PE

GCSE (9–1) | WJEC | C550QS

2016 specification
first exams in 2018

endorsed by wjec cbac

Starters and Plenaries

For GCSE WJEC PE

zigzageducation.co.uk

POD 7926

Contents

Teacher's Introduction

This resource contains 64 starters and plenaries designed specifically for WJEC GCSE PE specification (2016). The starters in this resource offer activities which will engage the students in the lesson following a break or provide an opportunity for students to make the transition from a break into a lesson by recapping on previous work. The plenaries can be used to finish a lesson, thereby ensuring that learning occurs right up to the end of the lesson.

A range of activities has been created in this resource which incorporates independent, paired and group work and which will be engaging for the students. The varied nature of the activities provides an opportunity for a range of learning styles to be developed, including visual, verbal, auditory and kinaesthetic.

A cross-reference table has been provided which links each activity to the specification points it covers and also identifies which activities are considered starters and which plenaries. However, the identification of each activity as a starter or plenary is only a suggestion and teachers might find that some of the activities are interchangeable.

December 2017

Specification Cross-refere

This table will enable you to pick and choose starters or plenaries relevant to teaching. While each activity has been selected as either a starter or a plenar starter and plenary tasks may be interchangeable, depending on how you tea It is at the teacher's discretion when to use each task.

Specification reference		Activity
1. Health, training and exercise	Health, fitness and well-being	Activity 1 – Health, fitness and well-being: Forbidden
	The contribution which physical activity makes to health and fitness	Activity 2 – Physical well-being: Verbal tennis
		Activity 3 – Mental well-being: What's your advice?
		Activity 4 – Social well-being: Draw it
		Activity 5 – Impact of lifestyle choices: Colour-coding
	Consequences of a sedentary lifestyle	Activity 6 – The consequences of a sedentary lifestyl
	Diet and nutrition	Activity 7 – Energy balance: Create a food plan
		Activity 8 – Nutrition in sport: Match-up*
		Activity 9 – Hydration in sport: Order the answer*
		Activity 10 – Nutrition for specific sports: Energy use
	Components of fitness	Activity 11 – Components of fitness: Glossary
	Measuring health and fitness	Activity 12 – Value of fitness tests: Interview
		Activity 13 – Measuring components of fitness: Test p
		Activity 14 – Fitness test data: Report
	Methods of training	Activity 15 – Types of training: Guess the method
	Training zones	Activity 16 – Training methods: Speech bubbles
	Principles of training and exercising	Activity 17 – Principles of training and FITT: Tweet th
	Warm up and cool down	Activity 18 – Warm-ups and cool-downs: Instructor
2. Exercise physiology	Musculoskeletal system	Activity 19 – Location of major bones: Label your ma
		Activity 20 – Joint types and movements: Guess the
		Activity 21 – Components of joints: Fact file
		Activity 22 – Functions of the skeleton: Forbidden wo
		Activity 23 – Classification of muscles: Fact file
		Activity 24 – Muscles of the body: Label your mate
		Activity 25 – Muscle fibres: Colour-code
	Cardiorespiratory and vascular systems	Activity 26 – Structure of the cardiovascular system:
		Activity 27 – Function of the cardiovascular system: F
		Activity 28 – Heart values: Cardiac calculations
		Activity 29 – Structures of the respiratory system: Dr
		Activity 30 – Gaseous exchange: True or false?
		Activity 31 – Interpreting a spirometer trace: Comple
		Activity 32 – Lung volumes: Data analysis
	Aerobic and anaerobic exercise	Activity 33 – Aerobic and anaerobic exercise: O_2 or n
	Short- and long-term effects of exercise	Activity 34 – Short-term effects of exercise: Drawing
		Activity 35 – Long-term effects of exercise: Fill in the

Specification reference		Activity
3. Movement analysis	Muscle contractions	Activity 36 – Antagonistic muscle pairs: Missing word
		Activity 37 – Antagonistic muscle pairs: Contract and
	Lever systems	Activity 38 – Lever systems: Drawing and performing
	Planes of and axes of movement	Activity 39 – Planes and axes: Dividing the body
	Sports technology	Activity 40 – Using technology: Analyse the film
		Activity 41 – Impact of technology: Mind maps
4. Psychology of sport and physical activity	Goal-setting	Activity 42 – Goals to optimise performance: Data in
		Activity 43 – Goal-setting: SMART match-up
	Information processing	Activity 44 – Basic information processing model: Ar
		Activity 45 – Feedback on performance: Provide feed
		Activity 46 – Feedback data: Data handling
	Guidance	Activity 47 – Guidance on performance: Application
	Mental preparation	Activity 48 – Mental preparation: Instructor
	Motivation	Activity 49 – Intrinsic and extrinsic motivation: Colou
	Characteristics of skilled performance	Activity 50 – Characteristics of skilful movement: Tw
	Classification of skills	Activity 51 – Classification of skills: What skill?
	Types of skill	Activity 52 – Practice structures: Pass the practice
		Activity 53 – Practice and skill classification: Practice
5. Sociocultural issues in sport and physical activity	Participation	Activity 54 – Physical activity and sport in the UK: W
		Activity 55 – Participation in physical activity and spo
		Activity 56 – Development of children through partic
	Strategies to improve participation in sport and physical activity	Activity 57 – Improving participation: Provide the str
	Provision	Activity 58 – Provision for minority groups: Notes on
	Performance	Activity 59 – Commercialism in sport: Report
		Activity 60 – Sponsorship and the media in sport: An
		Activity 61 – Globalisation of sport: Around the globe
		Activity 62 – Trends in commercialisation: Data discu
		Activity 63 – Ethics in sport: Tri-answers
		Activity 64 – Drugs in sport: Positives and negatives

Use of Data is covered in activities throughout.

Activities marked with a * also include links with *Topic 2 – Exercise physiology: ae*

Activity 1 – Health, Fitness and W

Teacher's Notes and Answers

Plenary Activity: Forbidden wor	
Aim of the activity	To understand the terms health, fitness and well-being.
Teacher's instructions	Photocopy the activity sheet and hand one copy to each pa complete the two activities. Students should work in pairs first activity, one student in each pair is required to describ keyword or the forbidden words. The other student shoul describing. For the second activity, students should work t between the terms, using the grid provided.

Answers

Possible definitions:

- Health is described as being in a good physical, mental and social s any sickness or injuries.
- Fitness is the ability to perform activities that are required within y becoming too tired.
- Well-being is an individual's overall (mental, social and physical) le

Any appropriate answer for each:

	Health	Fitness
Health		High levels of fitness can improve the health of an individual by reducing the r of developing certain disea e.g. a high cardiovascular fi is linked to a reduction in cardiovascular disease.
Fitness	Being in good health will ensure that individuals can maintain physical activity levels and, therefore, maintain or improve their fitness levels.	
Well-being	Being in good health can allow individuals to maintain their quality of life by ensuring that they can lead an active and fulfilling lifestyle.	Low fitness levels in strengt muscular endurance, cardiovascular endurance a speed, can result in a reduc ability to complete everyda tasks without getting tired a fatiguing easily. This will re the quality of an individual' and, therefore, life satisfact

Opposite answers can also be provided, e.g. poor health can reduce fi increase fitness levels.

Health, Fitness and Well-being: Forbidden

Describe each of the keywords (without saying the keyword or forbidde
try to guess them. You must describe the words in relation to the cond
example, you cannot describe 'etiquette' as 'having good table manner

Keyword	Forbidden
Health	illness, c
Fitness	training, everyday
Well-being	feeling, good

Now provide an example of how each term in the table below could po
other. Fill in two boxes for each relationship as, for example, the effec
from the effect of fitness on health.

	Health	**Fitness**
Health		
Fitness		
Well-being		

Activity 2 – Physical Well-b

Teacher's Notes and Answers

Plenary Activity: Verbal tennis	
Aim of the activity	To discover the benefits of physical activity, exercise and spo assess how these could be achieved.
Teacher's instructions	Photocopy the activity page and hand one copy to each stud 5–10 minutes filling in as many benefits of physical activity, e for each benefit listed they should identify how it could be a After they have prepared their answers, students should pai should start by saying one of the physical benefits that they should then try to provide a way in which that benefit could example. If they can't provide a method in five seconds the the point. If a method is given, no one gets the point and th of their benefits. An optional tennis ball could be used to pa Extend learning from this activity by allowing students to tak impact of physical activity on social and mental health.

Answers

Physical health benefits could include the following:
(For each benefit students should provide a method in which each coul

Physical health benefit from exercise	How it could be achie
reduces the chance of coronary heart disease (CHD)	Taking part in aerobic exercise such as w the function of the heart and reduces th
limits the occurrence of a number of illnesses	Resistance training can reduce blood pr the chance of a number of illnesses.
increases your ability to carry out daily activities	Taking part in resistance training can im components such as muscular enduran perform housework tasks.
reduces the risk of becoming obese	Exercise can increase your energy expe the risk of accumulating body fat.
reduces the risk of developing type II diabetes	High-intensity cycling can increase your in the blood and, therefore, reduce the
reduces blood pressure	Regular endurance training such as long the size of the arteries and, therefore, r
increases the size of the heart (hypertrophy)	Playing team sports such as hockey req forcefully and, therefore, it adapts by d
reduces the resting heart rate (bradycardia)	Taking part in aerobic exercise results in which reduces the number of times the supply the body with oxygen at rest.
reduces the storage of fat	Taking part in a walking programme inc therefore, reduces the amount of fat th

Physical health benefit from exercise	How it could be achie
reduces the accumulation of fatty deposits within the arteries	Exercising with a jogging group will incre therefore, prevent it from accumulating
increases muscle size and tone	Taking part in a weight-training regime as a result of adaptation to the load bei
increases flexibility of the muscles which will reduce the chance of muscular injury	Stretching the muscles during yoga sess
increases the bone density	Loading the bones by running will result bones will become stronger as they ada the risk of injury.
increases muscular strength and size (hypertrophy)	Taking part in sprint training will increas leg muscles as an adaptation to the wor
improves a number of fitness components	A range of fitness components can be in of work done in the physical activity tha can improve cardiovascular endurance a
improves posture	Performing exercises such as yoga and c maintain body posture during every day desk.

Discussion should be based on:

- Good physical health can positively improve mental health by ensu confident, has low levels of stress and does not have to worry abou
- Good physical health can positively improve social health by ensuri maintain an active social life as they do not have any health issues the house.
- Or the opposite effects.

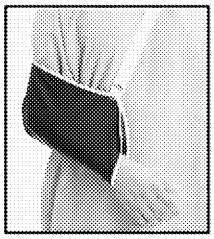
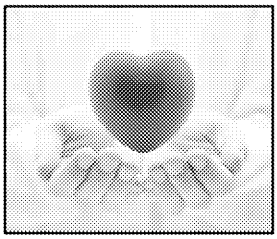
Physical Well-being: Verbal tennis

Complete the table below by listing as many physical health benefits of exerc
to help you). For each benefit you should also suggest how an individual coul

Physical health benefit from exercise	How it co

After 5–10 minutes your teacher will ask you to pair up with another student.

1. One student should start by saying one of the physical benefits that they
2. The other student should then try to provide a way in which that benefit
   example.
3. If they can't provide a method in five seconds the student who said the b
   given, no one gets the point and the other student starts by saying one of
4. Total up your points to see who is the winner.


Now discuss with your partner what impact physical health can have on me

Activity 3 – Mental Well-b

Teacher's Notes and Answers

Starter Activity: What's your advi	
Aim of the activity	To discover the mental benefits of taking part in physical could be achieved.
Teacher's instructions	Photocopy the activity page and give the students five mi each individual regarding how physical activity and exerc being. Then spend five minutes discussing these benefits Extend learning from this activity by allowing students to the impact of mental health on social and physical health

Answers

Mental health and well-being

(Students should suggest how each of the individuals could benefit fro which the selected benefit could be achieved.)

'I feel stressed.'

- Exercise can reduce the occurrence of stress and tension by provid
- This could be achieved through taking part in yoga sessions where relaxation techniques and learn to relax their muscles and mind.

'I feel fat.'

- Exercise can improve self-confidence as you improve your body im muscle tone).
- Seeing the physical development of your body as it becomes healt

'I get anxious.'

- Regular physical activity can improve your self-esteem and help yo mind is taken off your worries and your mind-set is more positive.
- By taking part in regular swimming sessions, you could help focus yo how your body moves through the water could be a relaxing way to

'I feel depressed.'

- The release of feel-good hormones, the social interaction and the i something can reduce depression.
- This can occur when you are part of a running club, which allows yo people as well as physically feel better.

'I have low confidence.'

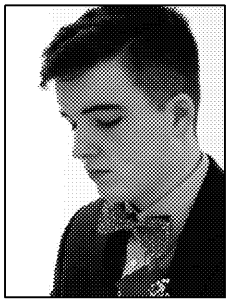
- Exercise can improve self-confidence as you become fitter and dev achievement.
- Learning a new skill, for example through taking part in a beginner improve your confidence as you improve your ability.

Discussion should be based on:

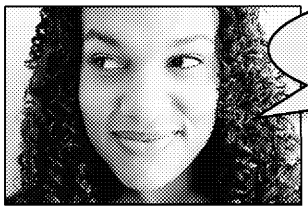
- Good mental health can lead to improved physical health as indivi low levels of anxiety are more capable of taking part in regular phy improved physical health.
- Good mental health can lead to improved social health as individua low levels of anxiety are more capable of maintaining an active soc
- Or the opposite effects.

Mental Well-being: What's your advice?

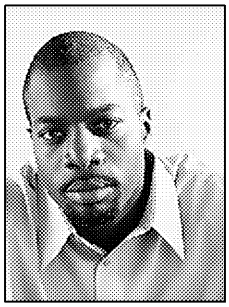
Explain to the following people how taking part in regular physical activ
improving their emotional health and well-being. Also suggest how thi



I feel stressed.



I feel fat.



I get anxious.

I feel depressed.

I have low confidence.

Now discuss with your partner what impact mental health can have on phys

Activity 4 – Social Well-be

Teacher's Notes and Answers

Starter Activity: Draw it	
Aim of the activity	To discover how improved social health can be achieved b activity and sport.
Teacher's instructions	Photocopy the activity page and give one copy to each st minutes to think of three ways in which social health can sport and what causes these improvements. Then instru minutes drawing a visual representation of these improve being before discussing their ideas as a class for two min Extend learning from this activity by allowing students to the impact of social health on physical and mental health

Answers

Social health and well-being

Students should draw pictures which represent the following:

- It provides an opportunity to make new friends or see your old frie
  How it is achieved: e.g. taking part in a five-a-side football league w
- It can reduce the feeling of loneliness.
  How it is achieved: e.g. taking part in a walking group can make yo
- It provides an opportunity to be part of a group.
  How it is achieved: e.g. taking part in a team sport such as netball

Discussion should be based on:

- Good social health is likely to lead to improved mental health as in and self-esteem by building close relationships with others.
- Good social health is likely to lead to improved physical health as in opportunities to be physically active and they will have a supportive to maintain motivation levels.

Social Well-being: Draw it

Draw a picture to represent three different social health benefits of tak
activity and then provide an explanation for how these benefits could b

How it is achieved:	**How it is achiev**

How it is achieved:

**Now discuss with your partner what impact social health can have on
physical health.**

Activity 5 – Impact of Lifestyle

Teacher's Notes and Answers

Starter Activity: Colour-coding	
Aim of the activity	To identify the different lifestyle choices that can be mad that each one can have on health, fitness and well-being.
Teacher's instructions	Photocopy the activity page and hand out one copy to ea minutes to identify which outcomes are caused by which them appropriately. Then spend five minutes asking the and provide any further consequences of making those li Extend learning from this activity by allowing students to the positive impacts of lifestyle choices and how individu lifestyle choices.

Answers:

Smoking: Bronchitis, addiction, asthma, coronary heart disease, lung ca defects if pregnant, pneumonia

Alcohol: Addiction, depression, coronary heart disease, liver disease, d stroke, birth defects if pregnant

High fat intake: Obesity, coronary heart disease, stroke

Lack of physical activity: Arthritis, obesity, coronary heart disease, a ra cardiovascular fitness, diabetes, high blood pressure, stroke, reduced s

Work–sleep balance: Depression, fatigue, anxiety

Positive impacts discussed will be the opposite of the negative impacts achieving adequate physical activity will lead to:

- Reduced risk of arthritis
- Reduced weight gain / obesity
- Improved cardiovascular health, e.g. reduced risk of coronary hear pressure
- Improved cardiovascular fitness
- Reduced risk of diabetes
- Reduced blood pressure
- Increased strength

Maintaining adherence:

- They can set goals which should be based around the SMART princ
- They should regularly check their progress and keep a track of it in
- They can attend meetings with other people who are trying to mak
- They should maintain a close support network of family and friend to maintain motivation levels during difficult periods
- They should be realistic with what they hope to achieve
- Any other points linked to methods for maintaing motivation level

Impact of Lifestyle Choices: Colour-coding

Colour in the five lifestyle choices below using a different colour for eac
each lifestyle choice will result in from the box below and colour-code t
colours (if an outcome could be caused by more than one lifestyle choi
one colour).

Smoking | Alcohol | High fat intake | Lack of physical a

Bronchitis

Addiction

Arthritis

Asthma

Lung ca

Depression

Reduced cardiovascula fitness

Stroke

Anxiety

Liver disease

Pneumonia

A range of cancers

Fatigue

Reduced strength

**Now discuss with a partner the positive impacts that lifestyle choices c
individuals can maintain their adherence to healthy lifestyles.**

Activity 6 – The Consequences of a Sed

Teacher's Notes and Answers

Plenary Activity: Tweet the lesso	
Aim of the activity	To understand what comprises a sedentary lifestyle and the on an individual.
Teacher's instructions	Photocopy the activity page and hand one copy to each stu 10 minutes writing a tweet which summarises the informat about the consequences of leading a sedentary lifestyle. Th engaging and should also include a hashtag to make the inf

Answers

Students can provide their own creative tweets but they must be releva some examples:

Tweet 1: Not being physically active on a regular basis is classed as a s #CoachPotato

Tweet 2: Being inactive can cause weight gain and lead to obesity (the fat). #ExcessFat

Tweet 3: Sedentary lifestyles can lead to a number of health problem and atherosclerosis which can contribute to heart attacks. #

Tweet 4: Obesity can lead to a lack of confidence due to a reduced bo

Tweet 5: Obesity can reduce a number of fitness components such as endurance which can reduce self-esteem. #CardioFatscular

Tweet 6: Physical activity provides an opportunity to forget about life' to stress. #LessStress

Tweet 7: Diets containing a lot of bad cholesterol (low-density lipopro when fatty streaks develop on the walls. #Blockage

The Consequences of a Sedentary Lifestyle

Create a series of tweets which define sedentary lifestyles and summarise the
leading a sedentary lifestyle (include a creative hashtag as well!).

Tweet 1: Definition of sedentary lifestyle

Tweet 2: Consequences of sedentary lifestyle on obesity

Tweet 3: Consequences of sedentary lifestyle on hypertension and athero

Tweet 4: Consequences of sedentary lifestyle on self-confidence and body

Tweet 5: Consequences of sedentary lifestyle on self-esteem

Tweet 6: Consequences of sedentary lifestyle on stress

Tweet 7: Consequences of sedentary lifestyle on atherosclerosis

Activity 7 – Energy Balan

Teacher's Notes and Answers

Starter Activity: Create a food pl	
Aim of the activity	To understand the factors affecting optimum weight a balance can be achieved in order to maintain a health
Teacher's instructions	Photocopy the activity page and hand one copy to eac to spend 10 minutes creating a food plan (breakfast, l calorie requirements of two or three different types o more plans if they have time. They should then discus maintenance of a healthy weight with the rest of the c

Answers

Total daily calories should represent the following:

- Muscular man – 2,500 Kcal or over
- Unmuscular man – 2,500 Kcal or under
- Woman 5ft 2in – 2,000 Kcal or under
- Woman 5ft 11in – 2,000 Kcal or over
- 40-year-old man – Around 2,500 Kcal
- 40-year-old woman – Around 2,000 Kcal
- Man with a high bone density – 2,500 Kcal or over
- Man with a low bone density – 2,500 Kcal or under

Students should discuss the following points:

- Energy balance = energy in (dietary) – energy out (basal metabolic r
- A positive energy balance leads to weight gain
- A negative energy balance leads to weight loss
- A balanced energy balance ensures that weight is maintained
- The average man will have a higher optimum weight than the aver need to consume more calories to maintain a healthy weight.
- Taller people will have a higher optimum weight than shorter peop consume more calories to maintain a healthy weight.
- Those with large bone structures will have a higher optimum weigh structures and will, therefore, need to consume more calories to m
- Those with a large muscle girth will have a higher optimum weight girths and will, therefore, need to consume more calories to maint

Energy Balance: Create a food plan

Read the list of foods below, and the number of calories found in each one, food plan (breakfast, lunch, dinner and snacks) for the day for two or three listed which would allow them to maintain a healthy weight. Then discuss energy balance equation, the effects of having different energy balances (o and the different factors which impact on the maintenance of a healthy we

Steak – 240 Kcal	Boiled potatoes – 115 Kcal	
Bagel – 200 Kcal	Spaghetti and meatballs – 260 Kcal	
Avocado – 305 Kcal	White bread – 55 Kcal per slice	
Blueberries – 80 Kcal	Canned tuna – 165 Kcal	
Carrots – 70 Kcal	Strawberries – 45 Kcal	
Cheesecake – 280 Kcal	Peas – 125 Kcal	
Chicken breast – 140 Kcal	Margarine spread – 75 Kcal	
Cornflakes – 110 Kcal	Lamb chop – 135 Kcal	M
Egg – 75 Kcal	Cream cheese – 100 Kcal	

Types of people: muscular man, unmuscular man, woman (5ft 2in), wo man, 40-year-old woman, man with a high bone density, man with a l

Type of person:	
Breakfast:	
Lunch:	
Dinner:	
Snacks:	
	Total calories:

Type of person:	
Breakfast:	
Lunch:	
Dinner:	
Snacks:	
	Total calories:

Type of person:	
Breakfast:	
Lunch:	
Dinner:	
Snacks:	
	Total calories:

Activity 8 – Nutrition in Sp

Teacher's Notes and Answers

Starter Activity: Match-up	
Aim of the activity	To understand the nutritional requirements of the di of macronutrients and micronutrients.
Teacher's instructions	Photocopy the activity page and hand one copy to ea to spend 5–10 minutes writing a description of each c linking all of the components which are related by dr Then start a class discussion about the role that each

Answers

Carbohydrate – Appropriate description, e.g. the major source of energ stored as glycogen in the muscles and broken down to create energy th (macronutrient)

- 55–60% of diet
- Bread (image)
- Pasta (image)
- Source of energy for all intensities of exercise
- Consumed in large quantities by endurance athletes prior to comp

Fat – Appropriate description, e.g. a source of energy for exercise which of energy when the intensity is low and also provides the body with ins (macronutrient) tissues.

- 25–30% of diet
- Butter (image)
- Cheese (image) (Can also be used for minerals – calcium)
- If unused could be stored and cause obesity
- Source of energy for low-intensity aerobic exercise such as walking

Protein – Appropriate description, e.g. the nutrient which is required fo within the body and, therefore, important for muscle development. (ma

- 15–20% of diet
- Chicken (image)
- Steak (image) (Can also be used for fat)
- Milk (image) (Can also be provided for fats and minerals – calcium)
- Can be consumed after resistance exercise to aid strength develop

Minerals – Appropriate description, e.g. nutrients which are required fo to function properly, e.g. bone growth. (micronutrient)

- Fruit (image)
- Carrots (image)
- Needed for energy, growth and hydration

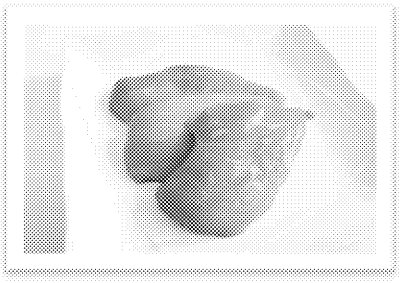
Water – Appropriate description, e.g. the source of hydration which allo temperature. (macronutrient)

- Can be provided by the fluid within food
- It is required during exercise in hot and humid conditions
- Maintains blood volume in long-duration events

Nutrition in Sport: Match-up

Provide a brief description of each type of nutrient below, and indicate
a micronutrient. Then, using five different colours (one for each), link t
to each of the four nutrients by colouring, circling or drawing a line bet

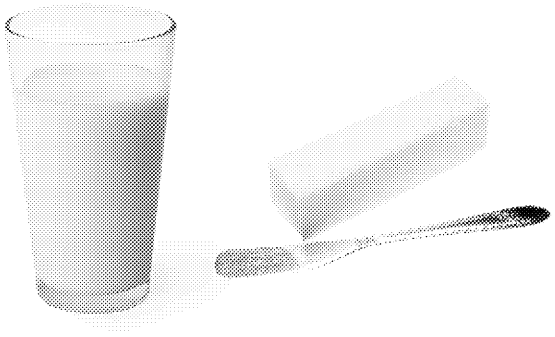
Carbohydrates:	**Fats:**	**Protein:**	**Mineral**
Macronutrient ☐ Micronutrient ☐	Macronutrient ☐ Micronutrient ☐	Macronutrient ☐ Micronutrient ☐	Macronut Micronut



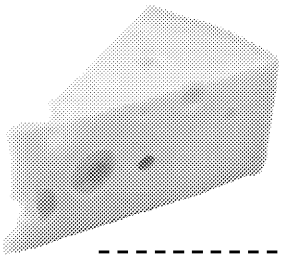
Can be consumed after resistance exercise to aid strength development for power athletes

Consum
quant
enduran
pri
comp

A source of energy for all intensities of exercise



Can be provided from the fluid within food

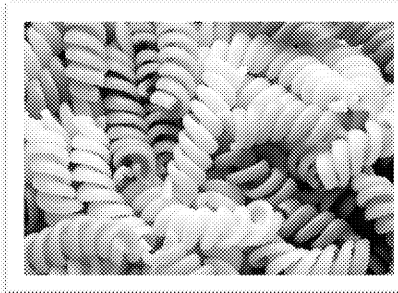


Maintains blo
in long-durati

Source of ener
intensity aerob
such as w

If unused could be stored and cause obesity

25–30% of di



It is required during exercise in hot and humid conditions

55–60% of diet

Activity 9 – Hydration in S

Teacher's Notes and Answers

Plenary Activity: Order the answ	
Aim of the activity	To understand what dehydration is, how it can be prever negative effects of it.
Teacher's instructions	Photocopy the activity page and hand one copy to each s scissors and glue and instruct them to spend 10 minutes c and then trying to arrange them into the correct order. O should ask the class to discuss the correct order and reve glue down their answers.

Answers

Exercising for long periods of time or in hot conditions can cause an ind This water is lost as sweat and can lead to dehydration. / In order to av that water is consumed before, during and after exercise in order to m individual becomes dehydrated this can affect their ability to exercise e it places upon the body.

Water forms part of the blood and, therefore, as water is lost, the bloo (thicker). / As a result of this, blood flow is slower. / In order to provid to the working muscles, the heart will have to work harder by beating r

During exercise a large amount of heat is created by the body and wate the body through sweating. / Therefore, if an individual is not able to r they will not be able to effectively cool the body and may overheat. / T impairments such as increased reaction times and wrong decisions. / I impairments such as a reduced ability to exercise for long periods due t

Over hydration is also an issue which can lead to health impairments. / A quanitities of fluids in a short space of time following exercise. / The prob may not be able to remove water from the body quickly enough. / which between water and sodium in the blood / leading to the impairment of c

Hydration in Sport: Order the answer

Cut out the following sentences and arrange them into an order which answe

Define 'dehydration' and 'overhydration' and explain how they can be avoi have on the body.

Exercising for long periods of time or in hot conditions can cause an individu

As a result of this, blood flow is slower.

Athletes will often consume large quantities of fluids in a short space of tim

It can also lead to physical impairments such as a reduced ability to exercise fatigue and cramp.

During exercise a large amount of heat is created by the body and water is r through sweating.

The problem with this is that the kidney may not be able to remove water f

This can lead to psychological impairments such as increased reaction times

Over hydration is also an issue which can lead to health impairments.

Therefore if an individual is not able to maintain their water balance, they w the body and may overheat.

If an individual becomes dehydrated this can affect their ability to exercise e places upon the body.

In order to avoid dehydration, it is important that water is consumed before to maintain water balance.

leading to the impairment of cognitive functioning.

This water is lost as sweat and can lead to dehydration.

which can lead to an imbalance between water and sodium in the blood

Water forms part of the blood and, therefore, as water is lost, the blood be

In order to provide the same amount of oxygen to the working muscles, the beating more frequently.

Activity 10 – Nutrition for Speci

Teacher's Notes and Answers

Plenary Activity: Energy use	
Aim of the activity	To understand the effect of diet and hydratio physical activity.
Teacher's instructions	Photocopy the activity page and hand one co students to study the two athletes and fill in t they have about the importance of each com specific athlete.

Answers

Weightlifter:

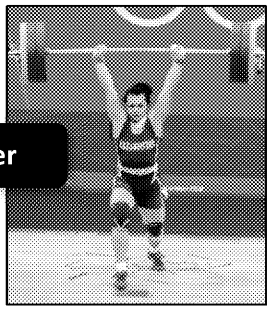
- **Carbohydrates** – provide glucose in the bloodstream which can pro exercise, but glycogen stores are less important for high-intensity a exercise does not last long enough to utilise them.
- **Proteins** – important for recovery and adaptation. It is important w quantities of protein following an exercise session as it will aid the development of new muscle tissue which will increase muscle mas
- **Fats** – less important as an energy source for anaerobic exercise su other forms of exercise, but body mass is an important component therefore, beneficial to consume fat.
- **Minerals** – minerals such as calcium can improve bone strength an important for weightlifters as they are repeatedly placing their bon
- **Water** – water can be consumed before competition and after com important in short duration sports as not much water is lost throug for athletes to regulate their fluid intake as they do not want to ex to water weight.

Triathlete:

- **Carbohydrates** – carbohydrates provide the main source of energy intensity aerobic exercise and should, therefore, be consumed in la perform carb-loading before a competition in order to greatly incre can be achieved by initially depleting glycogen stores through prolo large quantities of carbohydrates in the week building up to a com also be consumed during prolonged exercise and they should be co exercise in order to replenish glycogen stores.
- **Proteins** – less important than sports such as weightlifting where m However, protein can be used as an energy source during very pro important after exercise in order to aid the recovery process.
- **Fats** – fats require oxygen to be metabolised and they are therefor during prolonged aerobic exercise. They also help to reduce the us allow glycogen stores to last longer during prolonged exercise.
- **Minerals** – iron intake is important as this is required for oxygen tr adequate amounts of iron, it ensures that the athlete has the abilit the working muscles during exercise in order to fuel aerobic exerci
- **Water** – water should be consumed before, during and after exerci during the event and it is important that they attempt to replace th race in order to reduce the effects of dehydration. Dehydration ca therefore negatively affect the amount of oxygen that can be trans

Nutrition in Sport: Energy use

Although a balanced diet is important for general health, athletes need to
them perform to a high level in their sport. For both of the athletes below
the diet is important for them and how they may alter their intake in orde



Weightlifter

Triathlete

Carbohydrates:	**Carbohydrates:**
Proteins:	**Proteins:**
Fats:	**Fats:**
Minerals:	**Minerals:**
Water:	**Water:**

Activity 11 – Components of F

Teacher's Notes and Answers

Plenary Activity: Glossary	
Aim of the activity	To understand the different components of fitness an sports in which they are required.
Teacher's instructions	Photocopy the activity page and hand one copy to eac between 10 and 15 minutes to create a glossary of the around the classroom while the students are complet if they are unsure about any of the terms. You could e students to describe the tests for each and their proce

Answers:

Definitions should be similar to the ones provided below.

- **Agility** – The ability to rapidly change direction – important in rugb quickly when sidestepping an opponent.
- **Balance** – The ability to maintain your centre of balance in a stable gymnastics to control movements of the body in order to provide a
- **Cardiovascular endurance** – The ability to supply the working tissue maintain aerobic exercise for a long period – important for long-di able to maintain work rate for a long duration.
- **Coordination** – The ability to time the movement of body parts in r cues – important for cricket, e.g. timing leg and arm movements w efficiency in movement.
- **Flexibility** – The ability to produce a large range of movement at a players as it extends their range of movement when stretching to r
- **Muscular endurance** – The ability to repeatedly contract a muscle important for long-distance cycling in order to continually contract time.
- **Power** – The ability to quickly apply force – important for long jum rapidly produce a large force and jump further.
- **Reaction time** – The ability to respond quickly to a cue – important order to start running when the gun is sounded.
- **Muscular strength** – The ability to overcome a large resistance – in force the opponent backwards off the ball in order to win the scru
- **Speed** – The ability to move a certain distance in a short period of t such as football and hockey, e.g. when chasing an opponent to the
- **Body composition** – The relative contribution of fat and fat-free m important in all sports as body size and shape will affect performan benefit from a large proprotion of fat mass as it will increase the fo whereas a marathon runner requires low levels of fat mass as they body weight for a long period of time.

Components of Fitness: Glossary

Create a glossary for the components of fitness. Include examples of p
require each component of fitness and then provide a reason why you c

Agility is:	Sports that re
Balance is:	Sports that re
Cardiovascular endurance is:	Sports that re
Coordination is:	Sports that re
Flexibility is:	Sports that re
Muscular endurance is:	Sports that re
Power is:	Sports that re
Reaction time is:	Sports that re
Muscular strength is:	Sports that re
Speed is:	Sports that re
Body composition is:	Sports that re

Activity 12 – Value of Fitn

Teacher's Notes and Answers

Plenary Activity: Interview	
Aim of the activity	To understand why fitness tests are used and the limita
Teacher's instructions	Photocopy the activity page and hand one copy to each p to interview each other and write down a summary of th student should take on the role of the interviewer and t interviewee. The interviewee should answer the questio knowledge and the interviewee should write a summary and add any information that was missed in a different c

Answers:

1) Answer to include:
   - Provides an opportunity to find out the current state of releva order to develop an understanding of an athlete's strengths an
   - Provides an opportunity to find out a baseline level of fitness
   - Provides information on which training programmes can be de
2) Answer to include:
   - Provides an opportunity for the training programmes to be ass against baseline and previous measurements
   - Provides an opportunity to track the improvements of the athl
   - Provides an opportunity for the athlete to be compared to nor
3) Answer to include:
   - Goals can be set and tracked against the fitness test to mainta
   - Completing fitness tests can be fun and provide an interesting
4) Answer to include:
   - The fitness tests are not always specific to certain sports, e.g. s not be relevant for sports which require upper body flexibility
   - The fitness tests do not always use the same movements as th
   - The fitness tests are not performed in competitive situations a a true measurement
5) Answer to include:
   - Sub-maximal tests are sometimes inaccurate or unreliable
   - Maximal tests require athletes to be highly motivated to push t
6) Answer to include:
   - Collecting questionnaires
   - Blood pressure measurements
   - Heart rate measurements
   - Measure of calorie input
   - Measure of calorie expenditure
7) Answer to include:
   - A test is valid if it measures what it is designed to measure
   - A test is reliable if the results can be repeated
   - Validity can be increased by ensuring the correct protocols are
   - Reliability can be increased by carrying out a test at least three

Value of Fitness Tests: Interview

Interview you partner by asking the following questions and writing do
regarding the reasons for fitness testing. If they have missed any impor
and write it down as well. Use one colour to record their answers and a
anything they may have missed.

1) Why is fitness testing useful before starting a training programme?

.....

.....

2) Why is fitness testing useful during and after a training programme

.....

.....

3) How does fitness testing ensure athletes remain interested in train

.....

.....

Now swap roles and do the same for the following questions

4) Why is fitness testing not always appropriate for certain sports?

.....

.....

5) Briefly evaluate the use of maximal and sub-maximal fitness tests.

.....

.....

6) Apart from fitness tests, how else can health-related data be collec

.....

.....

7) What are 'validity' and 'reliability' and how can they be increased?

.....

.....

.....

.....

Activity 13 – Measuring Compone

Teacher's Notes and Answers

Starter Activity: Test Procedure	
Aim of the activity	To understand which fitness tests can be used to measu fitness and the procedures of these tests.
Teacher's instructions	Photocopy the activity page and hand one copy to each st with a partner and spend 10 minutes filling in one of the t information about the equipment needed, the name of th fitness it measures and the units of measurement. Once t the students to explain their table to their partner so that

Answers

Procedure summary	Equipment	Test	C
Measure a set distance (e.g. 50 m) and place a cone at each end. Start the stopwatch and see how far the participant can run/swim in 12 minutes.	tape measure, cones, stopwatch	Cooper 12-minute test	e
Sit on the floor and place your legs out in front of you, against the box. Try to reach forward as far as possible onto the box in front of you.	sit-and-reach box	sit-and-reach test	
Perform as many press-ups as possible in one minute.	mat and stopwatch	one-minute press-up test	
Run between two marks, set 30 m apart, in the shortest time possible.	stopwatch, cones, sports hall and tape measure	30 m sprint test	
Squeeze a dynamometer with your hand with maximum isometic contraction for around five seconds.	grip dynamom eter	handgrip dynamometer	
Run around the multidirectional course as quickly as possible.	cones, stopwatch	Illinois agility test	

Procedure summary	Equipment	Test
Balance on one leg with the other leg raised with the foot placed against the standing leg's knee for as long as possible.	stopwatch	stork balance test
Run between two lines of cones set 20 m apart in time to the signal (bleep) on an audio tape. You must arrive at the other end in time with the signal and then run back. The time between the signals will get progressively shorter as you progress through the stages.	cones, stopwatch, CD player	multistage fitness test
Perform as many abdominal curls as you can while keeping in time with a metronome set to 20 bpm.	stopwatch, mat	Abdominal curl test
Perform one repetition of a weightlifting exercise with as much weight as possible.	weights	One-repetition max test
Lie face down on the floor and reach above your head with both arms to hold onto a measuring stick. Try to lift your arms as far up the stick as you can.	measuring stick	hyperextension test
Measure the amount of subcutaneous fat that can be pinched at a range of anatomical points on the body and use an equation to work out body composition.	skinfold callipers	skinfold callipers
Throw a ball against a wall and catch it in the opposite hand as many times as possible in 30 seconds.	wall, tennis ball, stopwatch	alternate hand throw test
Place your fingers either side of the bottom of a ruler as an assistant holds it. Grab the ruler as quickly as possible when they drop it.	ruler	ruler drop test
Reach as high as possible while standing with your feet on the ground and mark the height against the wall. Now perform a standing jump and try to reach as high as possible and mark the wall at the peak of the jump.	ruler, wall, chalk	vertical jump

Measuring Components of Fitness: Test Pro

Brief test procedures have been provided for a range of fitness tests. W
blank spaces in the table by identifying the equipment needed, the app
component of fitness it measures and the units of measurement. One p
complete the first table and the other person should complete the seco
the information, come back together and talk each other through your

Procedure	Equipment	Test
Measure a set distance (e.g. 50 m) and place a cone at each end. Start the stopwatch and see how far the participant can run/swim in 12 minutes.		
Sit on the floor and place your legs out in front of you, against the box. Try to reach forward as far as possible onto the box in front of you.		
Perform as many press-ups as possible in one minute.		
Run between two cones, set 30 m apart, in the shortest time possible.		
Squeeze a dynamometer with your hand with maximum isometic contraction for around five seconds.		
Run around the multidirectional course as quickly as possible.		
Balance on one leg with the other leg raised with the foot placed against the standing leg's knee for as long as possible.		

Procedure	Equipment	Test
Run between two lines of cones set 20 m apart in time to the signal (bleep) on an aduio tape. You must arrive at the other end in time with the signal and then run back. The time between the signals will get progressively shorter as you progress through the stages.		
Perform as many abdominal curls as you can while keeping in time with a metronome set to 20 bpm.		
Perform one repetition of a weightlifting exercise with as much weight as possible.		
Lie face down on the floor and reach above your head with both arms to hold onto a measuring stick. Try to lift your arms as far up the stick as you can.		
Measure the amount of subcutaneous fat that can be pinched at a range of anatomical points on the body and use an equation to work out body composition.		
Throw a ball against a wall and catch it in the opposite hand as many times as possible in 30 seconds.		
Place your fingers either side of the bottom of a ruler as an assistant holds it. Grab the ruler as quickly as possible when they drop it.		
Reach as high as possible while standing with your feet on the ground and mark the height against the wall. Now perform a standing jump and try to reach as high as possible and mark the wall at the peak of the jump.		

Activity 14 – Fitness Test

Teacher's Notes and Answers

Starter Activity: Report	
Aim of the activity	To be able to interpret data from fitness test results an normative data tables.
Teacher's instructions	Photocopy the two activity pages and hand one to each s to read through the results and tables of normative data on the second page. Then feed back the correct answers mark their own work.

Answers

1. Cooper 12-minute test
2. Flexibility and muscular endurance
3. He scored well on the tests for cardiovascular fitness (Cooper 12-m jump test) and speed (30 m sprint test) which are all important for score well on the test of muscular endurance (one-minute press-up for the muscular endurance of the arms which is of little importanc 1,500 m.
4. The sit-and-reach test
5. No. The tables of normative data that Stephanie should compare h the differences in scores recorded by male and female participants
6. No. Stephanie would compare better to national averages if she sc due to the normative data for females being lower for all tests exc

Fitness Test Data: Report

Compare the results achieved by Hugo (a 16-year-old 1,500 m runner) t
and answer the questions on the following page.

Cooper 12-minute test	2,820 m
Sit-and-reach	3.9 cm
One-minute press-up	17
Vertical jump	54 cm
30 m sprint	4.1 s

Cooper 12-minute test

Age	Excellent	Above Average	Average
15–16	>2800 m	2500–2800 m	2300–2499 m

Sit-and-reach test

Age	Excellent	Above Average	Average
16–19	>14	14.0–11.0	10.9–7.0

One-minute press-up test

Age	Excellent	Good	Average
Teens	45+	31–41	26–29

Vertical jump test

Age	Excellent	Above Average	Average
16–19	>65 cm	50–65 cm	40–49 cm

30 m sprint test

Age	Excellent	Above Average	Average
16–19	<4	4.0–4.2	4.3–4.4

Answer the following questions relating to Hugo's performance in th

1. In which test did Hugo perform the best compared to national ave

   .....

2. Which components of fitness should Hugo try to improve?

   .....

   .....

   .....

3. Did Hugo score highly in the tests which are important for compet
   your answer.

   .....

   .....

   .....

   .....

   .....

   .....

   .....

4. Which test did Hugo score the worst on compared to national ave

   .....

5. Hugo's training partner Stephanie also took part in the same fitne
   results to the tables above in order to determine how well she sc

   .....

   .....

   .....

   .....

   .....

6. If Stephanie scored the same results as Hugo, would she compare
   results? Explain your answer.

   .....

   .....

   .....

   .....

Activity 15 – Types of Trai

Teacher's Notes and Answers

Starter Activity: Guess the Metho	
Aim of the activity	To understand what the different types of training inv sport or physical activities they are useful for.
Teacher's instructions	Photocopy the activity page and hand one copy to eac between five and ten minutes to read the statements training they relate to. Students should then write do disadvantage of each method.

Answers

1) This requires the athlete to perform a number of different exercises

2) The athlete performs this exercise at a steady pace for a prolonged

3) This requires the athlete to continually lift large loads, and will resu

4) This can be performed on a range of terrains at different speeds.

5) This exercise is interspersed with periods of rest / low-intensity exe

6) This involves bounding or jumping in order to increase power throu followed by larger concentric contractions.

Students could provide one of the following advantages and disadvanta other appropriate answer.

Type of Training	Advantages	
Circuit training	• different components of fitness and skills can be developed • intensity of work and rest periods can be altered	• req • tak
Continuous training	• improves cardiovascular endurance • improves muscular endurance	• can • doe
Weight training	• improves strength • improves muscular endurance • improves power	• can • req • not
Fartlek training	• useful for games players • more varied than continuous training	• req • diff
Interval training	• fitness improvements can be made with relatively little time spent exercising	• phy • req
Plyometric training	• improves power	• hig

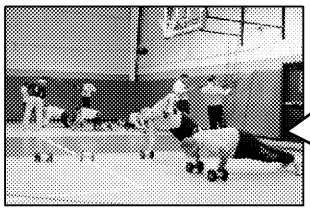
Types of Training: Guess the Method

Identify which type of training session each of the people below is talki
to the images below to place next to each statement. Then discuss eac
partner got the same answers.

Then, write down one advantage and one disadvantage of each trainin

1	2	3	4	5
Circuit training	Continuous training	Weight training	Fartlek training	Interva training

	This exercise is interspersed with periods of rest or low exercise.
	Advantage:
	Disadvantage:



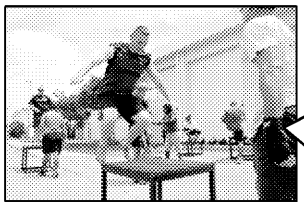
	This requires the athlete to perform a n exercises at each station that they move
	Advantage:
	Disadvantage:

	The athlete performs this exercise at a steady pace for a period of time.
	Advantage:
	Disadvantage:

	This can be performed on a range of terrain
	Advantage:
	Disadvantage:

This requires the athlete to continually lift large loads, a
in strength gains.

Advantage:
Disadvantage:



This involves bounding or jumping in ord
through eccentric contractions followed b
contractions.

Advantage:
Disadvantage:

Activity 16 – Training Meth

Teacher's Notes and Answers

Plenary: Speech Bubbles	
Aim of the activity	To understand the factors that need to be considered appropriate training methods and training intensities and sports.
Teacher's instructions	Photocopy the activity page and hand one to each stu to complete the activity by filling in the blank speech person. The advice should contain what forms of trai and what intensity of training is the most appropriate should also calculate the appropriate heart rate traini

Answers

Below are the most appropriate training methods and intensities which case study:

i) This person should take part in continuous training or fartlek traini
This training should be performed at light intensity of 50 – 60% usi

Minimum heart rate (50%):
220 – 26 =194
194 – 80 = 114
114 × 0.50 + 80 = 137 bpm

Maximum heart
220 – 26 =19
194 – 80 = 1
114 × 0.60 +

ii) This person should use circuit training.
The circuit can be developed to target a range of different fitness c
should work aerobically by training at 70 – 80% of their predicted m
Karvonen formula.

Minimum heart rate (70%):
220 – 16 =204
204 – 74 = 130
130 × 0.70 + 74 = 165 bpm

Maximum heart
220 – 16 =20
204 – 74 = 13
130 × 0.80 +

iii) This person should use interval training and plyometrics.
When performing this training, they should work anaerobically by w
predicted maximum heart rate using the Karvonen formula.

Minimum heart rate (80%):
220 – 25 =195
195–69 = 126
126 × 0.80 + 69 = 170 bpm

Maximum heart
22 – 25 = 195
195 – 69 = 12
126 × 0.90 +

Karvonen formula:

- *220 – age* **= *Maximum heart rate***
- Maximum *heart rate – resting heart rate* **= *heart rate reserve***
- *(Heart rate reserve x training %) + resting heart rate* **= target heart**

Training Methods: Speech Bubbles

Read each of the small case studies. For each person think about their c
level of fitness and the facilities available to them. Based on this inform
bubbles with:

1) What you think is the most appropriate training method for them t
2) What intensity you think they should work at or get participants w
   their goals.
3) For each individual, use the Karvonen formula to calculate their tar

i)

I am 26 years old with a resting heart rate of 80 bpm and I have never taken part in a formal exercise programme before and don't have access to a gym. I would like to improve my cardiovascular endurance so that I can reduce my blood pressure as I have hypertension.

1).....
.....
.....
.....
.....
.....

Calculations:

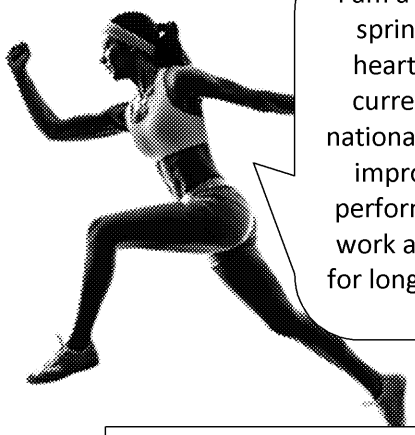
ii)

I am a fitness coach for a local hockey team. I want to help one of my 16-year-old athletes who has a resting heart rate of 74 bpm to develop their aerobic fitness in order to improve overall performance and I have been given access to a range of equipment in order to achieve this.

.....
.....
.....
.....
.....
.....

Calculations:

iii)



I am a 25-year-old 200 m sprinter with a resting heart rate of 69 bpm. I currently compete at a national level and I want to improve my anaerobic performance so that I can work at a higher intensity for longer during my races.

.....

.....

.....

.....

.....

.....

Calculations:

Activity 17 – Principles of Trainin

Teacher's Notes and Answers

Plenary Activity: Tweet the Lesso	
Aim of the activity	To understand the key principles of training and how
Teacher's instructions	Photocopy the activity page and hand one copy to eac minutes to create a tweet which summarises each pri hashtag in order to engage the public with the topic. remind the students about any principles that they ar use 140 characters per tweet. Extend this to 160 if stu

Answers

Each tweet to include information relating to the following:

1. Specificity – The training needs to include the same skills and fitnes playing the sport #MatchToSport
   e.g. focusing mostly on positions which improve the flexibility of le

2. Progression – You need to increase your workload as your body ad
   e.g. performing harder positions once the athlete starts to find the

3. Overload – You need to stress your body in order to develop #Don
   e.g. the athlete should ensure that they are optimally stretching th

4. Frequency – The number of times training sessions occur #HowOft
   e.g. the athlete could take part in two sessions per week

5. Intensity – The amount of work performed in each training session
   e.g. the athlete could take fewer rest periods during the session

6. Duration – The amount of time spent training during each session #
   e.g. the athlete could perform hour-long sessions instead

7. Variance – The type of activity performed during each training sess
   e.g. the athlete could take part in different types of yoga in order t

Principles of Training and FITT: Tweet the

Create a series of tweets which summarise the principles of training list examples to support your information (include a creative hashtag as we for how each principle could be used to improve the fitness of an athle is trying to become more active.

You can only use 140 characters per tweet.

Tweet 1: Specificity
Tweet 2: Progression
Tweet 3: Overload
Tweet 4: Frequency
Tweet 5: Intensity
Tweet 6: Duration
Tweet 7: Variance

Tweet 1:

Example of use: .....

.....

Tweet 2:

Example of use: .....

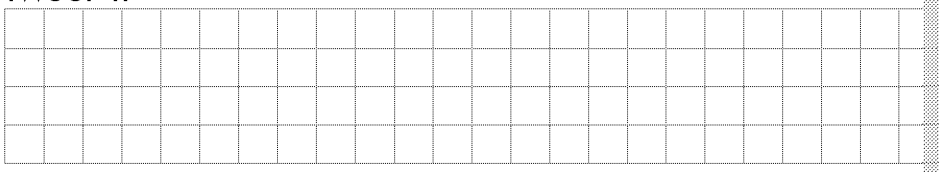
.....

Tweet 3:

Example of use: .....

.....

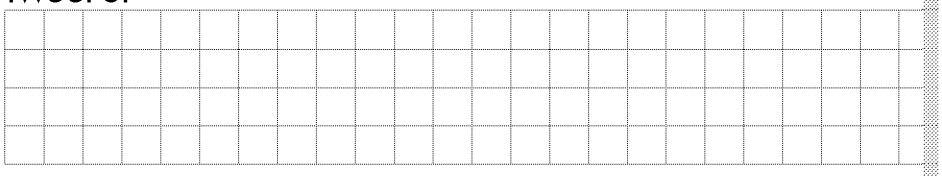
Tweet 4:



Example of use: .....

.....

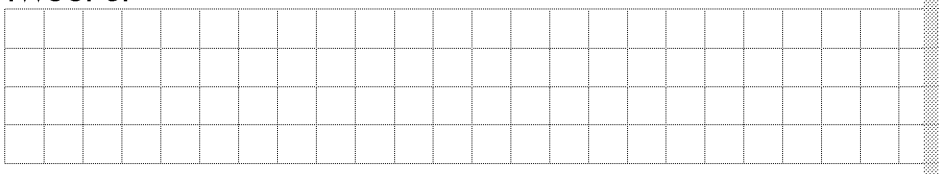
Tweet 5:



Example of use: .....

.....

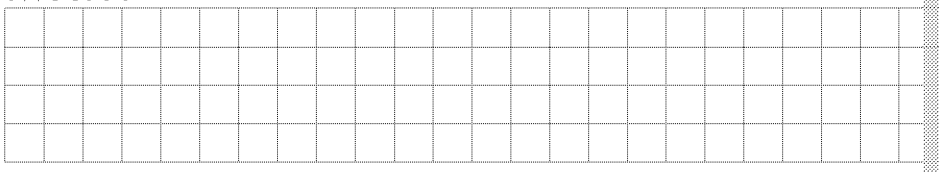
Tweet 6:



Example of use: .....

.....

Tweet 7:



Example of use: .....

.....

Activity 18 – Warm-ups and Co

Teacher's Notes and Answers

Starter Activity: Instructor	
Aim of the activity	To understand the components of an effective warm-up the benefits of both.
Teacher's instructions	Photocopy the activity page and hand one copy to each minutes to plan a warm-up or cool-down for their partn each to take turns instructing their partner through thei When the activities are being performed, walk around th their chosen activities are appropriate for the componer may wish to provide some equipment or ask students to

Answers

The following are examples of activities that could be included:

Warm-up:

- gentle walking and then jogging to raise the heart rate
- a series of active/passive/dynamic stretching
- a series of proprioceptive neuromuscular facilitation (PNF) stretching
- a period of skill practice, e.g. keeping the ball up when preparing for a football m
- a period of rest for mental preparation, e.g. deep breathing to relax
- high-paced jogging in order to improve the delivery of oxygen

Students should cover the following benefits of warming up:

- raises the body temperature
- increases range of movement that can be achieved at a joint by increasing the e
- provides an opportunity to gradually increase the intensity of work
- gradually increases the heart rate
- provides an opportunity to practise skills
- reduces the risk of becoming injured
- increases pliability of the ligaments and tendons as muscles are more flexible an
- increases supply of oxygen to the muscles which will be active
- ensures rapid muscle contractions can be performed when the exercise begins
- allows the athlete to mentally prepare and get themselves into 'the zone'
- provides an opportunity to improve focus and motivation

Cool-down:

- a period of jogging in order to maintain the heart rate at an elevated rate
- slowly reduce the jogging to walking in order to reduce the heart rate
- a period of static stretching in order to reduce muscle stiffness and the delayed o soreness (DOMS)

Students should cover the following benefits of cooling down:

- provides an opportunity to recover from the effects of exercise and transition to
- provides an opportunity to accelerate the recovery process following exercise
- provides an opportunity to rehydrate by drinking water and isotonic sports drin
- provides an opportunity for the heart rate to reduce
- provides an opportunity for the breathing rate to reduce
- provides an opportunity for the body temperature to decrease to normal body t
- maintains the circulation of blood and oxygen to the working muscles in order t products of exercise, i.e. lactic acid, to be removed
- prevents or reduces delayed onset of muscle soreness (DOMS) and stiffness
- provides an opportunity for oxygen to continue to be transported to the muscle the oxygen debt
- allows the muscles to continue to be stretched in order to maintain muscle flexi

Other methods:

- ice baths
- massage

Warm-ups and Cool-downs: Instructor

Ask your partner what sport they play. Then, using the basic guidelines minute warm-up or cool-down for them to complete.

Choose who will instruct first and take your partner through their warm inform them of the benefits of warming up / cooling down as they are p appropriate for their sport. Then swap roles.

Warm-up should include:

- a pulse raiser
- stretching
- proprioceptive neuromuscular facilitation (pnf)
- skill practice
- any other important activities

Cool-down s

- low-inte
- stretchi
- any othe

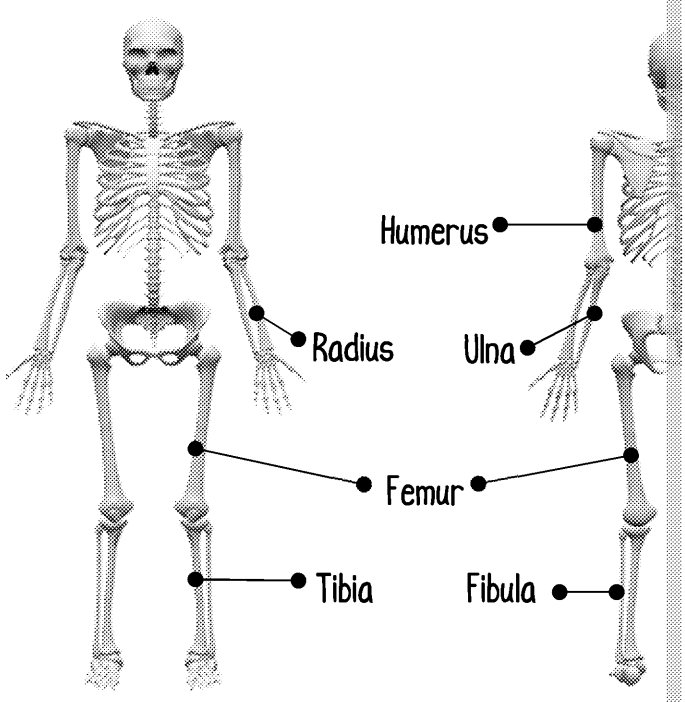
What methods of cool-down could you perform if you had specialis

Activity 19 – Location of Majo

Teacher's Notes and Answers

Starter Activity: Label Your Mat	
Aim of the activity	To allow students to gain an understanding of the bone joints and be able to identify their locations.
Teacher's instructions	Photocopy the labels on the next page and give one set tape for the class. The students should cut out the labe of sticky tape onto the top of each label. One student i model while the other student sticks the labels onto the work together to identify the location of each bone. During the activity, ensure that students are taking part both students in each pair are contributing. **Because this activity involves students labelling each c carefully. For example, you may wish to pair students**

Answers



Location of Major Bones: Label Your Mate

Cut out the following labels and use the sticky tape to correctly label th
Remember to work together to identify the bones.

Radius	
Humerus	
Tibia	
Scapula	
Ribs	

Activity 20 – Joint Types and M

Teacher's Notes and Answers

Starter Activity: Guess The Movem	
Aim of the activity	To provide an opportunity for students to develop the joints and the type of movement that can occur at spe
Teacher's instructions	Photocopy the activity page and hand one copy to eac to spend 10 minutes identifying the joints in each pict type of joint it is, the articulating bones involved and t occurring. Ensure that the students identify all of the elbow, ankle and shoulder) and what type of moveme

Answers

1) Joints which contain a capsule filled with synovial fluid and surrou hyaline cartilage. They can be classified into different types of syn different form of movement.

2) i) **Joint:** elbow (right)
Articulating Bones: humerus, radius and ulna
Joint Type: hinge joint
Movements: flexion during preparation phase and extension d

ii) **Joint:** knee (right)
Articulating Bones: femur, tibia and fibula
Joint Type: hinge joint
Movements: flexion during preparation phase (backswing) an phase (forwards swing)

iii) **Joint:** shoulder (right)
Articulating Bones: humerus
Joint Type: ball-and-socket joint
Movements: abduction during backwards preparation phase a phase of the shot

Joint: elbow (right)
Articulating Bones: humerus, radius and ulna
Joint Type: hinge joint
Movements: flexion during preparation phase and extension d

iv) **Joint:** radioulna
Articulating Bones: radius and ulna
Joint Type: pivot
Movements: rotation (pronation)

Joint: shoulder
Articulating Bones: humerus
Joint Type: ball-and-socket joint
Movements: adduction during preparation phase (backswing) a
phase (forwards swing) of the shot

Joint: elbow
Articulating Bones: humerus, radius and ulna
Joint Type: hinge joint
Movements: flexion during backswing (preparation phase), ex
(execution phase)

v) **Joint:** shoulder
Articulating Bones: humerus
Joint Type: ball-and-socket joint
Movements: rotation

Joint: elbow
Articulating Bones: humerus, radius and ulna
Joint Type: hinge joint
Movements: flexion during preparation phase (withdrawing a
execution phase (pushing down on wheels)

vi) **Joint:** elbow
Articulating Bones: humerus, radius and ulna
Joint Type: hinge joint
Movements: extension

Joint: shoulder
Articulating Bones: humerus
Joint Type: ball-and-socket joint
Movements: abduction

vii) **Joint:** shoulder
Articulating Bones: humerus
Joint Type: ball-and-socket joint
Movements: circumduction

viii) **Joint:** hip
Articulating Bones: femur
Joint Type: ball-and-socket joint
Movements: flexion during downwards phase, extension duri

Joint Types and Movements: Guess the Mo

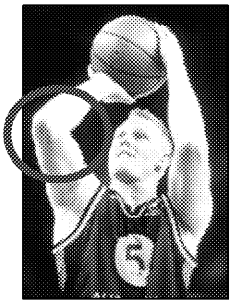
1) Define what is meant by a synovial joint.

.....

.....

2) Now complete the sporting actions below by identifying the joint i
the type of joint it is and the movements demonstrated.

i) Basketball shot



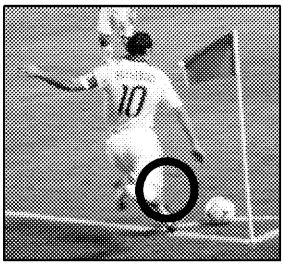
Joint: *Elbow (right)*

Articulating Bones:

Joint Type:

Movements (preparation phas
Movements (execution phase)

ii) Football kick



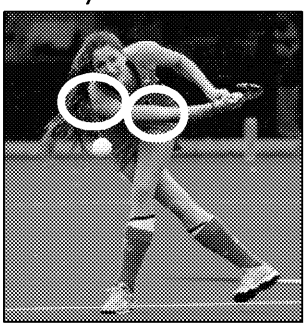
Joint: *Knee (right)*

Articulating Bones:

Joint Type:

Movements (preparation phas
Movements (execution phase)

iii) Hockey shot



Joint: *Shoulder (right)*

Articulating Bones:

Joint Type:

Movements (preparation phas
Movements (execution phase)

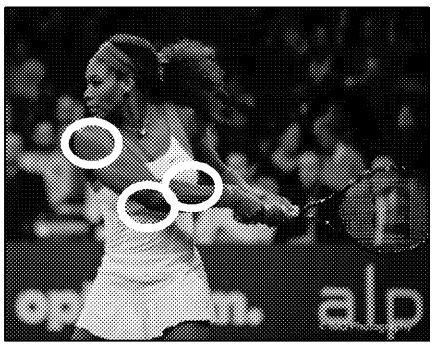
Joint: *Elbow (right)*

Articulating Bones:

Joint Type:

Movements (preparation phas
Movements (execution phase)

iv) Tennis topspin



Joint:

Articulating Bones:

Joint Type: *Pivot*

Movements:

Joint:

Articulating Bones:

Joint Type: *Ball-and-socket*

Movements (preparation phas

Movements (execution phase)

Joint:

Articulating Bones:

Joint Type: *Hinge*

Movements (preparation phas
Movements (execution phase)

v) Wheelchair sprinting

Joint:

Articulating Bones:

Joint Type:

Movements: *Rotation*

Joint:

Articulating Bones:

Joint Type:

Movements (preparation phas

Movements (execution phase)

vi) Outstretched arms on the rings

Joint: *Elbow*

Articulating Bones:

Joint Type:

Movements: *Extension*

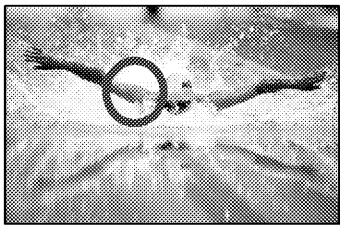
Joint:

Articulating Bones:

Joint Type:

Movements: *Abduction*

vii) Butterfly stroke



Joint:

Articulating Bones:

Joint Type:

Movements:

viii) Squats

Joint: *Hip*

Articulating Bones:

Joint Type:

Movements (up):
Movements (down):

Activity 21 – Components of

Teacher's Notes and Answers

	Starter Activity: Fact File
Aim of the activity	To understand the role of ligaments and tendons.
Teacher's instructions	Photocopy the activity page and hand one to each stu minutes to write down as many roles and characterist synovial joint as they can think of. Then spend five m feed back the characteristics they identified in order t on the board for each of the structures.

Answers

Ligaments:

- connect bones to bones
- stabilise the joint
- strong
- malleable, i.e. structure can be altered
- form of connective tissue
- hold the joint together
- can be damaged when turning sharply

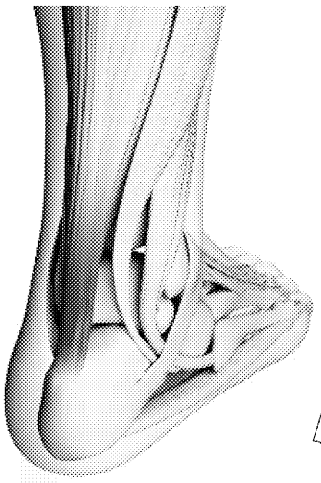
Tendons:

- form of connective tissue
- transfer the force of a muscular contraction onto the bones
- pull the bones
- allow movement at a joint

Other Components of Joints: Fact File

Complete the fact files below by writing down the roles and characteris
components of a synovial joint.

Ligaments



Activity 22 – Functions of the S

Teacher's Notes and Answers

Starter Activity: Forbidden Word	
Aim of the activity	To allow students to test their knowledge of the funct
Teacher's instructions	Photocopy the tables on the next page and give to on students 10 minutes to complete both parts of the act the classroom listening to the students to check that t their time is up, ask students to feed back their ideas

Answers

Keyword	Example of description	Impo
Protection	Flat bones ensure that vital organs are not easily damaged.	It reduce being inju
Movement	Muscles attach to the bones to put the body in motion. Different joint types allow different movements.	It allows healthy a exercise.
Support	Ensures the body is able to stay upright.	It allows correct b successfu
Blood cell production	Bone marrow produces red blood cells, white blood cells and platelets that all have individual functions such as red blood cells (transporting nutrients), white blood cells (immune defence) and platelets (clotting blood).	Red bloo gases (ox from the White blo disease b destroy p

Functions of the Skeleton: Forbidden Word

Part a:
Describe each of the functions (without saying the keyword or forbidde
will try to guess them. You must describe the words in relation to the f
system; so, for example, you cannot describe 'support' as *'being there f
are upset'*.

Functions / Keywords	Fo
Protection	
Movement	
Support	hold
Blood cell production	red,

Part b:
The skeletal system provides a number of functions. For each of the fu
partner to provide an explanation for why it is important for participati

Functions	How can it help an individual part	
Protection		
Movement		
Support		
Blood cell production	**Red blood cells**	
	White blood cells	

Activity 23 – Classification of

Teacher's Notes and Answers

Plenary: Fact File	
Aim of the activity	To be able to classify different types of muscle and un characteristics of each type.
Teacher's instructions	Photocopy the activity page and hand one to each stu minutes to write down characteristics of each type of minutes getting the students to feed back the charact to create a list of characteristics on the board for each

Answers

Skeletal (voluntary muscles):

- Under conscious control
- Can contract them when you want to
- Contraction of these muscles requires the person to think about a
- They are used for movement
- All the major muscle groups of the body such as the quadriceps are
- They can become fatigued
- There are two categories of voluntary muscle fibres: fast-twitch an

Smooth (involuntary muscles):

- Not under conscious control
- Controlled by the subconscious
- They control our internal organs such as the stomach
- They are important for bodily functions
- They assist digestion and breathing
- They allow vital processes to occur at night when you are asleep

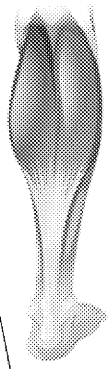
Cardiac muscle:

- This type of muscle is found in the heart
- This is a type of involuntary muscle
- Not under conscious control
- Allows the heart to beat with a continuous rhythm
- Allows blood to be pumped around the body as we sleep
- Ensures that the oxygen demand of the body can be met
- Very resistant to fatigue
- High number of mitochondria
- Very good blood supply

Classification of Muscles: Fact File

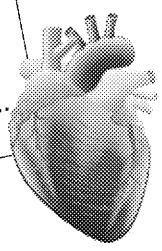
Complete the fact files below by writing down the characteristics of the

Skeletal (Voluntary Muscles)



Smoot

Cardiac Muscle

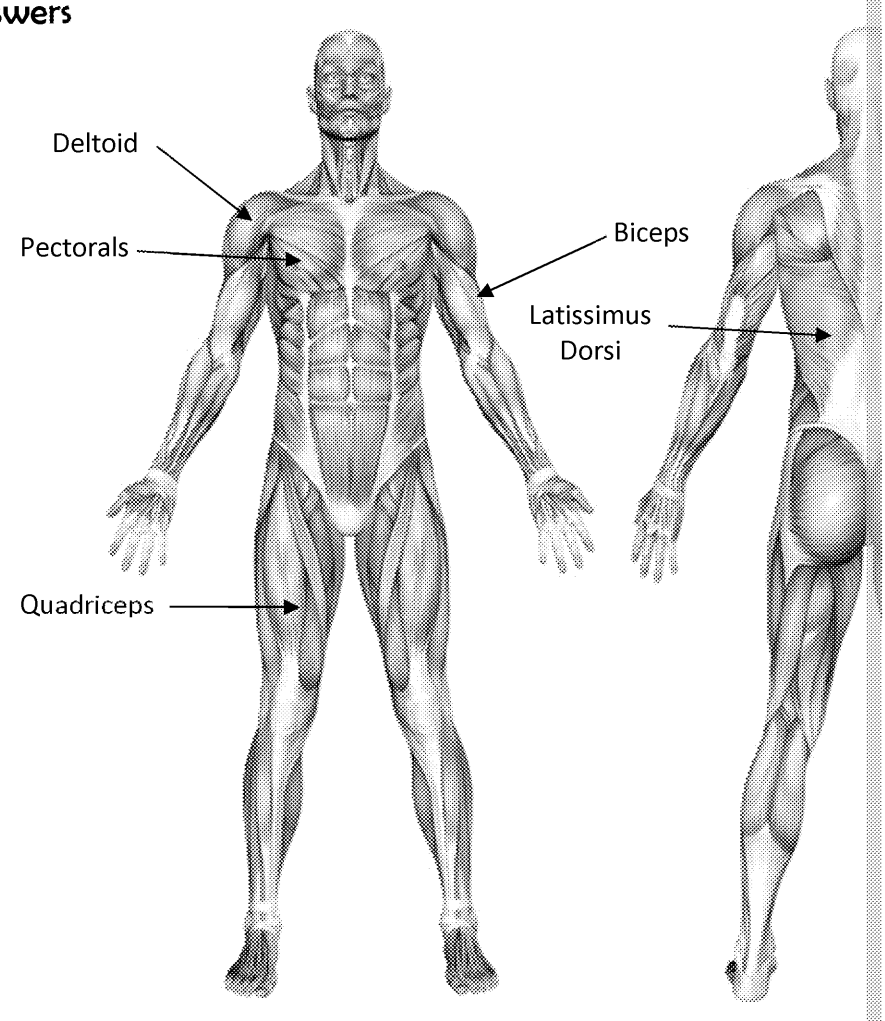


Activity 24 – Muscles of the

Teacher's Notes and Answers

Starter Activity: Label Your Mat	
Aim of the activity	To allow students to develop an understanding of the the major muscles of the body.
Teacher's instructions	Photocopy the labels on the next page and give one s tape for the class. The students should cut out the lab piece of sticky tape onto the top of each label. One st be the model while the other student sticks the labels should work together to identify the location of each Then, if they have time, students should identify the r perform, by writing on each label. During the activity, ensure that students are taking pa that both students in each pair are contributing. **Because this activity involves students labelling each carefully. For example, you may wish to pair studen omit muscles in more personal areas such as gluteus hip flexors.**

Answers



Muscles of the Body: Label Your Mate

Cut out the following labels and use the sticky tape to correctly label th
Remember to work together to identify the muscles.

Biceps	
Pectorals	
Gastrocnemius	**H**
Latissimus dorsi	
Quadriceps	

If you have time, begin to identify the movements each muscle can per
write them down on each label.

flexion, extension, abduction, adduction, rotation, circumduction

Activity 25 – Muscle Fibr

Teacher's Notes and Answers

Plenary activity: Colour-code	
Aim of the activity	To understand the different characteristics of fast- an how they impact on physical activity.
Teacher's instructions	Photocopy the activity page and hand one to each stu minutes to complete the colour-coding activity and or what fibre types are important for the sports perform minutes getting the students to feed back their answe

Answers

Type I

- They are red
- Also known as slow-twitch
- Dense supply of myoglobin
- Dense supply of mitochondria
- Produce energy through aerobic respiration
- Can withstand prolonged aerobic exercise

Type IIa

- Also known as fast oxidative
- Dense supply of myoglobin
- Dense supply of mitochondria
- Produce energy through aerobic and anaerobic respiration
- Able to produce fast and strong contractions
- Do not fatigue easily but they are not the most fatigue-resistant m

Type IIx

- They are white
- Low density of myoglobin
- Low density of mitochondria
- Produce energy through anaerobic respiration
- Able to produce fast and strong contractions
- The most easily fatigued muscle fibre

Students should identify the athletes as having the greatest proportion
- Middle-distance track cyclist – Type IIa
- Long-distance runner – Type I
- Weightlifter – Type IIx

Muscle Fibres: Colour-code

Colour-code the characteristics which match up with each of the differe
characteristics will be relevant for more than one type of muscle fibre.

Muscle fibre	Colour
Type I	
Type IIa	
Type IIx	

The most easily fatigued muscle fibre

Also known as fast oxidative

They are red

Do not fatigue easily but they are not the most fatigue-resistant muscle fibre

Dense supply of myoglobin

Lo

Produce energy through aerobic respiration

Able to produce fast and strong contractions

The

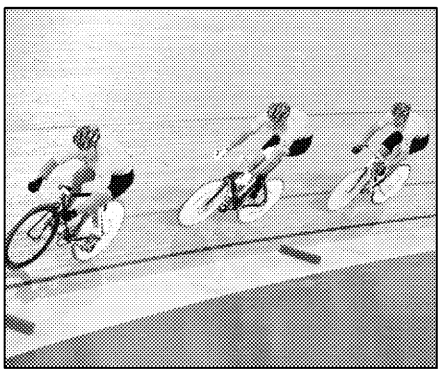
Also known as slow-twitch

Produce energy through aerobic and anaerobic respiration

Ca

Now identify which type of muscle fibre the following sports performer
proportion of.

Middle-distance track cyclist



Type of fibre:

Long-distance runner

Type of fibre:

Activity 26 – Structure of the Cardiov

Teacher's Notes and Answers

Starter Activity: Blood Flow	
Aim of the activity	To understand the structures of the heart and their ro circulation.
Teacher's instructions	Photocopy the activity page and give one copy to each five minutes labelling the diagram with the correct str five minutes writing down what role each structure pl the working muscles during exercise and identifying w part of the pulmonary or systemic circulatory system.

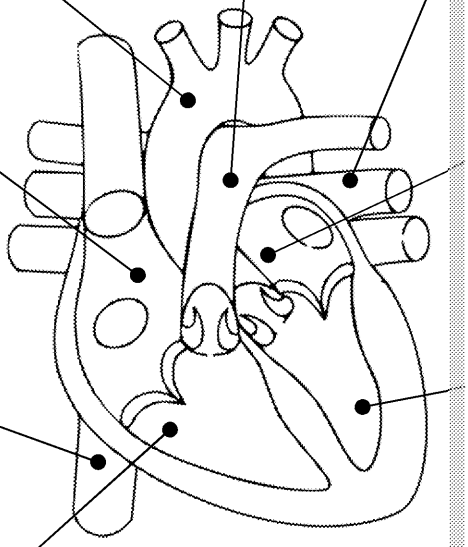
Answers

1)

Aorta (systemic)
The aorta transports oxygenated blood out of the heart and around the body so that it can provide oxygen to the working muscles.

Pulmonary artery (pulmonary)
The pulmonary artery transports deoxygenated blood to the lungs where oxygen is accepted by

Right atrium (pulmonary)
Deoxygenated blood flows into the right atrium.



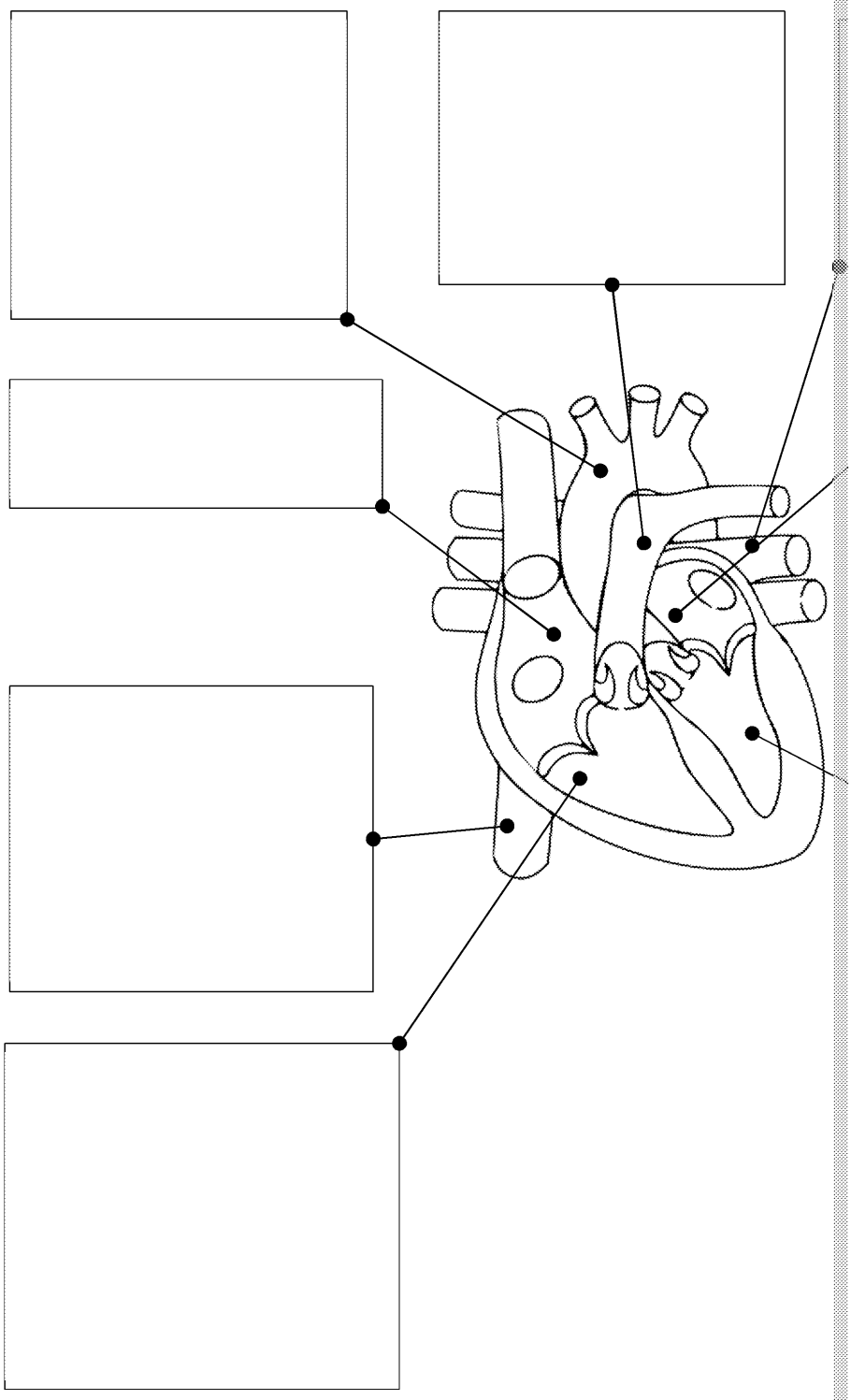
Vena cava (systemic)
The vena cava brings deoxygenated blood back from the body to the heart where it can be pumped to the lungs to become oxygenated.

Right ventricle (pulmonary)
The right ventricle pumps deoxygenated blood into the pulmonary artery.

Structure of the Cardiovascular System: Bl

Label the diagram of the heart below with the following structures:
atria (right and left), ventricles (right and left), aorta, vena cava, pulmo

Then, for each of the labels you have identified, outline its role in main
state whether it is part of the pulmonary or systemic circulatory system



Activity 27 – Functions of the Cardiov

Teacher's Notes and Answers

Plenary activity: Fill in the Table	
Aim of the activity	To understand the functions of the cardiovascular sys
Teacher's instructions	Photocopy the activity page and give one to each stud complete the activity and then ask the students to fee the rest of the class.

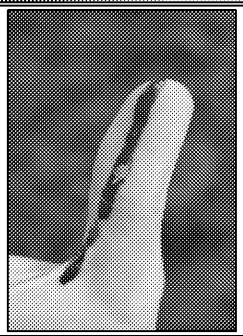
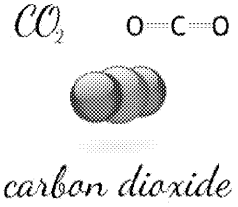
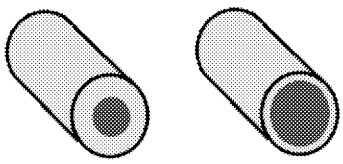
Answers

Students should identify the following functions and provide a similar r important in physical activity.

Photo	Function	Importance for phy
1	Thermoregulation	This allows athletes to avoid overheatin the blood flow to the skin in order to inc is particularly important when exercisin
2	Blood clotting	This ensures that athletes will not exper when they develop cuts. This is particula such as rugby or adventurous sports suc cuts are common.
3	Transport of nutrients	This ensures that nutrients provided by proteins can be transported to the musc for muscular contractions during physica growth to occur after physical activity.
4	Transport of oxygen	This ensures that oxygen can be transpo order for energy production to occur. Th when taking part in aerobic exercise suc
5	Transport of carbon dioxide	This ensures that carbon dioxide can be working muscles. Carbon dioxide is tran lungs where it is exhaled. This is importa waste product of exercise which can lov cause fatigue if it is not removed.
6	Vasoconstriction/ vasodilation	This ensures that blood flow can be adju different parts of the body as they chan muscles will require increased blood flo supply them with oxygen and nutrients such as carbon dioxide. Therefore, durin supplying the working muscles will vaso less important tissues, such as the non-e vasoconstrict.

Function of the Cardiovascular System: Fil

Identify five major functions of the cardiovascular system (using the ph
then write down the importance of each function for physical activity.

	Function	Importa
		
		
		
		
		
		

Activity 28 – Heart Valu

Teacher's Notes and Answers

Starter Activity: Cardiac Calculati	
Aim of the activity	To understand heart rate, stroke volume, and cardiac
Teacher's instructions	Photocopy the activity page and give one copy to each minutes to complete the match-up task and then ensu definition before doing the calculations for the three i correct answers as a class.

Answers

1)

Heart Rate	→	The number of times the heart b
Stroke Volume	→	The amount of blood ejected from t
Cardiac Output	→	The amount of blood ejected from t

2) **Correct equation:**
$Cardiac\ Ouput = Stroke\ Volume \times Heart\ Rate$

3) **Individual 1:**
Cardiac Output = 70 × 80
Cardiac Output = 5600 ml/min

Individual 2:
Stroke Volume = 5025/67
Stroke Volume = 75 ml

Individual 3
Heart Rate = 6175/65
Heart Rate = 95 bpm

4) Students should provide the following information:
- 2012 – Systolic and diastolic blood pressure are 'high'
- 2013 – Systolic blood pressure is 'high' and diastolic blood pres
- 2014 – Systolic and diastolic blood pressure are 'pre-high'
- 2015 – Systolic and diastolic blood pressure are 'pre-high'
- 2016 – Systolic and diastolic blood pressure are 'ideal'
- Overall, the individual's blood pressure changed from being co ideal range

Discussion points to include:
- Heart rate increases prior to, and during, exercise
- Stroke volume increase as the intensity of exercise increases
- Cardiac output increases as a result of an increased heart rate
- Blood pressure increases during exercise as a result of blood bei forcefully
- Stroke volume only increases up to an exercise intensity of arc in cardiac output is the result of an increased heart rate

Heart Values: Cardiac Calculations

1) Match up the following terms relating to the heart with the correct

Heart Rate	The amount of blood ejected fron
Stroke Volume	The number of times the heart be
Cardiac Output	The amount of blood ejected fron

2) Now write an equation below to show the relationship between the

3) Check your equation is correct with your teacher and then use it to measurements of the individuals below; you may need to change y measurement:

Individual 1	**Individual 2**
Heart Rate = 80 bpm	Heart Rate = 67 bpm
Stroke Volume = 70 ml	Stroke Volume =
Cardiac Output =	Cardiac Output = 5025 ml/min

4) Analyse the table below which contains the resting blood pressure individual over a five-year period.

Year	Systolic
2012	150
2013	142
2014	137
2015	124
2016	118

Compare the values to the diagnostic chart below, which provides unhealthy blood pressure ranges.

Range	Systolic
High	More than 140
Pre-high	120 to 139
Ideal	90 to 119
Low	70 to 89

Explain how the individual's systolic and diastolic blood pressure ch

.....

.....

.....

.....

.....

.....

.....

.....

.....

Now discuss with the rest of the class how heart rate, stroke volu and blood pressure values would change as an athlete moves fro

Activity 29 – Structures of the Respi

Teacher's Notes and Answers

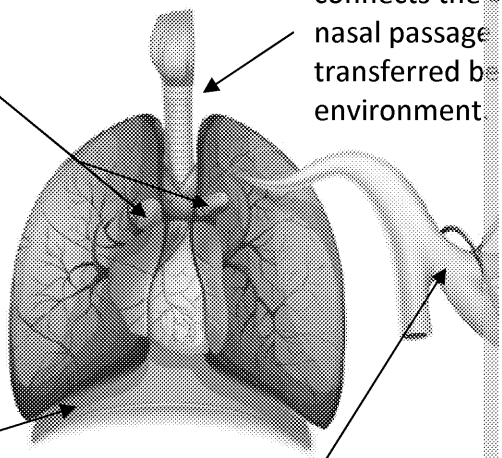
Starter Activity: Draw and Annot	
Aim of the activity	To be able to identify the structures that make up the
Teacher's instructions	Photocopy the activity page and give one copy to each students 10 minutes to draw a diagram which displays respiratory system and label each structure with an ex inhalation and exhalation of oxygen and carbon dioxid

Answers

Students' images may vary, but should include the following componen explained.

Trachea – Th connects the nasal passage transferred b environment

Bronchi – These branch off the windpipe and allow air to be transported from between the lungs and the atmosphere



Diaphragm – This is a dome-shaped muscle under the ribs which contracts and relaxes to change the capacity of the thoracic cavity and, therefore, causes inhalation and exhalation

Bronchioles – These connect the alveoli to the bronchi and allow air to pass through them

The Pathway of Air: Draw and annotate

Draw and label a diagram of the main components of the respiratory s
each label with information about the role each structure plays in the
carbon dioxide:

Activity 30 – Gaseous Exch

Teacher's Notes and Answers

Plenary Activity: True or False	
Aim of the activity	To help students identify the factors that allow gaseou
Teacher's instructions	Photocopy the quiz provided and give one copy to eac complete the quiz independently and correct any stat When everyone has finished, read out the answers an correct answer for the false statements.

Answers

1) False – Gas moves from areas of high concentration to areas of low
2) True
3) False – Carbon dioxide can be transported by haemoglobin.
4) True
5) False – The larger the surface area of the alveoli, the more gas can
6) False – The alveoli are found within the lungs.
7) True
8) True
9) False – The alveoli have a short diffusion pathway for oxygen and c
10) False – Oxygen is exhaled but in smaller quantities than it is inhaled
11) True
12) False – Oxygenated blood supplies oxygen to the working muscles.
13) False – The blood is able to remove lactic acid from the muscles fo
14) False – Carbon dioxide is a waste product of aerobic exercise only.

Gaseous Exchange: True or False?

Decide if the following statements relating to gaseous exchange are tru
by circling your answer. For any false answers write the correct answe

1. Gas moves from areas of low concentration to areas of high concentration.

2. Oxygen is transported by haemoglobin.

3. Carbon dioxide cannot be transported by haemoglobin.

4. The alveoli are only one cell thick.

5. The smaller the surface area of the alveoli, the more gas can be exchanged.

6. The alveoli are found at the ends of arteries and veins.

7. Gaseous exchange occurs at the capillaries.

8. The body can adapt by increasing the number of capillaries in ord
improve the efficiency of gaseous exchange.

9. The alveoli have a large diffusion pathway for oxygen and other ga

10. Oxygen is not exhaled from the body during aerobic respiration.

11. The longer aerobic exercise lasts, the more oxygen will need to be inhaled and the more carbon dioxide will need to be exhaled.

12. Deoxygenated blood supplies oxygen to the working muscles duri
aerobic exercise in order to fuel muscular contractions.

13. The blood is not responsible for removing the lactic acid produced during anaerobic exercise.

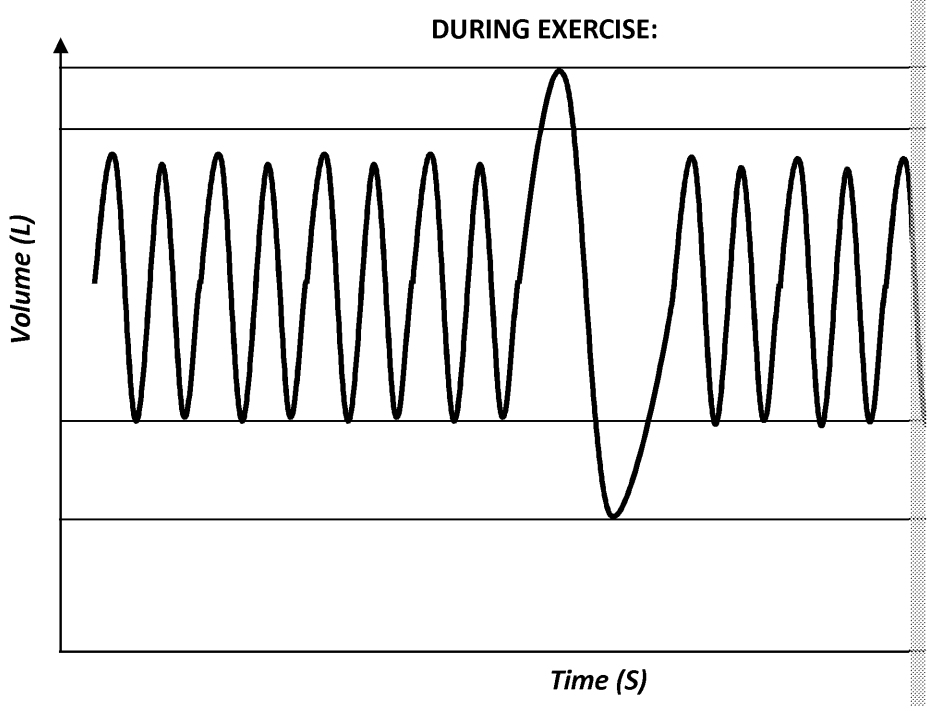
14. Carbon dioxide is a waste product of both aerobic and anaerobic exercise and, therefore, must be removed from the body when exercising aerobically and anaerobically.

Activity 31 – Interpreting a Spiron

Teacher's Notes and Answers

Starter Activity: Complete the Gr	
Aim of the activity	To be able to understand the different volumes represe trace and identify and discuss the differences between
Teacher's instructions	Photocopy the activity page and hand one copy to each minutes to label the first trace, discuss the difference b trace and draw an exercising trace. Then discuss the dif example of an exercising trace on the board.

Answers

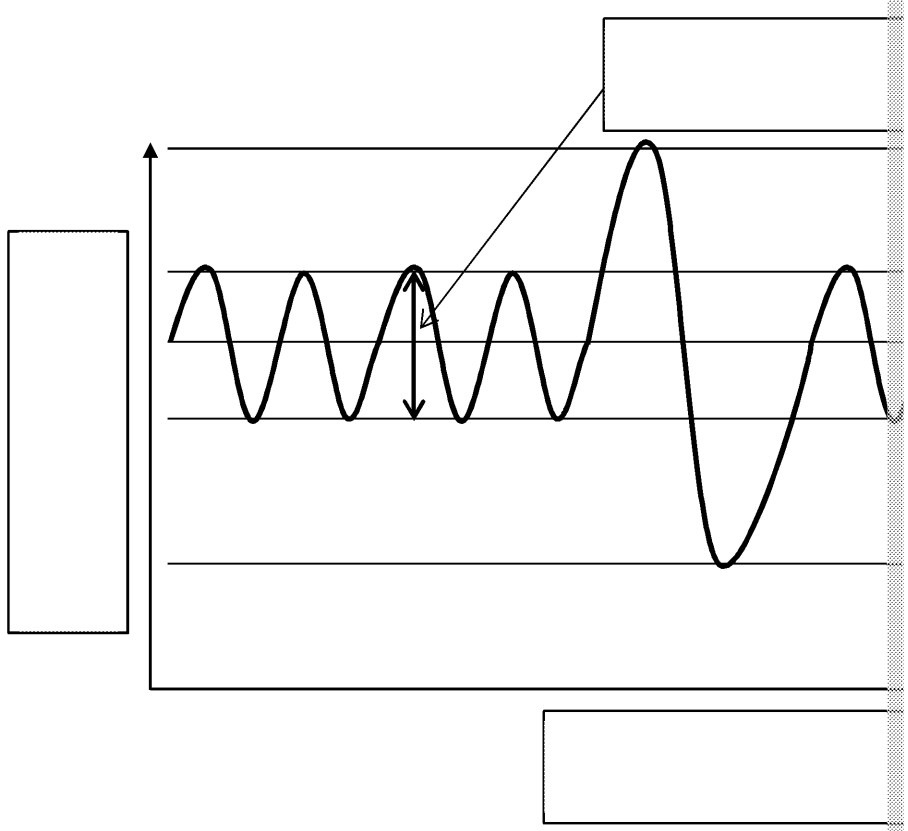


Discussion point:
The tidal volume increases during exercise compared to at rest because to take in more oxygen with each breath in order to increase the amou to the working muscles. This oxygen is required in order to produce en

Interpreting a Spirometer Trace: Complete the Graph

Label the following resting spirometry trace with the terms provided below (there are more te
are correct).

***Expiratory Reserve Volume, Inspiratory Reserve Volume, Tidal Volume, Residual Volume, Vo
Distance (M), Independent Residual Volume***



Now discuss with a partner the differences between a spirometry trace of an athlete at rest an
discussed the differences, draw a spirometry trace (using a different colour) over the graph ab
you discussed.

Activity 32 – Lung Volun

Teacher's Notes and Answers

Plenary Activity: Data Analysis	
Aim of the activity	To be able to understand the different volumes relati
Teacher's instructions	Photocopy the activity page and hand one copy to eac minutes to provide a description of the three terms ar answer the data analysis question.

Answers

1)
- Breathing frequency (rate): the number of times a person inha
- Tidal volume: the amount of air inhaled and exhaled with each
- Minute ventilation: the amount of air inhaled and exhaled in o

2) Minute ventilation = Tidal volume x Breathing rate

3) Students should provide points similar to below:
- There is an increase in minute ventilation between rest and du
- Minute ventilation at rest is 7.5l/min.
- Minute ventilation at the end of the race is 64.4l/min.
- Minute ventilation will plateau once the athlete reaches a stea
- Breathing frequency (rate) and tidal volume increase in order t with more oxygen.

Lung Volumes: Data Analysis

1) Define the following terms:

- Breathing frequency (rate): .....
  .....
- Tidal volume: .....
  .....
- Minute ventilation: .....
  .....

2) Now, use the three terms you defined above to complete the equa

	=		x	

3) A 1500 m runner is having their breathing rate, tidal volume and m during a training session.

	Rest	60 s	120 s
Breathing frequency (rate) (*breaths per minute)*	15	21	26
Tidal volume (L)	0.5	1.2	2.1

Using the table above, analyse how the minute ventilation of the a during exercise.

.....

.....

.....

.....

.....

.....

.....

.....

Activity 33 – Aerobic and Anaero

Teacher's Notes and Answers

Plenary Activity: O_2 or No O_2	
Aim of the activity	To develop further the understanding of aerobic and a
Teacher's instructions	Photocopy the activity page and give one copy to each to produce a definition of aerobic and anaerobic exer process using the words and symbols provided. Give t complete these first two activities. Give students five discuss sports which include aerobic and anaerobic ex the Venn diagram given. You may want to add an ele which pair can come up with the most sports for each

Answers

Example definitions:

- Aerobic exercise is any exercise that is performed when there is en **energy**. This occurs during **low-intensity** exercise such as **enduran** prolonged physical activity, e.g. **jogging** and walking, and uses **carb** source of **energy**.
- Anaerobic exercise is any exercise where not enough **oxygen** can b meet the **energy** demands. This form of exercise uses **carbohydra** during **high-intensity** exercise such as **sprinting**. When the intensi **phosphate** is used to produce ATP from ADP for a short time. If ex reach their **anaerobic threshold** – the point where **lactic acid** is pro production of **lactic acid** will create an **oxygen debt** at the end of e elevated breathing rate in order to provide oxygen to help remove

Equations:

- Aerobic:
  Glucose + Oxygen → Energy + Carbon dioxide + Water
- Anaerobic:
  Glucose → Energy + Lactic acid

Examples of sports:

- Aerobic:
  Marathon running, long-distance cycling,
- Anaerobic:
  100 m sprint, sprint cycling, jumping, lifting heavy weights with lov
- Both:
  400 m running, boxing, team sports, e.g. hockey

Aerobic and Anaerobic: O_2 or No O_2?

Sort the tiles below into order to provide a definition of aerobic and an
words provided and your own words.

oxygen	energy	respiration	endurance
lactic	fats	sprinting	intensity
low	creatine phosphate	oxygen debt	anaerc

Aerobic: .....

.....

.....

Anaerobic: .....

.....

.....

.....

.....

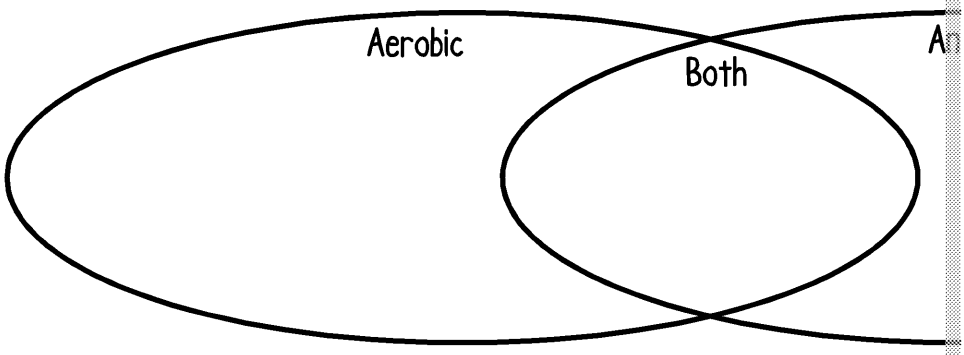
.....

Use the terms and symbols provided below in order to provide the corr
anaerobic respiration. Each term may be used more than once and sor

Oxygen, Carbon dioxide, +, Lactic acid, Glucose, →, Water, Energy, –,

Aerobic:
Anaerobic:

Discuss with a partner and note down as many different sports and phy
minutes. Categorise each sport / physical activity as either aerobic, ana
you categorised each, justifying why you categorised them that way.



Activity 34 – Short-term Effects

Teacher's Notes and Answers

Starter Activity: Drawing Board	
Aim of the activity	To learn about and identify the short-term effects of e
Teacher's instructions	Photocopy the woksheet provided and give one copy students five minutes to think about as many short-te can and then ask them to draw a picture which repres students to swap their drawings with a partner and gi the effect. Now engage the class in a group discussion intensity and duration can have on these short term e

Answers:

Drawings should be provided for the following effects and each effect s

- Lactic acid is produced.
- Muscle temperature increases.
- Heart rate increases.
- Stroke volume increases.
- Cardiac output increases.
- Depth of breathing increases.
- Respiratory rate increases.
- Tidal volume increases.
- Minute ventilation increases.
- Amount of oxygen taken in each minute increases.
- Blood is redistributed away from the internal organs and towards t
- Blood is redistributed to the skin as the blood vessels carrying bloo be lost and temperature regulated so as not to overheat.

Short-term Effects of Exercise: Drawing Bo

Think about all of the short-term effects that can occur when exercising represents each of these effects and then swap your page with a partn then try to identify which effects you have drawn and note their answe

1) **Effect:**	**2)** **Effect:**
3) **Effect:**	**4)** **Effect:**
5) **Effect:**	**6)** **Effect:**

Your teacher will now ask you to engage in a class discussion about th short-term effects of exercise that you have identified and how these affected by changes in the intensity and duration of exercise.

Activity 35 – Long-term Effects

Teacher's Notes and Answers

Starter Activity: Fill in the Gaps	
Aim of the activity	To understand the long-term training effects of taking
Teacher's instructions	Photocopy the activity page and hand one copy to eac five minutes to fill in the spaces in the text with their o the answers with the whole class. **Note: teachers should have taught components of fit understand this activity. See Activity 11.**

Answers

The gaps should be filled in with the correct words (or similar):

- Regular exercise increases the amount of energy that you are expe reduce the amount of **fat** that is stored within the body, and it can **hypertrohpy** (increase in muscle size), and increased muscle mass. result in the exerciser's body shape being changed. It is also good **loading** can lead to bone remodelling which increases the **bone de**

- A range of **fitness components** can be improved through exercise. muscle mass which is associated with regular exercise, particularly to increased musclular **strength**, **elasticity** and **endurance** which w resistance to **fatigue**.

- Exercise can also increase the size of the heart over time. This is ca This increased size and strength of the heart causes more blood to the heart, with less effort. Hypertrophy of the heart therefore lead resting **heart rate**) and an increased resting **stroke volume** as mor with each beat. The potential **cardiac output** during exercise is gre increased strength of the heart, which greatly improves an athlete' exercise as it can ensure an adequate supply of **oxygen** is maintain lumen of the blood vessel can also be increased and the artery wal which will lead to a reduced resting **blood pressure**.

- The ability of the respiratory system to take in oxygen and transpo improved by the increased contractile strength of the **respiratory** increased **vital capacity** (the maximum amount of oxygen that can **volume** (the amount of oxygen taken in with each breath) and, the **frequency** (number of breaths per minute). The increased density **capilliarisation**, also increases the body's ability to transport oxyge

Long-term Effects of Exercise: Fill in the Go

Complete the sentences below about the long-term effects of exercise

- Regular exercise increases the amount of energy that you are expe
  reduce the amount of _____ that is stored within the b
  _____ _____ (increase in muscle size), an
  Both of these changes will result in the exerciser's body shape bein
  for bone health as regular _____ can lead to bone rem
  _____ _____.

- A range of _____ _____ can be improved
  example, an increase in muscle mass which is associated with regu
  resistance exercise, can lead to increased muscular _____
  _____ which will increase the muscles' resistance to _

- Exercise can also increase the size of the heart over time. This is ca
  _____. This increased size and strength of the heart ca
  effectively pumped from the heart, with less effort. Hypertrophy c
  to bradycardia (a lower resting _____ _____
  _____ _____ as more blood can be pump
  potential _____ _____ during exercise is g
  increased strength of the heart, which greatly improves an athlete'
  _____ for exercise as it can ensure an adequate suppl
  maintained for longer. The size of the lumen of the blood vessel ca
  artery walls can become more flexible which will lead to a reduced

- The ability of the respiratory system to take in oxygen and transpo
  improved by the increased contractile strength of the _____
  for an increased _____ _____ (the maximu
  can be breathed out),_____ _____ (the ar
  with each breath) and, therefore, a reduced _____ _
  breaths per minute). The increased density of capillaries, known a
  increases the body's ability to transport oxygen to the working mu

Activity 36 – Antagonistic Mus

Teacher's Notes and Answers

Starter Activity: Missing Words	
Aim of the activity	To increase the understanding of antagonistic pairs of contraction.
Teacher's instructions	Photocopy the activity sheet on the next page and har towards the end of the lesson. Write the following wo board: contracting, tendon, one, antagonistic, agonist quadriceps, hamstrings, isometric, length, changes, co lengthens. Give the students 10 minutes to complete t the correct answers and ask the students to mark som
Students' task	Students should work on their own to fill in the missin have been written on the board. Each word can be us have filled in all the gaps, they should swap their work work as the teacher reads out the correct answers.

Answers

Muscles allow us to move by **contracting** and pulling the bone that it is However, muscles can only pull the bone in **one** direction and, therefo would be stuck in that position unless another muscle is able to return result of this, movement of joints is controlled by more than one muscl known as **antagonistic** pairs. Antagonistic pairs are made up of an **agon** The **agonist** is responsible for putting a body part into motion when it c agonist is the **biceps** during the upwards phase of a bicep curl. In order biceps contract and shorten, which pulls the lower arm towards the up downwards phase of the bicep curl, the **triceps** act as the agonist by co back to its lowered position.

The **antagonist** is responsible for slowing down this movement in orde **stable**. When a football player takes a penalty kick, the **quadriceps** act backswing and the hamstrings act as the antagonist during the swing p struck, the **hamstrings** contract in order to slow down the leg during th

Contractions can be described as isotonic or **isometric**. Isometric contra generates force but does not change **length**. Isometric contractions occ pushes against a wall. Isotonic contractions occur when the muscle **cha** contractions can be further divided into **concentric** and **eccentric** contr occur when the force produced is large enough to overcome the load a moves when it contracts and, therefore, the muscle **shortens**. Eccentric force produced by the muscle is not large enough to overcome the loa **lengthens** as it contracts.

Antagonistic Muscle Pairs: Missing words

Fill in the missing words in the text below using the words your teacher has w

Muscles allow us to move by _____ and pulling the bone th

_____. However, muscles can only pull the bone in _____

therefore after moving the body part, it would be stuck in that position unles

it to its original position. As a result of this, movement of joints is controlled b

muscles work in pairs, known as _____. Antagonistic pairs

_____ and an antagonist.

The _____ is responsible for putting a body part into moti

of an agonist is the _____ during the upwards phase of a b

movement, the biceps contract and shorten, which pulls the lower arm towar

during the downwards phase of the bicep curl, the _____ a

and pulling the arm back to its lowered position.

The _____ is responsible for slowing down this movement

more _____. When a football player takes a penalty kick, th

the antagonist during the backswing and the _____ act as t

phase. After the ball has been struck, the hamstrings contract in order to slow

follow-through.

Contractions can be described as isotonic or _____. Isomet

muscle generates force but does not change _____. Isomet

when someone pushes against a wall. Isotonic contractions occur when the m

length. Isotonic contractions can be further divided into _____

contractions. Concentric contractions occur when the force produced is large

therefore, the body part moves when it contracts and, therefore, the muscle

contractions occur when the force produced by the muscle is not large enoug

therefore, the muscle _____ as it contracts.

Activity 37 – Antagonistic Mus

Teacher's Notes and Answers

Plenary Activity: Contract and Re	
Aim of the activity	To increase the understanding of antagonistic pairs of contraction.
Teacher's instructions	Photocopy the activity sheet on the next page and ha towards the end of the lesson. Give students betwee provide a definition for agonists and antagonists and t and antagonist muscles in the sporting movements pr minutes to provide a definition for tendons and ligam they both play. Feed back the correct answers once a

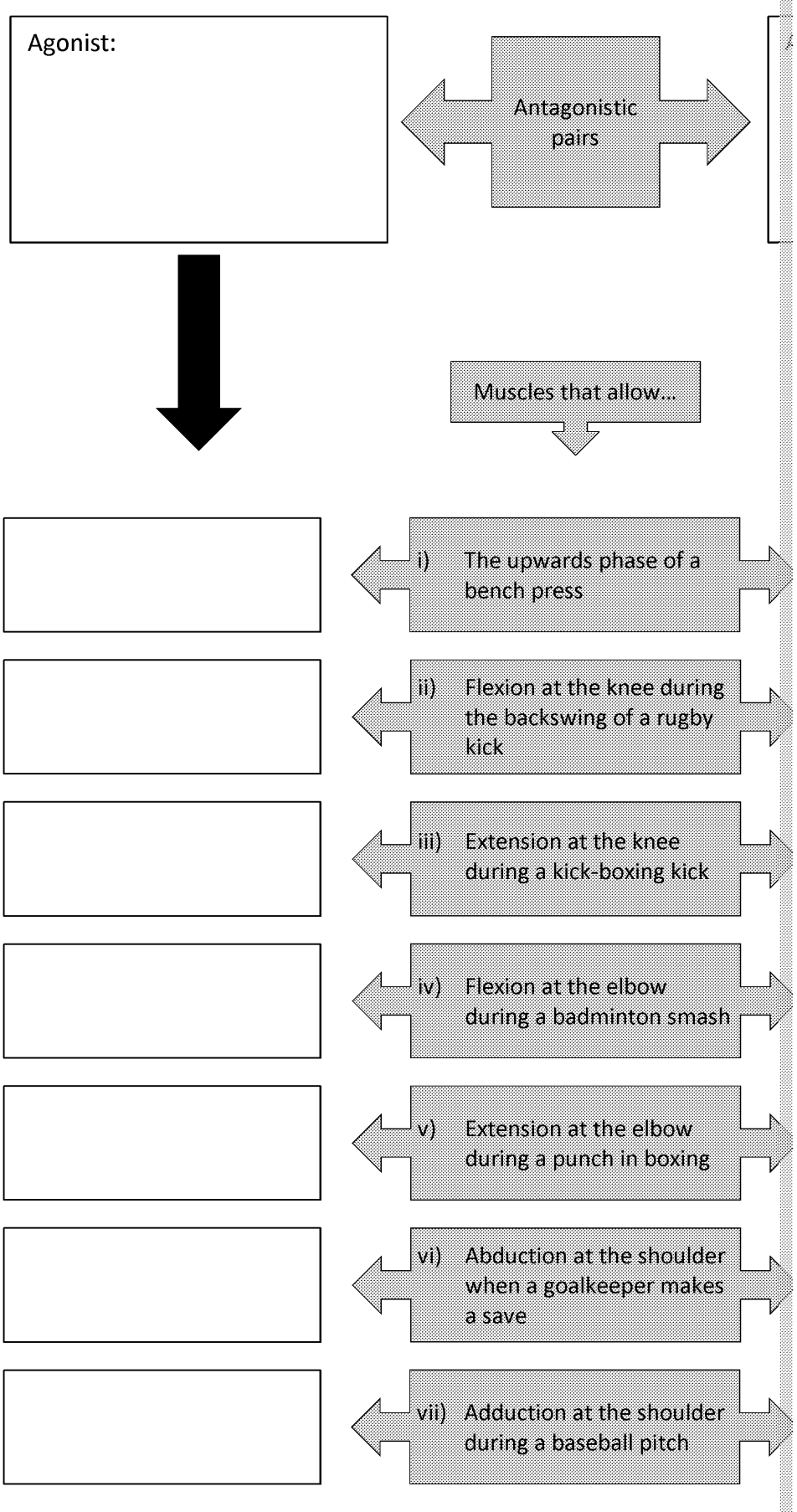
Answers

Agonist – The muscle which is responsible for bringing about the move
Antagonist – The muscle which is responsible for resisting the moveme

i)	Agonist: deltoid and pectorals	Antagonist: latissimus dorsi
ii)	Agonist: hamstrings	Antagonist: quadriceps
iii)	Agonist: quadriceps	Antagonist: hamstrings
iv)	Agonist: biceps	Antagonist: triceps
v)	Agonist: triceps	Antagonist: biceps
vi)	Agonist: deltoid	Antagonist: latissimus dorsi
vii)	Agonist: latissimus dorsi	Antagonist: deltoid

Antagonistic Muscle Pairs: Contract and Re

Define what is meant by an agonist and an antagonist and then for each
mime the movement and identify the agonist and antagonist acting du



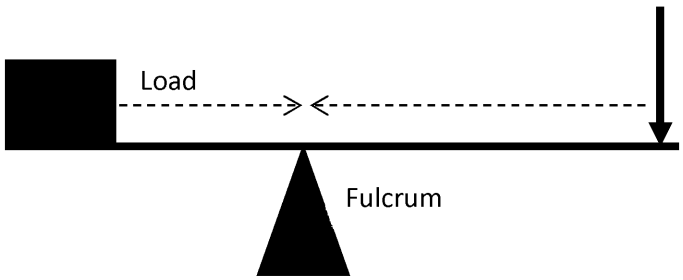
Activity 38 – Lever Syste

Teacher's Notes and Answers

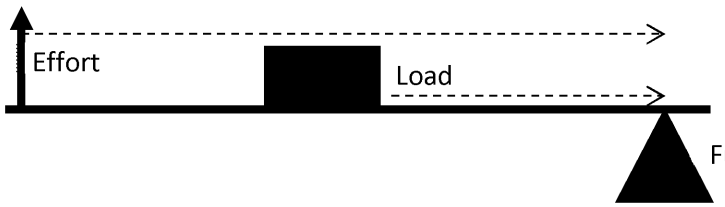
Plenary Activity: Drawing and Perfo	
Aim of the activity	To identify first-, second-, and third-class lever system systems and recognise sporting actions which involve
Teacher's instructions	Photocopy the activity page and give one copy to each minutes to draw the three classes of lever system usin should also identify which lever systems have a mecha a mechanical disadvantage. Then give the students b work in pairs in order to act out the physical activities system is being used. Walk around the class and offer are performing the actions in order to help them iden on their bodies.

Answers:

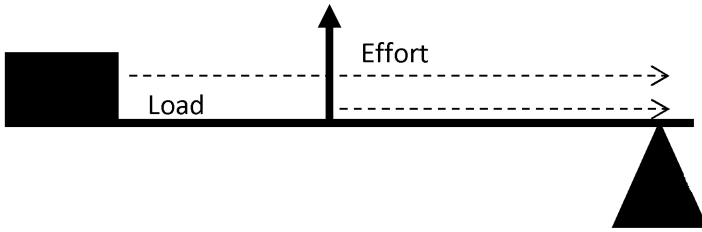
First Class:



Second Class:



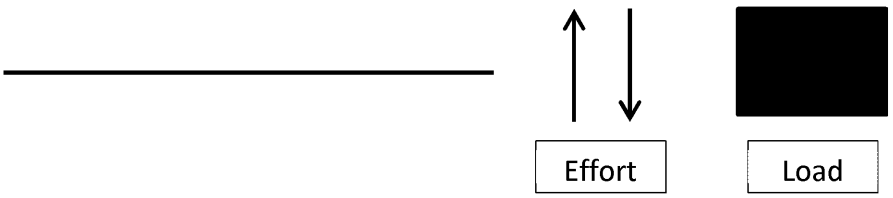
Third Class:



- **Front crawl in swimming:**
  First class – water (load), shoulder joint (fulcrum), latissimu dorsi m
- **Bicep curl** (upwards phase):
  Third class – biceps (effort), elbow (fulcrum), weights (load)
- **Ice hockey shot (striking)**:
  Third class – Body weight (load), gluteal muscles (effort), hip joint (
- **Rugby conversion (striking)**
  First class – weight of the ball (load), knee joint (fulcrum), quadrice

Lever Systems: Drawing and Performing

Draw your own lever systems (first-, second-, and third-class) using the



Then on each lever system illustrate whether it has a mechanical advar
arrows, and tick the correct choice for each one.

Remember: Mechanical advantage = effort arm ÷ load (resistance) arm

First-class

M
M

Second-class

M
M

Third-class

M
M

Now act out the following physical activities with a partner and try to id
being used, and which parts of the body represent the effort, load, and
the same for your own activities.

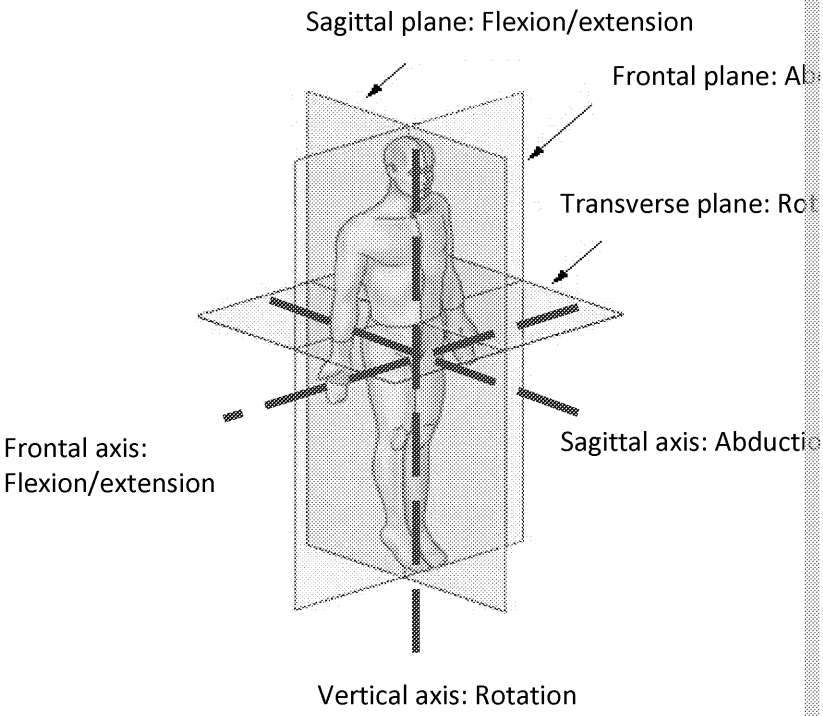
Action	Joint	Lever System	Effort
Front crawl in swimming	Shoulder		
Bicep curl (upwards phase)	Elbow		
Ice hockey shot (striking)	Hip		
Rugby conversion (striking)	Knee		

Activity 39 – Planes and A

Teacher's Notes and Answers

Starter Activity: Dividing the Bod	
Aim of the activity	To understand the planes and axes of movement in re
Teacher's instructions	Photocopy the activity page and hand one copy to eac 5–10 minutes to label the diagram with the correct pla the basic types of movement that can occur in each p complete the multiple-choice questions before you fe answers to them.

Answers



1) iv) Frontal axis and sagittal plane
2) iv) Frontal axis and sagittal plane
3) ii) Vertical axis and transverse plane
4) ii) Frontal axis and sagittal plane
5) iii) Sagittal axis and frontal plane
6) iii) Frontal axis and sagittal plane
7) iii) Frontal axis and sagittal plane

Planes and Axes: Dividing the Body

Match up the planes and axes to their correct location on the diagram a types of movement (flexion, extension, abduction, adduction, rotation a occur in each plane and axis. Then answer the questions by identifying t following sporting movements.

Transverse plane

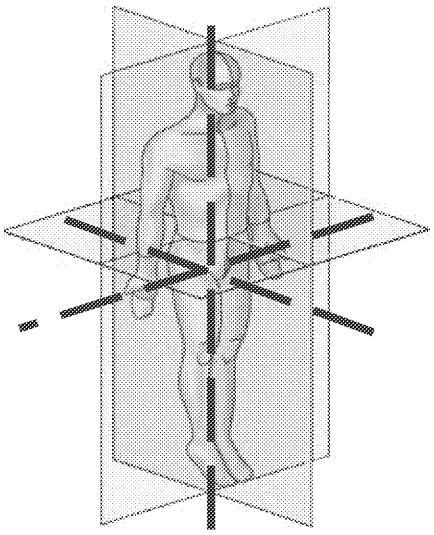
.....

Frontal plane

.....

Sagittal plane

.....



1) In which axis and plane does flexion and extension of the knee oc during the action of running?

i) Transverse axis and transverse plane
ii) Longitudinal axis and transverse plane
iii) Sagittal axis and frontal plane
iv) Frontal axis and sagittal plane

2) In which axis and plane does a back somersault occur?

i) Transverse axis and transverse plane
ii) Longitudinal axis and transverse plane
iii) Sagittal axis and frontal plane
iv) Frontal axis and sagittal plane

3) In which axis and plane does an athlete move when performing a full-twist jump in trampolining?

i) Transverse axis and transverse plane
ii) Longitudinal axis and transverse plane
iii) Sagittal axis and frontal plane
iv) Transverse axis and sagittal plane

4) In which axis and plane does flexion at the hip occur during the performance of a long jump?

i) Transverse axis and transverse plane
ii) Frontal axis and sagittal plane
iii) Sagittal axis and frontal plane
iv) Transverse axis and sagittal plane

5) **In which axis and plane does a cartwheel occur?**
   i) Transverse axis and transverse plane
   ii) Longitudinal axis and transverse plane
   iii) Sagittal axis and frontal plane
   iv) Transverse axis and sagittal plane

6) **In which axis and plane does extension of the knee occur when ki**
   i) Transverse axis and transverse plane
   ii) Longitudinal axis and transverse plane
   iii) Frontal axis and sagittal plane
   iv) Transverse axis and sagittal plane

7) **In which axis and plane does extension and flexion of the elbow o**
   throwing a javelin?
   i) Transverse axis and transverse plane
   ii) Longitudinal axis and transverse plane
   iii) Frontal axis and sagittal plane
   iv) Transverse axis and sagittal plane

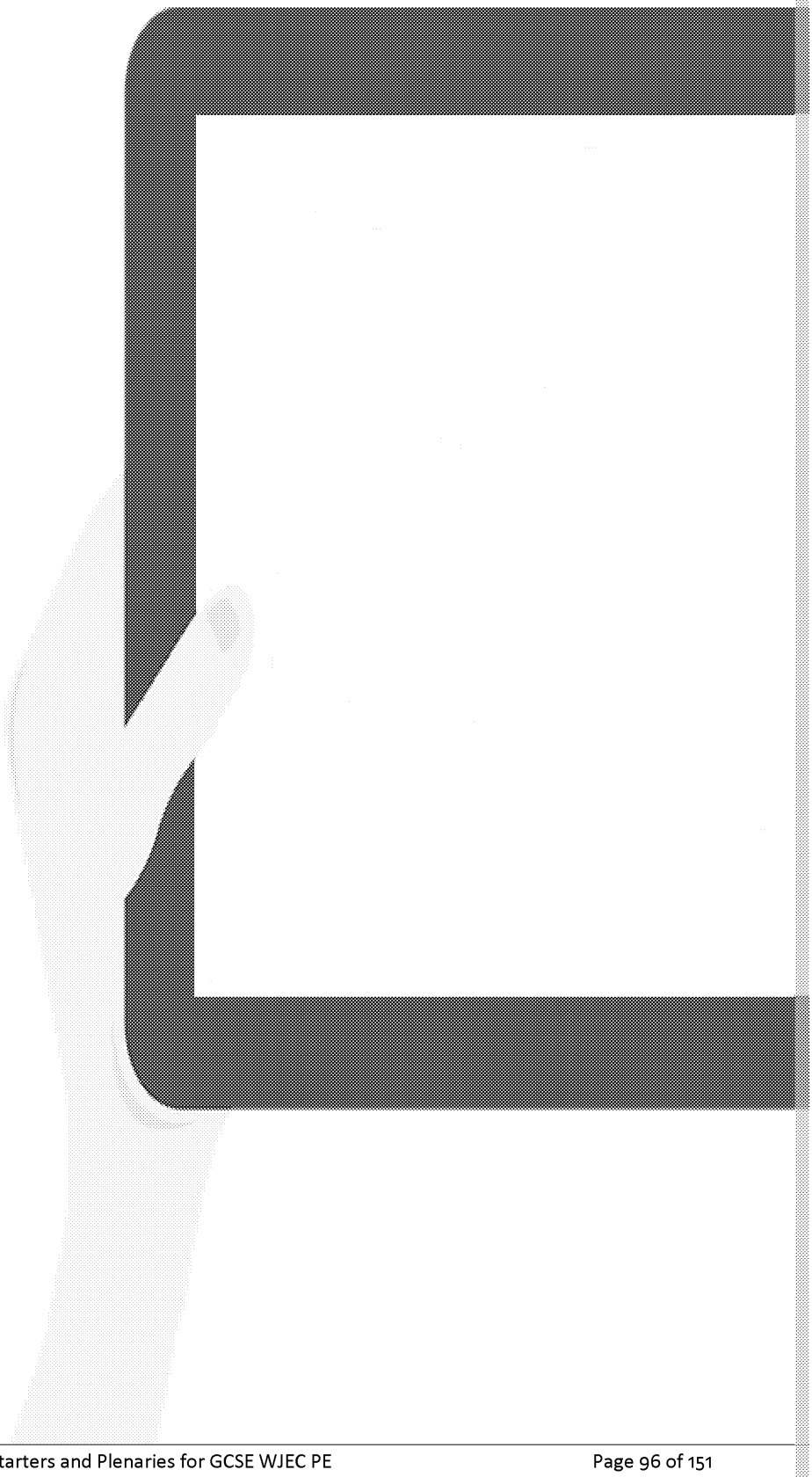
Activity 40 – Using Techno

Teacher's Notes and Answers

Plenary Activity: Analyse the Fil	
Aim of the activity	To understand how technology can be used to collect i sporting movments in order to analyse and improve p
Teacher's instructions	Give each student a copy of the activity page and get t need equipment capable of recording, such as a video tablet, in order to film each other performing. Studen movement, e.g. a handstand, tennis forehand or footb or perform this movement with equipment while thei filming the movement, both students should watch th performance. The students should then swap roles an

Using Technology: Analyse the Film

Work with a partner and film each other performing a sporting movem
serve. The first person should perform the movement while the secon
have filmed the first person performing, watch the video back together
The person who performed that movement should use the space on th
correct aspects of their technique. Now swap roles and record and ana
second person.



Activity 41 – Impact of Techn

Teacher's Notes and Answers

Plenary Activity: Mind Maps	
Aim of the activity	To understand the effects of technology on the perfor spectators and sponsors involved in sport.
Teacher's instructions	Photocopy the mind maps on the following page and g Give the students five minutes to discuss the positive a technology on the performer, sport, official, spectator to feed back their answers to the rest of the class and positive or negative impact. Write down any appropri

Answers

Sport:

+ Technology can inform and improve training, which results in an i sporting performance
+ It can produce a more exciting sport which increases the number
+ By improving the quality of the product, sponsors are willing to p advertisements which increases the amount of money a sport can
– The use of video replays by officials can disrupt the flow of games
– Officiating equipment, such as Hawk-Eye, is expensive and canno
– Because of advances in technological equipment and its increased between athletes is closing

Performer:

+ Improved ability to analyse performance and make improvements
+ Training can be improved with the use of fitness monitoring tools
+ Athletes can rewatch their performances from more angles
– Some training tools are expensive and cannot be afforded by even performance gap
– Higher fees are required in order to cover the costs of technology from participating
– Technology, such as games consoles and television, has provided alternatives to physical activity which can reduce an individual's le

Officials:

+ Increased viewing angles for officials to make decisions
+ Implementation of tools such as Hawk-Eye which makes decisions
+ Video replays can be used to improve decision-making by officials
+ Better timing devices improve the recording of sporting performa
+ Modernised testing devices can detect drugs more effectively, ide successfully
– It may dilute the role of umpires, referees, etc.
– Testing devices are generally a step behind the technology being that those doping can still do so undetected

Spectators:

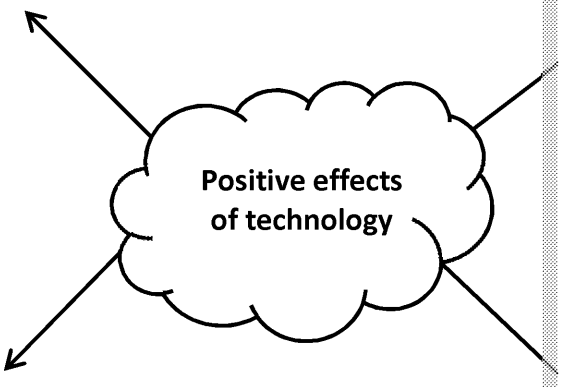
+ Increased viewing angles for spectator enjoyment
+ Slow-motion technology allows the exciting and complex skills to
+ Improved analysis – enables a more complete and in-depth revie generating interesting statistics
+ Action replays allow the more entertaining moments of an event
– Improved coverage has resulted in more people watching an eve paying more to watch it live
– Reviewing decisions throughout the game breaks up the flow of t excitement cannot be built up

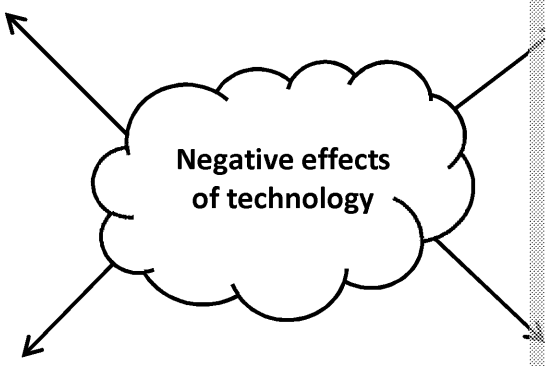
Sponsors:

+ Sponsors are able to have more entertaining advertisements, e.g the outside of a pitch
+ There are more places for a sponsor's advertisements to be seen games and websites
+ Sponsors can make more advertisements, e.g. using motion track
– Some consumers can feel saturated by modern technology which company

Impact of Technology: Mind Maps

Complete the two spider diagrams by writing the positive and negative e
the **sport**, the **performer**, **officials**, **spectators**, and **sponsors**.





Activity 42 – Goals to Optimise P

Teacher's Notes and Answers

Starter Activity: Data interpretati	
Aim of the activity	To understand how goal-setting can improve training
Teacher's instructions	Photocopy the activity page and hand one to each pai minutes to analyse the data in the graph and then sug have influenced the data recorded. Next, get all grou came up with, with the rest of the class.

Answers

Discussions should include (but not be limited to):

- The average 100 m race time has decreased over the six month pe been motivated to improve as they approached the competitive se
- There was no change between the first and second month, as train effect.
- Between April and June there was a significant improvement in the that the goal-setting was improving performance.
- Between June and July she experienced reversibility and her times result of reduced motivation to adhere to her training schedule.
- From July to August she experienced a further decrease in her aver been as a result of motivation to train, due to it being the competi

Possible reasons are mentioned above, but could also include the foll

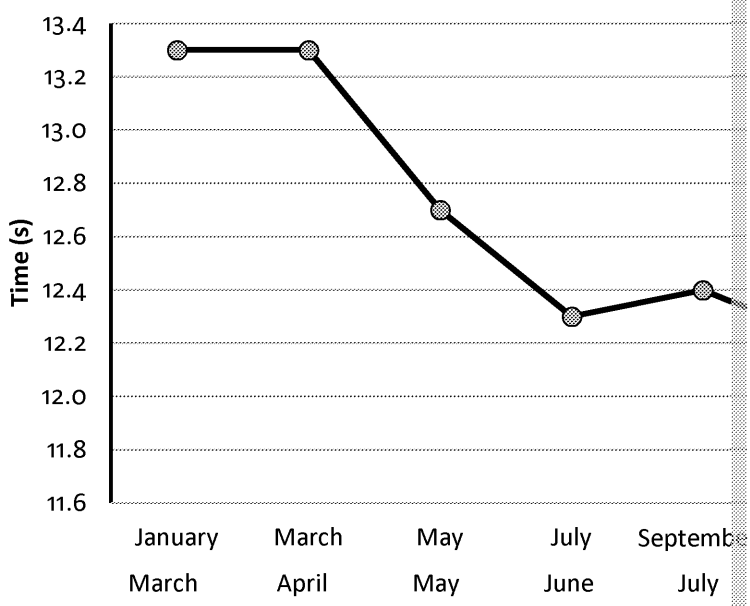
- Training adherence can be improved by goal-setting.
- Goal-setting focuses attention towards the task of improving perfo
- Concentration can be increased by setting goals.
- Short-term goals can provide a strategy for achieving a longer-tern team for the next Olympic Games.
- The athlete may have been more motivated when using goal-setti effort.
- Goal-setting can increase confidence which can allow an athlete to
- Students may include any other suitable reason.

Goals to Optimise Performance: Data inte

A 100 m sprinter has recently started using goal-setting in order to aid i
average race times during her training sessions over a six month perioc

1. Analyse the data in the graph below with a partner

Fig. 1 Average race times of 100 m athlete over a six m



2. Identify what the data in the graph above shows and discuss the p
the athlete's performance and how goal-setting could have led to t

The data shows... .....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

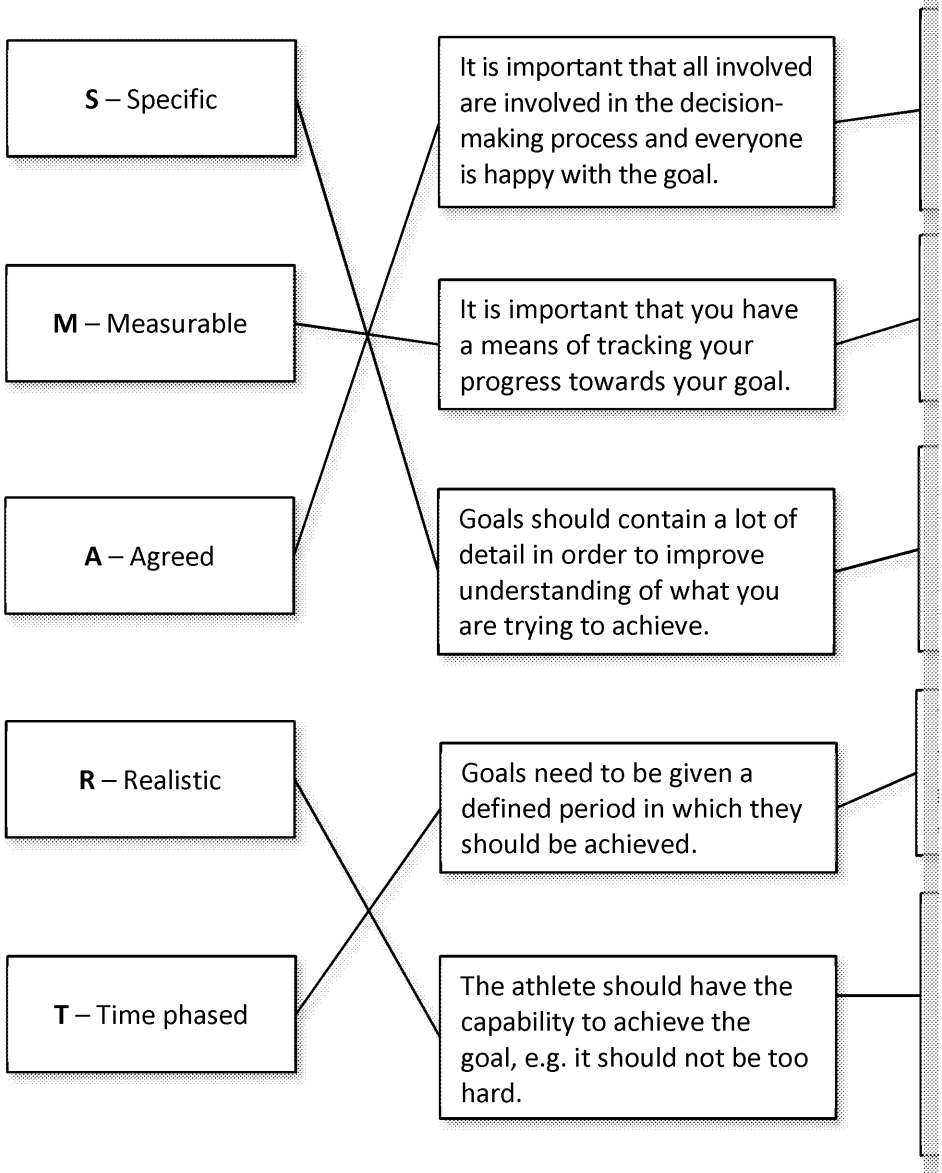
.....

Activity 43 – Goal-settin

Teacher's Notes and Answers

Starter Activity: SMART match-u	
Aim of the activity	To allow students to understand and test their knowle principles of goal-setting.
Teacher's instructions	Photocopy the activity page and hand out one copy to minutes to complete the match-up activity by writing setting (SMART), matching each principle to the appro a description of how this principle can lead to improve runner. Then spend five minutes discussing their answ

Answers



Goal-setting: Smart match-up

Fill in the five principles of goal-setting (SMART) and match them up to t
write down a description of how each principle could be beneficial for a
their time.

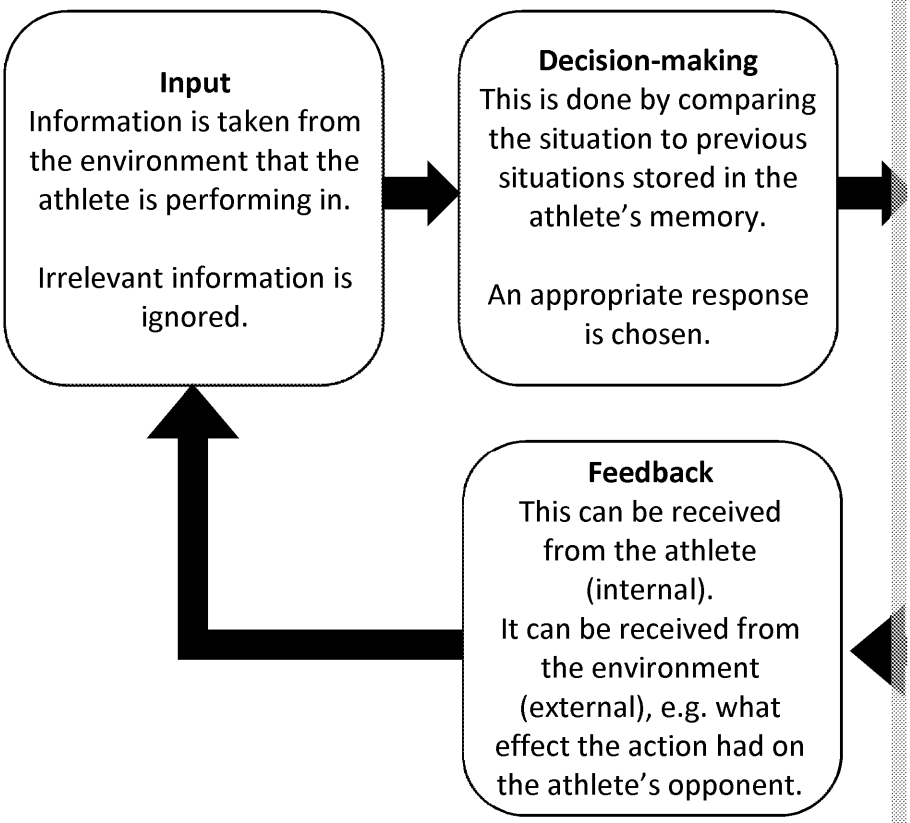
S –	It is important that all involved are involved in the decision-making process and everyone is happy with the goal.
M –	It is important that you have a means of tracking your progress towards your goal.
A –	Goals should contain a lot of detail in order to improve understanding of what you are trying to achieve.
R –	Goals need to be given a defined period in which they should be achieved.
T –	The athlete should have the capability to achieve the goal, e.g. it should not be too hard.

Activity 44 – Basic Information Proc

Teacher's Notes and Answers

Plenary Activity: Arrange the Compo	
Aim of the activity	To allow students to understand and test their knowle
Teacher's instructions	Photocopy the activity page and hand out one copy to the students with scissors, glue and a blank piece of pa the components of the model. Give the students 10 m component of the model of information processing an new piece of paper. They will need to place the stages stick the relevant sentences under the correct stages. S answers with the teacher before gluing them down.

Answers



Basic Information Processing Model: Arrange the Components

Cut out the following components of the basic model of information processing and organise i
your teacher before gluing them down.

Decision-making

This is done by comparing the situation to previous situations stored in the athlete's memory.

It can be received from
environment (external), e.g
effect the action had on
athlete's opponent.

Irrelevant information is ignored.

Information is taken from the environment that the athlete is performing in.

The action is perform

Feedback

This can be received from the athlete (internal).

Activity 45 – Feedback on Perf

Teacher's Notes and Answers

Plenary Activity: Provide feedba	
Aim of the activity	To understand and evaluate how different types of feedba different types of athletes (beginners/elite).
Teacher's instructions	Photocopy the activity page and hand one copy to each stu 5–10 minutes to read both passages and write down some received by the athletes. After they have done this, ask th feedback are most appropriate for beginners and elite-leve

Answers

Elite athlete

- Negative – The athlete did not run their fastest and the coach coul are an international athlete and it would, therefore, be appropriat they will be highly motivated and be willing to take criticism on bo performance.
- Knowledge of results – The athlete would focus on the fact that th positions as this is what they are competing for in a competition. T as it will determine whether they qualify for the international com the race will be more motivational for an elite athlete, who is expe they may have gone wrong on their performance.
- Intrinsic – Experienced athletes are more likely to get their feedbac how they feel during and following the event.

Beginner

- Positive – The coach could focus on the positive fact that they ran a as this would be more appropriate for a beginner than focusing on t and have a lot of improvements to make.
- Knowledge of performance – The coach should focus on the fact th personal best (knowledge of performance) rather than the fact tha result) as their performance against others is not relevant at this e development.
- Extrinsic – Inexperienced athletes are more likely to get their feedb as what their coach tells them following the event as they do not h of how the skill should feel like in order to feedback internally.

Feedback on Performance: Provide feedb

Read the following passages which describe the performance of a beginner ar
reading each passage, circle the most appropriate feedback type for that athl
that the athlete could receive and ensure that it is appropriate for each one.

Elite athlete:
The athlete is taking part in a qualifying race for an international athl
complete their race in a time that matches their personal best for the
it is not the fastest they have ever run and they do not finish in the to

Positive/negative:

Knowledge of results / knowledge of performance:

Positive/negative:

Knowledge of results / knowledge of performance:

Beginner:
The athlete is taking part in their first athletic competition at a
complete the race in a personal best time but finish fifth. After
not very happy because they wanted to finish within the top th

Activity 46 – Feedback D

Teacher's Notes and Answers

Starter Activity: Data handling	
Aim of the activity	To interpret and analyse graphical representations of dat performance.
Teacher's instructions	Photocopy the worksheet and give one copy to each stud five minutes looking at the data presented in the chart an they could give to each player based on their performanc the students to share their feedback with the class.

Answers

Feedback could include:

Murray:

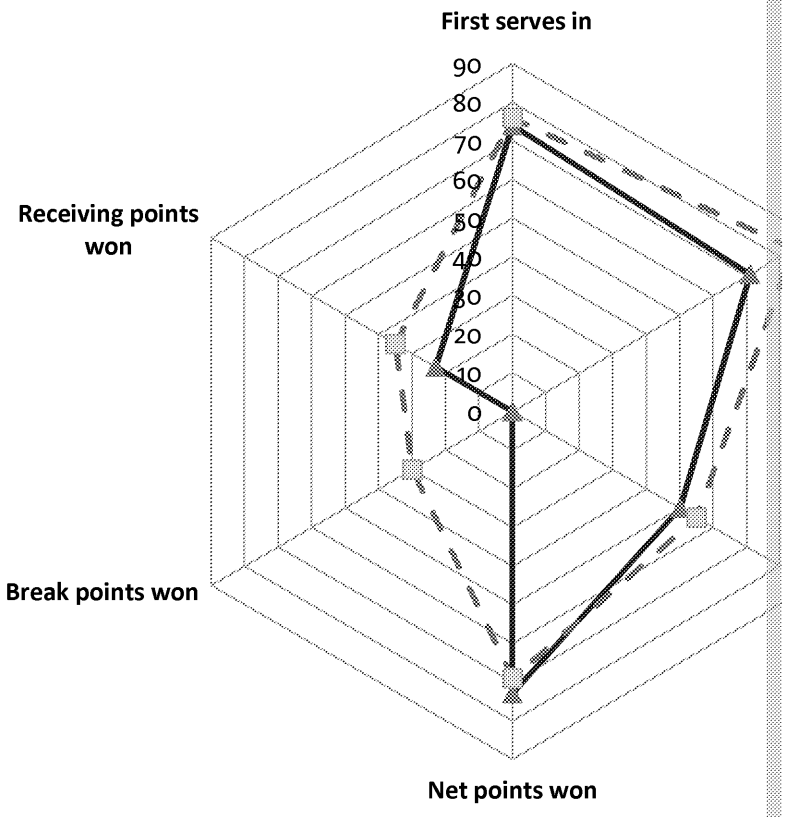
- Murray needs to increase the number of points won on first and se points on his serve than Federer did.
- He needs to play more net shots by running to the net following an is the one measured area where Murray performed to a higher lev he needs to utilise this advantage.
- He needs to improve his service return, e.g. by learning to identify was the area where the difference between Murray and Federer w that Murray would need to address in future matches.

Federer:

- Federer needs to avoid allowing Murray to come to the net, e.g. by the area where Murray was able to outperform him and gain more
- Positive feedback can be given for his service and serve return perf Murray on 'first serves in', 'first serve points won' and 'second serv continue to dominate this area of his game.

Feedback Data: Data handling

Look at the chart below which shows data from the match between Andy Mu
Wimbledon semi-final. Study the chart and then write down some feedback
order to improve their future performances against each other.



Murray

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Federer

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Activity 47 – Guidance on Perf

Teacher's Notes and Answers

Starter Activity: Application of me	
Aim of the activity	To understand and evaluate how different forms of guidance
Teacher's instructions	Photocopy the activity page and hand one copy to each stud fill in the boxes. Students should choose a skill that they are another student. They should then fill in the blank boxes by method of guidance and identifying how they could utilise e skill. If any students get stuck, offer an example for another similar principle for their chosen skill.

Answers

Any skill can be used for each method provided the description of use i

Visual

involves demonstrating the skill to the individual

- **Advantages:** can be used at all stages of learning but good for beginn can be used alongside all other methods, can be delivered to multipl
- **Disadvantages:** may be difficult to teach difficult skills using this meth required skills in order for it to be effective, learners can become bore guidance, does not allow a kinaesthetic feel to be developed
- **Most suited to:** cognitive, associative and autonomous

Verbal

involves telling the individuals about the skill

- **Advantages:** can be used at all stages, can be used alongside all oth multiple people at the same time, can be delivered at the time of l the learner.
- **Disadvantages:** the coach must have the required skills in order fo difficult to teach difficult skills using this method, learners can beco form of guidance, hard to form a clear picture of the skill when use
- **Most suited to:** associative and autonomous

Manual

involves moving the athlete's body parts for them

- **Advantages:** can be used alongside all other methods, useful for b assistance, provides a kinaesthetic understanding of the skill, reduc
- **Disadvantages:** difficult to deliver to multiple learners, can preven true feel for the movement, can lead to the performer requiring th can be dangerous if equipment is faulty
- **Most suited to:** cognitive

Mechanical

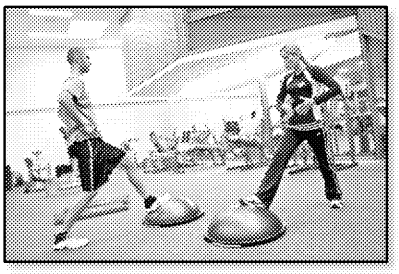
Involves using equipment to aid performance

- **Advantages:** useful for beginners who need physical assistance, pr understanding of the skill, reduces the risk of injury for novices
- **Disadvantages:** specialised equipment is required, difficult to deliv prevent the learner from developing a true feel for the movement, requiring the support in order to perform, can be dangerous if equ
- **Most suited to:** cognitive

Guidance on Performance: Application of

For each type of guidance given below, identify a skill you could teach then de
this skill. You should then evaluate each type of guidance in terms of its adva
choose whether it would be most suited to those at the cognitive, associative
ticking those that you think it would be most beneficial for.

Visual



Skill you are teaching:

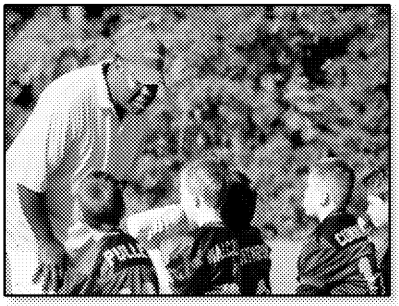
Description of use:

Evaluation:

Stage of learning most suited to:

Cognitive ☐ **Associative** ☐

Verbal



Skill you are teaching:

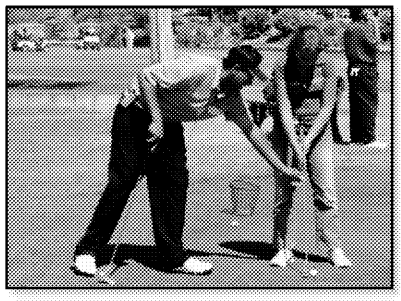
Description of use:

Evaluation:

Stage of learning most suited to:

Cognitive ☐ **Associative** ☐

Manual



Skill you are teaching:

Description of use:

Evaluation:

Stage of learning most suited to:

Cognitive ☐ **Associative** ☐

Mechanical

Skill you are teaching:

Description of use:

Evaluation:

Stage of learning most suited to:

Cognitive ☐ **Associative** ☐

Activity 48 – Mental Prepar

Teacher's Notes and Answers

	Starter Activity: Instructor
Aim of the activity	To understand the different mental preparations ath competition.
Teacher's instructions	Photocopy the instructions of the stress managemer to each pair. Instruct one member of the pair to rea then teach their partner how to use each method. G these techniques and walk around the class to ensur them appropriately. To make this more difficult you the worksheet immediately and see if they can teach assistance, by just knowing the name of the techniq

Answers

Possible discussion points:

- Ensures you understand what needs to be done in order to perfor
- Can prepare you for a range of different situations
- Can control your arousal levels
- Can get you into the 'zone'
- Can provide a distraction from distractors
- Can allow you to focus on important factors
- Can allow you to practise your performance without physically fati
- Can increase your self-confidence
- Can improve your motivation by making your performance feel ach
- Can help you to maintain motivation when it is not possible for you poor weather conditions

Mental Preparation: Instructor

In pairs, choose who will be the instructor and who will be the participa
the cards and teach the participant how to use the methods of mental p

Mental rehearsal

- Close your eyes and take deep breaths.
- Imagine yourself performing in an upcoming competition.
- Think about everything you would experience in the environmen
  of the crowd, the size of the pitch and the smell of the gra
- Now imagine yourself having to perform the skills that are re
- Identify everything you would need to do in order to perform
- Imagine yourself performing the skills successfully and the feel
  result in.

Imagery

- Close your eyes and take deep breaths.
- Think about the last time you performed a skill well in your sp
- Try to visualise that performance and what it felt like.
- Now imagine yourself performing that skill again in a different
- Imagine each aspect of successful performance of the skill and
  performing each part perfectly.

**Discuss with your partner how these two strategies could improve yo
performance and motivation**

Activity 49 – Intrinsic and Extrinsic

Teacher's Notes and Answers

Plenary Activity: Colour Code	
Aim of the activity	To understand the difference between intrinsic and e be able to identify examples of the two forms of moti
Teacher's instructions	Photocopy the activity page and hand one copy to eac student has two pens which are different colours and five minutes to read the statements and colour-code to intrinsic or extrinsic motivation. Once they have co provide a description of intrinsic and extrinsic motivat
Students' task	Students will have five minutes to colour-code the sta are related to intrinsic or extrinsic motivation. After th description of intrinsic and extrinsic motivation to the

Answers

Intrinsic motivation

- From within
- Determined by yourself
- Related to pride
- Self-satisfaction
- Considered to increase motivation and encourage continued part
- Considered to be more effective for increasing performance level
- Considered to increase effort
- Wanting to improve your skill level
- Being happy with setting a personal best time in a race even if yo compared to the other participants

Extrinsic motivation

- Can be tangible
- From external sources
- Can be intangible
- Influenced by other people
- Relying on this type of motivation can undermine the other type
- Can give athletes a sense of pride
- Athletes can start to rely on these motivators
- Receiving prize money for winning a tournament
- Outperforming your opponent to show that you are better than t
- Receiving praise from your coach after performing well

Intrinsic and Extrinsic Motivation: Colour C

Colour in the descriptive words below in one colour for those related t
colour for those related to extrinsic motivation.

Key:
Intrinsic motivation: ☐ Extrinsic motivation: ☐

Athletes can start to rely on these motivators

Outperforming your opponent to show that you are better than them

Can
intan

Receiving prize money for winning a tournament

Receiving praise from your coach after performing well

Can be tangible

Relying on this type of motivation can undermine the other type

Determined by yourself

Considered to be more effective for increasing performance levels

Considered to increase effort

Related to pride

Self-satisfaction

Being happy with setting a personal best time in a race even if you did not perform well compared to the other participants

Fron
with

Activity 50 – Characteristics of Skilf

Teacher's Notes and Answers

	Starter Activity: Tweet it
Aim of the activity	To understand the characteristics which make a performar
Teacher's instructions	Photocopy the activity page and hand one to each student performance. The following video of Simone Biles is a good example: **zzed.uk/7926-biles** Instruct the students to watch the video and write down e performance. After the video, they should create their ow video using the characteristic of skilful performance in thei

Answers

An ability to coordinate muscles and muscle groups in order to execute

The characteristics of skilful performance and examples of tweets:

- **Technique**: This athlete's movement pattern is perfect. #Perfect M
- **Efficient**: This athlete wastes no energy in their routine. Super effe
- **Consistency**: They clearly know their routine inside out as they can #PreparationIsKey
- **Controlled**: Every part of their body moves in perfect unison. #Per
- **Accuracy**: Look how accurate their movements are! #SharpShoote
- **Aesthetically pleasing**: I could watch them perform this skill over a
- **Effectiveness**: Everything they do results in a positive outcome! #P
- **Confidence**: You can tell they believe they will perform perfectly. #

Characteristics of Skilful Movement: Tweet

Your teacher will show you a video of skilful movement in sport. As yo
the athlete perform, try to identify the characteristics of the performan
a skilful performance and then, after the video has finished, create eigh
summarise your identified characteristics. Also, create a tweet in orde
motor skill is.

Make sure you use a creative hashtag and only use 140 characters per t

MotorSkillsTweet @skillmovements1

Characteristic 1: _____

Characteristic 2: _____

Characteristic 3: _____

Characteristic 4: _____

Characteristic 5: _____

Characteristic 6: _____

Characteristic 7: _____

Characteristic 8: _____

Activity 51 – Classification of

Teacher's Notes and Answers

Plenary Activity: What skill?	
Aim of the activity	To understand, classify and justify a range of skills usin
Teacher's instructions	Photocopy the worksheet on the following page and h Give the students 10 minutes to complete the task by continua and justify their classification in their explan answers so that they can mark their own work.

Answers

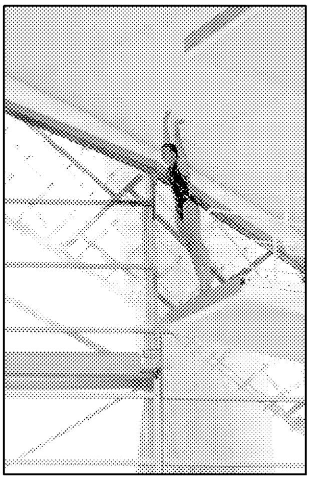
Diving: complex, closed, self-paced
Racing driving: complex, open, externally-paced
Rugby scrum: simple, open, externally-paced
Pole vault: complex, closed, self-paced
Volleyball serve: simple, closed, self-paced
Table tennis serve: simple, closed, self-paced

Reasons for classifications:

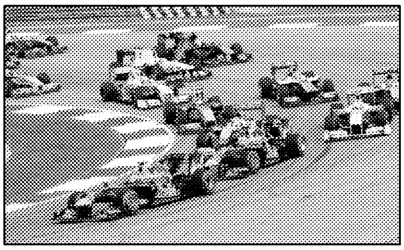
- Skills are classified as 'complex' if they must be extensively practised i
  become competent.
- Skills are classified as 'simple' if they require little thought.
- Skills are classified as 'open' if they must be adapted depending on
- Skills are classified as 'closed' if they take place in stable environme
- Skills are classified as 'self-paced' if the athlete can initiate the mov
- Skills are classified as 'externally-paced' if the athlete has to initiate
  external factor such as another athlete moving or a starting signal.

Classification of Skills: What skill?

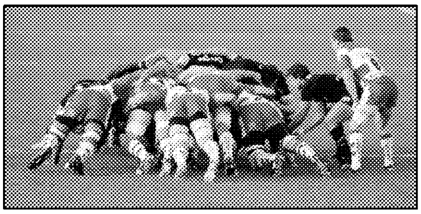
Classify the following sports examples by circling the appropriate classi
justify why you chose each one of the three classifications for each spo



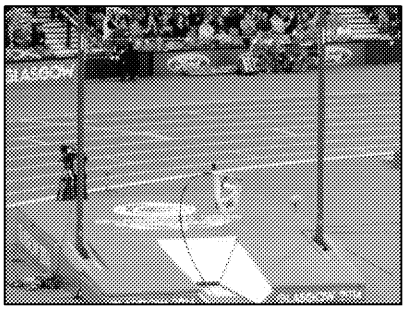
Difficulty **Basic** ☐ **Complex** ☐	**Why?**
Environment **Open** ☐ **Closed** ☐	**Why?**
Pacing **Self** ☐ **External** ☐	**Why?**



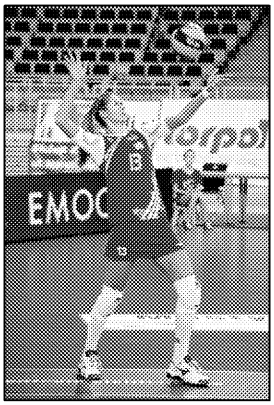
Difficulty **Basic** ☐ **Complex** ☐	**Why?**
Environment **Open** ☐ **Closed** ☐	**Why?**
Pacing **Self** ☐ **External** ☐	**Why?**



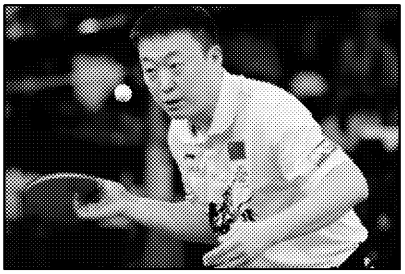
Difficulty **Basic** ☐ **Complex** ☐	**Why?**
Environment **Open** ☐ **Closed** ☐	**Why?**
Pacing **Self** ☐ **External** ☐	**Why?**



Difficulty	Why?
Basic ☐ Complex ☐	
Environment	**Why?**
Open ☐ Closed ☐	
Pacing	**Why?**
Self ☐ External ☐	



Difficulty	Why?
Basic ☐ Complex ☐	
Environment	**Why?**
Open ☐ Closed ☐	
Pacing	**Why?**
Self ☐ External ☐	



Difficulty	Why?
Basic ☐ Complex ☐	
Environment	**Why?**
Open ☐ Closed ☐	
Pacing	**Why?**
Self ☐ External ☐	

Activity 52 – Practice Struc

Teacher's Notes and Answers

Plenary Activity: Pass the practi	
Aim of the activity	To understand the differences between whole, part,
Teacher's instructions	Photocopy the activity sheet and hand one to each s minutes to write down keywords or phrases for eac images to help. Students should then get into group circle. One player should choose a type of practice a keywords. The person to their left should then say o should go around the circle. If a player repeats a key new one to add, they are eliminated. Play until one p other types of practice.

Answers

Keywords are not limited to the ones given below and can be different s

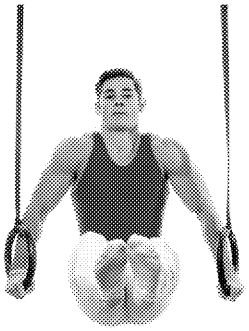
Whole practice • Basic skills • Autonomous stage • Continuous • Repetitions • Extended • Long time • Requires few breaks • High level of fitness needed	***Fixed practice*** • Self-paced s • Cognitive st • Repeating • Whole skill • Closed skills • Drills • Specific
Part practice • Complex skills • Self-paced skills • Cognitive stage • Intervals • Rest • Mental rehearsal • Difficult skills • Dangerous skills • Time-consuming	***Varied practice*** • Open skills • Associative s • Externally p • Repeating • Whole skill • Different en • Situations

Practice Structures: Pass the practice

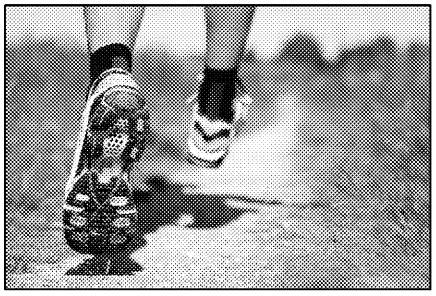
For each of the practices below, annotate the images with as many key
can think of.

Whole Practice

Part Practice



Fixed Practice



Varied Practice

Now get into small groups (five to seven people) and get in a circle. On
practice above and saying one of the keywords out loud. The person to
their keywords. If a player repeats a keyword already said or hasn't got
Play until only one person is left. Repeat for all four practices.

It would be a good idea to add others' keywords to your list as you play

Activity 53 – Practice and Skill Classifi

Teacher's Notes and Answers

Plenary Activity: Practice desig	
Aim of the activity	To apply knowledge about practice and skill classifica sporting skills in order to choose the most appropriat
Teacher's instructions	Photocopy the handout and give one copy to each st five minutes identifying which practice type would be the skills displayed and instruct them to write a brief practice type is appropriate and how it would be carr a five-minute discussion regarding their answers.

Answers

Rugby attacking move:
Varied practice would be the most appropriate as this skill is **open** and involve the move being practised in an open game-play situation so that defensive positioning.

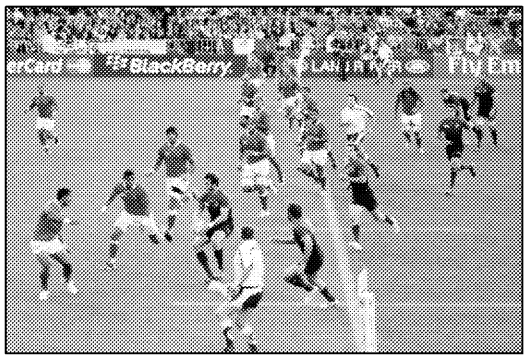
Beam routine:
Part practice would be the most appropriate as this skill is **complex** and involve the routine being performed many times with a break between

Tennis rally:
Varied practice would be the most appropriate as this skill is **basic** and entire skill being repeatedly practised in different situations so that the respond to a range of situations.

Shot put:
Fixed practice would be the most appropriate as the skill is **basic** and **s** the whole movement being repeatedly practised.

Practise and Skill Classification: Practice d

Choose the most appropriate type of practice to learn each of the skills
justify this choice and write a brief guide of how you would carry out th



Skill: Rugby attacking move

.....

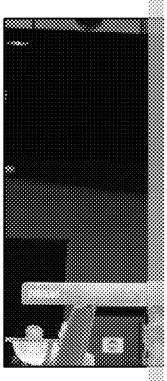
.....

.....

.....

.....

.....



Skill: Beam routin

.....

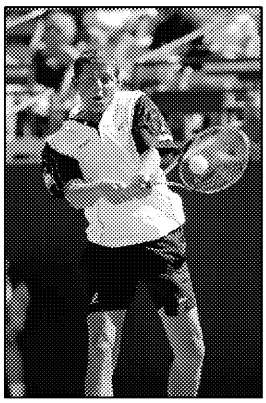
.....

.....

.....

.....

.....



Skill: Tennis rally

.....

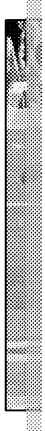
.....

.....

.....

.....

.....



Skill: Shot put

.....

.....

.....

.....

.....

.....

Activity 54 – Physical Activity and S

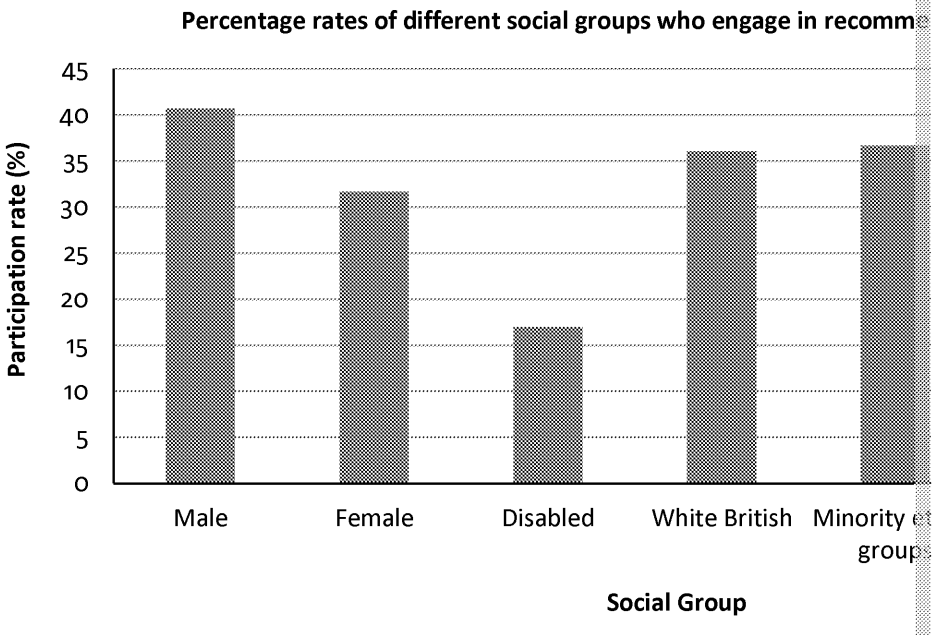
Teacher's Notes and Answers

Starter Activity: What's the trend	
Aim of the activity	To understand the trends in physical activity participati
Teacher's instructions	Photocopy the activity page and hand one to each stud spend between 10 and 15 minutes to create a graph fro and then answer the questions about the data.

Answers

Students should create a graph which accurately depicts the data provi title and labelled axes.

Students may present that data in a different style to the graph below



i) The findings show that there was little difference between the par people and people from minority ethnic groups. **(1 mark)**

ii) Disabled individuals are the most at-risk group. **(1 mark)**

iii) People from lower socio-economic groups might have less free tim due to the need to work longer hours **(1 mark)**, they may not have spend on membership fees for gyms and clubs **(1 mark)** and they m which do not have the same facilities for physical activity as other a

iv) Better access could be provided through improved transport links (access into buildings. **(1 mark)** Physical activity centres could also as wheelchair tennis and wheelchair basketball. **(1 mark)**

v) Female participation may be lower due to stereotyping and a lack which do not encourage female participation. **(1 mark)** It may also role of females looking after children and, therefore, having reduce be physically active. **(1 mark)** However, a modern shift away from lead to improved female participation in future surveys. **(1 mark)**

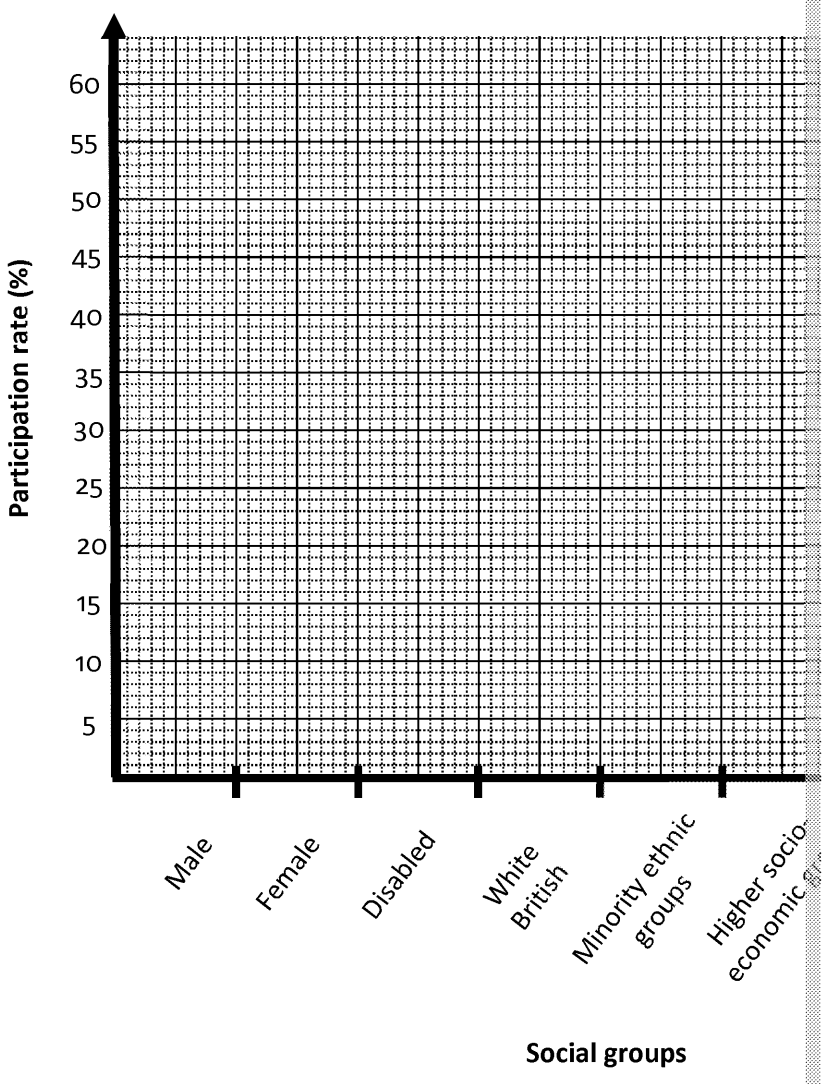
Physical Activity and Sport in the UK: Who

Table 1 below shows the percentage of people from different social gro
the recommended level of physical activity by competing in a range of s
graph in the space below using the data from the table and then discus
partner.

Table 1: Percentage of people in England who engaged in recommende

	Male	Female	Disabled	White British	Mi et gr
Number (million)	8.7	7.1	1.56	13	2
Percentage (%)	40.7	31.7	17	36.1	3

Data from https://www.sportengland.org/r



i) What is the effect of ethnicity on participation rates?

.....

.....

ii) Which social group is most 'at risk' and should be targeted by physic

.....

.....

iii) Why does socio-economic status have the observed effect on parti

.....

.....

.....

.....

.....

iv) How could the participation rates of disabled people be increased?

.....

.....

.....

.....

.....

v) Why do you think there are differences between male and female p

.....

.....

.....

.....

.....

.....

Activity 55 – Participation in Physical A

Teacher's Notes and Answers

Plenary Activity: What affects m	
Aim of the activity	To allow students to test their knowledge and understa affect participation of certain social groups in physical a
Teacher's instructions	Photocopy the activity page and give one copy to each pa minutes to read each passage and decide which social gro identify and explain which factors affect their participatio lower-ability students to just identify factors and high-abi relation to the scenarios.

Answers

'I gave up playing netball with my local team. My mum could no longer take me to training and matches and I had no other way of getting there especially during the winter when I didn't want to walk all that way as the weather is always horrible.'	**Social Group:** age/family **Factors:** access, time, commi **Explanation:** Time commitme opportunity and access to pa dissuaded them from particip
'I was interested in playing wheelchair basketball at my local sports centre but they did not have a wheelchair basketball team and the nearest team was 20 miles away.'	**Social Group:** disability **Factors:** opportunity/access/ **Explanation:** A lack of opport someone from being able to afford to travel huge distance
'After watching Mo Farah at the Olympics on BBC, I have looked into taking up running. If someone from my background could achieve what he did then so can I.'	**Social Group:** ethnicity **Factors:** media coverage, rol **Explanation:** Sport on non-co it does not require subscriptio ethnic backgrounds can inspir
'I know that sport is good for you but I'm not that interested in getting involved. I like football but women's football is rarely on TV and when I have tried playing, people sometimes say insulting things. It is also hard being part of my religion as women are often discouraged from playing sport.'	**Social Group:** gender/religion **Factors:** media coverage, disc **Explanation:** The lack of role participation. Additionally, d women in sport by a religious taking part.
'It can be difficult for me to take part in physical activity because my time outside of work can be taken up by religious commitments. For example, I am not able to be physically active on certain days and I can't exercise when I am fasting.'	**Social Group:** religion/culture **Factors:** time **Explanation:** A person's relig when they can take part in p activity they can take part in.
'When I was at school one of my teachers taught me all about the benefits of taking part in physical activity. Because of this teacher I started running with my classmates every week and I have kept doing it since I left school. I really enjoy it.'	**Social Group:** age **Factors:** education **Explanation:** Education by a positive attitudes towards sp take into your adult life.
'It can sometimes be hard for someone as old as me to keep physically active. Especially as my pension doesn't provide me with much money. However, my local fitness centre offers a range of inclusive activities such as walking football at a discounted price.'	**Social Group:** age **Factors:** access / opportunity **Explanation:** Activities that a participate can help encoura discounts for concessions suc participation in sport more a
'All my friends go to gymnastics every Tuesday and Thursday evening, but I can't go, as my parents are always working and they can't afford the expensive membership fees.'	**Social Group:** age/family/pee **Factors:** money/time/commi **Explanation:** An individual's a regular physical activity if the facilities. Also family commit impact whether someone ca

Participation in Physical Activity and Spor

A survey conducted into engagement patterns between different socia
were many factors that affected people's engagement in sport. Some o
below. Work with a partner to identify firstly which social group(s) the
briefly explain which factors it relates to from the lists given.

Social Groups:

- gender
- ethnicity
- age
- family
- disability
- religion/culture
- peers

Factors:

- access
- media coverage
- opportunity
- time
- commitments
- environment/climate

'I gave up playing netball with my local team. My mum could no longer take me to training and matches and I had no other way of getting there especially during the winter when I didn't want to walk all that way as the weather is always horrible.'	**Social Group:** **Factors:** **Explanation:**
'I was interested in playing wheelchair basketball at my local sports centre but they did not have a wheelchair basketball team and the nearest team was 20 miles away.'	**Social Group:** **Factors:** **Explanation:**
'After watching Mo Farah at the Olympics on BBC, I have looked into taking up running. If someone from my background could achieve what he did then so can I.'	**Social Group:** **Factors:** **Explanation:**

'I know that sport is good for you but I'm not that interested in getting involved. I like football but women's football is rarely on TV and when I have tried playing, people sometimes say insulting things. It is also hard being part of my religion as women are often discouraged from playing sport.'	**Social Group:** **Factors:** **Explanation:**

'It can be difficult for me to take part in physical activity because my time outside of work can be taken up by religious commitments. For example, I am not able to be physically active on certain days and I can't exercise when I am fasting.'	**Social Group:** **Factors:** **Explanation:**

'When I was at school one of my teachers taught me all about the benefits of taking part in physical activity. Because of this teacher I started running with my classmates every week and I have kept doing it since I left school but I really enjoy it.'	**Social Group:** **Factors:** **Explanation:**

'It can sometimes be hard for someone as old as me to keep physically active. Especially as my pension doesn't provide me with much money. However, my local fitness centre offers a range of inclusive activities such as walking football at a discounted price.'	**Social Group:** **Factors:** **Explanation:**

'All my friends go to gymnastics every Tuesday and Thursday evening, but I can't go, as my parents are always working and they can't afford the expensive membership fees.'	**Social Group:** **Factors:** **Explanation:**

Activity 56 – Development of Children thr

Teacher's Notes and Answers

Starter Activity: Make note	
Aim of the activity	To understand the impact of physical activity participation o health, well-being and the development of children.
Teacher's instructions	Photocopy the activity page and hand a copy to each stude minutes identifying as many impacts as they can of physica development of children. Once they have filled in the work minute group discussion, during which they can present an

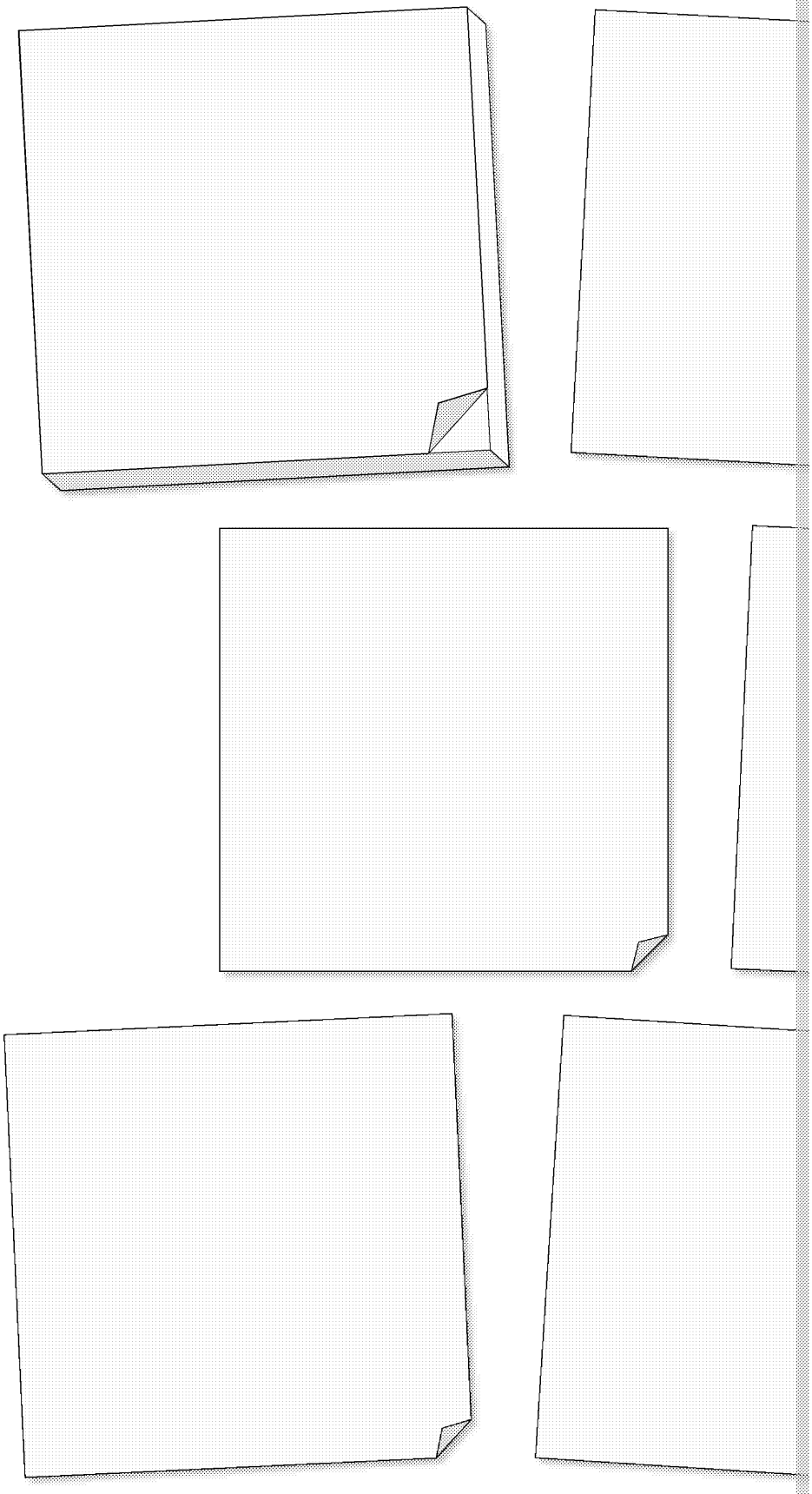
Answers

Students should provide answers similar to the ones below:

- It is important for children to develop good habits and improve the their chances of developing coronary heart disease and type 2 diab
- It allows them to increase their bone density which will reduce the fractures.
- One of the most important benefits of physical activity for children friendships with other children that they meet when taking part.
- It can increase the social health of children and give them the socia social life as they get older.
- It also allows children to develop self-confidence and improve thei important as they progress into adolescence.
- They can improve their physical literacy as physical activity provide movement patterns to be developed and refined.
- Increased physical literacy can improve their ability to perform phy lives which could encourage continued involvement.
- Developing physical literacy can also be important for the everyda involve walking, running, jumping, balance and coordination, e.g. p

Development of Children through Particip

Think of different reasons why physical activity is important for the developme
the sticky notes below (make sure you cover physical literacy, health and well-b
notes, your class will have a discussion during which you can explain some of yo



Activity 57 – Improving Participation

Teacher's Notes and Answers

Plenary Activity: Provide the Strate	
Aim of the activity	To test students' understanding of the different strategies participation.
Teacher's instructions	Print out a copy of the activity sheet on the next page and students should work in groups of three and spend five mi strategies each. They should research these strategies ind minutes feeding back their findings to the rest of their gro notes about all three strategies.

Answers

School physical education, extracurricular activities and wider curriculum:

- Many schools have extracurricular clubs and activities which enable stud
- PE lessons are compulsory up to the age of 16 which ensures that studen activity every week.
- The curriculum for PE within Welsh schools clearly lays out a developme skills required for lifelong involvement in physical activity.
- Schools can offer a wide range of activities and, therefore, there is likely each student.
- There can be opportunities to not only play in teams, but to lead and off avenue into sport for many that do not enjoy the participation side of sp
- They have regular fixtures which increase the opportunities to take part.
- Schools can have a high standard of facilities due to funding from local co
- A range of competitive and non-competitive sport is available.

Anti-racism campaigns:

- Campaigns such as Kick It Out raise the awareness of discrimination face
- These campaigns are often designed to provide education about equality
- They can provide advice for minority groups.
- They can work to increase the diversity within sport, e.g. by increasing th football.
- They can provide a support network for those suffering from racism.
- They can provide a pathway for reporting incidences of racial abuse so th authorities.
- They can highlight the achievements of minorities within sport, e.g. awar

Adapted sport for disabled athletes:

- Institutions such as Sport Wales can provide policies through their Disabi
- Promote adapted versions of sports.
- Provide facilities for adapted sports.
- Increase access opportunities, e.g. disabled access to buildings and impro
- Increase the number of coaches qualified to deliver disability sport coachi
- Provide community outreach projects to offer disabled individuals an op
- Subsidies can be provided for disabled athletes if they are receiving bene loss of income caused by disability.
- Highlighting the achievements of disabled athletes through awards and c media attention and lead to disabled sports people being promoted as r

Improving Participation: Provide the Strateg

Below are three different ways by which participation in physical activity can b
three and think about and research one of the strategies each. You should w
then you should feed back the information to the other members of your gro

When the other people in your group are telling you about their strategy, you

School physical education, extracurricular activities and

Anti-racism campaigns

Adapted sport for disabled athletes

Activity 58 – Provision for Minor

Teacher's Notes and Answers

Plenary Activity: Notes on the w	
Aim of the activity	To understand the strategies that can be used to improve activity and sport.
Teacher's instructions	Photocopy the activity page and give one copy to each stu into groups of three and each provide examples of how p minority groups in physical activity and sport before expla group. They should all take notes while their partners are

Answers

Examples of ideas are not limited to:

Provision:

- provide funding to build new facilities
- ensure the facilities are available in all areas of the community
- ensure that a range of different provisions are provided, e.g. runni football pitches
- build free facilities such as community basketball courts
- improve bus routes to facilities
- provide onsite parking at physical activity facilities
- offer extended opening times, e.g. 24/7 gyms which suit everyone
- encourage cycling with safe places to leave bikes
- provide free gyms in local parks
- provide equipment such as goal posts and other sports equipment participation
- advertising opportunities, e.g. flyers and TV commercials
- offer concessions/discounts for certain members with low income
- offer trial sessions to give a class a go before paying for membersh
- provide free classes
- create links with local businesses so that their staff can exercise at
- set up initiatives such as cycle to work plans

Strategies to Improve Participation: Provision for Minori

You will work in a team of three and take on the role of an organisation involved in increasing p
minority groups (gender, race and disability). Your job is to work independently to come up wi
for minority groups. Once you have filled in your section with strategies that could be used, di
on any ideas you didn't think of.

Activity 59 – Commercialism in Sport

Teacher's Notes and Answers

	Plenary Activity: Report
Aim of the activity	To understand the relationship between physical act commercialisation and the media.
Teacher's instructions	Photocopy the activity page and hand one copy to e minutes to complete the activity. They should write commercialisation, including the relationship betwe sponsorship, and the media.

Answers

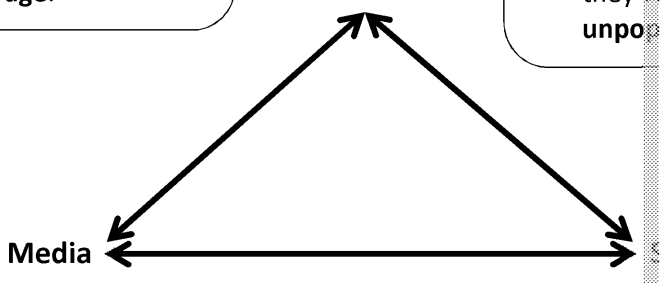
Student reports should include reference to the following points:

Relationship:

- **Popular** sports have a **positive** impact on the media by increasing **viewership**.
- The media can increase the **popularity** of certain **sports** which are **covered** in detail.
- Other **sports** may become less **popular** due to a lack of **media coverage**.

Relations

- Sport which **succe**
- Succe **platf** **prom**
- **Comp** have they **unpo**

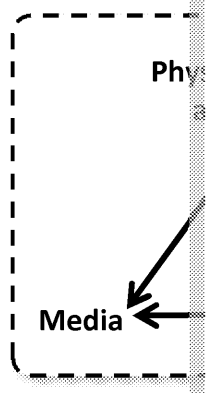


Relationship:

- **Media** coverage provides a platform for **sponsors** to promote their **product** to a larg audience.
- Sponsors pay **high** prices to have **adverts** broadcast during popular **sporting** events.

Commercialism in Sport: Report

Produce a brief report to explain commercialisation in a sport of your ch
between **physical activity and sport, commercialisation,** and the **media**.



Activity 60 – Sponsorship and the M

Teacher's Notes and Answers

Plenary Activity: Analyse and deb	
Aim of the activity	To understand the different types of sponsorship and the me that they have on those involved in sporting activity.
Teacher's instructions	Photocopy the activity page and hand one copy to each stude to read through the passage and annotate all the different fo that they can see. Then give students a number – either a 1 (in sport) or a 2 (against commercialism and the media in spor about and write down how these different forms of sponsors positive (1) or negative (2) impact on those involved in sport, debate could be performed in a following lesson.

Answers

Television and radio stations from all over the world compete for the rig their country as the event attracts large audiences. During the event, thi companies can increase their popularity by **sponsoring the clothing that pay to have their logos displayed in various ways** during the event but t as it is likely to increase their popularity and make their brand more reco can ensure that they are noticed is by **sponsoring facilities such as stadi** 2016 match which will be held at the Levi's Stadium.

Alongside television viewership, people can also **keep up to date with t** Internet provides a 24/7 opportunity for fans to follow the build-up to t news and it also allows them to follow live updates during the match. T **to engage on social media** which promotes discussion and allows spect the **more traditional sources of information provided by the press, e.g**

The following points could be discussed as part of the debate, but are not lim

	Positive	
Performer	• financial support allows training and competing to be the main focus • earning potential has greatly increased • role model status • improved facilities, training equipment etc. from the increased revenue • can lead to the performer displaying sportsmanship as they try to gain contracts by presenting themselves as a role model	• Opportunities advertising, e training and c • Changes to th of competitio more games p fatigue and in • A greater inte means that th the media's a • Media can alt to suit viewer effect on the p • Commercialis as performers gain sponsors
Spectator	• improved viewing experience • increased range of viewing opportunities • increased opportunities to see live games due to the increased number of competitive matches	• Commercial b impact viewin • Over-commer spectators to rules and the • The spectator sport tedious
Sport	• popularity is increased for the sports that receive revenue from sponsorship • increased coverage • increased financial strength • the competition organisation is improved • new competitions are created	• A greater gap less popular s • Business beco • Sports becom
Sponsor	• increased revenue if associated with a popular/successful team/athlete • provides an opportunity to increase brand exposure	• The brand ma with a team/a

Sponsorship and the Media in Sport: Analy

1. Read the following description of a sporting event and identify the
and media that are involved.

*Television and radio stations from all over the world compete for the
their country as the event attracts large audiences. During the event,
companies can increase their popularity by sponsoring the clothing th*

*Companies pay to have their logos displayed in various ways during
an investment as it is likely to increase their popularity and make thei
way that a brand can ensure that they are noticed is by sponsoring fo
example of this is the 2016 match which will be held at the Levi's Sta*

*Alongside television viewership, people can also keep up to date with
Internet provides a 24/7 opportunity for fans to follow the build-up
latest news and it also allows them to follow live updates during the
people to engage on social media which promotes discussion and allo
involved than the more traditional sources of information provided b*

2. You will be told if you are arguing **for** or **against** commercialisation
some notes in preparation for a class debate that will discuss the p
sponsorship and the media on the *performer, spectator, sport, spo*

I am for/against commercialisation and media in sport

Impacts on…

Performer	
Spectator	

Activity 61 – Globalisation of

Teacher's Notes

Starter Activity: Around the glob	
Aim of the activity	To understand the impact that globalisation has had on tw
Teacher's instructions	Photocopy the activity page and hand out one copy to eac minutes to complete the activity by writing down the impa exposure, and freedom of movement for performers has h the twenty-first century. Then spend five minutes discuss any answers which they did not provide.

Answers

Greater exposure:

- Due to increased media coverage which allows people to view mor
- Due to improved transportation which allows people to attend eve
- Due to increased disposable income and leisure time which allow p
- This has led to a greater number of elite athletes due to the increa which clubs and teams can pick athletes.

Freedom of movement for performers:

- Athletes are able to take part in sporting competitions in countries o were born.
- This has allowed large tournaments, such as the Olympics and FIFA the world and increase the popularity of sports within the host cou
- Sports teams also embark on preseason tours to different areas of popularity of a sport.

Media coverage:

- Increased media coverage has allowed more people to be involved
- It has led to increased popularity for those sports which receive lar
- Twenty-four-hour sports news channels highlight this increased po
- Dedicated sports channels also highlight the popularity of sports.
- Increased media coverage has also increased the ability of sports t advertising.
- Advertising money has been used to increase the quality of sports popularity.

Globalisation of Sport in the Twenty-first C
Around the globe

Using the annotations and titles given, explain each one in further deta
become globalised in the twenty-first century.

Greater exposure

Freedom o

Media coverage

Activity 62 – Trends in Commer

Teacher's Notes and Answers

Starter Activity: Data discussion	
Aim of the activity	To be able to interpret and analyse graphical representat in the commercialisation of physical activity and sport.
Teacher's instructions	Get the students into small groups of four or five and pho student. Give each group five to ten minutes to look at th using the questions provided to aid their discussion. Go r discussing to ensure that they are staying on track and to their discussions.

Answers

i) Advertising prices steadily rose between 1966 and 1990 and then more rapidly.

ii) This trend is likely to have occurred due to the increasing worldw which has increased the viewership. With more people watching having an advertisement shown during the match have greatly in competition has led to greater prices.

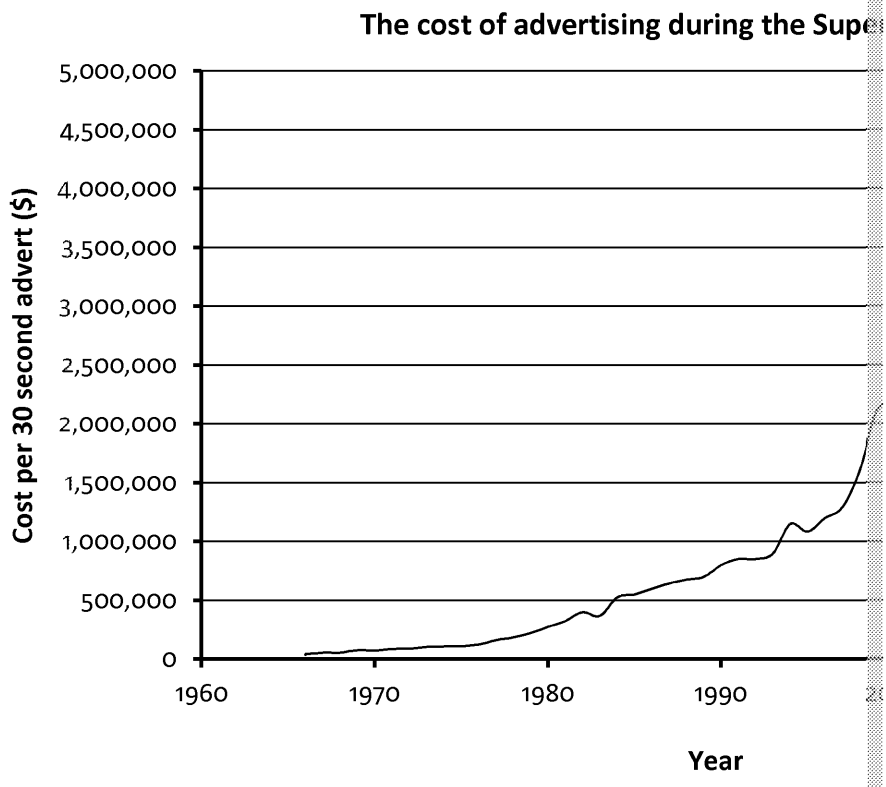
iii) The importance of the advertisements for companies involved in advertisements during the match which may reduce the viewing watch on television. There is less time for analysis to occur due t some fans might find that it distracts from the event.

iv) Due to the popularity of the sport and the worldwide reach, com promote themselves to large numbers of people. For them the c worth the money as it will have a positive impact on their popula

v) The television networks are able to charge this much money for a a lot of competition for the right to be able to advertise during th companies that compete for the chance to promote themselves d networks will be able to charge for the rights.

Trends in Commercialisation: Data discussi

The graph below shows the cost of advertising during the Super Bowl over a 4
discuss what the data shows, using the questions below to guide you.



(Th

i) Discuss the trend in advertising prices.

.....

.....

ii) Why do you think this trend has occurred?

.....

.....

iii) What effect has this trend had on the spectators?

.....

.....

iii) Why are companies willing to pay this amount of money for advert

.....

.....

v) Why does it cost this much to advertise during the Super Bowl?

.....

.....

Activity 63 – Ethics in Sp

Teacher's Notes and Answers

Plenary Activity: Tri-answers	
Aim of the activity	To understand the different types of sporting behavio and consequences of, deviance in sport.
Teacher's instructions	Photocopy the activity sheet and hand one copy to ea minutes to complete the triangle of information by fil appropriate information. They should work from the building their knowledge for longer-answered questio

Answers

Possible keywords:

- **Sportsmanship –** fair, rules, adhering, lawful
- **Gamesmanship –** unfair, bending rules, gaining advantage, obstruc

Possible definitions:

- **Sportsmanship** – treating your opponents justly and competing in a
- **Gamesmanship** – pushing the sports codes to their limits in order t

Any appropriate example of each:

- **Sportsmanship** – e.g. shaking an opponent's hand after the match of a game to show respect
- **Gamesmanship** – e.g. time-wasting near the end of a match to run winning

Possible reasons for gamesmanship and deviance:

- to gain an advantage
- importance of the event
- pressure from coaches
- financial pressure to win
- drive to win

Possible consequences of deviance:

- experience success
- increased fame
- increased wealth
- receive a ban
- receive a fine
- damage to the athlete's reputation
- damage to the sport's reputation
- damage to the sport's credibility

Ethics in Sport: Tri-answers

Complete the sections of the triangle below to summarise your knowledge of

Keywords

Sportsmanship:

Gamesmanship:

Definitions

Sportsmanship:

Gamesmanship:

Examples

Sportsmanship:

Gamesmans

Reasons for gamesmanship and deviance

Consequences of gamesmanship and devia

TIP: This is a great way to practise constructing your answers for lo

Activity 64 – Drugs in Spo

Teacher's Notes and Answers

Plenary Activity: Positives and nega	
Aim of the activity	To understand the positive and negative effects of taking P performer's lifestyle.
Teacher's instructions	Photocopy the activity page and hand one copy to each gro the students 5–10 minutes to discuss the advantages and d write them down. Then open up a group discussion and as

Answers

Advantages to performer:

- improved performance
- increased strength
- improved training
- improved emotional control
- greater energy levels
- experience success
- increased fame
- increased wealth
- able to compete with others who are using PEDs

Disadvantages to performer:

- damage their reputation
- damage their health
- at risk of being fined
- at risk of being banned
- at risk of addiction
- increased aggression
- reduced psychological health
- greater impact of injury if it allows the athlete to continue to partic

Disadvantages to sport:

- damage to reputation
- loss of credibility
- reduced popularity
- loss of sponsorship

Drugs in Sport 2: Positives and negatives

A number of elite athletes have been accused or found guilty of taking P
the reasons why an athlete might take PEDs when competing in compe
advantages and disadvantages below. Then discuss the disadvantages

Discuss the disadvantages using PEDs can have for the sport:

.....

.....

.....

.....

.....

.....