
AS PHYSICAL EDUCATION 7581/W

FACTORS AFFECTING PARTICIPATION IN PHYSICAL ACTIVITY AND
SPORT

Mark scheme

Draft Specimen Assessment Material

v0.1

Draft

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events in which all associates participate and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised, they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer, read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level, you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as in the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Section A**Applied physiology**

01 Heart rate is controlled by the cardiac conduction system.

Which **one** of the following is the order of the cardiac conduction system?

[1 mark]

Marks for this question: AO1 = 1

C

02 During sprinting, flexion occurs at the hip.

Identify which plane and about which axis hip flexion occurs.

[1 mark]

Marks for this question: AO1 = 1

C

03 A long-distance cycle race usually lasts at least 2 hours.

State the major energy sources used by a long-distance cyclist.

[2 marks]

Marks for this question: AO2 = 2

Award **one** mark for each of the following points.

- Fats/Fatty acids/Glycerol/Triglycerides (1).
- Carbohydrates/Glycogen/Glucose (1).
- Protein (1).

Maximum 2 marks

04 **Figure 1** is a distance time graph for a cycle sprint.

Using **Figure 1**, calculate the speed of the cyclist between 40 and 70 seconds.

[2 marks]

Marks for this question: AO2 = 1 and AO3 = 1

Award **one** mark for each of the following points.

AO2

- 300m/30s (1).

AO3

- 10m/s / $\text{m}\cdot\text{s}^{-1}$ metres per second (must show units) (1).

05.1 Tidal volume and minute ventilation of a cyclist will vary at rest and during a race.

Define tidal volume **and** minute ventilation.

[2 marks]

Marks for this question: AO1 = 2

Award **one** mark for each of the following points.

Must state which term is being defined.

- Tidal volume - Amount of air breathed in or out in one breath (1).
- Minute Ventilation - Amount of air breathed in or out per minute/tidal volume x number of breaths (1).

Accept other appropriate definition of tidal volume and minute ventilation.

05.2 Explain how the cyclists' increase in minute ventilation allows them to maintain performance throughout the race.

[3 marks]

Marks for this question: AO3 = 3

Award **one** mark for each of the following points.

AO3

- Increased oxygen exchange in the alveoli (1).
- Increased oxygen delivery to the working muscles (1).
- Working muscles are able to work aerobically/with oxygen (1).
- Less lactic acid produced (1).
- Increased rate of removal of carbon dioxide in the alveoli (1).

Maximum 3 marks

06 Justify why a gymnast may include ballistic stretches in a warm up.

[3 marks]

Marks for this question: AO2 = 2 and AO3 = 1

Award **one** mark for each of the following points.

AO2 (sub max 2 marks)

- Includes bouncing/jerky movements which are replicated in some gymnastic moves.
- Range of motion is greater using this method of stretching therefore more appropriate to a gymnast.

AO3 (sub max 1 mark)

- Gymnastic moves require greater range of motion compared to other sports.
- Therefore they have greater flexibility so reduce risk of injury.

Accept other appropriate justifications for why a gymnast may include ballistic stretches in a warm up. Justifications must be relevant to a gymnast.

07 Muscle spindles are proprioceptors located between the muscle fibres.

Outline the role of muscle spindles.

[2 marks]

Marks for this question: AO1 = 2

Award **one** mark for each of the following points.

- Detect change in muscle length/tension/stretch (1).
- Prevent overstretching (1).
- By initiating the stretch reflex (1).

Maximum 2 marks

08 Analyse, using Newton's First **and** Second Laws of motion, how a footballer will move towards the ball from a stationary position.

[4 marks]

Marks for this question: AO1 = 2 and AO3 = 2

First Law

- The footballer will provide force by contracting his leg muscles (1) using this force he can overcome inertia, allowing him to move from a stationary position (1).

Second Law

- By varying the force of his muscles' contraction/the number of motor units recruited the footballer can cause a change in momentum from stationary to moving (1) therefore the greater the force he generates the greater the acceleration to the ball (1).

Accept other appropriate responses using Newton's First and Second Laws of motion to analyse how a footballer will move towards a ball.

09 Figure 2 shows a tennis player in stable position ready to return a serve.

Use Figure 2 to explain the factors that affect stability.

[8 marks]

Marks for this question: AO1 = 2, AO2 = 3 and AO3 = 3

Level	Marks	Description
4	7-8	Knowledge is comprehensive, accurate and generally well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is consistently made between different relevant factors and their impact. Relevant terminology is used and the answer demonstrates good reasoning, and is clear, coherent and focused.
3	5-6	Knowledge is generally accurate and well detailed. Application of breadth or depth of knowledge is often evident. Some analysis and/or evaluation is made between different relevant factors and their impact. Relevant terminology is used and the answer demonstrates some reasoning, and is mostly clear, coherent and focused.
2	3-4	Knowledge is generally accurate with some detail. Application of breadth or depth of knowledge is sometimes evident. Limited analysis and/or evaluation is made between different relevant factors and their impact. Some relevant terminology is used and the answer demonstrates some reasoning, but may lack clarity and coherence.
1	1-2	Knowledge is limited. Application of breadth or depth of knowledge is limited or not evident. No analysis and/or evaluation is made between different relevant factors and their impact. Some relevant terminology may be used but the answer may lack clarity and coherence.
	0	No relevant content.

Possible content may include:

AO1 - Knowledge

Identified factors affecting stability and/or described figure 2 using simple statements, eg Height of centre of mass affects stability; tennis player has her feet wide.

AO2 - Application

Identified and explained the impact of factors affecting stability (simple statements) with some reference to figure 2, eg Height of centre of mass affects stability. The lower the centre of mass the more stable. Tennis player has their centre of mass over the base of support.

AO3 – Analysis/Evaluation

Linked explanation of factors affecting stability to figure 2 and the evaluation of those factors (developed statements), eg the area of the base of support affects stability. The base of support is the area beneath an object or person that includes every point of contact that the object or person makes with the supporting surface. The greater the base of support the more stable. The base of support for the tennis player is the area between her feet and so in figure 2 she has her feet wide apart to increase her base of support to become more stable when receiving a serve.

Credit other relevant explanations of the factors that affect stability.

Section B**Skill acquisition and sports psychology**

10 Which **one** of the following classifications accurately describes the skill of taking a football penalty kick?

[1 mark]

Marks for this question: AO2 = 1

D

11 Tuckman suggested the formation of a group occurs in a specific order.
Which **one** of the following orders is correct?

[1 mark]

Marks for this question: AO1 = 1

A

12 **Figure 3** shows the success rate of two badminton players, during a number of trials, performing a serve into a target area.

Using **Figure 3**, identify the stage of learning of **player A** and state **two** characteristics of a performer in this stage of learning.

[3 marks]

Marks for this question: AO1 = 3

Award **one** mark for each of the following points.

- Performer A – Autonomous (1).
- Skill is performed easily/habitual/sub-consciously (1).
- High level of consistency (1).
- Quick processing time/decisions made quickly (1).
- Good selective attention/able to focus on relevant cues/not easily distracted (1).
- Performer can detect and correct own errors/intrinsic feedback (1).

Maximum of 1 mark

Maximum of 2 marks

13.1 To develop skills, performers will use different types of practice.

Define the term 'massed practice'.

[1 mark]

Marks for this question: AO1 = 1

- Repeated practice of the same skill with little or no recovery periods between blocks of practice (1).

Accept other appropriate definitions of massed practice.

13.2 Explain **three** reasons why a coach would use massed practice to produce optimum improvements in performance.

[3 marks]

Marks for this question: AO2 = 3

- Performer has high levels of fitness so they can work for longer before fatigue affects the learning of the skill (1).
- Skills are discrete/simple/ballistic therefore they take a short time to perform reducing impact of fatigue (1).
- Replicates fatigue of a game situation so the performer becomes familiar with situations/condition they will need to perform the skill under (1).
- Performer is highly skilled/autonomous stage of learning/experienced therefore they are familiar with the task and need to be placed under pressure to replicate the demand of the game/physical activity (1).

Accept other appropriate explanations of why a coach would use massed practice to produce optimum improvements in performance. Answers must relate directly to improvements brought about by massed practice.

Maximum 3 marks

14 Describe what you understand by the term 'competitive state anxiety'.

[2 marks]

Marks for this question: AO1 = 2

Award **one** mark for each of the following points.

- Anxiety experienced at a specific time during a competitive situation (1).
- May be cognitive and/or somatic anxiety (1).

Accept other appropriate descriptions of competitive state anxiety.

15 Performers who display a negative attitude will often disrupt the performance of a team.

When using persuasive communication, explain the factors that need to be considered to change the negative attitude of a performer.

[3 marks]

Marks for this question: AO2 = 3

Award **one** mark for each of the following points.

- Ensure the messenger is of high status/significant other/credible so that the performer values their opinion (1).
- New information given so that old beliefs are outweighed allowing a change in attitude (1).
- Current strength of attitude will impact because if the performer values their belief highly they will be more resilient to change (1).

Accept other valid explanations of the factors that that need to be considered to change the negative attitude of a performer. Answers must relate to persuasive communication.

16 During competitive situations, performers may display aggressive behaviour.

Suggest **three** strategies a coach could use to eliminate aggressive behaviour.

[3 marks]

Marks for this question: AO3 = 3

Award **one** mark for each of the following points.

- Punish aggressive acts/fine player/drop for next match or equiv (1).
- Develop players' code of conduct/promote fair play (1).
- Remove from situation/change position/substitution/change tactics (1).
- Encourage peer support/group pressure (1).
- Give role of responsibility/set performance goals/process goals (1).
- Highlight non-aggressive/positive role models (1).
- Reduce importance of event/avoid 'win at all cost' attitude (1).
- Stress management techniques/accept named examples (1).
- Rewards/positive reinforcement for assertive play (1).
- Develop fitness levels (1).

Accept other relevant strategies that coach could use to eliminate aggressive behaviour. Answers must relate to competitive situations.

Maximum 3 marks

17 The way in which performers within a team relate to each other is known as cohesion.

Suggest why cohesive teams tend to be more successful.

[3 marks]

Marks for this question: AO3 = 3

Award **one** mark for each of the following points.

- Success is possible only if there is good task cohesion as the team will be working together towards a common goal (1).
- Therefore the team will work together effectively concentrating on the task/goal rather than personal disputes (1).
- Compared to social cohesion which helps the team support each other (1).
- Often success improves the overall cohesion of a team leading to further success (1).

Accept other relevant responses why cohesive teams tend to be more successful.

Maximum 3 marks

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18 A coach may use operant conditioning to improve the team's performance.

Explain the principles of operant conditioning **and** discuss its effectiveness when developing skills.

[8 marks]

Marks for this question: AO1 = 2, AO2 = 3 and AO3 = 3

Level	Marks	Description
4	7-8	Knowledge of operant conditioning is comprehensive, accurate and generally well detailed. Application of breadth or depth of knowledge of the principles of operant conditioning is clearly evident. Evaluation of the effectiveness of operant conditioning is consistently made between different relevant factors and their impact. Relevant terminology is used and the answer demonstrates good reasoning, and is clear, coherent and focused.
3	5-6	Knowledge of operant conditioning is generally accurate and well detailed. Application of breadth or depth of knowledge of the principles of operant conditioning is often evident. Some evaluation of the effectiveness of operant conditioning is made between different relevant factors and their impact. Relevant terminology is used and the answer demonstrates some reasoning, and is mostly clear, coherent and focused.
2	3-4	Knowledge of operant conditioning is generally accurate with some detail. Application of breadth or depth of knowledge of the principles of operant conditioning is sometimes evident. Limited evaluation of the effectiveness of operant conditioning is made between different relevant factors and their impact. Some relevant terminology is used and the answer demonstrates some reasoning, but may lack clarity and coherence.
1	1-2	Knowledge of operant conditioning is limited. Application of breadth or depth of knowledge of the principles of operant conditioning is limited or not evident. No evaluation of the effectiveness of operant conditioning is made between different relevant factors and their impact. Some relevant terminology may be used but the answer may lack clarity and coherence.
	0	No relevant content.

Possible content may include:

AO1 - Knowledge

Principles of operant conditioning are identified and described, eg the theory aims to shape or modify behaviour by changing the environment by using reinforcement if the actions are correct/successful. Coaches may use positive reinforcement and negative reinforcement to strengthen the stimulus-response bond and punishment to weaken to the S-R Bond.

AO2 - Application

Application for skill development in physical activity and sport.

The coach will structure practices to use drills, targets, small-sided games to allow conditioned practices for trial and error learning to occur. They will provide positive reinforcement, eg praise, feedback or withdrawal of an adverse stimulus, stop shouting if using negative reinforcement.

AO3 – Analysis/Evaluation

Linked factors evaluating the effectiveness of operant conditioning (developed statements),

eg the advantages of using operant conditioning may include points such as:

- actions developed quickly
- practice can be linked to the skill
- ability of the performers or team and immediate feedback is provided.

The disadvantages may include points such as

- performers/team do not have to develop understanding of their actions
- the skills may not be transferable to the competitive situation and performers may not be able to adjust/modify actions if the situation is slightly different.

Credit other relevant explanations of the principles of operant conditioning and discussions as to its effectiveness when developing skills.

Section C**Sport and society and technology in sport**

19 Which **one** of the following is a primary agent of socialisation?

[1 mark]

Marks for this question: AO1 = 1

A

20 Which **one** of the following was played in pre-industrial society?

[1 mark]

Marks for this question: AO1 = 1

D

21 Explain **two** characteristics of pre-industrial football.

[4 marks]

Marks for this question: AO1 = 2 and AO2 = 2

- Played occasionally/holy days (1) because no other time available to play sport (1).
- No clear division of labour/little strategy (1) as not yet rationalised (1).
- No pitch/common land between villages used (1) because minimal equipment and facilities available (1).
- Locally based (1) as poor transport/communication (1).

Accept other relevant characteristics of pre-industrial football.

22 Explain how the church encouraged the post-industrial game of football.

[2 marks]

Marks for this question: AO1 = 1 and AO3 = 1

- Gave facilities such as church land and halls (1) therefore providing a place for people to play (1).
- Established social activities to increase opportunity to play (1), eg Sunday school teams like Aston Villa (1).
- Clergy were 'old boys' of public schools (1) who encouraged parishioners to play football (1).
- They established youth sections of the church (1), eg Boys Brigade/Scouts/Muscular Christianity which encouraged parishioners to play football (1).

Accept other relevant explanations of how the church encouraged the post-industrial game of football.

23	Explain how the modern form of association football can match the concept of sport.	[6 marks]
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Marks for this question: AO2 = 3 and AO3 = 3

Level	Marks	Description
3	5–6	Knowledge of the modern form of association football is clear and generally well detailed and applied to the concept of sport. Aspects of the modern form of association football are analysed to give appropriate and detailed links to the concept of sport. Relevant terminology is used and the answer demonstrates good reasoning, and is clear, coherent and focused.
2	3–4	Knowledge of the modern form of association football is evident with some application to the concept of sport. Some aspects of the modern form of association football are analysed to give some appropriate links to the concept of sport. Relevant terminology is used and the answer demonstrates some reasoning, and is mostly clear, coherent and focused.
1	1–2	Knowledge of the modern form of association football is limited with limited application to the concept of sport. Limited or no evidence of analysis of the modern form of association football linked to the concept of sport. Some relevant terminology may be used but the answer may lack clarity and coherence.
	0	No relevant content.

Possible content may include:

- Football has specific rules governing how it is played, which makes it highly structured therefore matching the concept of sport.
- Highly structured – time/space/rules.
- Rules externally enforced by officials.
- Winning taken seriously/serious end product.
- Skillful/refined skills.
- Training/specialisation/trials/selective.
- Administration – clubs/NGB's.
- Display/spectators/entertainment.
- Sophisticated facilities and equipment.
- Pre-planned strategies/tactics.

Accept other relevant explanations as to how the modern form of association football can match the concept of sport.

24 Define the term 'discrimination'.

[2 marks]

Marks for this question: AO1 = 2

Award **one** mark for each of the following points.

- To treat people unfairly (1).
- Based on a stereotype or prejudice (1).
- Can be overt – obvious OR covert – hidden (1).

Maximum 2 marks

25 Explain **two** reasons why women's participation in football increased during the twentieth century.

[4 marks]

Marks for this question: AO2 = 2 and AO3 = 2

- Growth of professional game resulting in increased media coverage and role models (1) increasing the demand by women to play (1).
- Equal rights/social reform/government policies/social acceptance (1) leading to an increase in women believing it was OK to play football (1).

Accept other relevant explanations as to why women's participation in football increased during the twentieth century.

- 26** The central commitment of Sport England’s 2012/17 strategy is to “raise the percentage of 16-25 year olds playing sport once a week”. **Figure 4** shows the sporting participation rates for 16-25 year olds.

Using the data provided in **Figure 4**, evaluate the participation rates for 16-25 year olds **and** explain why Sport England wants to increase the amount of physical activity amongst this age group.

[8 marks]

Marks for this question: AO1 = 2, AO2 = 3 and AO3 = 3

Level	Marks	Description
4	7-8	Knowledge is comprehensive, accurate and generally well detailed. Application of breadth or depth of knowledge is clearly evident. Analysis and/or evaluation is consistently made between different relevant factors and their impact. Relevant terminology is used and the answer demonstrates good reasoning, and is clear, coherent and focused.
3	5-6	Knowledge is generally accurate and well detailed. Application of breadth or depth of knowledge is often evident. Some analysis and/or evaluation is made between different relevant factors and their impact. Relevant terminology is used and the answer demonstrates some reasoning, and is mostly clear, coherent and focused.
2	3-4	Knowledge is generally accurate with some detail. Application of breadth or depth of knowledge is sometimes evident. Limited analysis and/or evaluation is made between different relevant factors and their impact. Some relevant terminology is used and the answer demonstrates some reasoning, but may lack clarity and coherence.
1	1-2	Knowledge is limited. Application of breadth or depth of knowledge is limited or not evident. No analysis and/or evaluation is made between different relevant factors and their impact. Some relevant terminology may be used but the answer may lack clarity and coherence.
	0	No relevant content.

Possible content may include:

AO1 - Knowledge

Identified benefits of raising participation.

The government is keen to increase participation to improve the health of the nation reducing the cost to the NHS. Sport helps integrate individuals into community and can provide a constructive use of leisure time therefore can lower crime rates. Provides increased employment opportunities within the leisure industry.

AO2 - Application

Links between data and possible reasons for these participation rates, eg lack of interest in activities offered at school meant fewer pupils found an activity they enjoyed enough to continue with in later life which means their health may suffer.

There is an overall decrease in participation rates, this could be due to lack of access to the same activities once left school. This could also be due to the fact that physical activity is no longer compulsory for this age group.

AO3 - Evaluation

Evaluation of the participation data and why Sport England would find it a concern.

The figures range between 57.1% in 2007/8 to its lowest of 53.7% in 2011/12.

Since 2012/13 the participation rates seem to be increasing. However, having limited impact as over time period percentage participation has marginally decreased.

This could be due to the cost of participating, as they are no longer free once leaving school, therefore the individual may not have enough money to pay to play. This is of concern to a government because they need to maximise the use of facilities in the country so they do not make a financial loss and provide an income for local authorities.

Credit other relevant explanations as to why Sport England wants to increase the amount of physical activity amongst the 16-25 year old age group. Answers must relate to the data provided and include an evaluation of the participation rates.

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Assessment Objective Grid

	AO1	AO2	AO3	Total
Applied Physiology and Exercise Physiology and Biomechanics				
01	1 Recall			1
02	1 Recall			1
03		2		2
04		1 Quant	1 Quant	2
05.1	2			2
05.2			3	3
06		2	1	3
07	2			2
08	2		2	4
09	2	3	3	8
Total	10	8	10	28

Skill Acquisition and Sports Psychology				
10		1		1
11	1 Recall			1
12	3 Quant			3
13.1	1 Recall			1
13.2		3		3
14	2 Recall			2
15		3		3
16			3	3
17			3	3
18	2	3	3	8
Total	9	10	9	28

Sport in Society and Technology in Sport				
19	1 Recall			1
20	1 Recall			1
21	2	2		4
22	1 Recall		1	2
23		3	3	6
24	2 Recall			2
25		2	2	4
26	2	3	3 Quant	8
Total	9	10	9	28

Paper Total	28	28	28	84
AO% for paper	33.33%	33.33%	33.33%	100%
AO% for Qual	9.33%	9.33%	9.33%	

AO1 % targeting knowledge in isolation	10.83%
Quantitative = 8 marks	6.67%

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