

Physical Education

2012 Chief Assessor's Report



Government
of South Australia

SACE
Board of SA

PHYSICAL EDUCATION

2012 CHIEF ASSESSOR'S REPORT

OVERVIEW

Chief Assessors' reports give 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, the quality of student performance, and any relevant statistical information.

SCHOOL ASSESSMENT

Assessment Type 1: Practical

A support document *Guidelines for Selecting Practicals* was made available at the beginning of 2012 to guide schools in the selection of appropriate combinations of practicals. Schools are reminded to refer to these guidelines again in 2013, to inform their choice of practicals for their classes. Schools have become familiar with the need to offer a balance of centrally developed practical options with many completing similar practical choices in previous years. Volleyball, aquatics and badminton continue to be most popular centrally developed practicals.

This year, schools were more compliant with the submission of their preferred dates for Assessment Type 1: Practical, which facilitated the appointment of moderators to schools. This information, along with the practicals that the schools intended to teach in their courses was submitted to the SACE Board electronically via the website.

In instances where schools chose to complete a third practical that was not part of the Centrally Developed Practicals list, schools were able to submit an application to have a class negotiated practical approved.

Teachers are reminded to refer to the *Stage 2 Physical Education – Subject Operational Information* for information on submission and other key dates.

Teachers recognised that students who undertake an individual negotiated practical only complete two school practicals. There were a number of issues associated with individual negotiated practicals. Teachers must ensure that the two practicals that students with individual negotiated practicals complete with the class are the two practicals that will be viewed in the practical moderation. Late applications for approval of individual negotiated practicals are a continuing issue. Teachers are advised that there is a risk of the application not gaining approval, particularly when they are submitted late in Term 2. Finally, teachers are reminded that the assessment of the individual negotiated practical is their responsibility. In negotiation with the coach, and including evidence provided on a Specific Skills Criteria checklist, teachers determine an assessment for the student in the individual negotiated practical, with reference to the performance standards.

A document providing support to schools when students have an injury which impacts on their ability to participate in the practical assessment component has been developed and is available on the website (*Special Provisions for School Assessment – Assessment Type 1: Practical*). Schools are responsible for decisions about the eligibility and approval of special provisions for students in this assessment

type. Schools that accessed this document were able to consider all of their options depending on the circumstances, and implement the most appropriate strategy from the document. In instances where schools needed further information they were able to contact the SACE Board for further advice. Schools are reminded that it is an expectation that students undertaking this course will be able to complete three practicals throughout the year. No special provisions can be applied for a student who begins the year carrying a significant injury that restricts their involvement in the practical assessments. In these instances, students should be counselled to consider alternative options.

Schools performed well in the practical component of the course with the majority of students achieving performance in the A and B grade bands. The most successful students demonstrated a high level of proficiency in the performance of physical activities with accurate interpretation and application of skills, concepts, strategies and tactical awareness in practical applications. The initiative and self-reliance, leadership and ability to demonstrate constructive collaboration in team situations was also a prominent feature. Teachers need to be aware that students who consistently perform and demonstrate specific features in the upper range of the A/ A+ grade levels across the three practical options could expect to achieve an A+ grade overall.

The moderated marks suggest that some teachers still have difficulty with aligning the appropriate standard at the upper or lower range for grade bands. Many students demonstrate specific features from separate grade bands. This was particularly evident when students were highly proficient with their skills, but application and performance was more consistent with capable or competent interpretation of concepts, ideas and strategies.

At the upper range of marks, teachers need to critically analyse the skills performance checklist and the student performance in areas such as tactics and game playing principles, which need to be demonstrated in training drills and competitive game situations. At the lower range of marks, teachers are reminded that students are assessed against the performance criteria and not the number of hours completed.

Schools with multiple classes were proactive in comparing students across classes within the school prior to moderation resulting in greater consistency and reliability within the school context. Likewise, some schools within close proximity chose to carry out similar comparisons to assist in validating their assigned grade levels. This inter-school discussion is an excellent way for teachers to develop their understanding of the assessment of the practicals.

Teachers were well prepared for final moderation (on site) and were aware that student performance needed to be sighted in two centrally developed practicals. Teachers were prepared with appropriate methods of identification of the students for the moderator to be able to easily identify students, and utilised a variety of specific skills criteria checklists as supportive evidence of specific features against the performance standards.

Assessment Type 2: Folio

Schools presented folios with a range of between three to six tasks to address the performance standards. Teachers need to ensure that at least two of these assessments are integrated tasks that incorporate the knowledge and skills developed in the practicals with the knowledge of the terms and concepts covered in 'Principles and Issues'. Integrated tasks should be a maximum of 1000 words if written or a maximum of 6 minutes for an oral presentation, or the equivalent in multimodal form. Some students clearly exceeded the word limit this year. If students choose to complete an assessment task electronically or orally, there must be accompanying evidence provided for moderation, such as a script or hard copy of the PowerPoint presentation.

Teachers have utilised the support materials on the SACE Board website to design tasks allowing students opportunities to provide evidence of learning at the highest level of achievement. However, many tasks still did not address the specific features, particularly those in the critical analysis and evaluation assessment design criteria. Student responses clearly demonstrated in-depth knowledge and informed understanding of physical education concepts but did not allow the opportunity to further respond with thorough and insightful critical analysis of principles and concepts. The length of some tasks meant that students struggled to remain within the word count limit, and this inhibited the depth at which the students could respond. Teachers are encouraged to provide scaffolding of tasks to address incorporation of analysis and application of physical education concepts.

Tasks that utilised data or video footage analysis of sporting skills enabled students to achieve at the higher levels of the performance standards. Feedback should incorporate language from the performance standards. Assessment tasks need accurate acknowledgement of sources. Integrated tasks that clearly outlined the need to make use of source material were generally most effective in providing opportunity for in-depth analysis.

Although tests can be used as a folio assessment, the opportunity for in-depth analysis is limited. Past examinations, used as a whole assessment task, should not be used as these are readily available on the SACE website. Modification of questions would provide greater reliability of assessment. These are useful as a formative task. Many tests did not allow for critical analysis and evaluation, focusing more on knowledge and understanding of terminology.

The issues analysis afforded students the opportunity to demonstrate critical analysis and evaluation of an issue relevant to local, regional or global communities. Students who performed well demonstrated highly discerning and perceptive critical analysis of an issue, with insightful evaluation and synthesis of source material. Many students were able to research and explore a topical issue, but could only present competent discussion and analysis of the material covered. Teachers are reminded that the issues analysis assessment requires the students to explore an issue or issues that focus on physical activity.

Assessment of the final grade for folio tasks should be made on balance. Some teachers have clearly weighted tasks without considering the performance standards as a whole for this assessment type. Task sheets and performance standards should be attached to all individual student work, particularly data evaluation sheets to enable moderators to confirm teachers' assessment more readily. Teachers are also reminded that an assessment plan, with an addendum, if applicable, and a set of assessment tasks is included in the final package. Some teachers included an overall summary sheet of student achievements which was found to be useful when confirming standards.

EXTERNAL ASSESSMENT

Assessment Type 3: Examination

The mean mark for the 2012 examination was 52%. Overall this was an improvement from 2011.

In general, two marks are awarded for one well-expressed piece of information. For a question worth three marks there is usually an expectation that students will use specific terms, or that they must apply a relevant and connected piece of information. Students should also endeavour to use the specific language of the subject in all of their responses.

Teachers and students are reminded of the following:

- students should practise reading the question carefully and heeding the instructions that accompany the questions. Many students appear to misunderstand the question. This indicates the need for more practice in the interpretation of examination questions using past examination papers that are available on the SACE website (www.sace.sa.edu.au).
- students are encouraged to read the question carefully to ensure that their responses are relevant to the question asked.
- students should be familiar with the requirements implied by the words used in the SACE Board examinations; for example, 'explain', 'state', or 'describe'.
- successful students are able to use contextual information included in the question stem to help in gaining an understanding of the question.
- examinations contain visual information, for example, tables, graphs, and diagrams. Students should be well practised in using these. Students should be able to interpret and manipulate data from tables and graphs. These skills are necessary to use as evidence in the application of concepts from the scope in sporting situations.
- students should be able to use the specific terms found in the subject outline. Students should become more familiar with the common terms used in the scope section of the subject outline.
- some students need to develop their understanding of the terms 'acute' and 'chronic' in relation to physiological responses to aerobic and anaerobic training, and with the concept of the interplay of energy systems. Many students do not recognise the smooth blending and overlap of systems when analysing energy contributions in an activity.
- there is a concern about the level of understanding students have of the terminology used in skills acquisition.

PART 1: SHORT-ANSWER QUESTIONS

Section A

Question 1

The mean mark for this question was 4.47 from a possible 7 marks.

This question was answered well by most students.

- (a) Students gained full marks if they identified that distributed practice involved rest or breaks between practice activities and so would enhance the beginner's performance. Some of the explanations included distributed

practice delayed fatigue, enhanced practice of correct technique, prevented boredom and allowed time for the coach to give feedback. Students occasionally confused the concept of distributed practice and part practice.

- (b) This question was well answered with most students able to give an example with a clear explanation. Some relevant responses included how visual feedback in basketball can allow for improved tactical solutions in game play.
- (c) Most students could adequately understand techniques that could reduce anxiety. Successful examples included centred breathing as part of a routine to establish correct performance arousal.

Question 2

The mean mark for this question was 4.6 from a maximum of 9 marks.

Overall, there appears to be an improvement in the understanding and application of biomechanical principles to technique. However, students demonstrated that their use of specific terminology in explanations needed to be more precise.

- (a) Most students were awarded at least two or three marks for their response. A number of students would benefit from more specific reference to the diagram (B) in their explanation as a way of describing how further distance may be achieved.
- (b) Students who correctly identified that a change in the angle of release would change the horizontal and vertical components of the throw and hence distance achieved gained full marks.
- (c) The concept of gender difference and Biomechanics in this question appeared less well understood. Successful students identified biomechanical advantages and disadvantages related to gender differences, combined with the differences in the weight of the shot-put to explain the similarity of the distances thrown. Relevant examples of Biomechanical principles included leverage, mass, inertia, force summation and impulse to explain the impact of gender difference.

Question 3

The mean mark for this question was 6.43 from a possible 13 marks.

The principles and methods of training examined in this question were well understood as most students could answer some parts of the question.

- (a) Students were generally able to identify why the training year is separated into phases. A range of reasons were explained including general and specific fitness and skill training, peaking at appropriate times, injury prevention and rehabilitation and psychological parameters.
- (b) Most students were able to identify correctly that training phase Y would be performed in the offseason. Students used the aerobic nature of the activity combined with goal setting as evidence in their explanation. Some students correctly used strength training, underpinning Swiss ball training as an activity used in the offseason.
- (c) (i) To achieve full marks in this part of the question, speed or power were accepted as correct, provided the explanation used specific evidence from training phase X.

- (ii) Students appeared to find this part of the question challenging. A significant number of responses correctly identified that the chronic changes in the muscular system would mostly be anaerobic in nature because of the short interval training. Therefore correct responses included changes to the muscle fibre number, size and increased storage of creatin phosphate. Increased speed of nerve transmission, improved selective recruitment of fast twitch fibre and increased strength of connective tissues were also relevant answers.
- (d) A few students confused improved lactate threshold as a response with an improved tolerance to lactic acid in the muscle fibre.

Question 4

The mean mark for this question was 5.06 from a possible 12 marks.

Many aspects of this question were well answered. However, students struggled with the use of specific and relevant terminology related to the skill aspects in this question. Therefore full marks were not often achieved.

- (a) A high number of students correctly identified the characteristics of the player who is in the cognitive stage of learning. Some students incorrectly referred to the characteristics of the learner and not the stage of learning.
- (b) This part of the question proved very challenging as it appeared the concept of chunking was not well understood. The most successful students were able to explain that chunking or grouping pieces of information for a beginner can simplify instruction and reduce the total demand on the information system for the beginner when learning a new skill.
- (c) Generally this part of the question was well answered. Students correctly recognised that coaches who affect the input for a beginner can improve the likelihood of successful learning and performance. Common examples used to explain the answer included coaches reducing the number of cues presented from the input, changes to signal detection or stimulus intensity and changing the speed of the cue. To achieve full marks students needed to discuss the input mechanism and its relevance to success and the beginner player.
- (d) A significant number of students achieved full marks for this question. A few students confused anxiety with arousal levels in their discussion.

Question 5

The mean mark for this question was 4.78 from a maximum of 8 marks.

Aspects of this question were well understood. The concept of change to lactate accumulation with increased exercise intensity appears to be better recognised than in past examinations.

- (a) A significant number correctly identified the running speed before lactate threshold as 5.5m/second.
- (b) The concept of OBLA appeared to be well understood as many students could identify that the novice running at 5.00m/second would cause early onset of blood lactic acid accumulation and hence fatigue or slowing down.

- (c) Most students successfully plotted the correct line on the graph although some students plotted their line in the space below the question and not actually on the graph.
- (d) This question did discriminate between those students who clearly understood and could explain that lactate threshold training involves aerobic training at a high intensity. They therefore correctly identified that running workout 1 involving a 2.2 km run at 85% intensity was the most appropriate training method to achieve improvement.

Question 6

The mean mark for this question was 9.65 from a possible 18 marks.

This was a long question and was related to the concepts of acute responses to exercise and chronic responses to training. Significant numbers of students achieved some marks for each part of this question. Students clearly understand training methods but have difficulty explaining the way in which these training methods relate to chronic physiological adaptations and ultimately performance.

- (a) (i) and (ii) most students identified the correct heart rates from the graph.
- (b) A high number of students were able to identify an acute response to the exercise but did not state the type of response in their answer. For example, some students correctly identified stroke volume as an acute response but needed to specifically indicate that there was an *increase* in stroke volume.
- (c) This part of the question proved challenging to a significant number of students. To gain full marks students needed to explain how the chosen physiological factor caused a chronic adaptation. For example, successful students used increased use of muscle triglycerides to explain a chronic adaptation of glycogen sparing, thus allowing for glycogen use and a higher intensity of exercise towards the end of an endurance activity.

Some students were able to describe the role of the specific physiological factor chosen from the provided list but could not further explain its role in causing a chronic muscular or cardiovascular adaptation. Many students chose increased stroke volume and defined it correctly as an increase in the amount of blood pumped from the left ventricle per beat. However the question required students to explain that increased stroke volume caused increased amounts of oxygen to the working muscle and therefore allowed for increased aerobic capacity.

- (d) (i) Successful students used the information from the graph which showed increasing distances run per week, to identify the training principle as progressive overload.
- (ii) (1) A large proportion of students identified correct changes that could be made to the training program. Most students chose to describe an increase in the number of kilometres run each week to maximise overload.
- (2) Most students gained two marks from the total of three for this part of the question. Successful students explained that overload would enable the runner to run at faster speeds for longer, because of improved fitness factors, therefore delaying the use of large contributions from the anaerobic systems. A few students also

described the psychological improvement related to perceived effort changes from the overload training.

PART 1: SHORT-ANSWER QUESTIONS

Section B

Question 7

The mean mark for this question was 6.53 from a possible 11 marks.

- (a) A significant number of students understood the link between strength and power needed for successful sprint swimming performance. Students who gained full marks were also able to explain that resistance training would improve power for sprint swimming.
- (b) Most students were able to correctly identify that white fast twitch fibre contracted at high speeds and were therefore the most important fibre type in sprinting. Some students confused the colour of the white fast twitch fibre with red slow twitch fibre.
- (c) Students who gained full marks for this part of the question were able to use specific terminology to explain the concept of recovery as part of periodization of training. Many students correctly named this recovery as tapering and referred to the reduction in volume of the training undertaken by the athlete. Some students also correctly indicated the need for psychological recovery as well as physiological in order to avoid fatigue and 'peak' at the correct time in the training cycle.
- (d) This part of question 7 was very well done with most students able to identify that a reduction in load to increase the amount of lifts would increase local muscular endurance. Some students correctly explained that the number of sets could be increased provided the load was changed.

Question 8

The mean mark for this question was 9.55 from a maximum 15 marks.

- (a) A high number of students achieved success in this question and demonstrated that students are competent in their application of fitness factors to specific activities.
- (b) Similarly, a significant number of students were able to select an appropriate standardised fitness test, such as the vertical jump for power.
- (c) Generally, most students were able to correctly use the information from the table to identify and explain the appropriate energy system. The activity involving a submaximal effort of eight minutes paddling was most commonly given to identify the aerobic energy system. Some high-level students also extended their response to indicate that the creatin phosphate system may contribute to energy release when paddling over the breaking waves. If the lactic acid system was used to explain energy system use, students needed to clearly articulate that it would not contribute to the most ATP production but would be used for sustained intense efforts of paddling, over or under the breaking waves during the 8 minutes. The average mark for this question was two from a maximum of three. Some students incorrectly explained the interplay of energy systems and did not therefore specifically answer the question.

- (d) A high number of students correctly interpreted 11 degrees as the optimum time to extend performance. However only a small number were able to explain in detail the likely effect of the high range of temperatures on performance. Successful students indicated that too much energy was needed at 4 degrees to maintain body temperature. At 21 and 31 degrees sweating and dehydration will cause an increase in anaerobic energy contribution and increased ambient temperature may also cause central or brain fatigue.
- (e) The responses to this question were extremely varied with few students gaining full marks. Highly successful students explained that the surfer would shiver in an effort to keep warm and that physiological responses to redirect blood flow to the core through constriction of blood vessels would be induced.

Question 9

The mean for this question was 1.76 from a maximum of 6 marks.

This was the most poorly answered question in the whole paper. It is evident that many students do not have an understanding of the relevant terminology of the subject especially that involved in skill learning.

- (a) A common mistake of students was to interpret this question as a biomechanical question and did not recognise the concept of 'single channel hypotheses'.
- (b) Similarly few students recognised the delayed response time as the psychological refractory period.
- (c) Some students were correctly able to explain how affecting the 'input' by improving selective attention or anticipation or even using previous experience would most likely speed up the processing time.

Question 10

The mean for this question was 6 marks from a maximum of 11 marks.

- (a) Using two examples from the table, students were required to recognise gender differences and the effect on performance. The most common mistake occurred because students did not explain the link of physiological difference and performance. A range of correct responses included differences in hormonal levels, body composition, thermoregulatory capacity and aspects of fitness factors, all impacting on performance.
- (b) Generally, this was a well answered part of the question. Most students correctly identified the relationship between the intensity and duration of the effort in the specific event and the specific fuel use. The best responses explained the high intensity effort of the 400 metres required mainly glycogen with little fat while the marathon could use fat as fuel for some part of the event as a way of glycogen sparing. Students gaining full marks used correct terminology.
- (c) A vast majority of students recognised that fat is usually a disadvantage to performance as it increases the load the athlete must carry and therefore increases the energy cost of the activity and inertia of the athlete.

- (d) A large number of students recognised that the intensity of the activity of the 400 metres required a high contribution from the lactic acid system which was a cause of fatigue. Some students also correctly explained poor muscle strength may contribute to fatigue. Overall many responses needed more detail in the explanation.

PART 2: EXTENDED RESPONSE

Question 11

The mean mark for the extended response was 3.54 marks from a maximum of 10 marks.

The overall number of students attempting this question improved from 2011. However, most responses did not fully explain, using examples, the relationship between delayed fatigue, VO_2 maximum, lactate threshold and performance. Many students did not recognise that improved lactate threshold results from high level aerobic training and confused the term with the lactic energy system in their explanation, and students did not relate their answer to a relevant sport using an example.

Common mistakes occurred when students explained chronic adaptations to training. Some students gave simplistic responses that showed little relevance to the question.

Most students were able to correctly identify that a high VO_2 maximum and a high lactate threshold enabled an athlete to work at higher intensities for a longer duration. Students who were awarded high marks correctly identified the following features in the context of their chosen sport. These included:

- Explanations and examples of the significance of the lactate threshold and VO_2 maximum in the sporting example.
- Definition of the terms, VO_2 maximum and lactate threshold and recognition that these could both improve with high levels of aerobic training.
- Explanations that a high O_2 uptake allows the athlete in their chosen sport to supply and utilise oxygen for large contributions of ATP synthesis. Therefore the aerobic system can be used at high intensities for a longer duration in the chosen event, delaying the need for very high contributions from the lactic energy systems, therefore delaying the onset of blood lactic acid and its fatiguing effect.
- A suggested example of this was an Australian Rules football (AFL) midfielder can run for a longer time, running repeatedly up and down the field, involved in the play and transitions at fast speeds.
- A high VO_2 maximum allowed for a more efficient resynthesis of creatin phosphate during very low intensities of activity, such as fast walking while the ball is out of bounds or while resting on the bench. This allows increased opportunity for the player to sprint over short distances at high pace.
- Similarly a high lactate threshold and high VO_2 maximum allow the player to repeatedly sprint and recover with less contribution from the lactic energy system as well as quick removal and breakdown of the lactic acid from the muscles (clearing).

- A high lactate threshold will allow the athlete to tolerate increased levels of lactate in the muscles before fatigue levels force the athlete to slow down.
- A higher VO₂ maximum will allow for a higher steady state for the athlete. A suggested example given was an AFL player can run at faster speeds throughout the game without significant fatiguing contributions from the lactic acid energy system.
- Because of less fatigue there will likely be less skill based errors and less decision making errors in comparison to their performance when fatigued.
- A high VO₂ maximum allows for fats to be used at higher intensities. Students needed to be clear that this glycogen sparing is only relevant for specific activities not, for instance, a netball game.

OPERATIONAL ADVICE

Teachers were well prepared for final moderation of Assessment Type 1: Practical (on site) and were aware that student performance needed to be sighted in two centrally developed practicals. Teachers were prepared with appropriate methods of identification of the students for the moderator to be able to easily identify students, and utilised a variety of specific skills criteria checklists as supportive evidence of specific features against the performance standards. In the instance of students having variations to their assessment due to injuries, the Variations – Moderation Materials form needs to be completed and presented to the moderator on the day of moderation along with all of the specific skills criteria checklists.

Some teachers included a cover sheet with each set of student folio materials from the nominated sample for moderation, identifying all completed assessments and the grade level achieved. This assisted the moderation team in identifying reasons for missing materials. The 'Variations – Moderation Materials' form was also used successfully to provide the moderation team with information about special provisions, breaches of rules, and student materials marked but not available for submission.

A teacher folder with a complete set of task sheets and the approved learning and assessment plan (with addendum when applicable), should be included in the materials submitted. Where assessment work completed deviated from the approved Learning and Assessment Plan, particularly for the whole class, this needs to be clearly indicated on the *Addendum* at the end of the learning and assessment plan submitted in the teacher folder.

It is essential that the SACE registration number and the school number are written clearly on the front of each item of work, and that all of the materials are packaged according to the guidelines provided in the *Physical Education Subject Operational Information*, with each individual student's materials packaged in separate clear plastic bags.

If students are presenting a DVD please ensure that the audio is clear and that the purpose of what the moderators are viewing is made clear. Teachers should ensure that materials presented for moderation do not include hard folders.

GENERAL COMMENTS

All teachers are strongly encouraged to attend a clarifying forum in 2013, as this is an important opportunity for teachers to clarify and align their assessment decisions with

those determined by the subject experts. It was evident that teachers who attended the clarifying forum in 2012 followed the subject outline and presentation directives from the *Physical Education Subject Operational Information* document more closely, maximising their students opportunities.

Teachers are urged to familiarise themselves with all of the materials available on the Stage 2 Physical Education website pages. Annotated tasks, student responses, a 'Common Terms used in Physical Education' document amongst other resources are available and provide useful advice and support.

Teachers need to update tasks and performance standards to address the current curriculum and assessment requirements. In 2013, specific feature PSA3 has been removed from the Practical Skills Application assessment design criteria, and there has been an amendment to the wording of specific feature KU1.

Learning and assessment plans for Stage 2 Physical Education (except for those approved in 2012 for use through to December 2014), require approval in 2013. PSA3 should no longer appear in the Assessment Overview, and teachers will need to ensure that tasks allow the full assessment of the re-worded KU1.

Physical Education
Chief Assessor