



**General Certificate of Secondary Education
June 2013**

Physical Education

48905

(Specification 4890)

**Unit 5: Knowledge and Understanding for the
Involved Participant (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 – Short answer questions

1 (a) Describe what is meant by an 'open skill'. *(2 marks)*

Award up to **two** marks for a description of an open skill.

- A skill that is affected by constantly changing/ external factors or environmental factors or the environment is not predictable
- Skills require adjustment/ to suit the situation or weather or opponents or team mates

1 (b) Describe what is meant by 'variable practice'. *(2 marks)*

Award up to **two** marks for a description of variable practice.

- A combination of whole/ part and/ fixed practice
- Using more than one/ practice situation
- Replicate/ the game or competitive situation

1 (c) (i) Name an open skill. *(1 mark)*

Award **one** mark for naming an open skill.

- Dribbling a ball
- Receiving a pass in a game
- Returning a serve

Accept any other suitable response.

1 (c) (ii) Explain how a practice can be varied to develop the skill you named in **1(c)(i)**. *(2 marks)*

Award up to **two** marks for explaining how a practice can be varied to develop the skill named in **1(c)(i)**.

- Place performer in different situations or environments/ so they have to adapt.
- Increasingly place more pressure on performer/ passive/ active/ opposition
- Reducing/ space or time

1 (d) Using an example, describe how a coach could use manual guidance when teaching a skill. *(2 marks)*

Award **one** mark for use of an appropriate example and **one** mark for the description of how manual guidance is used in the teaching of a skill

- Coach physically moves your body (or body part) through a skill or technique / eg support with a vault or practising a golf swing.

2 All physical activities require different components of fitness and training methods.

2 (a) Describe the multi-stage fitness test **and** explain how it could be used to monitor the fitness of a performer. *(4 marks)*

Award up to **two** marks for describing the multi-stage fitness test.

- A recording of a series of timed bleeps
- Shuttle runs 20m apart
- Bleeps get progressively closer together (time between bleep gets shorter)
- Have to run faster/ when you get to a higher level
- Miss three bleeps you have to drop out

Award up to **two** further marks for an explanation of how the test could be used to monitor the fitness of a performer.

- Identify baseline data
- Use the results to compare with previous tests (check progress)/ or standardised tables
- Adjust training accordingly
- Sets goals or targets
- Assess how successful your training has been
- Measures VO2 max
- Identify strengths or weaknesses

2 (b) Explain how weight training can be used to increase power. *(2 marks)*

Award up to **two** marks for an explanation of how weight training can be used to increase power.

Lifting heavy weights/ explosively or dynamically or quickly.

2 (c) Name **and** describe a test that can be used to measure power. (3 marks)

Award **one** mark for naming a test.

- Vertical jump test (Sargent jump) or Standing broad jump (standing long jump)

Award up to **two** further marks for describing either test.

Vertical jump (Sargent jump)

- Performer stands sideways to a wall, feet flat, performer reaches up and with stretched fingers the highest point is recorded
- Performer, using arms and legs jumps or as high as possible (this is measured)
- Distance between the two measurements is recorded (standing and jump height)
- Performer has three attempts to get best result.

Standing broad jump (standing long jump)

- Performer stands behind a line and performs a two footed take-off and landing (horizontal jump)
- Performer, using arms and legs jumps or as far as possible
- Distance between take off line and landing is measured
- Performer has three attempts to get best result

2 (d) (i) Describe what is meant by 'interval training'. (2 marks)

Award up to **two** marks for a description of interval training.

- Times of work/ followed by times of rest or fixed patterns
- Alternating high intensity/ low intensity exercise.
- Alternating sprinting/ followed by jogging, walking or rest for a fixed length of time.
- Eg sprint 100m/ walk 100m (x 6)

2 (d) (ii) Using an example, explain why interval training can be an effective training method for a games player. (2 marks)

Award **one** mark for use of an appropriate example and **one** further mark for explaining why interval training can be an effective training method for a games player.

- Sprinting for a ball and then jogging back into position/ replicates many game situations or develops anaerobic threshold

Accept any other suitable example.

2 (e) Why are periods of rest during a training programme necessary to improve performance? <i>(4 marks)</i>
--

Award up to **four** marks for stating why periods of rest during a training programme are necessary to improve performance.

- Allows body time to recover/repair damage caused by training
- Allows muscles the time to adapt, grow, get stronger
- Reduces the risk of over-use injury
- Reduces the risk of over-training (fatigue or tiredness)
- Helps to get rid of lactic acid or waste products or repay oxygen debt
- A fresh person will perform at a higher level or be able to train harder/longer
- Maintains motivation
- Provides psychological benefits – time for reflection, maintain alertness
- Replenish glycogen stores

Accept any other suitable response eg DOMS.

3 (a) Explain how appropriate clothing can help to ensure the safety of an individual in a named physical activity. <i>(3 marks)</i>
--

Award up to **three** marks for an explanation of how appropriate clothing can help to ensure the safety of an individual in a named physical activity.

- Trampolining – wearing of socks/ to protect toes/from being caught in webbing
- Weight training – tight fitting/ so don't get caught in or on the machines or weights
- Open water activities – wetsuits or dry suits/ to keep warm or dry/to prevent hypothermia
- Mountainous activities – insulated or waterproof clothing, base layers (skins), coats, waterproof clothing/to keep warm or dry/to prevent hypothermia
- Games activities – base layers (skins)/ to keep muscles warm/to prevent pulled muscles
- Athletic activities – 'Clima cool', breathable material/ allow air flow/ avoid overheating or heat exhaustion.

Accept any other suitable response.

NB Do not accept protective equipment eg shin pads or footwear

3 (b) State **and** explain **two** different ways in which using the correct technique when performing a skill helps to ensure safe practice. *(4 marks)*

Award **one** mark for each way of using correct technique and **one** further mark for each explanation.

- Weight lifting – bend knees or keep the back straight / to prevent lower back strains
- Lifting in dancing – bend knees or keep the back straight or keep weight close to body/ to avoid dropping partner or causing back strains
- Tackling in rugby – head behind tacklers legs/ to avoid head or neck injuries
- Kicking a ball in football – straight body alignment/ to avoid pressure on standing leg
- Cross country running – balanced or light running action on toes/ to reduce shin splints
- Trampolining – maintain body tension/ to prevent back strains
- Netball – fingers spread correctly/ to absorb pace of ball.

Accept any other suitable response.

NB Do not accept rules (the question refers to technique)

4 More people over 65 years old are taking part in a range of physical activities.

Explain why swimming is an appropriate physical activity for a healthy 65-year-old person. *(3 marks)*

Award up to **three** marks for explaining why swimming is an appropriate activity for a healthy 65 year old person.

- Less strenuous or will not over stress/ the heart or joints
- Non weight bearing/ less damage to joints
- Can be done at own pace/ can do as much or little as you want
- Uses all muscles/ a way of keeping active
- It raises the heart rate/ it develops fitness or health
- Can be performed all year round/ as it is an indoor activity
- Relatively cheap/ may be concessions for elderly
- It is a social activity/ good way of making or maintaining friendships

Accept any other suitable response.

5 Vicky wants to set up a new netball league.

State **two** administrative and management skills that Vicky needs **and** explain how each skill would enable her to run the league successfully. (4 marks)

Award **one** mark for each administrative and management skill stated and **one** mark for an explanation (2 x 2)

- **Planning (and showing initiative and innovation)/** organise league so it runs smoothly/ promote league/ keeping to timetabled dates/ devising leagues
- **Monitoring and evaluating/** gaining feedback/ and implementing necessary changes/ keeping results
- **Attending to detail/** being prepared for the matches/ organising all equipment/ keeping matches running on time/ promoting league in local press
- **Commitment to high standards (of care)/** ensuring cleanliness/ safety/ first aid provision/ adequate changing areas or seating or refreshments or staff
- **Organising, (arranging, coordinating and supervising events, facilities, personnel and time)/** what equipment/ facilities required/ sufficient staff/ co-ordinating operations

Accept any other suitable responses.

NB An administrative and management skill has to be identified for marks to be awarded

6 Zak is a coach at a local sports club.

Using an example, explain why it is important that, as a coach, Zak is able to react and adapt to trends and changing situations. (2 marks)

Award up to **two** marks for an explanation.

- Change in rules or laws/ has to adapt or implement new changes/ be able to coach new changes
- Change in interpretations/ many players, referees, coaches have different perceptions/ needs to be flexible in his approach
- Changes in team personnel/ age/ gender/ experience/ needs to be able to respond to different coaching situations
- Weather/ adapting to both good or bad weather/ flexible planning or coaching
- Access to facilities/ closed at last minute or new ones developed/ versatile in ability to coach when circumstances change.
- Change in tactics/ able to modify plan/ can change game plan before or during activity
- Changes to training methods/ adopt new methods/ challenge or motivate/ improve training results
- Changes to techniques/ double-handed backhand in tennis
- Changes to competition in his sport/ new trends such as snowboarding challenging skiing/ ability to implement new trends
- Changes in seasons/ rugby league now a summer sport/ playing in different parts of the country/ playing out of season (tour)
- Adopting new trends or activities/ to generate business

Accept any other suitable response

7 Injuries are common in sport.

7 (a) Explain why you would use the principles of RICE to treat a pulled muscle. (4 marks)

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

Rest – to prevent further injury

Ice – to reduce swelling or relieve some of the pain

Compression – to give support or pressure to the injured area or to make it more comfortable

Elevation – to reduce circulation or pressure to the area or drain away any other fluids

7 (b) State **three** symptoms of someone who is suffering from concussion. (3 marks)

Award **one** mark for each correct symptom of someone who is suffering from concussion.

- Unconsciousness
- Disorientation
- Confused
- Incoherent
- Memory loss
- Very relaxed limbs
- Dilated pupils
- Vacant stare or glassy eyes
- Weak or irregular pulse
- Slow and shallow breathing
- Bleeding from the ears
- Headache
- Dizziness
- Nausea
- Vomiting
- Loss of balance
- Slurred speech
- Tiredness
- Repeat themselves
- Disturbances with vision, eg double vision or seeing stars or flashing lights or blurred vision

8 (a) Other than an improvement to fitness, give **two** reasons why Claire and her family would benefit from becoming members of a local health club. *(2 marks)*

Award **one** mark for each reason why Claire and her family would benefit from becoming members of a local health club.

- Social benefits to the family
- Have fun together
- Allows them to compete against each other
- Able to relieve tension within the family
- Meet other families or people with similar interests
- Spending **more** time together
- To encourage the family to participate in a new physical activity
- Enables Alex to be more involved with the family or make new friends
- Enables Chris to lose weight or improve physical appearance
- Encourages Alex to become more engaged in physical activity
- To improve self-esteem or self-confidence

Accept any other suitable responses

NB Do not credit answers related to fitness
NB Definition of health is only worth 1 mark

8 (b) Other than the principles of training, state **and** explain **two** factors that Chris should consider when planning a circuit training programme. *(4 marks)*

Award **one** mark for each factor and **one** further mark for each explanation.

- Seek medical advice/ to be given appropriate exercises (that won't cause further strain to his back)
- Induction by trained staff/ to ensure correct technique
- How many stations will there be in the circuit/ the more stations, more body parts worked/ weight, muscular or aerobic endurance
- What muscle groups is he going to target/ need to alternate muscle groups to aid recovery or progress
- Will it be fitness or skill specific/ or combination of both
- What exercises will he incorporate into the circuit/ dependent on overall aims of session
- The availability of equipment or space or facilities/ will influence what can be incorporated in circuit
- What does he wish to gain/ strength or endurance training/ strength through heavy weights and low reps/ muscular endurance through light weights, high reps
- Current fitness level/ how much work/rest

Accept any other suitable responses

NB Do not credit answers related to principles of training

8 (c) Diet is important for improving performance.

Name **three** other ways in which Jo could improve her performance before competing in the European Junior Swimming Championships. *(3 marks)*

Award up to **three** marks for naming ways that Jo can improve her performance **before** a swimming competition.

- Training
- Warming up
- Psychological preparation
- Rest
- Ensure she has not over trained
- Correct technique when training
- Streamlined swimsuit
- Peaking or tapering
- Improved cardiovascular endurance
- Improved oxygen carrying capacity
- Improved strength or power

Accept any other suitable response

NB Do not credit answers related to diet or repeats of any of the above eg different types of training

8 (d) Explain how Jo’s knowledge of food and nutrition could be used to improve her performance in swimming.

(Answer in continuous prose)

(6 marks)

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.

<p>Level 3</p>	<p>5 - 6 marks Detailed and Accurate Demonstrates detailed knowledge and thorough understanding of how food and nutrition could be used to improve Jo’s performance in swimming.</p> <p>Answers should include at least 3 detailed explanations.</p> <p>NB Two detailed explanations and one sound explanation (maximum 5 marks).</p> <p>Candidates spell, punctuate and use rules of grammar accurately and use a wide range of specialist terms precisely.</p>
<p>Level 2</p>	<p>3 – 4 marks Sound and generally accurate Demonstrates sound knowledge and understanding of how food and nutrition could be used to improve Jo’s performance in swimming.</p> <p>Answers should include at least 2 sound explanations</p> <p>NB One detailed explanation (maximum 3 marks)</p> <p>Candidates spell, punctuate and use rules of grammar with reasonable accuracy and use a range of specialist terms appropriately.</p>

<p>Level 1</p>	<p>1 – 2 marks Basic Demonstrates basic knowledge and understanding of how food and nutrition could be used to improve Jo’s performance in swimming.</p> <p>Answers will include only basic explanation(s).</p> <p>NB Answers limited to one explanation with little reference to how they can help Jo’s performance (maximum 1 mark)</p> <p>Candidates spell, punctuate and use rules of grammar with some accuracy. Limited use of a range of specialist terms.</p>
<p>0 marks</p>	<p>No creditworthy material</p>

- A balanced diet will meet her active lifestyle demands
- To maintain the correct weight of an efficient and maximal performance
- Carbohydrates to supply a ready source of energy, any excess stored as glycogen. She will require slow, complex carbohydrates to enable her to sustain high intensity work over a long period of time.
- Carbohydrate loading would be beneficial.
- Simple carbohydrates also needed for short bursts of intensive activity (sprint finish), replenished throughout the event
- Fats also required as a major energy source
- Protein also required assisting in body growth and muscular repair. Allows the body to recover quicker, allowing training or competition the following day. Also enable the body to grow so gets stronger and more powerful, therefore more effective in performance.
- Water to maintain hydration so body can function optimally when training. Loss of water affects performance quite dramatically, causing fatigue and loss of concentration. Also assists in transportation of nutrients, blood flow, oxygen transportation, waste removal and heat regulation.
- Vitamins and Minerals will assist in many body and chemical processes. Main ones highlighted will be Iron (Oxygen transportation) and Calcium (bone strength and density)

NB To gain marks in this question, a link has to be made to how nutrition can improve Jo’s performance

Example answers

Level 3 (6 marks)

Knowledge of food and nutrition will help Jo improve her swimming performance. She should eat a balanced diet to enable her to maintain an optimal weight for an efficient and maximal performance. As she competes in an aerobic event she needs a plentiful supply of complex carbohydrates, allowing slow releasing energy so that she can perform to her best throughout the event. This will help her to sustain high intensity swimming over a long period of time and therefore swim faster. She also needs to eat plentiful amounts of protein to assist in body growth and muscle repair. As she gets stronger she is able to exert more force against the water and therefore record faster times in the pool. Hydration is vital to performance so it is important that Jo drinks plenty of fluids both in training and prior to the event. Remaining hydrated will improve focus and concentration, making decision making easier so fewer mistakes are made.

3 detailed explanations.

Level 2 (4 marks)

Jo could use her knowledge of food and nutrition to improve her performance in a variety of ways. She could eat more protein rich foods to help her body both grow and repair after training. Protein will speed up the recovery rate which will enable Jo to train the following day. She could also increase her intake of carbohydrates, possibly using carbohydrate loading to ensure she has sufficient energy (stored as glycogen) so that she can swim as fast as possible through the race.

2 sound explanations.

Level 1 (1 mark)

As Jo is studying food and nutrition at school she will know that to improve performance she needs a balanced diet. She needs the right amount of carbohydrates, protein, fats, vitamins and minerals, fibre and water. Carbohydrates will give her energy and protein will help in muscle growth and repair. She needs to drink lots of water, because if she gets dehydrated it can badly affect her performance meaning that she will not be able to swim as fast as she can.

1 basic explanation with only water making reference to improving performance. The other nutrients made no reference to improving performance.

8 (e) Explain how Jo could use the principles of training to improve her performance in the 800 m swimming freestyle event.

(Answer in continuous prose)

(6 marks)

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.

<p>Level 3</p>	<p>5 – 6 marks Detailed and accurate Detailed explanation of the principles of training applied accurately to the improvement of performance over the training programme.</p> <p>At least two principles of training are explained in detail and accurately applied to improving performance.</p> <p>NB Two principles fully explained without both demonstrating accurate application (maximum 5 marks).</p> <p>Candidates spell, punctuate and use rules of grammar accurately and use a wide range of specialist terms precisely.</p>
<p>Level 2</p>	<p>3 – 4 marks Sound and generally accurate Sound explanation of the principles of training with generally accurate application to the improvement of performance over the training programme.</p> <p>Sound explanation of at least two principles of training with generally accurate application to improving performance over the training programme.</p> <p>NB Only one principle fully explained and accurately applied (maximum 3 marks)</p> <p>Candidates spell, punctuate and use rules of grammar with reasonable accuracy and use a range of specialist terms appropriately.</p>

<p>Level 1</p>	<p>1 – 2 marks Basic Basic explanation of the principles of training with basic application to the improvement of performance over the training programme.</p> <p>NB If only one principle with sound explanation and generally accurate application or two principles with basic application (maximum 2 marks).</p> <p>If principles of training are explained with no reference to how they can help to improve Jo's performance (maximum 1 mark)</p> <p>Candidates spell, punctuate and use rules of grammar with some accuracy. Basic range of specialist terms used.</p>
<p>0 marks</p>	<p>No creditworthy material</p>

- Specificity/type – fitness components relevant to swimming and the distance/ muscles used/ technique/ energy system
- Progression – intensity of training must gradually increase over the time.
- Overload – body systems must be worked harder than normal.(apply FIT principle)
 - Frequency – number of training sessions per week
 - Intensity – suitable workload, heart rate, percentage, sets and reps
 - Time – duration of training session
- FIT must be gradually increased to promote overload and progressive adaptation.
- Tedium – variability in programme to prevent boredom

NB Do not credit reversibility as this does not improve performance.

Example answers

Level 3 (6 marks)

Jo needs to apply the principles of training to her training programme in order to improve her performance. Firstly she needs to ensure that all her training is specific to swimming. She needs to train over the correct distance and work on the muscles and energy systems that would be beneficial to swimming the 800m. If she does this she will be maximizing her efforts and her times for the 800m should be quicker. To gain progression she must apply overload to her training so that she is working her body harder than normal. She needs to increase the frequency (more times a week), increase the intensity (make training harder) and also increase the time or duration (train for longer). If she increases one or more of these she should improve over time and her body will gradually adapt and her times in the pool should decrease, giving her a better chance of winning races. As swimming is a continuous form of training, it can become quite boring. Jo needs to apply the principle of tedium, whereby she will look to vary her programme, both in and out of the water to maintain motivation. If she remains motivated, her training will be more effective and she will continue to improve, therefore swimming faster.

At least two principles of training are explained and accurately applied to improving performance.

Level 2 (4 marks)

Jo needs to apply specificity to her training if she is to get the most from her programme. She should work specifically on the 800m and look at her technique, especially her tumble turns if she is to get better times in competitions. Progression is a result of overload and takes time to achieve. Jo needs to look to increase how often, how long and how hard she trains if she is to improve her performances. By overloading her body on a continual basis, she should steadily improve in her swimming style and record faster times.

Sound explanation of at least two principles of training with generally accurate application to improving performance over the training programme.

Level 1 (1 mark)

The principles of training (SPORT) will help Jo improve her performance. She needs to make her training specific to swimming and not do lots of activities that are not swimming related. She should gradually progress by working harder in training. She can do this by applying the FITT principle.

Accurate application, The other principles make no reference to improving performance.

SPORT is identified but no reference to how it can improve performance.

Assessment Grid

Question	AO1	AO3	Total Marks
Section A Short Answer Questions			
1a	2	0	2
1b	2	0	2
1c (i)	1	0	1
1c (ii)	0	2	2
1d	1	1	2
2a	2	2	4
2b	0	2	2
2c	3	0	3
2d (i)	2	0	2
2d (ii)	1	1	2
2e	4	0	4
3a	0	3	3
3b	2	2	4
4	0	3	3
5	2	2	4
6	0	2	2
7a	4	0	4
7b	3	0	3
Section B Questions based on preliminary material			
8a	2	0	2
8b	2	2	4
8c	0	3	3
8d	3	3	6
8e	3	3	6
Total	39	31	70
% weighting	56%	44%	100%

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