



GCSE MARKING SCHEME

SUMMER 2018

**PHYSICAL EDUCATION - UNIT 1
FULL COURSE
C550U10-1**

INTRODUCTION

This marking scheme was used by WJEC for the 2018 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

GCSE PHYSICAL EDUCATION
SUMMER 2018 MARK SCHEME

Question	Mark scheme	AO1	AO2	AO3	Total
1 (a) (i)	Name the type of synovial joint shown at A (shoulder). Award 1 mark for ball and socket/ball in socket	1			1
(ii)	Identify the muscle(s) shown at B. Award 1 mark for pectorals	1			1
(iii)	Identify the type of muscular contraction shown in figure 1. Tick one box only. Award 1 mark for isometric	1			1
(iv)	Justify your answer in (a) (iii) Award 1+1 Muscle remains the same length (under tension) (1) the gymnast supports weight keeping arms straight (1) Remains motionless		2		2
(b) (i)	Identify the plane that the gymnast is working in. Identification of plane Frontal plane (1)	1			1
(ii)	Identify the movements that can take place at the legs in Figure 2. Movements Abduction (1) Adduction (1) Any other relevant answer	2			2
(iii)	State three functions of the skeletal system Award 1 mark for 3 of <ul style="list-style-type: none"> • Protection • Support/stability • Production of blood cells • Shape/structure • Movement • Attachment • Storage of minerals 	3			3

Question	Mark scheme	AO1	AO2	AO3	Total
(c) (i)	<p>Define the term flexibility, and <u>explain why</u> it is important to a gymnast</p> <p><i>Award 1 mark for definition</i> Range of movement around a joint (1)</p> <p><i>Further 2 marks for giving a valid reason about how flexibility aids a gymnast (sub-max 2)</i> Smoother technique (1) More complex moves (1) Stretch the movement more (1) Avoid injury (1) Hyperflexion (1) Aesthetic (1) Greater range of movement(1) – anything that implies the range of movement has increased.</p>	1	2		3
(ii)	<p>Passive and dynamic stretching are two ways of improving flexibility. Explain each method in the box below.</p> <p><i>Award 2 marks for the explanation of each type</i></p> <p>Passive –An external force is applied by a partner (1) plus exemplification (1) Dynamic – Actively <u>moving</u> the joint by force (1) plus exemplification (1)</p>		4		4
(d)	<p>Different methods of guidance are needed to teach gymnastics skills successfully. Analyse the different types of guidance and how they could be effective in improving performance in a sport of your choice.</p> <p>Candidates can use a sport of their choice. Indicative content Description of the types of guidance and how it improves performance</p> <p>Visual guidance Description: demonstrations, pictures, charts, video, DVD, court or pitch markings etc. Explanation: Effective because it: builds a mental picture or gives visual representation / increases understanding of movement requirements /can help understand complex skills/ useful for evaluation/ effective for early stages of learning</p>	2		6	8

Question	Mark scheme	AO1	AO2	AO3	Total
	<p>Verbal guidance Description: instructions, talking through it, telling or advising you what to do, listening to Explanation: Effective because it: builds on knowledge gained by visual guidance / gives information to improve performance / give strategies to help understanding / helps understanding of tactics/ rest performer for tactics/ Feedback/ can be repeated and changed to suit individuals.</p> <p>Manual guidance Description: physical support or help, moving joints or limbs through movement, manipulation of body by coach Explanation: Effective because it: gives confidence / encourages correct kinesthesia / feel for/ increases safety in potentially risky activities (e.g. trampolining)/ reduces fear so will attempt skill/ guides them through/ useful when learning a skill/ helps beginners</p> <p>Mechanical guidance Description: use of equipment or apparatus or aids, e.g. using twisting belts or arm bands or scrum machine or tackle pads or stabilisers on a bicycle or other suitable example Explanation: Effective because it: gives confidence / encourages correct kinesthesia / feel for skill / increases safety in potentially risky activities (e.g. trampolining)/ reduces fear so will attempt skill/ guides them through/ useful when learning a skill/ helping those with special needs Banding below</p>				
Q1	AO totals for Q1	12	8	6	26

Band	AO1 2 marks	AO3 6 marks
3	No marks in Band 3 for AO1	5-6 marks Excellent, well reasoned analysis of the effectiveness of the types of guidance. Explicit links between the types of guidance and its effectiveness. Three types of guidance analysed The answer is detailed on the improvement of performance
2	2 marks Good know ledge showing an accurate description of any two of the types guidance	3-4 marks Good analysis analysis of the effectiveness of the types of guidance. Clear links between the types of guidance and its effectiveness. The answer has some detail on the improvement of performance A minimum of 2 types of guidance analysed
1	1 mark Limited know ledge may just name any 2 of the types of guidance	1-2 marks Limited analysis analysis of the effectiveness of the types of guidance. Few links between the types of and guidance and its effectiveness. At least one type of guidance analysed
0	0-marks No accurate description of the types of guidance	0 marks Not attempted No analysis

Question	Mark scheme	AO1	AO2	AO3	Total
2 (a) (i)	<p>What has happened to participation rates during this period of time?</p> <p>Award 1 mark for Increased</p>	1			1
(ii)	<p>Discuss, using the data above, factors that may have affected participation rates.</p> <p>Max of 2 marks to be awarded for knowledge</p> <p>Indicative content Focus on the increased opportunity, provision and esteem of</p> <ul style="list-style-type: none"> *Equipment/ facilities improvement – disability access * Improved coaching and admin staff / coach education *Government / NGB focus on improved participation e.g. Girls can – improves females’ participation etc. *Transport improvement * Family/ friend support * Cheaper activities becoming more popular e.g. free swim, jogging etc. * Society more aware of health benefits * Role models – Olympics, Paralympics etc. * Funding of sport * Media attention * Religious or cultural beliefs being highlighted in the media to encourage participation * Positive school experience / focus on physical literacy <p>Focus on a particular target groups may occur (gender, race, disability) and strategies for increased involvement. Personal experiences may also be drawn upon</p>	2		4	6

Band	AO1 2 marks	AO3 4 marks
3	No marks in Band 3 for AO1	4 marks Excellent evaluation of the data and valid conclusions are drawn about increased participation rates and factors that would increase it. Negatives factors to affect participation drawn upon. The answer is balanced and detailed, with the use of examples. Response is well structured using accurate grammar, punctuation and spelling.
2	2 marks Good knowledge with a description of 2 factors that may have affected participation rates.	2-3 marks Good evaluation of the data and valid conclusions are drawn upon about increased participation rates and factors that would increase it. The answer is balanced, with some use of examples. Response is adequately expressed using reasonably accurate grammar, punctuation and spelling.
1	1 mark Limited knowledge with a description of 1 factor that may have affected participation rates.	1 mark Limited evaluation with a tendency to describe the factors. The response shows some structure but with errors in grammar, punctuation and spelling.
0	0 marks No accurate description of the types of guidance	0 marks Not attempted No analysis

Question	Mark Scheme	AO1	AO2	AO3	Total
(b)	Identify the normal resting blood pressure for a healthy individual. Award 1 mark for 120/80mmHg	1			1
(c) (i)	Diagram of the cardio-vascular system. 1 mark for each. From top to bottom in order Pulmonary circulatory system (1) Atrium (1) Ventricle (1) Systemic circulatory system (1) Accept just the letters	4			4
(ii)	Explain two functions of the cardio-vascular system during exercise. Award 2x2 marks for Transportation of nutrients – to give energy to working muscles (1) Deliver oxygen to the working muscles to stop fatigue (1) Remove waste products such as carbon dioxide and lactic acid to allow exercise to continue (1) Thermoregulation to maintain body temperature and not overheat (1) Vasodilation of blood vessels to allow more blood to muscles (1) Vasoconstriction of blood vessels (1)		4		4
(d) (i)	Explain what is meant by the energy balance equation. Award 3 marks for The intake of calories equals the amount of calories /energy consumed by an individual (1) Maintaining a healthy weight requires a balance between energy in and energy out. (1) Too much energy in or too little energy out leads to excess energy being stored as fat. (1) Too little energy in or too much energy out leads to weight loss. (1) The relationship between energy consumed and energy used (1) Energy in equals energy out (1) Accept the use of mathematical symbols i.e. greater than, less than and equals to signs.		3		3
(ii)	Identify the main nutrient that is responsible for growth and repair. Award 1 mark for protein	1			1
Q2	AO totals	9	7	4	20

Question	Mark Scheme	AO1	AO2	AO3	Total
3 (a) (i)	<p>Describe the principles of specificity and variance.</p> <p>Award 1 mark for description of each</p> <p>Specificity -training must be relevant to the individual and their sport</p> <p>Variance- training must be varied to avoid tedium/boredom /to help with progression.</p>	2			2
(ii)	<p>Explain how specificity and variance can be used for a training programme for a sport of your choice.</p> <p>Award 1 mark for an explanation of how each can be used in training programme</p> <p>Specificity - E.g. a sprinter will focus training on speed and power whilst a marathon runner will focus on cardio vascular endurance</p> <p>Variance - E.g. a sprinter would not do the same session they may do hills/ weights etc.</p> <p>Accept any appropriate explanation</p>		2		2
(b) (i)	<p>Identify three ways in which <u>you</u> have been motivated by a coach or teacher to help you improve your performance.</p> <p>Award 1 mark for each description</p> <p>Performers motivated by (intrinsic and extrinsic motivation may be used)</p> <ul style="list-style-type: none"> • fitness levels improving • realistic goal setting • gaining a reward (financial or any other) • *working with others (social) • progression to the next level, success • *role models • praise • variance of training • *specific training <p>Award 3 x 1</p>	3			3

Question	Mark Scheme	AO1	AO2	AO3	Total										
(ii)	<p>Explain how imagery could be effective for a performer.</p> <p>Award 1 mark for Imagery/visualisation/mental rehearsal effective as creates a mental picture of the skill in their mind (1) link to improvement - link images to words e.g. 'chin, knee, toe' to give learner correct body position (1) builds confidence focus on task decrease anxiety improves motivation improves performance controlling emotions</p>		2		2										
(c) (i)	<p>Award 1 mark for each description</p> <table><tr><td>Information processing model</td><td>Description</td></tr><tr><td>Input</td><td><i>All information received by the senses (1)</i></td></tr><tr><td><i>Decision making</i></td><td><i>The brain processes the information received and makes a decision (1)</i></td></tr><tr><td><i>Output</i></td><td>Action taken as a result of the brain's decision (1)</td></tr><tr><td>Feedback</td><td>Response to the output (1)</td></tr></table>	Information processing model	Description	Input	<i>All information received by the senses (1)</i>	<i>Decision making</i>	<i>The brain processes the information received and makes a decision (1)</i>	<i>Output</i>	Action taken as a result of the brain's decision (1)	Feedback	Response to the output (1)	4			4
Information processing model	Description														
Input	<i>All information received by the senses (1)</i>														
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<i>Output</i>	Action taken as a result of the brain's decision (1)														
Feedback	Response to the output (1)														
(ii)	<p><i>Using examples, explain the difference between knowledge of results and knowledge of performance.</i></p> <p>Must state the difference for 2 marks</p> <p>Knowledge of results focuses on the end of the performance – for example, the performer's score, time or position. It is sometimes called terminal feedback. (1) Knowledge of performance focuses on how well the athlete performed, not just the end result. For example, a golfer may have putted very well even if their drives were less effective. (1)</p>		2		2										

Question	Mark Scheme	AO1	AO2	AO3	Total
(d)	<p>Analyse how participating in physical activity can improve the long term health of an individual.</p> <p>Indicative content</p> <p><u>Physical health</u></p> <p>Improvement to, Bone density Increased elasticity of the muscles Hypertrophy of muscles Improved energy system Increased stroke volume Decreased RHR Decrease in bp Increased vital capacity Reduces obesity</p> <p><u>Mental</u></p> <p>Enhanced confidence Stress relief Feel good factor Self worth</p> <p><u>Social</u></p> <p>Teamwork Friendship Life skills Communication</p> <p><i>Banding below</i></p>	3		5	8
Q3	AO Totals	12	6	5	23

Band	AO1 3 marks	AO3 5 marks
3	3marks Excellent knowledge of the 3 areas (p,m,s)	5 marks Excellent, well reasoned analysis of the improvement of the long term health of an individual. Explicit links between the physical, mental and social health benefits of exercise to the performer. The answer is well balanced and an attempt to cover the 3 areas (p,m,s).
2	2 marks Good knowledge of two of the 3 areas (p,m,s)	3-4 marks Good analysis of the improvement of the long term health of an individual. Clear links between the physical, mental and social health benefits of exercise to the performer. The answer covers at least 2 out of the 3 areas (p,m,s).
1	1 mark Limited knowledge of one of the 3 areas (p,m,s)	1-2 marks Limited analysis of the improvement of the long term health of an individual. Few links between the physical, mental and social health benefits of exercise to the performer At least one area analysed.
0	0 marks No attempt of description	0 marks Not attempted No analysis

An excellent knowledge of one area could get AO1-2, AO3-3

Question	Mark scheme	AO1	AO2	AO3	Total
4 (a) (i)	<p>Justify why swimming is classified as a complex skill.</p> <p>Award marks for Complex skill because stroke has</p> <ul style="list-style-type: none"> • many parts / subroutines (1) • many decisions need to be made (1) • they are complicated (1) • more information to process requires quick thought process (1) • High levels of coordination (1) 		2		2
(ii)	<p>Identify and explain a type of practice to develop a complex skill in an activity of your choice.</p> <p><i>Response needs to relate to the activity chosen</i> Award 1 mark for identifying a type of practice e.g. part practice</p> <ul style="list-style-type: none"> • You can work on the sub routines in isolation • When you have mastered them they get put back together as a whole • Practice leg action /arm action etc, then put them back together. <p>Accept any appropriate type of practice and explanation Candidate must identify type of practice by name Not fixed or varied</p>	1	2		3
(iii)	<p>Identify two short term effects of strenuous exercise on the body</p> <p>Award marks for Increased heart rate Increased body temperature Increase in cardiac output Increase in sv Increase in breathing rate and depth Increase of muscle fatigue Increase in blood pressure Increased tidal volume Increased production of lactic acid and any other waste products Feeling tired Vassal constriction Reddening of the face</p> <p>No marks awarded for 'injury'</p> <p>All answers must relate to short term effects only.</p> <p>2 x 1</p>	2			2

Question	Mark scheme	AO1	AO2	AO3	Total
(b)	<p>Discuss how modern technology can have an effect on performance in sport</p> <p>Modern technology can impact performance by,</p> <p>Performance</p> <ul style="list-style-type: none"> • improving performance e.g streamlined cycle helmets etc • enhancing training e.g. supplements, wearable devices monitor HR, fit bits • facilities e.g. 3 G surface all weather training • improved recovery e.g. compression wear, hyperbaric o2 therapy • increased participation e.g. inclusion for disabled athletes with carbon fibre blades, cambered wheels on chairs • Safety increased e.g. landing mats in gym, analysis of techniques to avoid injury • comfort increased e.g. cricket helmets are lighter • performance analysis used by athletes <p>Negatives</p> <p>Performance</p> <ul style="list-style-type: none"> • De -humanisation leading to violence e.g. padding in american football / ice hockey etc • Cheating e.g. drug use • Expensive/dependence on a sponsor e.g. not all can afford F1 car • Loss of tradition <p>if they relate to coaching and officials it <u>must</u> be related to increasing performance.</p>	3		5	8

Band	AO1 3 marks	AO3 5 marks
3	<p>3 marks</p> <p>Excellent knowledge of how modern technology can have an effect on performance in sport</p> <p>Examples to be used</p>	<p>5 marks</p> <p>Excellent, well reasoned discussion of the positive and negatives of technology for performance.</p> <p>The answer is detailed on the improvement of performance.</p> <p>Writing is well structured using accurate grammar, punctuation and spelling.</p>
2	<p>2 marks</p> <p>Good knowledge of how modern technology can have an effect on performance in sport</p>	<p>3-4 marks</p> <p>Good discussion of the positive and negatives of technology.</p> <p>The answer is detailed on the improvement of performance.</p> <p>Writing is generally well structured using reasonably accurate grammar, punctuation and spelling.</p> <p>Discussion of either positives or negatives.</p>
1	<p>1 mark</p> <p>Limited knowledge of the role of technology</p>	<p>1-2 marks</p> <p>Limited discussion of technology to include some reference to either positives or negatives.</p> <p>The answer is limited on the improvement of performance.</p> <p>The response shows some structure with errors grammar, punctuation and spelling.</p>
0	<p>0 Marks</p> <p>No accurate knowledge of the types of guidance</p>	<p>0 marks</p> <p>Not attempted</p> <p>No analysis</p>

Questions	Mark Scheme	AO1	AO2	AO3	Total
(c)	<p>Describe, using examples, one characteristic of fast twitch and slow twitch muscle fibres.</p> <p>Award 1 mark for each muscle fibre type and one for an appropriate example</p> <p>Characteristics</p> <p>Fast- White (1) fatigue quickly (1) Contract quickly(1) e.g. shot putt, 100m</p> <p>Slow- last a long time(1) Contract slowly(1) Red e.g.marathon</p> <p>Accept any appropriate examples</p>	2	2		4
(d)	<p>Explain the effects of over and under hydration on a sports performer.</p> <p>Award max 3 marks for each aspect</p> <p>Underhydrating Under hydrating results in dehydration <ul style="list-style-type: none"> • Performance will deteriorate quicker. • Mental performance will decrease • Can cause injury • Problems regulating body temperature • muscles become weak • Dizziness • Fainting • cause nausea and vomiting • Headaches • Blood viscosity increases </p> <p>Over hydrating <ul style="list-style-type: none"> • Rare occurrences • Hyponataemia is the name of over hydration • can cause confusion/disorientation/reduces concentration • muscles become weak • cause nausea • vomiting • headaches • Salt in blood drops too low • Electrolytes </p>		4		4
Q4	AO totals for Question 4	8	10	5	23

Question	Mark scheme	AO1	AO2	AO3	Total
5 (a) (i)	<p>Define cardio-vascular endurance</p> <p><i>Award 1 mark for definition of CVE</i></p> <p>Sustained exercise / ability of the heart and lungs (circulatory system) to deliver O₂ to the working muscles without fatigue/ Ability of body to sustain exercise without fatigue</p>	1			1
(ii)	<p>Justify why cardio-vascular endurance it is needed by a games player.</p> <p><i>Award 2 marks for justification in a team game</i></p> <p>Sustain work rate for longer (1) Fatigue in race starts later (1) Maintain skill levels later in the game (1)</p>		2		2
(b) (i)	<p>Explain one method of training that could be used to develop cardio-vascular endurance.</p> <p><i>Award 1 mark for naming a relevant method of training e.g. Fartlek, Continuous, Long distance interval, HIIT</i></p> <p><i>Award 2 marks for an accurate explanation of the training method</i></p> <p>Must mention intensity and duration for maximum marks</p>		3		3
(ii)	<p>Name and describe a fitness test used for each of the components of fitness listed in the table below.</p> <p><i>Award 1 mark for naming a relevant, recognised test, 2 marks for the description</i></p> <p>Speed 30-50m Sprint (accept any distance between this)</p> <ul style="list-style-type: none"> • On command athlete sprints as fast as they can between the 2 points • Sprint 3 x and take fastest result. • Ensure a stopwatch/timing gates are used 	6			6

Question	Mark scheme	AO1	AO2	AO3	Total
	<p>Agility</p> <p>Illinois agility run -</p> <ul style="list-style-type: none"> • Mark out the course with the exact measurements required. • Participant starts in a face-down, lying position at the start line. • Ensure accuracy of timing with two timers at the finish line. • May draw a picture <p>1 mark for each relevant point</p> <p>T test</p> <ul style="list-style-type: none"> • Mark out course with exact measurements required. • Start at base of T and completes the course as fast as possible facing forwards • Record the time when the athlete returns to the base of T. <p>1 mark for each relevant point Credit appropriate responses.</p>				
(iii)	<p>Explain why fitness tests need to have validity and reliability.</p> <p>Award 2 marks for each aspect</p> <p>Validity – does it measure what it is supposed to measure? (1) e.g. the sit and reach measures flexibility not power (1)</p> <p>Reliability – can it be repeated and produce similar results? (1) e.g. same person could do the test and no change of result would happen unless there was an increase in fitness levels (1)</p>		4		4

Question	Mark scheme	AO1	AO2	AO3	Total
(c)	<p>Assess how knowledge of different training zones could help improve performance of a marathon runner.</p> <p>Indicative content</p> <p>Response must relate to valuing the importance of knowing the training zones</p> <p>Marathon is an aerobic activity</p> <p>60- 80% MHR</p> <p>Low to mod intensity</p> <p>Needed for duration of race.</p> <p>Anaerobic when sprint finish /hill</p> <p>80+ MHR</p> <p>Accept why they don't train in anaerobic zone</p> <p>Through training they increase anaerobic threshold</p> <p>Stay in the aerobic zone longer</p>	2		6	8

Band	AO1 2 marks	AO3 6 marks
3	No Marks awarded for band 3	5-6 marks Excellent, detailed assessment of different training zones and how this knowledge could help improve performance of a marathon runner. The reponse is well balanced and detailed. The reponse is clearly expressed and shows accurate use of technical terminology. Writing is very well structured using accurate grammar, punctuation and spelling
2	2 mark Good knowledge of different training zones	3-4 marks Good assessment of different training zones and how this knowledge could help improve performance The response is balanced. The reponse is adequately expressed and shows appropriate use of technical terminology. Writing is generally well structured using reasonably accurate grammar, punctuation and spelling.
1	1 mark Limited knowledge of different training zones	1-2 marks Limited assessment of different training zones with few links to improving performance. The reponse shows basic use of technical terminology. Writing shows some evidence of structure but with errors in grammar, punctuation and spelling.
0	0 marks No knowledge of different training zones	0 marks Not attempted No evaluation

Question	Mark scheme	AO1	AO2	AO3	Total
(d)	<p>Discuss why the warm up and cool down are an important part of a training session.</p> <p>Indicative content Example of how a team sports person would warm up and cool down and reasons why it is important</p> <p>Importance of warm up Raising body temp Increasing elasticity of muscles Increase range of movement at joints Reduce the risk of injury (do not accept prevents injury) Getting mentally prepared for the activity ahead Focus Motivation Vasodilation/Increase blood flow to muscles</p> <p>Importance of cool down Removal of waste products (can give e.g.s) Speed up recovery Reduction of DOMS Counter dehydration Maintains the bloodflow Repay oxygen debt</p>			4	4
Q5	AO Totals	9	9	10	28

	Q1	Q2	Q3	Q4	Q5	TOTAL	OVERALL WEIGHTING
AO1	12	9	12	8	9	50	25%
AO2	8	7	6	10	9	40	20%
AO3	6	4	5	5	10	30	15%
TOTAL	26	20	23	23	28	120	