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AS

# Physical Education

PHED1

Opportunities for and Effects of Leading a Healthy and Active Lifestyle  
Final Mark scheme

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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)

## Level of response marking instructions

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

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

### Step 1 Determine a level

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

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

### Step 2 Determine a mark

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

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

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

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

**Section A**

**Applied Exercise Physiology**

- 1 (a) Flexibility and muscular endurance are important components of fitness when exercising.

Define flexibility and muscular endurance.

**[2 marks]**

**Marks for this question: AO1 = 2**

A. Flexibility – Range of movement at/around a joint.	A. Do not accept ROM.
B. Muscular endurance – Ability of a muscle(s) to perform <u>repeated / high number of contractions</u> / muscles work for <u>long</u> periods of time (without fatigue).	B. Allow alternatives for repeated ie sustained.

**Maximum 2 marks**

- 1 (b) (i) Complete **Table 1** to identify curves **A**, **B** and **C** shown in **Figure 1**. Write either **A**, **B** or **C** in the box next to the relationship that it matches. Use each letter only **once**.

**[3 marks]**

**Marks for this question: AO1 = 3**

**Table 1**

Haemoglobin at rest	B
Haemoglobin during exercise	C
Myoglobin	A

**Maximum 3 marks**

- 1 (b) (ii) Using **Figure 1**, explain the role of haemoglobin **and** myoglobin during exercise. **[4 marks]**

**Marks for this question: AO3 = 4**

<p><b>Haemoglobin during exercise</b></p> <p>A. Transports oxygen in the blood / carries oxygen to the muscles</p> <p>B. Less saturation of haemoglobin with oxygen during exercise / lower affinity</p> <p>C. An increase in oxygen release / oxyhaemoglobin disassociation to the working muscles;</p> <p>D. Muscles receive more oxygen.</p>	<p>Sub max 2 marks</p>
<p><b>Myoglobin</b></p> <p>E. Stores / transports <u>in the</u> muscle</p> <p>F. Myoglobin has a higher affinity for oxygen;</p> <p>G. Oxygen dissociates from myoglobin at a lower <math>PO_2</math>/myoglobin has a higher %saturation for any given <math>PO_2</math>;</p>	<p>Sub max 2 marks</p> <p>Do not accept myoglobin in muscle only</p>

**Maximum 4 marks**

- 1 (c) The skeletal muscle pump and valves within veins are venous return mechanisms. They help return blood back to the heart.

Describe how the skeletal muscle pump and valves work together to return blood to the heart.

**[3 marks]**

**Marks for this question: AO3 = 3**

<p>A. The skeletal muscles contract compressing <u>the veins</u>.</p> <p>B. This squeezes / forces blood back to the heart.</p> <p>C. (One way) valves prevent the backflow of blood.</p> <p>D. When blood has been squeezed through, valve closes.</p>	<p>A. Blood vessels too vague</p>
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**Maximum 3 marks**

- 2 (a) Using **Figure 2**, complete **Table 2** to identify the joint action, the main agonist and the antagonist at the **right ankle** and the **right knee** from Position **A** to Position **B**. **[6 marks]**

Marks for this question: AO1 = 6

**Table 2**

	Joint action	Main agonist	Antagonist
Right ankle	A. Plantar flexion	B. Gastrocnemius	C. Tibialis anterior
Right knee	D. Extension	E. Quadriceps	F. Hamstring

**Maximum 6 marks**

- 2 (b) Explain the role of adrenaline on heart rate prior to **and** during a 400m race. **[3 marks]**

Marks for this question: AO3 = 3

A. <u>Anticipatory rise</u> happens <u>prior to</u> the race. B. Maintains increased heart rate during race C. (Adrenaline) to the sino-atrial / <u>SA node</u> . D. Increased activity / firing at the SA node.	A. has to be explained in correct context prior to the race.
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**Maximum 3 marks**

- 2 (c) Explain the importance of haemoglobin for a long distance runner. **[3 marks]**

Marks for this question: AO3 = 3

A. Important for oxygen transport <u>in</u> the blood / carries oxygen to the muscles B. Endurance athletes work <u>aerobically</u> C. Increased red blood cells, increased aerobic capacity / stamina D. Delays fatigue / delayed OBLA / prevents build-up of lactic acid	B. With oxygen too vague
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**Maximum 3 marks**

**Skill Acquisition**

**3 (a)** Skilled performances are accurate, consistent and efficient.

Identify **three** other characteristics of a skilled performance.

**[3 marks]**

**Marks for this question: AO1 = 3**

<p>A. Coordinated / controlled                  B. Fluency / flowing / smooth / looks effortless                  C. Adaptable                  D. <u>Aesthetically pleasing</u>                  E. Goal orientated behaviour / predetermined results                  F. Learned</p>	<p>Accept first three answers only</p> <p>Do not accept alternatives for accurate – correct, successful</p> <p>Do not accept alternatives for consistent – repeated success</p> <p>Do not accept alternatives for efficient - minimal energy / economic</p>
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**Maximum 3 marks**

**3 (b)** There are three types of skill; cognitive, perceptual and psychomotor.

Using sporting examples, explain the terms cognitive skill and perceptual skill.

**[4 marks]**

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

<p><b>Cognitive Skill</b>                  A. Involves thinking / mental / decision making                  B. Eg planning tactics / planning routines</p> <p><b>Perceptual Skill</b>                  C. Involves detecting / recognising / interpreting / identifying cues / judging                  D. Eg identifying a team mate who is free</p>	<p>Accept any suitable example.</p> <p>C. Do not accept taking in information – too vague</p>
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**Maximum 4 marks**

**3 (c)** When learning new skills, performers may move from the cognitive stage to the autonomous stage of learning.

Identify **and** justify the different types of feedback used in the autonomous stage of learning.

**[5 marks]**

**Marks for this question: AO3 = 5**

<p><b>Autonomous stage</b></p> <ul style="list-style-type: none"> <li>A. Intrinsic / kinaesthetic / internal – can correct own mistakes/developed kinaesthetic awareness.</li> <li>B. Extrinsic / coach / augmented / external – specific / detailed to refine movements.</li> <li>C. Knowledge of performance – need to know why the performance was correct/incorrect.</li> <li>D. Critical / negative – to aid error correction/accept criticism.</li> <li>E. Positive – To encourage them to persevere / motivate.</li> <li>F. Concurrent / continuous – can cope with feedback during performance due to faster information processing.</li> <li>G. Delayed / terminal – can retain information for longer.</li> </ul>	<p>Do not accept definitions only – has to be applied to the autonomous stage.</p> <p>Do not accept negative reinforcement.</p>
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**Maximum 5 marks**



4 (a) (i) Identify the correct relationship between reaction time, response time and movement time.

[1 mark]

Marks for this question: AO1 = 1

B

Maximum 1 mark

4 (a) (ii) Define simple reaction time and choice reaction time.

[2 marks]

Marks for this question: AO1 = 2

A. Simple reaction time – One / a stimulus <u>and</u> one / a response.	Must refer to stimulus and response
B. Choice reaction time – Several stimuli <u>and</u> / <u>or</u> several responses.	Do not accept a generic definition of reaction time.

Maximum 2 marks

4 (b) (i) Identify the benefits of goal setting.

[3 marks]

Marks for this question: AO1 = 3

<p>A. Improved confidence / self-efficacy                  B. Increased motivation / drive                  C. Prevents learning plateau                  D. Task persistence / push themselves                  E. Reduced anxiety / stress / more relaxed                  F. Focuses attention / concentration / improved selective attention</p>	<p>B. Gives something to aim for is too vague</p>
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Maximum 3 marks

4 (b) (ii) Research shows that goal setting can have a positive effect on performance.

Explain why a coach would use performance goals and outcome goals for a performer.

[2 marks]

Marks for this question: AO1 = 2

<p><b>Performance goal</b>                  A. To improve personal standards / personal best                  B. To avoid comparisons with others</p> <p><b>Outcome goal</b>                  C. To achieve a better result (e.g. to win a game, finish in a certain position)</p>	<p>Sub max 1 mark                  A. Do not accept improve performance. Do not accept anything in relation to process goals e.g. technique                    C. Do not accept improve outcome</p>
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Maximum 2 marks

4 (c) During a game of badminton, a player will use spatial anticipation and temporal anticipation.

Using examples from the game of badminton, explain how a player would use spatial anticipation and temporal anticipation.

[4 marks]

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

<p><b>Spatial anticipation</b>                  A. predicting <u>what</u> shot the opponent will play / predicting <u>where</u> the shot will be played                  B. What – play a particular shot in return                  C. Where – player will move to the right place on court.</p> <p><b>Temporal anticipation</b>                  D. predicting <u>when</u> the shuttle will come over the net.                  E. Player will move at the right time to reach the shuttle.</p>	<p>Sub max – 2 marks                  A. Accept suitable examples                    B and D are how the players uses spatial and temporal anticipation                    D. Accept suitable examples</p>
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Maximum 4 marks

**Opportunities for Participation**

**5 (a)** Schools offer games such as basketball as part of their physical education programme.

Identify **four** factors that influence the activities on offer within schools.

**[4 marks]**

**Marks for this question: AO1 = 4**

<ul style="list-style-type: none"> <li>A. Timetable restrictions / time available</li> <li>B. Funding</li> <li>C. Resources / equipment / facilities</li> <li>D. Staff available / expertise / health and safety</li> <li>E. School-club links</li> <li>F. (Type of school) eg gender / faith / religion</li> <li>G. Tradition / local area / location</li> <li>H. National Curriculum</li> </ul>	<p>Accept first four answers only</p>
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**Maximum 4 marks**

**5 (b)** Describe the characteristics of Key Stage 4 of the National Curriculum for Physical Education.

**[4 marks]**

**Marks for this question: AO1 = 4**

<ul style="list-style-type: none"> <li>A. Develops independent thinking/problem solving</li> <li>B. Observation and analysis / evaluation of performance / critical performer</li> <li>C. Take on other roles eg coach, official</li> <li>D. Prepares for physical activity levels after school / school club links / lifelong learning</li> <li>E. Range of activities</li> <li>F. Outdoor and adventurous activities is compulsory</li> <li>G. Develop tactics and strategies</li> <li>H. Developing and improving <u>advanced</u> skills / techniques and performance</li> <li>I. Competitive context</li> <li>J. Promoting active lifestyle / understand benefits</li> </ul>	<p>Answers refer to all versions of the National Curriculum</p> <p>F. Answers can refer to the six activity areas</p>
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**Maximum 4 marks**

**5 (c)** Outline the positive effects of developing school-club links.

**[4 marks]**

**Marks for this question: AO1 = 4**

<ul style="list-style-type: none"> <li>A. Reduce post-school gap / exit routes / Increase participation at club level</li> <li>B. Increase level of performance</li> <li>C. Maximising facilities / Increase school funds through lettings</li> <li>D. More money to clubs</li> <li>E. Higher potential numbers to elite / Talent ID</li> <li>F. Higher standard of coaching</li> <li>G. Community integration</li> <li>H. Alternative pathways for participation, eg coaching and officiating</li> <li>I. Increase range of activities / extra-curricular provision</li> </ul>	<ul style="list-style-type: none"> <li>A. Refers to number</li> <li>B. This could relate to an individual, school team or at club level</li> <li>E. Can be in schools</li> </ul>
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**Maximum 4 marks**

6 (a) Which **one** of the following definitions best describes the term discrimination? [1 mark]

Marks for this question: AO1 = 1

C

Maximum 1 mark

6 (b) Lack of specialist coaches, equipment and role models can result in low participation rates in sport for people with a disability.

Identify **three** other barriers to participation for people with a disability.

[3 marks]

Marks for this question: AO1 = 3

<p>A. Stereotypes (eg not capable) / discrimination / fear of being judged                  B. Low self-esteem / lack of confidence                  C. Safety concerns                  D. Lack of competition / clubs                  E. Lack of <u>adapted</u> facilities / access to facilities                  F. Less media coverage of disability sport</p>	<p>Accept first three answers only.                       E. Ensure it relates to facilities, not equipment.</p>
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Maximum 3 marks

6 (c) Each National Governing Body will produce a Whole Sport Plan.

Identify the characteristics of a Whole Sport Plan.

[3 marks]

Marks for this question: AO1 = 3

<p>A. Four year plan                  B. To support grass roots <u>to</u> elite                  C. Receive resources/funding (from National Lottery / Sport England) / funding dependent on success                  D. How to deliver the Start, Stay, Succeed / Grow, Sustain, Excel / Aim of Sport England                  E. Increase number volunteers / qualified / specialised coaches                  F. Share 'best practice'                  G. More medals/KPIs/talent ID / titles</p>	<p>G. refers to measureable performance improvements at elite level</p>
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Maximum 3 marks

**6 (d)** Physical activities can be experienced as both sport and as active leisure.

Describe the similarities **and** the differences between the concepts of sport and active leisure.

**[5 marks]**

**Marks for this question: AO1 = 5**

<p><b>Similarities</b></p> <ul style="list-style-type: none"><li>A. Done in free time</li><li>B. Done for enjoyment / fun</li><li>C. Both develop skills</li><li>D. Develop health and fitness / involve physical exertion</li></ul> <p><b>Differences</b></p> <ul style="list-style-type: none"><li>E. (Structure) – Sport is highly structured / rules <u>and</u> active leisure some level of organisation/modified rules</li><li>F. (Officials) – Sport requires officials <u>and</u> active leisure self-regulated/no officials</li><li>G. (Motive) – Sport is mainly extrinsic e.g. to win a trophy <u>and</u> active leisure is mainly intrinsic, fun</li><li>H. (Outcome) – Sport is competitive, serious outcome, aim is to win <u>and</u> active leisure outcome not important</li><li>I. (Skill level) – Sport specialised skill level required <u>and</u> active leisure any level can play.</li><li>J. (Timing) – Sport involves set fixtures / times <u>and</u> active leisure is any time</li><li>K. (Commitment) – Sport is committed <u>and</u> active leisure is voluntary</li></ul>	<p>Sub max 3 marks.</p> <p>Sub max 3 marks. For differences, both sides must be given for the mark.</p> <p>Term in bracket not needed.</p>
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**Maximum 5 marks**

**Section B**

**7** You have been asked to deliver a block of coaching sessions. Before the coaching begins you will conduct a series of fitness tests.

Discuss the effectiveness of fitness testing **and** explain the factors you would consider before deciding whether to use massed practice when delivering your coaching sessions.

**[12 marks]**

**Marks for this question: AO1 = 6 and AO3 = 6**

Read the whole response and identify the points made from the indicative content in the mark scheme. The number of correct points made in the response determines the band that it falls into. Once the band has been identified, use the band descriptors to determine whether to place the response in the top, middle or lower end of the band, based on the overall quality. This is dependent on the explanation of the points made and the linking of those points to form a coherent response. Marks can be awarded at the higher end of the band level if specific points are discussed in greater depth. A judgement has to be made on depth versus breadth.

If a response is limited to one part of the question only, that response can only access the lowest mark in the relevant band awarded for the number of points.

<b>Band range</b>	<b>Band descriptors</b>	<b>Number of points</b>
<b>Level 4</b> 9 – 10 marks	<b>Very good response</b> Demonstrates a wide range of knowledge in substantial depth  Excellent linking of knowledge and development of points, with application to applied situations  Correct use of technical language  Addresses all areas of the question for top of band  If response is limited to one part of the question, maximum 9 marks	Minimum of 13 points to get into the mark band
<b>Level 3</b> 6 – 8 marks	<b>Good response</b> Demonstrates a range of knowledge in reasonable depth  Good linking of knowledge and development of points, with some application to applied situations  Generally correct use of technical language with minor inaccuracies  Addresses most areas of the question  If response is limited to one part of the question, maximum 7 marks	Minimum of 9 points to get into the mark band
<b>Level 2</b> 3 – 5 marks	<b>Basic response</b> Demonstrates some knowledge in some depth	Minimum of 5 points to get into

	<p>Some linking of knowledge and development of points, with limited application to applied situations</p> <p>Some use of technical language</p> <p>Addresses some areas of the question</p> <p>If response is limited to one part of the question, maximum 4marks</p>	the mark band
<p><b>Level 1</b> 1 – 2 marks</p>	<p><b>Limited response</b> Demonstrates a limited range of knowledge in limited depth</p> <p>Limited linking of knowledge and development of points, which are vague or irrelevant, with little/no application to applied situations</p> <p>Limited use of technical language</p> <p>Addresses the question with limited success</p> <p>If response is limited to one part of the question, maximum 1 mark</p>	Minimum of 1 point to get into the mark band
<p><b>Level 0</b> 0 marks</p>	Addresses no aspect of the question	0 points

### Quality of Written Communication (QWC)

Once you have awarded a mark for the theoretical content, up to two further marks can be awarded for the QWC. This mark is determined by the accuracy of the spelling, punctuation and grammar of the overall response, and can move the response into the above band. Use the QWC descriptors (below) to help guide your judgement.

Where responses have no creditworthy material from the indicative content, then that response cannot be awarded any QWC marks.

Mark Awarded	Mark Descriptor
2 marks	Few errors in spelling, punctuation and grammar
1 mark	Some errors in spelling, punctuation and grammar
0 mark	Major errors in spelling, punctuation and grammar





**Assessment Objective Grid**

	<b>AO1</b>	<b>AO3</b>	<b>Total</b>
<b>Section A</b>			
<b>Applied Exercise Physiology</b>			
1 (a)	2		2
1 (b) (i)	3		3
1 (b) (ii)		4	4
1 (c)		3	3
2 (a)	6		6
2 (b)		3	3
2 (c)		3	3
<b>Skill Acquisition</b>			
3 (a)	3		3
3 (b)	2	2	4
3 (c)		5	5
4 (a) (i)	1		1
4 (a) (ii)	2		2
4 (b) (i)	3		2
4 (b) (ii)	2		3
4 (c)	2	2	4
<b>Opportunities for Participation</b>			
5 (a)	4		4
5 (b)	4		4
5 (c)	4		4
6 (a)	1		1
6 (b)	3		3
6 (c)	3		3
6 (d)	5		5
<b>Section B</b>			
<b>Applied Exercise Physiology and Skill Acquisition in Practical Situations</b>			
7	6	6	12
<b>Total</b>	<b>56</b>	<b>28</b>	<b>84</b>