



**General Certificate of Secondary Education
June 2013**

Physical Education

48903

(Specification 4890)

**Unit 3: Knowledge and Understanding for the
Active Participant (Full Course and Double
Award)**

Final

Mark Scheme

Mark schemes are prepared by the Principal Examiner 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 examiners 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 examiner understands and applies it in the same correct way. As preparation for standardisation each examiner 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, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

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

Copyright © 2013 AQA and its licensors. All rights reserved.

Copyright

AQA retains the copyright on all its publications. However, registered schools/colleges for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to schools/colleges to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

Section A – Part 1 Multiple Choice

Award **one** mark for each correct answer.

1 Which **one** of the following is **not** a responsibility of an organiser of a sports event?
(1 mark)

Improving participants' fitness levels

2 Which **one** of the following is a positive long-term effect of a healthy active lifestyle?
(1 mark)

Lower resting heart rate

3 Which **one** of the following is **not** a school extra-curricular activity? *(1 mark)*

Netball lesson

4 Which **one** of the following best describes the frequency element of the overload principle of training? *(1 mark)*

How often you train

5 Maximum heart rate is calculated by: *(1 mark)*

220 minus age

6 Which **one** of the following is **not** an anaerobic activity? *(1 mark)*

Yoga

7 Friends of a similar age and background are known as a: *(1 mark)*

Peer group

8 Which **one** of the following is **not** an example of personal protective equipment? *(1 mark)*

Post protectors in rugby

9 Which **one** of the following is **not** an acceptable sponsor for a school sports team?
(1 mark)

A brewery

10 Which **one** of the following activities is in the outwitting opponents group? (1 mark)

Basketball

Section A – Part 2 Short answer questions

11 (a) What is meant by the term 'static strength'? Give an example from a physical activity where a performer uses static strength. *(2 marks)*

Award **one** mark for a correct definition of static strength and **one** mark for a correct example from a physical activity.

Static strength

- greatest amount of strength that can be applied to an immovable object
 - ability of a muscle to exert a force without changing length
- Accept* the strength you need to push or pull a stationary object or hold a heavy weight

Activity examples include:

- Holding the weight above your head in weight lifting
- Point of engagement in a rugby scrum
- Holding a balance in gymnastics

Accept the above plus any other suitable response.

NB Examples need to be qualified.

11 (b) Using an example from a physical activity, explain what is meant by the term 'coordination'. *(2 marks)*

Award **one** mark for an appropriate example from a physical activity and **one** mark for a correct explanation of coordination.

Activity examples include:

- serve in tennis/linking all the parts of the action
- a drop goal in rugby/ synchronising the movement of the hands dropping the ball with the kicking leg
- linking the stages in the triple jump in athletics/into one efficient smooth movement
- performing a layup shot in basketball/the ability to link the actions together

Accept the above plus any other suitable response.

Coordination is the ability to:

- link all the parts of a movement (into one efficient smooth movement)
- synchronise the movement of two or more body parts

NB Examples need to be qualified.

12 Weight training is an effective training method.

12 (a) State **two** advantages of using weight training to improve fitness. (2 marks)

Award **one** mark for stating each advantage of weight training to improve fitness up to a maximum of two marks.

- Improves (muscular) strength
- Improves muscular endurance
- Improves (muscular) power
- Increases muscle bulk or mass or size
- Improves muscle tone
- Can be used as part of a recovery programme from injury
- Improves flexibility

12 (b) Describe the relationship between a repetition and a set in weight training. (2 marks)

Award up to **two** marks for describing the relationship between a repetition and a set.

- Repetitions are the number of times an individual action is performed.
- A set is a group of repetitions.
- The relationship described using an example, eg 12 reps in one set.

13 (a) What is meant by the term 'motivation'? (1 mark)

Award **one** mark for stating what motivation is.

- Motivation is the drive to succeed or the desire (want) to achieve something.
Accept inspired to do something.

13 (b) Explain how motivation can be used to improve performance in a physical activity. (2 marks)

Award up to **two** marks for the example and explanation of how it improves performance.

- Motivation focuses the performer or improves concentration/ which allows the performer to perform more accurately
- Motivation makes the performer try harder/ are more likely to succeed.

14 There is a trend towards obesity in young people.

14 (a) State what obesity is **and** explain how a young person can avoid becoming obese.
(3 marks)

Award **one** mark for stating what obesity is.

- Obesity is being extremely overweight or abnormally fat
- BMI of 30 and over or when a person is 20% over the standard weight for their height

Award a further **two** marks for describing how a young person can avoid becoming obese.

- Obesity can be avoided by taking part in regular exercise and/ following a balanced or healthy diet or not over eating.
- Obesity can be avoided by maintaining an energy balance/ the amount of food energy taken in should not exceed the energy expended.

14 (b) Explain the negative effects that obesity can have on the body. (3 marks)

Award up to **three** marks for explaining at least two negative effects of obesity on the body.

NB maximum of **two** marks for one detailed explanation or three stated without explanation.

- Obesity increases strain on the joints/ increasing the risk of injury or osteoarthritis
- Obesity increases strain on the cardiovascular system/ increasing risk of heart disease
- Obesity can cause high blood pressure or high cholesterol or clogs the arteries/resulting in a stroke or heart attack.
- Obesity increases the strain on the respiratory system/ leading to shortness of breath
- Obesity increases the risk of diabetes/ resulting in early mortality
- Obesity decreases mobility/ resulting in a lack of speed or agility
- Obesity causes early onset of fatigue/ resulting in giving up quicker

15 Using **two** different examples, explain how safe practice can reduce the risk of injury when taking part in physical activity. *(4 marks)*

Award up to **two** marks for each example up to a maximum of **four** marks.

Activity examples could include:

- Do not throw a javelin/ until instructed to do so or the hooter sounds
- Do not dive into a pool/ into the shallow end or without checking depth of the pool
- Do not lift equipment/ without a straight back and bending the knees
- Have spotters at the side of the trampoline/ at all times
- Use equipment/ to reduce the effect of impact or to protect body parts
- Wear appropriate clothing correctly/ so that it is not caught in equipment or does not cause tripping or does not obstruct vision
- Carry out a warm-up/ to ensure that the body is prepared for exercise
- Carry out a risk assessment/ to identify potential hazards
- Use correct technique/ to reduce impact or stress on the body

Accept any other suitable response.

16 The Healthy Schools Programme was introduced to make a difference to the health and achievement of children in schools.

State **and** describe **two** of the themes included in this programme. *(4 marks)*

Award **one** mark for stating the name of the theme and **one** mark for the description up to a maximum of **four** marks.

- **Personal, social and health education**/ incorporating Sex and Relationship Education/ making a positive contribution to economic wellbeing
- **Healthy eating**/ to give children the confidence or skills or knowledge or understanding to make healthy food choices/ ensure that healthy and nutritious food and drink available across the school day/ working with School Food Trust to support healthy eating.
- **Physical activity**/ encourages young people to be physically active/ and are provided with a range of opportunities to be physically active/it helps understanding of how physical activity can make people healthier.
- **Emotional health and well-being**/ helping children and young people understand and express their feelings/ build their confidence/ and emotional resilience/ and therefore their capacity to learn/clear bullying policy in school/ behavior or rewards policies in place.

17 Explain the role of the skeletal system in producing movement of the body. <i>(5 marks)</i>
--

Award up to **five** marks for a full explanation of the role the skeletal system plays in producing movement.

- The skeletal system allows movement at a joint/ the shape and type of the bones determine the amount of movement/ short bones enable finer controlled movements/ long bones enable gross movement
- The different joint types allow different types of movement/ hinge joint allows extension and flexion/ ball and socket allows flexion, extension, abduction and adduction and circular motion
- The skeleton provides a point of attachment for muscles/ when muscles (contract) they pull the bone

Section B – Questions based on the preliminary material

18 (a) Identify **and** describe a suitable training method to help Sarah achieve her ambition of representing the district at cross country running. *(2 marks)*

Award **one** mark for the training method and a further mark for the description.

- Continuous training/ (running or swimming or cycling) for an extended period of time (at a moderate intensity)
- Fartlek training/ (extended moderate exercise) with some variation in pace or terrain
- Interval training/ intense periods of work followed by less intense periods of work or rest.
- Circuit training/ different exercises carried out for a set period of time or number of repetitions with periods of rest.

18 (b) Explain how Sarah could use her knowledge of training zones to help improve her performance in cross country running. *(4 marks)*

Award up to **four** marks for a full explanation of how training zones could improve her cross country running.

- Cross country is an aerobic or endurance activity/ she would need to go above the aerobic threshold/ which is 60-80% of maximum heart rate/ for at least 15 minutes/ at low to moderate intensity/ resulting in a more efficient cardiovascular or cardiorespiratory or circulatory system/ able to run more quickly.
- Anaerobic training zone, 80-90% of maximum heart rate/ is used for uphill sections or sprint finish/ 60 seconds max/ at high intensity/ resulting in increased lactic acid tolerance.

18 (c) School influences have an impact on an individual's involvement in physical activity.

Identify **and** explain **three** ways in which Sarah's experiences in secondary school may have helped to improve her performance in her favourite activities. (6 marks)

Award up to **six** marks for identifying and explaining the influence the school may have had on improving her performance in her chosen activities. Award **one** mark for the factor and **one** mark for the explanation (3 x 2).

- Through providing (core) PE lessons/ which may have increased her skill level.
- Through providing good quality facilities/ which may have enabled her to train effectively.
- Through providing extra-curricular opportunities/ for additional practise or increasing the range of activities she may have been exposed to.
- Positive staff attitudes/ which may have provided motivation and encouragement to maintain interest.
- Provide opportunities through links with local clubs and organisations/ to provide more specialist training.
- Provide opportunities to use off site specialist facilities/ to broaden the range of activities offered
- Provide opportunities through different roles/ to give a greater understanding of the activity
- Through providing qualifications/ may get increased subject knowledge.
- Provide specialist equipment/ which may enable her to train or practise to a higher standard.

18 (d) Sarah has an interest in the media.

Explain how the media may have influenced Sarah's participation in sport.

(Answer in continuous prose)

(8 marks)

Award up to **eight** marks using the criteria outlined in the grid below.

Examples of content could include

- Increased coverage on all forms of media encourages interest
- Media informs of opportunities and possibilities
- Media educates about the need for healthy lifestyle/ and shows the consequences of a sedentary lifestyle
- Informs how and where to participate
- Media can entertain and therefore attract participation
- Media can promote role models who you can then aspire to be like and achieve what they have.

Please use the following grid to award a mark for both the content and the Quality of Written Communication (QWC) based on the following information.

QWC is part of the award of marks in levels marked questions only. In levels marked answers the quality of physical education is assessed and a level mark awarded based on the content. As is sometimes the case, the physical education may be sound at a particular level but the examiner may not be sure as to whether there is quite enough 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 should lead to a rise in the mark but where QWC does not fulfil the criteria, the answer should remain at the mark first thought appropriate. In cases where QWC has been used in the award of marks, the examiner should indicate this in a comment box say 'QWC raised mark to show an upward trend'. QWC cannot be used to raise a candidate's mark into the next level.

Level 3	<p>6 - 8 marks</p> <p>At least three examples explained, at least two fully, to show how the media may have influenced participation.</p> <p>NB If two examples are given and fully explained (maximum 6 marks). Candidates spell, punctuate and use rules of grammar accurately and use a wide range of specialist terms precisely.</p>
Level 2	<p>3 - 5 marks</p> <p>At least two examples with some explanation given to show how the media may have influenced participation.</p> <p>NB If only one example is given and fully explained (maximum 3 marks). Candidates spell, punctuate and use the rules of grammar with reasonable accuracy and use a range of specialist terms appropriately.</p>
Level 1	<p>1 - 2 marks</p> <p>At least one example with limited explanation given to show how the media may have influenced participation.</p> <p>NB A list of examples with no explanation (maximum 1 mark). Candidates spell, punctuate and use the rules of grammar with some accuracy. Limited use of specialist terms.</p>
0 marks	No creditworthy material.

Example answers

Level 1 (1 mark)

Over the last few years there has been increased coverage of sport on the television. This has encouraged Sarah to take part in more sports.

Level 2 (4 marks)

Over the last few years there has been increased coverage of sports across all forms of the media. There are more sports magazines and programmes on the television covering a wide variety of sports. These may have inspired and motivated Sarah to try some new sports which has increased her participation. This increased coverage has given Sarah some role models who she now looks up to. She tries to be like them and when she practises and trains she could try to copy the techniques her role models use. Seeing Paula Radcliffe running the marathon might have inspired Sarah to take part in a half marathon.

Level 3 (7 marks)

There are now dedicated sports channels which are on 24 hours per day showing live coverage, highlights and news programmes. These could have inspired and motivated Sarah to try some new sports, that she may not have known existed, which has increased her participation. Seeing Cheerleading on Sky may have encouraged Sarah to have a go at this different activity, and after finding that she enjoyed it she might have joined a club and this helped her to improve her ability. This increased coverage has given Sarah some role models who she now looks up to. These role models have encouraged her to take up that sport and try to achieve what they have. She tries to be like them and when she practises and trains Sarah could try to copy the techniques her role models use. The media also provides education about the need to be healthy. Television programmes show the problems of leading a sedentary lifestyle. Sarah may have seen some of these and decided she needed to become more active. Sarah may have decided to go jogging to help her to lose weight and this developed her interest in cross country running and now she wants to extend the distance to a half marathon.

19 (a) Diet is an important factor to consider when participating in a physical activity.

Explain how a carbohydrate loading diet could help Sarah to perform to the best of her ability in the half marathon. (4 marks)

Award up to **four** marks for a full explanation of how a carbohydrate loading diet could help Sarah to perform to the best of her ability.

By eating (high-carbohydrate) meals such as pasta/ which is a slow release energy source/ in the three days before the half marathon/ Sarah will increase the glycogen level in her muscles and liver/ to its maximum/ so Sarah would have more energy available during the run./ This would help to delay the onset of fatigue (or reduce levels of fatigue)/ and could help her to maintain her performance in the later stages of the run/as glycogen is as an immediate reserve source of available glucose for muscle cells./ Her liver will also readily break down its stored glycogen into glucose/ and send it through the blood stream as fuel for her muscles.

19 (b) Identify **and** explain **two** ways in which Sarah could be an effective choreographer for her cheerleading squad. (4 marks)

Award up to **four** marks for correctly identifying and explaining ways in which she could be an effective choreographer for the cheerleading squad.

Award **one** mark for the quality and **one** further mark for the explanation (2 x 2).

Examples include:

- Working knowledge or understanding of choreography techniques and/ how to use them to create (exciting) routines
- Good communication skills/ to make herself understood by participants
- Good observation skills/ to identify faults and correct them
- Good organisational skills/ to manage time or sessions or equipment
- Good leadership skills/ to manage people
- Creative/ to be able to link movements effectively to structure a routine
- Patience/ in order to ensure that skills are acquired and developed appropriately.
- Empathy/ to understand the needs of the performer.
- Organised/ to deal with different abilities and situations.
- Enthusiastic or motivated or supportive/ to encourage children to do well or take part.
- Confidence/ so that she can choreograph effectively without being intimidated.
- Skilful/ to be able to demonstrate correctly.

Accept any other suitable response.

19 (c) Sarah uses the local sports facilities during the week and at weekends for training purposes.

Explain the difference between public sector and private sector provision of sports facilities. *(4 marks)*

Award up to **four** marks for explaining the difference between private and public sector funding of facilities.

- Public sector facilities are owned by local authorities or councils/ and usually paid for through taxes./ They are open to all users and/ are not designed to make a profit/ lower quality facilities.
- Private sector facilities are owned by a company or an individual/ with the aim of making a profit/ through running membership schemes/ generally have better quality facilities/ harder to get access/ limited time.

NB maximum **three** marks if only one sector explained.

NB do not credit repeat opposites

19 (d) People are individuals with different needs. Disability is one individual difference that affects participation and performance in physical activity.

What individual differences may have influenced Sarah's participation and performance in her favourite activities?

(Answer in continuous prose)

(8 marks)

Award up to **eight** marks using the criteria outlined in the grid below.

Examples of content could include, and must relate to Sarah's favourite activities (cross country, climbing, dance and cheerleading)

- Age – maturity of the performer and their suitability for her favourite activities and the impact on her body as she gets older
- Gender – how gender can impact on participation due to muscle size and strength, power, speed or flexibility
- Physique – how Sarah's body type might influence participation
- Environment – how access to facilities for and terrain can influence activity choice and participation for Sarah
- Risk and challenge – opportunity through activities for Sarah to identify and solve problems to overcome challenges
- Activity levels – demands on Sarah from different activities
- Training – how availability of funds and time may affect Sarah's performance or participation
- Skill – high levels of skill may have influenced Sarah to choose to participate in either rock climbing or dance
- Ability – is something you are born with, Sarah may have been born with very good potential for flexibility that will help her with rock climbing and dance
- Personality type – how Sarah being an introvert or extrovert may affect her participation or performance

Accept the social groupings below

- Ethnicity or culture – Sarah's participation in some physical activities may be affected by religious beliefs
- Family – how Sarah's family background could have influenced participation or performance
- Peers – how positive or negative effects of pressure could influence Sarah's choice of favourite activities

Please use the following grid to award a mark for both the content and the Quality of Written Communication (QWC) based on the following information.

QWC is part of the award of marks in levels marked questions only. In levels marked answers the quality of physical education is assessed and a level mark awarded based on the content. As is sometimes the case, the physical education may be sound at a particular level but the examiner may not be sure as to whether there is quite enough 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 should lead to a rise in the mark but where QWC does not fulfil the criteria, the answer should remain at the mark first thought appropriate. In cases where QWC has been used in the award of marks, the examiner should indicate this in a comment box say 'QWC raised mark to show an upward trend'. QWC cannot be used to raise a candidate's mark into the next level.

Level 3	<p>6 - 8 marks</p> <p>At least three individual differences explained, at least two fully, to show what may have influenced Sarah's participation and performance in her favourite activities must be identified with a detailed explanation.</p> <p>NB If only two individual differences are given and fully explained (maximum 6 marks).</p> <p>Candidates spell, punctuate and use rules of grammar accurately and use a wide range of specialist terms precisely.</p>
Level 2	<p>3 - 5 marks</p> <p>At least two individual differences with some explanation given to show what may have influenced Sarah's participation and performance in her favourite activities must be identified with an explanation.</p> <p>NB If only one individual difference is given and fully explained (maximum 3 marks).</p> <p>Candidates spell, punctuate and use the rules of grammar with reasonable accuracy and use a range of specialist terms appropriately.</p>
Level 1	<p>1 - 2 marks</p> <p>At least one individual difference with limited explanation given to show what may have influenced Sarah's participation and performance in her favourite activities must be identified with brief description.</p> <p>NB A list (at least three) of individual differences with no explanation or not linked to Sarah's favourite activities (maximum 1 mark).</p> <p>Candidates spell, punctuate and use the rules of grammar with some accuracy. Limited use of specialist terms.</p>
0 marks	<p>No creditworthy material.</p>

Example answers

Level 1 (1 mark)

Sarah may have started climbing as she may have visited the adventure activity centre close to her school.

Level 2 (4 marks)

The local environment will influence what activities Sarah takes part in. As there is an adventure activity centre close to her school she may have visited there as part of a PE lesson or after school club. Sarah may take part in her favourite activities due to her body type. She may have a body type that is quite slim which would suit her interest in cross country running.

Level 3 (8 marks)

The local environment will influence what activities Sarah takes part in. As she lives in a rural area, there are likely to be opportunities for a variety of places to run cross country. There may also be areas where she can climb. As there is an adventure activity centre close to her school she may have visited there as part of a PE lesson or after school club. Having access to a private dance club locally has allowed Sarah to pursue an interest in dance. Sarah may take part in her favourite activities due to her physique. She may have a body type that is mesomorph. This slim, muscular build which would suit her interests of cheer leading and climbing as a lot of strength is needed to complete these activities. Sarah's age may also have affected her performance in cross country. As she has got older her heart and lungs may have been able to cope more with the distance or speed that she can run which has led to her improving in her cross country times. This may lead to her representing the district at cross country.

Assessment Grid

Question	AO1	AO3	Total marks
Section A Multiple Choice			
1	1		
2	1		
3	1		
4	1		
5	1		
6	1		
7	1		
8	1		
9	1		
10	1		10
Section A Short Answer Questions			
11a	1	1	
11b	1	1	
12a	2		
12b	2		
13a	1		
13b		2	
14a	3		
14b		3	
15		4	
16	4		
17	5		30
Section B Questions based on the preliminary material			
18(a)	2		
18(b)	2	2	
18(c)	3	3	
18(d)	4	4	
19a	2	2	
19b	2	2	
19c	4		
19d	4	4	40
Total	52	28	
% weighting			

UMS conversion calculator www.aqa.org.uk/umsconversion