# 2018 Physical Education Subject Assessment Advice

## Overview

Subject assessment advice, based on the previous year’s assessment cycle, gives an overview of how students performed in their school and external assessments in relation to the learning requirements, assessment design criteria, and performance standards set out in the relevant subject outline. They provide information and advice regarding the assessment types, the application of the performance standards in school and external assessments, and the quality of student performance.

Teachers should refer to the subject outline for specifications on content and learning requirements, and to the subject operational information for operational matters and key dates.

# School Assessment

## Assessment Type 1: Practical

Students undertake three practicals of equal importance.

For this assessment type, students provide evidence of their learning primarily in relation to the following assessment design criteria:

* practical skills application
* initiative and collaboration.

The more successful responses:

* demonstrated a high level of proficiency in the technical and tactical performance of physical activities
* were able to consistently apply concepts, strategies and tactical awareness in practical situations
* displayed efficient and accurate movement co-ordination, demonstrating a wide range of adaptable movement responses which accurately met the game demands
* demonstrated constructive collaboration in team situations. This was particularly evident ‘on field’ through the consistent initiation of tactics, instructional and positional feedback to team mates, exploitation of weaknesses of opposition players, and general positive contribution to team morale and cohesion.

The less successful responses:

* lacked consistency and accuracy in their application of tactics, specific concepts and/or strategies (Practical Skills and Application 2)
* were often passive participants within their teams, lacking initiative and the confidence to instigate tactics
* lacked biomechanical efficiency in their performance of specific skills.

### General information

* Teachers were generally well prepared with appropriate methods of identification of the students for the moderator.
* In most schools, students were easily identified with a numbered and/or coloured bib. To further support the identification of students some schools also provided the visiting moderator with a class list with the identifiers marked on it upon arrival making the identification process much easier and less time consuming for the moderator.
* The school assessment results sheet (mauve) and specific skills criteria sheets for each student for all three practicals (including class negotiated practicals), must be fully completed prior to moderation commencing, including Principal (or delegates) signature on mauve form.
* Teachers are reminded that it is expected that students undertaking this course will complete three practicals throughout the year. Special provisions cannot be granted to students who begin the year with a significant injury that restricts their involvement in the practical assessments. In these circumstances, students should be counselled to consider alternative subjects.
* Schools with multiple classes and/or schools who have combined into one assessment group are strongly encouraged to ensure inter-school moderation/assessment has occurred prior to the external moderation visit.
* In any combined assessment group where more than three practicals are being offered across the group, the SACE Board will moderate only two of the practicals (usually the practicals with the largest numbers of students). Any additional practical performances required for the moderation process must be recorded by video and submitted on the day of moderation for review by the moderator on site.
* The moderator will need to have access to a private space to complete appropriate paper work prior to viewing the students. If additional practical performances required for the moderation process are being submitted by video on the day, the moderator must be given access to a private space and technology to allow for the video evidence to be viewed.

Assessment Type 2: Folio

Students undertake three to six folio assessments. Two or three assessments should be integrated tasks, and one assessment should be an issues analysis.

For this assessment type, students provide evidence of their learning primarily in relation to the following assessment design criteria:

* knowledge and understanding
* practical skills application
* critical analysis and evaluation.

The more successful responses:

* demonstrated depth in their knowledge and understanding, especially in regards to exercise physiology, skill acquisition and biomechanics. Task design allowed responses to relate to performance (in many cases using data, video or images) as an opportunity for students to analyse and apply
* interpreted data/tables/graphs/images to analyse relevant theoretical concepts and their effects on performance
* analysed and evaluated contemporary issues and used valid, up to date references (with appropriate acknowledgement) to support their research
* explored integrated tasks in great depth and applied a range of data to enhance their analyses of the task.

The less successful responses:

* were seen when integrated tasks asked too many questions to be responded to within the 1000-word maximum. As a result, many students struggled to answer all questions with enough depth to provide evidence to allow achievement into the higher levels of the performance standards. Teachers are encouraged to set tasks with only 2 or 3 questions as a maximum. This enables students to reach much greater depth within their responses
* didn’t explore their issues analysis task from more than one perspective (i.e. argumentative style) and were not balanced, lacking use of a range of relevant and reliable sources of information. Appropriate referencing within the body of the text (via Harvard in-text or footnotes) and a comprehensive reference list at the end are important components of the issues analysis and must be accurate in order to address specific feature CAE4
* displayed knowledge and understanding that lacked depth or in many cases was inaccurate. Many responses showed evidence of a poor understanding of energy systems, fatigue and recovery within sporting contexts
* often displayed difficulty in explaining the interplay of energy systems. Rather than discussing energy system dominance from an intensity and duration perspective, students often described them in a ‘linear’, ‘stop light’ manner where when one turns off, another then turns on. This is inaccurate
* included a number of tests or mid-year exam responses. Generally speaking students struggle with these forms of assessments and this can disadvantage student’s ability to produce their best work
* lacked critical analysis and evaluation skills (CAE 1, CAE 2). While in many cases the responses demonstrated sound knowledge and understanding, the concepts were not applied in practical scenarios to analyse and evaluate performance.

# External Assessment

## Assessment Type 3: Examination

Teachers and students should note the following comments when preparing students for the Physical education examination:

* Students should practise reading examination questions carefully, and follow the instructions that accompany the questions. It was clear from responses that questions were at times misinterpreted. This indicates the need for more practice in the interpretation of examination questions, using past examination papers that are available on the Physical Education minisite.
* Students should be familiar with the requirements of keywords used in the examination; for example, ‘identify’, ‘explain’, ‘state’ or ‘describe’.
* Students’ responses should be relevant to the question asked and ensure they demonstrate Knowledge and Understanding using specific course content in their responses. This was not done particularly well in the 2018 exam.
* A well explained student response is awarded two marks, regularly when questions requested for students to explain ‘one’ reason, responses often partially explained multiple responses restricting success in questions.
* Successful responses used contextual information in the question stem to help them to understand and formulate an appropriate response to the question.
* Examinations contain visual information. Students should be able to interpret and manipulate data from tables, graphs, and diagrams. These skills are necessary so that the information from tables, graphs, and diagrams can be used as evidence when applying concepts from the content section of the subject outline in sporting situations.
* Students should be familiar with, and able to use, the specific terms found in the content section of the subject outline (i.e. topics and key ideas).
* The ability to link the application of a concept such as Aerobic Capacity and successful performance in team or individual sports.
* Responses to questions requiring specific reference to skills-acquisition concepts showed that students’ level of understanding of the terminology used in skills acquisition needs development.
* Students are encouraged not to rewrite the question as part of their response, as this may limit the time available to respond to questions in the appropriate depth within the time constraints.
* Responses in the examination showed that students need practice in linking concepts together to formulate responses, e.g. the use of an appropriate training method and linking to improvements in a relevant OBLA, or linking a psychological strategy to optimise arousal in a sporting situation.
* Students continue to show confusion between acute responses to activity and chronic responses to training, this being particularly evident in the extended response question. Additionally, students struggle to identify when a response calls on knowledge and understanding of either anaerobic or aerobic training adaptations.
* Students should display their knowledge and understanding of concepts when using them in responses, rather than just naming concepts.

## Part 1: Short-answer Questions (Questions 1 to 8)

### Question 1

* Students responded to part (a) of this question with confidence. The majority of students were able to analyse the table of data, identify two fitness factors, and link them to an appropriate standardised fitness test. Higher level responses explained how their chosen fitness factor linked to the data they had selected from the table.
* In part (b) the majority of students were able to identify data from the table that indicated the lactic acid system dominated total energy production at some point throughout the match. However, explaining how the identified data indicated the lactic acid system was indeed dominant was a challenge for many students. More successful responses made a link between the data and how that indicated the lactic acid system was dominant. For example when students identified 5.8mmol/L of blood lactate in Part b i), discerning responses explained that for lactate to have accumulated to this level the player would have exceeded OBLA of 4mmol/L where the lactic acid system is dominant.
* In part (c) a range of responses were accepted providing reasons why an opponent would have a delayed response to the strategy of faking. Students commonly made the link that the strategy of faking would have presented the performer with two successive cues which in turn slowed down the information processing of the performer, equalling a delayed response. More insightful responses drew on their knowledge of single channel hypothesis theory or psychological refractory period to explain the delayed response. In conjunction, students confidently were able to explain how a specific characteristic of an elite player resulted in a quicker response to the strategy of faking.

### Question 2

* In part (a) and (b) students consistently identified the running speed at which Liyema’s OBLA occurred during her off-season test and they were able to use specific information from the graph to describe a change that occurred in Liyema’s blood lactate accumulation between tests.
* Part (c) required students to draw on the commonly assessed concept of blood lactate levels during physical activity of increasing intensity. Well explained responses indicated that Liyema needed to maintain a running speed below OBLA to maximise performance in the time trial as exceeding OBLA too early would have resulted in fatigue due to an increase in blood lactate accumulation.
* In part (d) (i) students were asked to explain one way in which Liyema could structure her off-season to prevent a loss of aerobic fitness. This provided some challenge for a noteworthy portion of the cohort. More successful responses explained that Liyema should partake in some form of continuous low to moderate intensity exercise and by doing so would maintain her aerobic base. Furthermore, as in previous years, knowledge and understanding associated with aerobic energy release and sports performance challenged students. Part (ii) required students to demonstrate how a decrease in aerobic fitness would be detrimental to performance in pre-season matches of a team sport. Insightful responses linking to performance in a team sport explained that a decrease in aerobic fitness would result in a decrease in oxygen delivery and/or usage by the athlete. This would lead to performers experiencing a more rapid onset of fatigue due to increased reliance on anaerobic glycolysis or they would need to lower intensity of effort in order to maintain effort throughout matches without fatigue. It is important to note that when responding to questions that involve a sporting example that students need to link relevant knowledge and understanding to the sport for full marks to be awarded. Students often just named the sport and did not explain how performance was affected, or they discussed how sports performance would be affected but did not justify their answer with relevant knowledge and understanding.
* In part (e) i) and ii), a significant proportion of the cohort identified Liyema was undertaking continuoustraining as part of her training year and confidently applied the training principle of progressive overload to the interval training session. In part iii) the more perceptive responses explained that Session B was most effective in improving Liyema’s OBLA, as working continuously at an intensity near OBLA would demand more of the aerobic energy system. This would induce aerobic adaptations (e.g. increased Mitochondria) therefore increasing the capacity of the aerobic system at higher intensities thus improving OBLA. There appeared to be a common misconception that Liyema needed to challenge the lactic acid system to improve OBLA, not the aerobic system. Teachers should ensure it is clearly understood by students that increased OBLA is a result of improving the aerobic system, not lactate tolerance.

### Question 3:

* A majority of students in part (a) i) were able to identify a correct biomechanical principle that when applied to the technique of High Jump would contribute to successful performance. Students drew on principles linked to Newton’s Laws, momentum and force summation. In part ii) successful responses explained how one of their chosen responses from part (i) contributed to successful performance. For example, students who selected Newton’s Second Law explained how accelerating the mass of the athlete through the run up phase of the technique would lead to a greater velocity of release at the take-off, enabling them to propel themselves over the bar.
* Part (b) required students to draw on their knowledge of the biomechanical principle *angle of release* and explain when an angle different from 45 degrees would achieve successful performance in a sport of their choice. Students commonly elected the sporting examples of Long Jump and Basketball shooting and discussed how the angle of release would be manipulated to achieve successful performance.
* Part (c) ii) clearly demonstrated that anaerobic training chronic adaptations continues to be a concept which is greatly challenging for students. Many students demonstrated difficultly identifying that the training method of Plyometrics would induce anaerobic chronic responses e.g. fast twitch fibre hypertrophy. Responses often drew on knowledge and understanding of aerobic training responses, e.g. increased mitochondria. Insightful response in Part (ii) explained how an anaerobic adaptation would improve the jumpers performance, for example an increase in the size of fast twitch muscle fibres would increase strength, therefore allowing for a more powerful take-off equalling a longer jump.

### Question 4

* In Part (a) i) successful responses explained that performance of the skill target shooting would be enhanced by a lower level of arousal as demonstrated by the arousal curve A. They identified that a lower level of arousal would assist in the intricate movements and concentration required for successful performance in target shooting. Students confidently explained a psychological strategy that would optimise arousal in target shooting in part (ii), e.g. visualisation and positive self-talk. Less successful students responded with strategies that would not be appropriate for the scenario.
* Part (b) required students to explain how a physiological effect of exercising in extreme cold would negatively impact sports performance. Insightful responses explained that cold conditions would lead to a redistribution of blood to the essential organs to maintain core body temperature. As a result there would be a decrease in oxygen supply to the working muscles and therefore an increased reliance on anaerobic pathways contributing to fatigue. Other good responses demonstrated how shivering to maintain body temperature would lead to an increased use of glycogen and the effects of fuel depletion on performance.
* In part (c) (i) students were required to explain how athletes with high measurements of V02 maximum would have a performance advantage in a sport of their choice. Perceptive responses connected an increase in V02 maximum to a more efficient oxygen delivery and usage by the performer, therefore a footballer would have a quicker recovery from high intensity efforts throughout games due to a more rapid breakdown of lactate. This would enhance performance in AFL as the player could cover more ground and be more damaging when in possession. Part (c) (ii) drew on the regularly assessed concept of chronic aerobic adaptations, which continues to challenge students. Successful responses identified and explained a chronic aerobic adaptation e.g. increased number and size of Mitochondria that would improve aerobic energy release and therefore V02 maximum. A significant number or responses selected acute or not correct responses such as increased ventilation.

### Question 5

* In part (a) the majority of students identified Noelle as the athlete who possessed the most efficient cardiovascular system from the heart rate graph. However, students were clearly challenged when trying to explain this using evidence from the graph. More successful responses used evidence from the graph to show that Noelle maintained a lower heart rate throughout many stages of the run in comparison to Alice, and explained that a lower heart rate indicated a more efficient cardiovascular system. For example, as Noelle was trained she would have an increased stroke volume and therefore at sub–maximal levels her heart rate would have been lower to meet the similar oxygen requirement to Alice. Other successful explanations explained that a more efficient cardiovascular system leads to a quicker steady state during exercise and/or recovery post exercise. It is important to note that students must still display course knowledge and understanding that supports their data selection when answering questions like this in an examination.
* Part (b) drew on the familiar key concept of energy system interplay during continuous exercise, therefore students comfortably responded and achieved well in this question. The majority of students explained that during approx. minutes 1 to 4 Noelle was initially in a period of oxygen deficit where anaerobic glycolysis increased its contribution to meet the increased energy demand by the muscles and/or that at minute 4 the heart rate stabilised, indicating oxygen supply was meeting the demand of the muscles where the aerobic system was dominant.
* Additionally, in part (c) students responded confidently when explaining why heart rate remained elevated post exercise, drawing on their knowledge of EPOC. The majority of students explained that an increased heart rate circulated oxygen to the muscles where it mixes with lactate to aid in recovery post exercise.

### Question 6

* A majority of the cohort identified that number 7 received external, visual or knowledge of results feedback from watching the goalkeeper stopping the ball, and drew logical conclusions about how the type of feedback selected could be used to improve performance. However, a notable number of student’s demonstrated confusion between knowledge of results feedback and internal feedback. Teachers are encouraged to explore this concept in greater depth.
* As in previous exams, questions that target the information processing model and anticipation challenged students. Well answered questions explained that via accurate input and/or quicker information processing the goal keeper would be able to initiate output quicker (Anticipation) leaving more time to execute a well-timed save.
* In part (c) students confidently identified the type of practice as massed. Students who were awarded 2 marks in part (c) (ii) explained a disadvantage of using massed practice for beginners, such as, the continual repetition of the same skill would lead to boredom or fatigue which would detract from the learning of skills.

### Question 7

* Part (a) was well responded to by students, using data from the table to identify the ATP-PC system as the dominant energy system in the 100m sprint. More successful students demonstrated an understanding of the intensity and duration of the 100m sprint event linking it to why the dominant energy system was the ATP-PC system.
* Part (b) required students to explain the difference in the use of carbohydrates as a fuel source for energy between an 800m and marathon runner during their respective events. This was not well responded to across the cohort with many responses incorrectly indicating that a marathon runner would be relying on fats, rather than carbohydrates, when competing in the marathon event. Successful responses explained that both the 800m and marathon runner would be relying on carbohydrates during their events and that due to the extended duration of the marathon there would be a greater usage of carbohydrates by the marathon runner. The importance of question interpretation was highlighted in this question as a notable number of students incorrectly identified this question as a nutrition related question and drew knowledge about the use of glycaemic index and its use to direct food intake for the different events.
* Many responses in part (c) identified either dehydration or lactate accumulation as possible causes of fatigue, other than fuel depletion, in a marathon. Discerning responses explained how their chosen cause linked to fatigue. For example, dehydration would lead to an increase in blood viscosity and a decrease in the circulation of blood and therefore oxygen to the working muscles. As a result the runner would rely more of Anaerobic Glycolysis and subsequently an increase in lactate and fatigue.
* Part (d) (i) and (ii) drew on the familiar concept of muscle fibre type and sport performance, however, students found it difficult to explain how a characteristic of fast twitch muscles fibres would be an advantage in the 100m sprint event. More successful responses explained that fast twitch fibres were large or fast contracting and therefore able to generate more force equalling more powerful strides needed to sprint quickly.

### Question 8

* Students confidently responded to the skills-acquisition question, with a majority achieving some success in all question parts. More discerning responses displayed confidence in the use of skill acquisition concepts and appropriate terminology.
* In part (a) most students were able to identify that a beginner was in the cognitive stage of learning and were able to explain one characteristic of this stage of learning. Most responses identified frequent and large errors, poor kinaesthetic sense or developing sub routine technique.
* Part (b), targeting improving retention of learning for beginners was poorly responded to across the cohort and needs to be a focus for teachers in 2019. Successful responses linked a specific sporting example with an explanation of a method that would improve retention of learning (e.g. chunking, coding or rehearsal). Insightful responses explained how chunking multiple pieces of information together under a code word (e.g. BEEF) would enhance the ability to remember them.
* In part (c) students confidently identified that training activity B would be most beneficial to improving performance in game situations for associative learners. Better responses supported this judgement by explaining that small sided games would develop the signal detection and decision making demands of game play or the output of skills required in the traditional version of a game.

## Part 2: Extended Response

The extended response required students to draw on the key concept of acute responses and to show knowledge and understanding of how they respond to meet the demands of a sport of their choice. Success was quite varied across the cohort.

Students who achieved well in this question clearly identified the change that would occur to the physiological factor and demonstrated an understanding of why the change occurred as a result of undertaking their chosen activity.

Many students elected to discuss the acute responses that resulted in an increase in oxygen consumption, circulation and uptake by the working muscles during physical activity, demonstrating an understanding that during exercise the muscles require more oxygen to meet the increased energy release demands.

Common misunderstandings that presented across the cohort and should be addressed by teachers when focussing on question interpretation were:

* discussing the physiological factors as chronic and how they would have changed as a result of training
* some students completed an interplay of energy systems for their chosen activity and did not discuss acute responses
* a notable proportion of students who chose fuel sources discussed event related nutrition focusing on use of the glycaemic index.