agonist muscle Plane of movement Axis of movement
	Movement type Agonist muscle Plane of movement Axis of movement
	Movement type Agonist muscle Plane of movement Axis of movement

Topic 3: Physical Training

3.1. The relationship between health and fitness and 3.2 Components and how fitness is measured

Health and fitness and components of fitness

Questions	
1. Define 'health'.	
2. Define 'fitness'.	
3. Define 'exercise'.	
4. Define 'performance'.	
5. Describe the relationship between health, fitness, exercise and performance.	
6. Define each component of fitness in the provided table.	

Muscular endurance	
Flexibility	
Reaction time	
Body composition	
Strength	

Health and fitness and components of fitness

Questions

6. Define each component of fitness in the provided table (continued).

Agility	
Speed	
Balance	
Power	
Coordination	
Cardiovascular endurance	

7. For each of the components of fitness, name a sporting example that requires that fitness component and justify your answer.

Fitness component	Sporting example
Muscular endurance	
Flexibility	
Reaction time	
Strength	
Body composition	

Health and fitness and components of fitness

Questions	
7. For each of the components of fitness, name a sporting example that requires that fitness component and justify your answer (continued).	Power
	Agility
	Speed
	Balance
	Coordination
	Cardiovascular endurance
8. Would a 50 m sprint swimmer need high levels of muscular endurance? Justify your answer.	
9. Explain whether a long jumper would benefit from [illegible] good [illegible]	

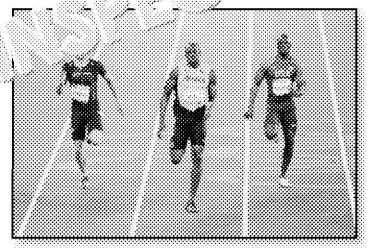
Fitness testing

	Definitions	
	1. Describe the benefits of, or reasons for, testing an athlete's fitness.	
	2. Explain the possible limitations of fitness testing.	
	3. Name and describe the equipment used to measure flexibility	**Test** **Equipment** **Protocol**

Fitness testing

Questions

4. Name the test that is used to measure speed.



5. Name the component of fitness that can be measured using a hand grip dynamometer. Describe the protocol of this test.

Fitness component	
Protocol	

6. Draw a sketch to illustrate how the Illinois agility test is completed. Below it, describe the protocol.

Fitness testing	Questions		
	7. An athlete could do the vertical jump test to test which component of fitness?		
	8. Once 1RM is established, how is it used to test strength?		
	9. The Cooper 12-minute test is used to measure cardiovascular fitness. Identify any equipment required and describe the protocol of the test.	Equipment	
		Protocol	
	10. Name another test that can be used to measure cardiovascular fitness.		
	11. Name and describe the test used to test a person's muscular endurance.	Test	
		Protocol	

Fitness testing

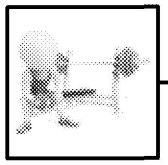
Questions

12. For each of the following te… suggest whether it i… …te for the athlete i… …d to or not … …ustify your answer.

Fitness test	Sport/ athlete	A
Ruler drop test	Pole vault	
Sit and reach test	Dancer	
…inois agility test	100 m sprinter	
Vertical jump test	High jumper	
Grip d… …ter	Race walking	
Cooper 12-minute swim test	Olympic diver	

Fitness testing

Questions		
13. When taking measurements in fitness tests you must make sure you are recording the correct type of data. For the following quantities, state the unit they should be measured in.	Distance	
	Time	
	Mass	
14. Define 'qualitative data'.		
15. Describe quantitative data and give an example of quantitative data that may be collected during a fitness test	Description	
	Example	
16. Explain why quantitative data is useful in fitness testing.		
17. Explain why normative data is useful in fitness testing.		



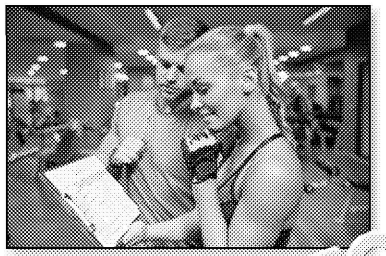
Topic 3: Physical Training

3.3 Principles of training and their application to personal exercise programmes

Principles of training and types of training

Questions		
1. Describe each principle of training.	Specificity	
	Individual needs	
	Progressive overload	
	Reversibility	
	Overtraining	
2. Give a sporting example of how an athlete and/or a coach would consider the principles of training when planning an exercise programme.	Specificity	
	Individual needs	
	Progressive overload	
	Reversibility	
	Overtraining	

Principles of training and types of training	Questions		
	3. [illegible] in how overload can occur using the FITT principle.	F	
		I	
		T	
		T	
	4. Explain why a physical [illegible] readiness questionnaire (PAR-Q) should be used to understand the individual needs of a person. What is the importance of this?		
	5. If an athlete wanted to reach their aerobic training target zone, what percentage of their maximum heart rate should the athlete train in?		
	6. If an athlete wanted to reach their aerobic training target zone, what percentage of their maximum heart rate should the athlete train in?		

	Questions	An
Principles of training and types of training	7. Using a modified version of the Karvonen test (220 – your age), work out your personal aerobic training zone and then work out your personal anaerobic training zone.	My aerobic training zone My anaerobic training zone
	8. What factors should be considered before choosing the best training method and intensity for an athlete training for a particular sport? 	

Principles of training and types of training

Questions

9. Describe the types of training listed, state what fitness compone[illegible] training improves ar[illegible] an example of [illegible] athlete each [illegible] would be [illegible] for.

Training type	Description
Continuous	
Fartlek	
Interval	
Plyometric	
Circuit [illegible]	
Weight/ resistance	

Principles of training and types of training	Questions	An

Name	Target component of fitness
Aerobics	
Yoga	

10. A local leisure centre wants to introduce a range of fitness classes at their complex.

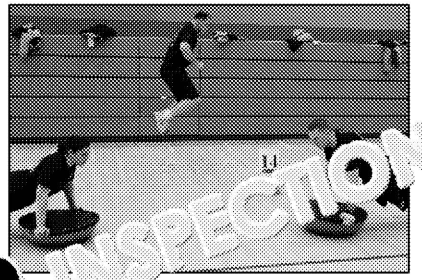
    To help the leisure centre advertise to its current members and the public, identify the component(s) of fitness each class will target and then write an appealing description of each class that will encourage people to attend.

Topic 3: Physical Training

3.3 Principles of training and their application to personal exercise programmes

Advantages and disadvantages of training

Questions

1. Give the advantages and disadvantages of continuous training.	**Advantages**
2. Identify the training type shown in the image. What are the advantages and disadvantages of this type of training? 	**Training Type:** **Advantages**

Advantages and disadvantages of training

Questions	
3. Fartlek training may not be suitable for all athletes depending on the demands of their sport. State the advantages of fartlek training to an athlete.	Advantages
4. Assess the use of plyometric training, weight training and interval training to improve fitness.	Advantages
	Advantages

Topic 3: Physical Training

3.5 How to optimise train[illegible] prevent injury

Injuries and injury prevention and performance-enhancing drugs

[illegible]sions

1

2

1. [illegible] examples, explain four [illegible]y prevention methods athletes [illegible] coaches should adopt in training.

3

4

Injuries and injury prevention and performance-Enhancing drugs

Questions

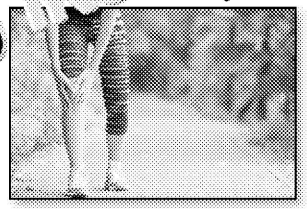
2. Identify and describe the injuries that can occur while taking part in physical activity and sport.

Type of injury	
	Type of soft tissue inju
ot issue injuries	

Injuries and injury prevention and performance-enhancing drugs

Questions

3. RICE is an acronym used for the process of treating minor injuries. Using each of the letters given, name and describe each step.



R	
I	
C	
E	

4. There are a number of accessible performance-enhancing drugs (PEDs) which could help optimise performance; however, there are also some physical consequences. Discuss the advantages and disadvantages of each PED for an athlete.

Steroid advantages

Beta blocker advantages

Diuretic advantages

	Questions	An
Injuries and injury prevention and performance-enhancing drugs	4. There are a number of accessible performance-enhancing drugs (PEDs) which could help optimise performance; however, there are also some physical consequences. Discuss the advantages and disadvantages of each PED for an athlete. (Continued)	**Narcotic analgesic advantages** **Erythropoietin advantages** **Growth hormone advantages** **Stimulant advantages** **Blood doping advantages**

Injuries and injury prevention and performance-enhancing drugs	Questions	An

PED	Sport likely to be associated with
Steroid	
Beta blocker	
Diuretic	
Na[illegible]c analgesics	
Peptide hormones (Erythropoietin and growth hormone)	
Stimulant	
Blood doping	

5. For each of the performance-enhancing drugs (PEDs) provided in the table, state which sport each PED is likely to be associated with and justify your answer.

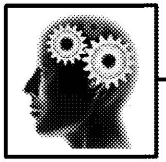
Physical Training

3.6 Effective use of a warm-up and cool-down

Warm-ups and cool-downs

Questions		
1. Warming up and cooling down well can prevent injury. Name four components that should be part of a warm-up.	1	
	2	
	3	
	4	
2. Describe the physiological aims or benefits of warming up to an athlete.		
3. Plan a warm-up for a football player prior to a match.		

	Questions	A
Warm-ups and cool-downs	4. Describe the important compon[illegible] that should be included i[illegible] cool down.	
	5. What benefits does a good cool-down give an athlete?	
	6. Plan an appropriate cool-down for a hockey player.	



Topic 4: Use of Data

4.1 Demonstrating a knowledge & understanding, presenting, analysing & evaluating data

	Questions	
Understanding data	1. Define 'qualitative data'.	
	2. Define 'quantitative data'.	
	3. Give three examples of how to collect qualitative data.	
	4. Give three examples of methods used to collect quantitative data.	
	5a. Below is a question taken from a questionnaire. State whether the answers would be qualitative or quantitative. Give a reason for your answer. 'Rate your experience of today's lesson, learning how to play lacrosse, with 1 being not enjoyable at all and 5 being very enjoyable.'	
	5b. Below is another question taken from the same questionnaire. State whether the answers would be qualitative or quantitative. Give a reason for your answer. 'Please write any feedback you have for today's lacrosse coach in the space provided below.'	

Understanding data

Questions

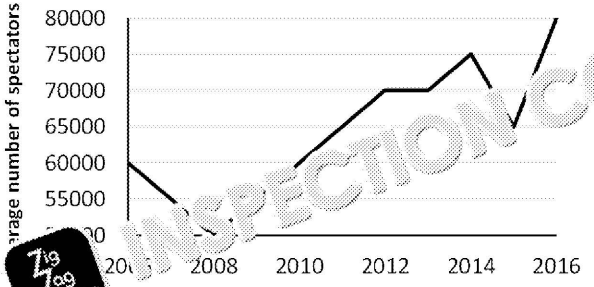
6. Draw a bar chart to show the height jumped by a college basketball player during fitness testing using the following data:

Attempt	Distance (cm)
1	25
2	29
3	30
4	33
5	35

7. In recent years, commercialisation of sport has meant that there have been significant changes in spectatorship.

   Below is a graph showing data regarding average number of spectators in a football ground over the last 10 years.

   Answer the questions to the right using the graph.



a. In what year did the number of spectators hit its lowest?

b. Between what years did the average number of spectators remain the same?

c. Describe the trend of spectators between the years 2013 and