

GCSE

# Physical Education

48905: Knowledge and Understanding for the Involved Participant  
(Double Award)

Mark scheme

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(4890)  
June 2015

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Version 1.0 Final

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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 which all associates participate in 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](http://aqa.org.uk)

## Marking methods

In fairness to students, all examiners **must** use the same marking methods. The following advice may seem obvious, but all examiners **must** follow it as closely as possible.

1. If you have any doubt about which mark to award, consult your Team Leader.
2. Refer constantly to the mark scheme throughout marking.
3. **Always** credit **accurate, relevant and appropriate** answers.
4. Do **not** credit material irrelevant to the question / stated target, however impressive it might be.
5. If a one word answer is required yet a list is given, take the first answer (unless it is crossed out).
6. If you are considering whether or not to award a mark, ask yourself 'Is this student nearer those who have given a correct answer or those who have little idea?'
7. Read the information on the following page about levels of response mark schemes.
8. Use the full range of marks. Don't hesitate to give full marks when the answer merits them or give no marks where there is nothing creditable.
9. No half marks or bonus marks can be given under any circumstances or BODs.
10. The key to good and fair marking is **consistency**. Once approved, do **not** change your standard of marking.

## Marking using CMI+

All GCSE Physical Education papers will be marked electronically using a software application called CMI+ (Computer Marking from Image). Instead of paper being posted to examiners, student responses are scanned and sent electronically. The software is easy to use, but demands a different approach.

1. Instead of marking paper-by-paper you will mark item-by-item. An item is a part-question. Each time you log on you will need to choose an item to mark.
2. Before you start marking your own items you will need to mark some pre-marked items known as seeds. These ensure you are still applying the same standard set at standardisation. If you are not, you will need to speak to your Team Leader before you can continue marking in order to clarify the correct interpretation and application of the mark scheme.
3. You can annotate items in various ways: underlining, highlighting and adding icons from a drop-down menu. Your Team Leader will tell you which types of annotation to use. Examiners must not add extra annotation as this can be confusing for teachers and students if they request Access to Scripts.
4. As you mark each response (except those for the continuous prose questions), you enter ticks which will automatically total to award a mark in the box at the bottom of the screen. For the continuous prose questions you will enter the mark you are going to award directly into the box at the bottom of the screen. If you realise you have made a mistake you can go back one clip to change the mark.
5. Your assessments will be monitored throughout the marking period. This ensures you are marking to the same standard, regardless of how many clips you have marked or what time of day you are marking. This approach allows senior examiners to ensure your marking remains consistent. Your Team Leader can bring you back to the right standard should you start to drift.
6. If your marking of a particular item is out of line, your Team Leader will contact you as soon as possible to explain where differences are occurring and how this can be addressed.

## **Levels of Response marking**

Levels of response marking requires a different approach than traditional ‘point for point’ marking. It is essential the whole response is read before being allocated the level and mark it best fits.

Marking should be positive, rewarding achievement rather than penalising for failure or omissions. If a student demonstrates knowledge, understanding and/or evaluation at a certain level, he/she must be credited at that level. Length of response or literary ability should not be confused with genuine physical education skills. A short answer which shows a high level of conceptual ability, for example, must be credited at the level it best fits.

Levels are tied to the quality and number of responses. Examiners should use the grid to select the level that best describes a student’s work. The award of marks must be directly related to the marking criteria.

## **Assessment of Quality of Written Communication (QWC)**

Where students are required to produce extended written material in English, they will be assessed on the quality of written communication.

Students will have to:

- use good English
- organise information clearly
- use specialist vocabulary where appropriate.

QWC is assessed in Section B of the question papers in the level marked answers only.

In level marked answers, the quality of the response is assessed and a mark awarded based on the content. As is sometimes the case, the content may be sound at a particular level but the examiner may not feel that there is quite enough content to raise the mark within that level. In this case the examiner should consider the QWC of the answer.

QWC that fulfils the criteria for the level mark awarded should lead to a one mark increase, but where QWC does not fulfil the criteria, the answer should remain at the mark first thought appropriate. QWC cannot be used to raise a student’s mark into the next level.

In cases where QWC has been used in the award of marks, the examiner should indicate this in a comment box to say ‘QWC raised one mark’.

## Section A

|          |                                                                                                            |                 |
|----------|------------------------------------------------------------------------------------------------------------|-----------------|
| <b>1</b> | Which <b>one</b> of the following is the <b>most</b> appropriate method of training for a marathon runner? | <b>[1 mark]</b> |
|----------|------------------------------------------------------------------------------------------------------------|-----------------|

Continuous training

|              |                                   |                 |
|--------------|-----------------------------------|-----------------|
| <b>2 (a)</b> | What is meant by a 'dislocation'? | <b>[1 mark]</b> |
|--------------|-----------------------------------|-----------------|

Award **one** mark for stating what is meant by a dislocation.

- The dislodging of a bone(s) at a joint or the bone is moved outside it's normal range.

|              |                                                                                       |                 |
|--------------|---------------------------------------------------------------------------------------|-----------------|
| <b>2 (b)</b> | State <b>one</b> action that should be taken when someone has suffered a dislocation. | <b>[1 mark]</b> |
|--------------|---------------------------------------------------------------------------------------|-----------------|

Award **one** mark for stating one action that should be taken when someone has suffered a dislocation.

- Support the injury
- Immobilise the joint
- Keep the casualty comfortable or warm or out of the wind or insulate them from the cold.
- Reassure the casualty
- Seek medical help

**NB** Accept 'do not attempt to put the joint back into place'.

|              |                                          |                  |
|--------------|------------------------------------------|------------------|
| <b>3 (a)</b> | Describe the hand grip dynamometer test. | <b>[4 marks]</b> |
|--------------|------------------------------------------|------------------|

Award up to **four** marks for describing the hand grip dynamometer test

- Adjust the hand grip dynamometer or set it to the start mode
- Arm hangs by the side with dynamometer in line with forearm or arm is raised above the head and lowered in a circular action or equiv.
- Maximum grip is applied.
- Performer has two or three attempts with best score recorded.

|              |                                                                 |                 |
|--------------|-----------------------------------------------------------------|-----------------|
| <b>3 (b)</b> | Name <b>one</b> test that can be used to measure co-ordination. | <b>[1 mark]</b> |
|--------------|-----------------------------------------------------------------|-----------------|

Award **one** mark for naming one test that can be used to measure co-ordination.

- Alternate hand ball throw

NB Accept hand eye coordination test

|              |                                                                                                                                  |                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>3 (c)</b> | Explain how an improvement in co-ordination may enable a sportsperson to improve their performance in a named physical activity. | <b>[3 marks]</b> |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|------------------|

Award up to **three** marks for explaining how an improvement in co-ordination may enable a sportsperson to improve their performance in a named activity.

- Tennis serve – linking all parts of the action/ gain more accuracy or power/ so more likely to serve an ace or win the point
- Athletics triple jump – linking the three phases together/ gain more speed or height/ enabling greater distance to be achieved
- Ice skating jumps – linking movements together/ more technical or aesthetic / and gain higher marks.
- Gymnastics cartwheel – linking movements together/ more technical or aesthetic/ and gain higher marks.
- Football volley – timing the movement of the foot to the speed and trajectory of a moving ball/ more accuracy or power/ increasing chances of a goal being scored
- Rugby drop goal – synchronising the movement of the hands dropping the ball onto the kicking leg/ more accuracy or power/to achieve greater distance.
- Kayaking slalom - linking strokes together/ to gain more power/ to complete more technical courses or faster times.

Accept any other suitable response.

|              |                                                                               |                  |
|--------------|-------------------------------------------------------------------------------|------------------|
| <b>3 (d)</b> | Explain why fitness testing is important when following a training programme. | <b>[3 marks]</b> |
|--------------|-------------------------------------------------------------------------------|------------------|

Award up to **three** marks for explaining why fitness testing is important when following a training programme.

- To assess baseline fitness.
- To motivate the performer.
- To monitor or evaluate progress.
- To set targets or goals.
- To continually highlight strengths or weaknesses.
- To raise confidence.

|              |                                                      |                  |
|--------------|------------------------------------------------------|------------------|
| <b>4</b>     | Circuit training is one method of improving fitness. |                  |
| <b>4 (a)</b> | What is meant by 'circuit training'?                 | <b>[2 marks]</b> |

Award up to **two** marks for stating what is meant by circuit training.

- A series of exercises or stations/ using short bursts of resistance exercise/with periods of rest.
- The use of moderate weights or body weight or apparatus/ using repetitions or sets or timed stations or a combination of both.

- Designed to improve a specific component of fitness or skill/and uses alternating muscle groups

**NB** Can be a mixture of bullet points.

|              |                                                                                                                   |                 |
|--------------|-------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>4 (b)</b> | State <b>one</b> improvement to fitness that a performer may gain from a well-planned circuit training programme. | <b>[1 mark]</b> |
|--------------|-------------------------------------------------------------------------------------------------------------------|-----------------|

Award **one** mark for stating one improvement to fitness that a performer may gain from a well-planned circuit training programme.

- (An increase in muscular) strength or muscular endurance or speed or power or flexibility.

Accept any other suitable response.

|              |                                   |                  |
|--------------|-----------------------------------|------------------|
| <b>5 (a)</b> | What is meant by an 'open skill'? | <b>[2 marks]</b> |
|--------------|-----------------------------------|------------------|

Award up to **two** marks for stating what is meant by an open skill.

- A skill that is affected by constantly changing/ external factors or environmental factors.
- A skill that requires adjustment/ to suit the situation or weather or opponents or teammates.

|              |                                                                                |                  |
|--------------|--------------------------------------------------------------------------------|------------------|
| <b>5 (b)</b> | Explain why variable practice is best suited to the learning of an open skill. | <b>[3 marks]</b> |
|--------------|--------------------------------------------------------------------------------|------------------|

Award up to **three** marks for explaining why variable practice is best suited to the learning of an open skill.

- It places a performer in different situations or environments / so that the performer has to adapt/ is more realistic to the game situation.
- It increasingly places more pressure on the performer/ through static or passive or active opposition/ because the time available is reduced /or the space available is reduced.

|              |                                                                       |                 |
|--------------|-----------------------------------------------------------------------|-----------------|
| <b>5 (c)</b> | Apart from variable practice, name <b>one</b> other type of practice. | <b>[1 mark]</b> |
|--------------|-----------------------------------------------------------------------|-----------------|

Award **one** mark for naming one other type of practice.

- Whole
- Part
- Fixed
- Whole-part-whole

**6** Guidance is important when coaching skills to beginners.

**6 (a) (i)** What is meant by 'manual guidance'?

**[1 mark]**

Award **one** mark for stating what is meant by manual guidance.

- (Coach or teacher) physically moves the body.

**6 (a) (ii)** Using an example from a named physical activity, describe when a coach could use manual guidance.

**[1 mark]**

Award **one** mark for describing when a coach could use manual guidance in a named physical activity.

For example:

- moving their arms when practicing a golf swing
- holding their body flat when learning to swim
- supporting a tuck somersault in gymnastics or trampolining.

Accept any other suitable response.

**6 (b)** Explain why demonstrations by a coach should be accurate when coaching beginners.

**[2 marks]**

Award up to **two** marks for explaining why demonstrations by a coach should be accurate when coaching beginners.

Demonstrations should be accurate, so that the beginner:

- can see what the correct skill looks like
- can copy the correct demonstration or technique
- doesn't practise the wrong technique
- can see if it is attainable
- can pick up the relevant cues
- understands 'why' (as well as 'how') it is done.
- To reduce the risk of injury

|              |                                                                                                                                    |                  |
|--------------|------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>6 (c)</b> | Other than demonstrations, name <b>two</b> communication and interpersonal skills that a coach would need when coaching beginners. | <b>[2 marks]</b> |
|--------------|------------------------------------------------------------------------------------------------------------------------------------|------------------|

Award **one** mark for naming each communication and interpersonal skill that is needed to be an effective coach when coaching beginners.

- Use of appropriate terminology or language
- Persuading or advising
- Non-verbal including gestures or signals
- Verbal including volume or clarity or intonation or projection

**NB** Do not accept demonstrations or communication.

|              |                                                    |                 |
|--------------|----------------------------------------------------|-----------------|
| <b>7 (a)</b> | What is meant by 'extrinsic knowledge of results'? | <b>[1 mark]</b> |
|--------------|----------------------------------------------------|-----------------|

Award **one** mark for stating what is meant by extrinsic knowledge of results.

- A form of external feedback at the end of a performance
- the outcome of the performance or your actions

|              |                                                                                           |                 |
|--------------|-------------------------------------------------------------------------------------------|-----------------|
| <b>7 (b)</b> | Give <b>one</b> example of extrinsic knowledge of results from a named physical activity. | <b>[1 mark]</b> |
|--------------|-------------------------------------------------------------------------------------------|-----------------|

Award **one** mark for giving one example of extrinsic knowledge of results from a named physical activity.

- A shot going into the goal in hockey.
- A crowd cheering a sunken putt in golf.
- A netball team winning or losing a match.
- How long an athlete jumped in long jump or triple jump.
- Winning or losing a 100m sprint.
- A coach telling a performer that s/he was out by 5cms in archery

Accept any other suitable response.

|                  |                                                                                                        |
|------------------|--------------------------------------------------------------------------------------------------------|
| <b>8</b>         | Diet can have a positive effect on a sporting performance.                                             |
| <b>8 (a)</b>     | Explain why a diet high in carbohydrates could lead to an improvement in a sportsperson's performance. |
| <b>[3 marks]</b> |                                                                                                        |

Award up to **three** marks for explaining why a diet high in carbohydrates could lead to an improvement in a sportsperson's performance.

- Provides fast release energy supply or readily available energy for a quick boost/ for short or explosive type activities/ allowing performers to run faster or throw or jump further. OR
- Provides slow release energy supply/ or endurance type activities or to delay fatigue/ allowing performers to compete for longer. OR
- Provides and increases the amount of glycogen or energy stored/ delaying tiredness/ allowing the performer to be more effective at the end of an endurance or aerobic activity. OR
- Aids recovery/ reducing stiffness and soreness/ so the performer can train again sooner.

|                  |                                                                                                 |
|------------------|-------------------------------------------------------------------------------------------------|
| <b>8 (b)</b>     | Explain how drinking water and other fluids could help to improve a sportsperson's performance. |
| <b>[3 marks]</b> |                                                                                                 |

Award up to **three** marks for explaining how drinking water and other fluids could help to improve a sportsperson's performance.

Drinking water and other fluids:

- maintain hydration or prevent dehydration/ to avoid cramp/ so the performer is able to keep working hard or can work for longer/ at a higher level
- maintain hydration/ to maintain focus or concentration/ so the performer makes fewer mistakes/ and can perform at a higher level
- maintain hydration/ provide electrolytes/ allowing the body to replace lost salts/ so the performer is able to continue working for longer or faster or at a higher level

|              |                                                                                                                                                      |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>9</b>     | Many activities involve an element of risk.                                                                                                          |
| <b>9 (a)</b> | Using an example from a named physical activity, explain how wearing the appropriate footwear can reduce the risk of injury.<br><br><b>[3 marks]</b> |

Award up to **three** marks for explaining how wearing the appropriate footwear can reduce the risk of injury in a named physical activity.

- In basketball – should have ankle or foot support/ to stabilise ankle when landing/ to prevent specific injuries e.g. sprain.
- In high jump – should have ankle or foot support/ to stabilise ankle when jumping/ to prevent specific injuries e.g. dislocation.
- In football and hockey – should have studs/ to provide grip/ to prevent slipping.
- In running – should be thick soled or cushioned/ to absorb shock/ to reduce specific injuries e.g. shin splints.
- In running – should have the correct fit/ to avoid rubbing/ to reduce specific injuries eg blisters or corns.
- In sailing – non slip sole/ to avoid slipping on a wet deck/ and falling overboard.
- In rock climbing – soft rubber and no tread pattern sole/ to allow greater friction to rock surface/ to prevent the climber from slipping.

Accept any other suitable response.

**NB** Answers must relate to appropriate footwear and the explanation must be appropriate to the type of footwear identified for marks to be awarded.

|              |                                                                                                                         |
|--------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>9 (b)</b> | Using an example from a named physical activity, explain how a rule may help to prevent injury.<br><br><b>[2 marks]</b> |
|--------------|-------------------------------------------------------------------------------------------------------------------------|

Award up to **two** marks for explaining how a rule may help to prevent injury in a named physical activity.

- Football – there is no tackling from behind or no two-footed tackles or have to wear shin pads/ to prevent broken leg.
- Cricket – the U18 batters have to wear a helmet/ to prevent head injuries.
- Hockey – the goalkeeper has to wear a helmet/ to prevent head injuries.
- Netball – players have to remove jewellery or fingernails cut/ to prevent cuts and scratches.
- Rugby – there is no tackling above the shoulder/ to prevent concussion or other head injuries.
- Athletics – competing athletes stand behind the throwing events/ so they don't get hit by the javelin or shot or discus.
- Boxing – there is no punching below the belt/ prevent lower body injury.
- Sailing or kayaking – participants have to wear a buoyancy aid/ prevent drowning.

Accept any other suitable response.

|              |                                                                                                                                                                                           |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>9 (c)</b> | Other than by wearing appropriate footwear and obeying rules, state <b>four</b> ways of minimising the risk of injury <b>before</b> taking part in physical activity.<br><b>[4 marks]</b> |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Award **one** mark for stating each way that would minimise the risk of injury before taking part in physical activity, up to a maximum of four marks.

- Carry out a risk assessment.
- Check the playing area for hazards.
- Check the equipment is safe or secure or in good condition.
- Ensure you have trained appropriately or that you are fit enough to take part.
- Carry out a warm up.
- Prepare mentally.
- Wear protective clothing or equipment.
- Correct technique.

Accept any other suitable response.

**NB** Answers must relate to tasks that would be carried out before taking part in physical activity for marks to be awarded. Do not accept answers that relate to footwear/rules.

|           |                                                                                                                                                                                                  |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10</b> | The game of rounders is played by students in many primary schools in England.<br><br>Explain why rounders is considered to be a suitable physical activity for 9 year olds.<br><b>[3 marks]</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Award up to **three** marks for explaining why rounders is considered to be a suitable physical activity for 9 year olds.

- Non-contact/ less risk of injury/ open to all abilities.
- Opportunities for competitive sport/ link to clubs/ therefore learn many social or life skills.
- It can be performed indoors or outdoors/ therefore all year round/ and develops a range of skills.
- It is a social activity/ and a good way of making friends or maintaining friendships/ play as a team.
- Easy to set up/ inexpensive/ as it does not require specialist equipment.
- Adapted to suit younger children/ cater for large numbers/ played by girls and boys.

## Section B – Questions based on the preliminary material

|               |                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------|
| <b>11 (a)</b> | Sam fractured his leg in a car accident                                                                |
|               | State <b>three</b> ways in which a first aider could recognise a fracture of the leg. <b>[3 marks]</b> |

Award **one** mark for each way a first aider could recognise a fracture of the leg.

- Deformity or abnormality
- The injured or damaged leg may appear shorter than the other.
- The leg may be at an unusual angle or the foot is turned out.
- The bone may protrude through the skin.
- Severe swelling
- Severe pain (at specific site of injury).
- Asking the casualty if a snapping sound was heard

NB Accept the casualty is unable to move the leg

|               |                                                                                                                          |
|---------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>11 (b)</b> | Explain how Sam could use interval training in order to attain the qualifying time for the 1500 metres. <b>[3 marks]</b> |
|---------------|--------------------------------------------------------------------------------------------------------------------------|

Award up to **three** marks for explaining how Sam could use interval training in order to attain the qualifying time for the 1500 metres.

Sam could use interval training:

- to develop sprinting or anaerobic fitness/ Sam needs to increase repetitions or sets or distance/ for max speed for start and finish of race
- to develop aerobic fitness or stamina/ Sam needs to increase repetitions or sets or distance/ in order to sustain a fast pace throughout the race
- by including longer or faster sets/ which will develop the ability to work at higher intensity or for longer/ in order to attain faster times.

Give one mark for 6 x 400 (2 minutes rest) or a suitable example that relates to interval training in order for Sam to attain the qualifying time for the 1500 metres.

NB Just stating increased stamina and speed or aerobic and anaerobic fitness without explaining how - maximum one mark.

|                   |                                                                                                   |
|-------------------|---------------------------------------------------------------------------------------------------|
| <b>11 (c)</b>     | In order to meet the demands of the 1500 metres, Sam needs to develop many components of fitness. |
| <b>11 (c) (i)</b> | What is meant by 'speed'? <b>[1 mark]</b>                                                         |

Award **one** mark for stating what is meant by speed.

- The ability to move all or parts of the body as quickly as possible.
- The fastest a person can complete a task or cover a distance.

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|                    |                                                                                      |
|--------------------|--------------------------------------------------------------------------------------|
| <b>11 (c) (ii)</b> | Explain at what point Sam could use speed to his advantage during a 1500-metre race. |
|--------------------|--------------------------------------------------------------------------------------|

**[2 marks]**

Award up to **two** marks for explaining at what point Sam could use speed to his advantage during a 1500-metre race.

- At the start/ to get ahead of the field or to get away from the line quickly.
- When making an attack or break/ to get into a better position or to take the lead.
- When defending or reacting to an attack or break/ to keep in contact with leaders in the race.
- Towards the end of the race or off the final bend or in the last 200m/ to win the race or to get a better position.

|               |                                                                                                    |
|---------------|----------------------------------------------------------------------------------------------------|
| <b>11 (d)</b> | Explain how Sam could use the principle of overload to improve his performance in the 1500 metres. |
|               | <b>(Answer in continuous prose)</b>                                                                |
|               | <b>[6 marks]</b>                                                                                   |

### Marking instructions

Read the **whole response** and use the following grid to select the level that **best** describes the student's work. If you feel that there is not quite enough content to raise the mark awarded **within** the level, you should consider a mark for QWC.

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                  |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Level 3</b> | <b>Detailed and accurate</b><br><br>Demonstrates detailed knowledge and a thorough understanding of how Sam could use the principle of overload to improve his performance in the 1500 metres.<br><br>Answers should include <b>three</b> explanations, <b>two</b> of which must be detailed.<br><br><b>NB</b> Two detailed explanations (maximum 5 marks).<br><br>Students spell, punctuate and use rules of grammar accurately and use a wide range of specialist terms precisely. | <b>5-6 marks</b> |
| <b>Level 2</b> | <b>Sound and generally accurate</b><br><br>Demonstrates sound knowledge and understanding of how Sam could use the principle of overload to improve his performance in the 1500 metres.<br><br>Answers should include <b>two</b> sound explanations.<br><br><b>NB</b> One detailed explanation (maximum 3 marks).<br><br>Students spell, punctuate and use rules of grammar with reasonable accuracy and use a range of specialist terms appropriately.                              | <b>3-4 marks</b> |
| <b>Level 1</b> | <b>Basic</b><br><br>Demonstrates basic knowledge and understanding of how Sam could use the principle of overload to improve his performance in the 1500 metres.<br><br><b>NB</b> If the principle of overload is stated with no explanation (maximum 1 mark).<br><br>Students spell, punctuate and use the rules of grammar with some accuracy and use a limited number of specialist terms.                                                                                        | <b>1-2 marks</b> |
|                | No creditworthy material                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>0 marks</b>   |

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## Quality of Written Communication (QWC)

QWC is part of the award of marks in level marked answers only.

In level marked answers, the quality of the response is assessed and a mark awarded based on the content. As is sometimes the case, the content may be sound at a particular level but the examiner may not feel that there is quite enough content to raise the mark **within** that level. In this case the examiner should consider the QWC of the answer.

QWC that fulfils the criteria for the level mark awarded should lead to a one mark increase, but where QWC does not fulfil the criteria, the answer should remain at the mark first thought appropriate. QWC **cannot** be used to raise a student's mark into the next level.

In cases where QWC has been used in the award of marks, the examiner should indicate this in a comment box to say 'QWC raised one mark'.

## Indicative content

As Sam is running the 1500m, reference must be made to this race.

Sam will run a maximum 3 minutes 50 seconds.

### Overload

- He needs to work his body harder than normal so he can reach his potential and sustain his performance. This needs to be gradually increased over a period of time to allow for progressive adaptation and ensure Sam does not suffer from fatigue or injury due to an increased workload.

### Frequency

- He needs to increase the number of training sessions per week so that he has a greater level of aerobic and anaerobic fitness to be able to sustain maximal performance during the race. This will result in faster times.

### Intensity

- He needs to increase the intensity or how hard he trains. This will involve changing and gradually increasing suitable workload during sessions. For example, changing the sets and reps, heart rates, recovery intervals or distance, or 4 x 400 with 1 minute recovery or 2 x 800 with 5 minutes recovery. This will result in him being able to manipulate his training for all eventualities in the race, such as, sprint start and finish, being to counter a break and also break away from other runners during the race. This will enable him to achieve a better performance in races.
- In terms of intensity specifically for the 1500m event - Sam needs to be running at 90 to 100% of his  $HR_{max}$  or 83 to 99% of  $VO_2 Max$ . This is because running at 1500m pace, he will be using glycogen/working anaerobically for parts of the 1500m race. Training at high intensity is useful for a 1500m runner as it improves glycogen burning, lactate tolerance and removal.
- Student explanations may make reference to calculating the heart rate training zones (e.g. 70%  $HR_{max}$ ), which are calculated by taking into consideration your maximum heart rate ( $HR_{max}$ ) and your resting heart rate ( $HR_{rest}$ ).

Time

- He needs to increase the time or duration of the training session to achieve speed endurance or quality of sessions allowing for adequate rest between sets and reps. This will also allow more time for technique and race strategy. Race strategy will improve the finishing position and hence performance, as well as preserving energy, for further races.

Type of training

- This will be specifically interval training as the 1500m event involves both aerobic and anaerobic energy systems to be used. This will enable Sam to adapt to situations when training and racing with more efficiency, varying speeds and control.

|               |                                                                                                                                                    |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>11 (e)</b> | Explain how altitude training could help to improve Sam's performance in the 1500 metres if he is selected to represent Great Britain in Rio 2016. |
|               | <b>(Answer in continuous prose)</b>                                                                                                                |
|               | <b>[6 marks]</b>                                                                                                                                   |

### Marking instructions

Read the **whole response** and use the following grid to select the level that **best** describes the student's work. If you feel that there is not quite enough content to raise the mark awarded **within** the level, you should consider a mark for QWC.

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Level 3</b> | <b>Detailed and accurate</b><br><br>Demonstrates detailed knowledge and a thorough understanding of how altitude training could help to improve Sam's performance in the 1500 metres if he is selected to represent Great Britain in Rio 2016.<br><br>Answers should include <b>two</b> detailed explanations.<br><br><b>NB</b> One detailed explanation <b>and</b> one sound explanation (maximum 5 marks).<br><br>Students spell, punctuate and use rules of grammar accurately and use a wide range of specialist terms precisely. | <b>5-6 marks</b> |
| <b>Level 2</b> | <b>Sound and generally accurate</b><br><br>Demonstrates sound knowledge and understanding of how altitude training could help to improve Sam's performance in the 1500 metres if he is selected to represent Great Britain in Rio 2016.<br><br>Answers should include <b>two</b> sound explanations.<br><br><b>NB</b> One detailed explanation (maximum 3 marks).<br><br>Students spell, punctuate and use rules of grammar with reasonable accuracy and use a range of specialist terms appropriately.                               | <b>3-4 marks</b> |
| <b>Level 1</b> | <b>Basic</b><br><br>Demonstrates basic knowledge and understanding of how altitude training could help to improve Sam's performance in the 1500 metres if he is selected to represent Great Britain in Rio 2016.<br><br>Students spell, punctuate and use the rules of grammar with some accuracy and use a limited number of specialist terms.                                                                                                                                                                                       | <b>1-2 marks</b> |
|                | No creditworthy material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>0 marks</b>   |

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## Quality of Written Communication (QWC)

QWC is part of the award of marks in level marked answers only.

In level marked answers, the quality of the response is assessed and a mark awarded based on the content. As is sometimes the case, the content may be sound at a particular level but the examiner may not feel that there is quite enough content to raise the mark **within** that level. In this case the examiner should consider the QWC of the answer.

QWC that fulfils the criteria for the level mark awarded should lead to a one mark increase, but where QWC does not fulfil the criteria, the answer should remain at the mark first thought appropriate. QWC **cannot** be used to raise a student's mark into the next level.

In cases where QWC has been used in the award of marks, the examiner should indicate this in a comment box to say 'QWC raised one mark'.

## Indicative content

Training at high altitude will enable improvements to Sam's performance by:

- increasing the number of red blood cells (haemoglobin) thereby increasing the O<sub>2</sub> carrying capacity of the blood which will enable Sam to run more efficiently and faster for longer at sea level, therefore recording a faster time or better position in the race which it is likely to give Sam more chance of winning an Olympic medal
- increasing the delivery of O<sub>2</sub> to the muscles which will lead to improved performances as Sam is able to sustain maximum effort for a longer duration
- increasing the buffering capacity (ability to cope with build-up of lactic or waste acid) therefore he will not have to slow down in the latter stages of the race
- the body adapting (acclimatising) to a lack of O<sub>2</sub> and can work harder, for longer, at sea level resulting in an improved performance in the 1500m
- giving Sam a competitive edge in Rio, which is at sea level, as aerobic capacity will have increased for a period of a few weeks
- increasing gaseous exchange or diffusion, increase in lung volume or capacity which will enable an increase in VO<sub>2</sub> max or aerobic capacity. Therefore he'll be able to work at a higher rate for a longer period of time and record faster times
- improving anaerobic or max intensity performance, therefore Sam is able to sprint at start and end of race as well as being able to make or cover a break during the race, which will enable him to gain a better finishing position.

Altitude training will enable Sam to perform better for longer and recover quicker between the stages of the competition. Usually at the Olympic Games in round one, the first six in each heat plus the next six fastest overall advance through to the semi-finals. In the semi-finals, the first five in each heat along with the next two fastest overall qualify for the final. It would be advantageous to ensure that he is in the correct position or gets as fast a time as possible in the qualifying heats, semi-final and final.

### Assessment Objectives

| Question Number     | Assessment Objectives |             | Marks      |
|---------------------|-----------------------|-------------|------------|
|                     | AO1                   | AO3         |            |
| 1                   | 1                     |             | 1          |
| 2(a)                | 1                     |             | 1          |
| 2(b)                | 1                     |             | 1          |
| 3(a)                | 4                     |             | 4          |
| 3(b)                | 1                     |             | 1          |
| 3(c)                |                       | 3           | 3          |
| 3(d)                |                       | 3           | 3          |
| 4(a)                | 2                     |             | 2          |
| 4(b)                | 1                     |             | 1          |
| 5(a)                | 2                     |             | 2          |
| 5(b)                |                       | 3           | 3          |
| 5(c)                | 1                     |             | 1          |
| 6(a)(i)             | 1                     |             | 1          |
| 6 (a)(ii)           | 1                     |             | 1          |
| 6(b)                | 2                     |             | 2          |
| 6 (c)               | 2                     |             | 2          |
| 7 (a)               | 1                     |             | 1          |
| 7 (b)               | 1                     |             | 1          |
| 8(a)                |                       | 3           | 3          |
| 8(b)                |                       | 3           | 3          |
| 9(a)                | 3                     |             | 3          |
| 9(b)                | 2                     |             | 2          |
| 9(c)                | 4                     |             | 4          |
| 10                  |                       | 3           | 3          |
| 11(a)               | 3                     |             | 3          |
| 11(b)               |                       | 3           | 3          |
| 11(c)(i)            | 1                     |             | 1          |
| 11(c)(ii)           |                       | 2           | 2          |
| 11(d)               | 3                     | 3           | 6          |
| 11(e)               |                       | 6           | 6          |
| <b>Total marks</b>  | <b>38</b>             | <b>32</b>   | <b>70</b>  |
| <b>% weightings</b> | <b>54.3</b>           | <b>45.7</b> | <b>100</b> |