Physical Education

2013 Chief Assessor's Report

Government of South Australia

SACE Board of SA

PHYSICAL EDUCATION

2013 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 again made available at the beginning of 2013. Schools should refer to these guidelines (available on the Physical Education minisite) in 2014 when choosing practicals for their classes. Schools have become familiar with the need to offer a balance of centrally developed practicals. Volleyball, badminton, and netball continue to be the most popular centrally developed practicals, while aquatics and lawn bowls are generally the most popular choices for the third practical.

Schools were generally compliant in submitting their preferred dates for the moderation of Assessment Type 1: Practical, which facilitated the appointment of moderators to schools. This information, with the list of practicals that schools intended to teach in their courses, was submitted to the SACE Board electronically via the website, as will be the case in 2014. It is important that schools adhere to the key date for submission.

Schools that chose to complete a third practical that was not on the register of centrally developed practicals were able to submit an application to have a class negotiated practical approved. Teachers are reminded to refer to the subject operational information on the Physical Education minisite for information on submission and other key dates.

Teachers recognised that students who undertake an individual negotiated practical complete only two school practicals. There were a number of issues associated with individual negotiated practicals. Teachers must ensure that the two centrally developed practicals that students with individual negotiated practicals complete with the class are those that will be viewed in the practical moderation. Late applications for approval of individual negotiated practicals are a continuing issue. There is a risk that applications may not gain approval, particularly when they are submitted late in Term 2. The assessment of the individual negotiated practical is the responsibility of the teacher. 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. When considering submitting an individual negotiated practical, teachers should read the document 'Individual Negotiated Practical: Frequently Asked Questions' on the Physical Education minisite.

A document providing support to schools when students have an injury that affects their ability to participate in the practical assessment is available on the Physical Education minisite (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 their options, and implement the most appropriate strategy. Schools contacted the SACE Board if they needed more information. Students undertaking this course are expected to complete three practicals during the year. No special provisions can be applied for students who begin the year with a significant injury that restricts their involvement in the practical assessments. These students should be counselled to consider alternative options.

Schools performed well in the practical assessment type, with most achieving in the A and B grade bands. The most successful students demonstrated a high level of proficiency in the performance of physical activities, accurately interpreting and applying skills, concepts, strategies, and tactical awareness in practical applications. Initiative and self-reliance, leadership, and the ability to demonstrate constructive collaboration in team situations were also prominent features. 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. Students do not need to be at a 'state level' to achieve an A+ grade in a practical.

The moderated marks suggest that some teachers still have difficulty in aligning the appropriate standard at the upper or lower range of grade bands. Many students demonstrate specific features from separate grade bands. This was particularly evident when students' skills were highly proficient but their application and performance were more consistent with capable or competent interpretation of concepts, ideas, and strategies. There was also some confusion about the specific features for initiative and collaboration (IC1 and IC2). Some teachers considered that students who were compliant, helpful, and enthusiastic deserved to be placed in the A band for these specific features. However, teachers are asked to consider the ability of students to implement strategy and specific tactics in game and practice situations. This includes the ability to lead and direct peers and themselves both directly and indirectly during a game and during practice sessions. Teachers are encouraged to provide opportunities for students to display these features during lessons.

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

Some new support materials were produced in 2013 to help teachers in the assessment of practical topics. Individual performance indicators were produced for a number of the more popular sports and are available on the Physical Education minisite. These documents prescribe indicators of performance for each grade band, to give teachers a better understanding of which indicators of performance to look for when assessing students. They are not intended to be used as individual specific skills criteria checklists, but simply as support materials. Teachers are encouraged to access and use these documents for themselves and their students in 2014.

Schools with multiple classes were proactive in comparing students across classes in the school before moderation; this resulted in greater consistency and reliability in the school context. Some schools in close proximity carried out similar comparisons to help in validating their assigned grade levels. This interschool discussion is an

excellent way for teachers to develop their understanding of the assessment of the practicals and is strongly encouraged.

Teachers were well prepared for final moderation (on site) and were aware that student performance needed to be sighted for two centrally developed practicals. Teachers were generally well prepared, with appropriate methods to enable the moderator to easily identify students. Teachers are reminded, however, that all official documentation — mauve sheet, specific skills checklists for all students for all three practicals, negotiated practicals, and Variations — Moderation Materials form if applicable — is to be completed before the moderation visit, and that the mauve sheet must be signed by the school principal or the principal's delegate. Teachers are encouraged to carefully consider the overall grade allocated for the practical before writing it on the mauve sheet.

Assessment Type 2: Folio

Schools presented folios with a range of three to six tasks to address the performance standards. Some schools presented more than six assessment tasks. This is unnecessary. At least two of these assessments should be 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'. Each integrated task should be a maximum of 1000 words if written or a maximum of six minutes for an oral presentation or the equivalent in multimodal form. The third task should be an issues analysis. Teachers must ensure that word limits are adhered to. Some students clearly exceeded the word limit this year. Moderators are instructed to stop reading once they reach 1000 words for both the issues analysis and integrated tasks. Additional tasks may take a range of formats as indicated in the subject outline on page 25. If students complete an assessment task electronically or orally, accompanying evidence, such as a script or hard copy of a PowerPoint presentation, must be provided for moderation.

Many teachers have used the support materials on the Physical Education minisite to design tasks that give students opportunities to provide evidence of learning at the highest level of achievement. Teachers are encouraged to continue using these exemplar tasks. Task design was an area that influenced the success of student achievement in 2013. It is important for teachers to design tasks that can give students opportunities to demonstrate understanding in all the specific features being assessed. Specific features CAE 1 and CAE 2 were often the most inconsistently addressed. Tasks incorporating these features must allow students to interpret, analyse, and evaluate information from a sport and/or a practical activity. Terminology such as list, define, and describe does not allow for this depth of knowledge and analytical skills to be developed. Teachers are also asked to carefully consider how much information to address within a task. If there are too many questions, students will not be able to demonstrate depth of knowledge because of word limit constraints. Successful tasks were those designed with only two or three questions for the students to address, allowing scope for interpretation and analysis of data/footage and often for key concepts to be linked. These tasks were also current and contemporary. Tasks must also address the key ideas and requirements of the subject outline. For example, information about trends in physical activity is no longer part of the course.

Although tests can be used as a folio assessment, they offer limited opportunity for in-depth knowledge. Some questions need to be designed to allow for analysis. Teachers are encouraged not to use these as integrated tasks and, if using them as part of the folio, not to include too many. Many tests did not allow for critical analysis and evaluation, focusing more on knowledge and understanding of terminology. The

use of timed integrated tasks can disadvantage students. Careful consideration needs to be given to the appropriate use of timed tasks based on the skills and abilities and/or learning needs of the students in a class. Past examinations, as a whole assessment task, should not be used as these are readily available on the SACE website for students to access. Modified questions would be more reliable for assessment purposes. These are useful as a formative task. A mid-year examination as a folio task is not recommended either, as students are still establishing their knowledge and understanding at this time of the year.

The issues analysis gave 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 present only competent discussion and analysis of the material covered. Teachers are reminded that, for the issues analysis, students must explore an issue or issues that focus on physical activity. Issues such as the effects of online gambling are not considered relevant to 'physical activity'. The issues should be current and contemporary and not ones that are either outdated and/or no longer an issue (e.g. sports drinks v. water). Appropriate referencing in the body of the text (via Harvard in-text or footnotes) and an extensive reference list at the end are important parts of the issues analysis and must be accurately presented, particularly when demonstrating specific feature CAE4.

Schools are encouraged to carefully consider the necessity of combining classes and/or schools in the one assessment group. Combined schools are encouraged to use the same assessment tasks. This allows for more accurate and balanced assessment of students across classes or schools. Cross-marking is strongly encouraged; assessment needs to be consistent. Inconsistent or inaccurate marking from one teacher can significantly affect the results of the other class or school assessment.

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. An assessment plan, with an addendum if applicable, and a set of assessment tasks are to be included in the final package. Some teachers included an overall summary sheet of student achievements which was useful when confirming standards.

EXTERNAL ASSESSMENT

Assessment Type 3: Examination

In general, 2 marks are awarded for one well-expressed piece of information. For a question worth 3 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 their responses.

Teachers and students should note the following comments:

- Students should practise reading the question carefully, and following the instructions that accompany the questions. Many students appear to

misunderstand questions. 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 read the question carefully to ensure that their responses are relevant to the question asked.
- Students should be familiar with the requirements of keywords used in the examination; for example, 'explain', 'state', or 'describe'.
- Successful students use contextual information 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 'Content' section of the subject outline in sporting situations.
- Students should be familiar with, and able to use, the specific terms in the 'Content' section of the subject outline.
- Some students need to develop their understanding of the concept of the interplay of energy systems. When analysing energy contributions in an activity, many students do not recognise the smooth blending and overlap of systems.
- Many students appear unable to link the application of a concept such as training methods to the effect on performance.
- There is concern about students' level of understanding of the terminology used in skills acquisition.

PART 1: SHORT-ANSWER QUESTIONS

Section A

Question 1

The mean mark for this question was 4.1 from a possible 8 marks.

Most students gained some marks for this question. Aspects of sports nutrition appeared to be well understood.

In answering part (a) and section (i) of part (b), most students were able to successfully read the graph to explain the effectiveness of chocolate milk in delaying fatigue, and used the information provided to explain advantages and disadvantages of sports drinks and chocolate milk. Although many students indicated that low fat chocolate milk could lead to weight gain as it is energy dense some astute students stated that the chocolate milk has less potassium which assists with muscles contraction and relaxation.

Although in section (ii) of part (b) most students recognised that protein is used for tissue repair and carbohydrate is used for glycogen replenishment, many did not explain that when ingested together the rate of replenishment increases. This part of the question therefore discriminated among students.

Question 2

The mean mark for this question was 9.3 from a possible 16 marks.

Generally this question was answered well, with most students correctly identifying that tackling was the player's most commonly performed skill during the soccer match. A large majority of students recognised that high-intensity efforts followed by periods of low activity allowed for ATP-CP recovery and lactic acid removal. Students were awarded full marks when they described the use of glycogen and fats for walking as there is sufficient oxygen available to synthesise ATP from both these fuel sources.

In parts (d) and (e) most students appeared to understand the application of appropriate fitness factors and standardised fitness tests to relevant activities.

In part (f) most students recognised that an increase in high-intensity efforts such as repeated sprinting would cause fatigue, affecting the muscular system or central nervous system. Students correctly identified that fatigue could reduce power output in kicking and reduce dribbling accuracy and control.

Question 3

The mean mark for this question was 3.9 from a possible 10 marks.

Many students were unable to reference the graph accurately and did not appear to fully understand the concept of detraining as a training principle. Students were required to use the information provided in the graph. Many students were unable to relate the changing (increasing) blood lactate to weeks of inactivity — which relates to the concept of detraining

Similarly, many students were unable to explain the changing contributions of the energy systems in relation to weeks of inactivity. The weaker responses tended to be vague and did not explain that the increasing blood lactate in each performance, as noted on the graph, indicated that there was an increasing lactic acid energy contribution to meet energy requirements. The students who understood the concept accurately concluded that muscular power could still be exerted to complete the race, even with these weeks of inactivity, but at a higher energy cost. In-depth explanation and specific use of terminology were required for students to be awarded the full five marks for this question.

In part (c) the responses of a significant number of students were not clear. The most successful students explained that variety in training methods and less structured aerobic activities in the off-season would prove beneficial. Examples provided included long slow distance running, open water non-competitive swimming, and some resistance training. Astute students noted that the variation to training would prevent fatigue and overtraining.

Question 4

The mean mark for this question was 6.9 from a possible 12 marks.

All parts of this question were generally answered competently. A combination of responses about biomechanics and the application of training principles were required. There appeared to be an improvement in students' application of biomechanics to human movement. Most students correctly identified that the leg action of the volleyball player required power, and therefore fast-twitch muscle fibre.

Similarly, in answering parts (b) and (c), most students were able to apply a relevant biomechanical principle such as combination motion, force summation, speed, or leverage to the volleyball spike. Good answers identified the correct principles of stability to explain how the volleyball player could remain balanced when landing.

In section (i) of part (d) a substantial number of students correctly explained a training method appropriate for power development. Plyometric and resistance training at speed were the most frequently used examples.

To gain full marks for section (ii) of part (d), students were required to explain the relationship between a chronic muscular adaptation and an increase in power. This proved difficult for many students and allowed for discrimination among the students. For example, increased strength of connective tissue would allow for more force production as a component of power.

Question 5

The mean mark for this question was 7.4 from a possible 14 marks.

This long question required students to identify and explain concepts related to exercise in the heat and the effect on performance.

In answering parts (a) and (b), most students were able to identify the correct heart-rate responses to increasing temperature. However some were unable to explain the physiological cause-and-effect relationship. Students who were awarded full marks explained that higher heart-rates indicated an increased workload for the cyclist, causing an increased reliance on anaerobic energy contributions earlier in performance. Consequently, the cyclist would show evidence of psychological or physiological fatigue earlier in her performance.

In part (c) and section (i) of part (d), many students explained that the cyclist's weight loss was due to sweating, and were able to read the graph accurately to describe the relationship between acclimatisation time and sweat rate.

Section (ii) of part (d) was not handled well. Most students accurately named dehydration as a disadvantage of sweating. Other responses could have suggested that the intensity of the initial training session should be decreased until acclimatisation is achieved. Few students explained the advantages of sweating as reducing the effect of high temperature on core body temperature and minimising changes to energy systems, especially delaying anaerobic contributions. Very astute students explained that increased rates of sweating to aid cooling would most likely result in a psychological advantage of less perceived effort in a stressful environment.

Section B

Question 6

The mean mark for this question was 4.8 from a possible 9 marks.

In section (i) of part (a) most students correctly identified a relevant sport but had difficulty providing the correct cue, as indicated by examples such as 'the ball'. Some students also confused a cue with the technical skills of the sport, for example, a set shot in basketball. A better example would have been to refer to the position of the fingers around the cricket ball in the action of bowling.

Section (ii) was generally answered well. Common responses included strengthening the cue or slowing it down. However, many students were unable to explain how this increased the cognitive learner's ability to detect the cue, and so were not awarded full marks.

Although the concept of chunking has been tested several times in recent years it still proved difficult for many students in answering part (b). Students gained full marks for stating that chunking involved grouping parts of subroutines together in order to reduce the pieces of information to recall.

In section (i) of part (c) students appeared to have a clear understanding of open and closed training drills. A common mistake was made by students who misinterpreted the question and explained the nature of coaching styles.

A significant number of students gained full marks for section (ii) of this question. They recognised that if a training drill was opened up too soon, the learner may be negatively affected psychologically or give a less successful performance.

Question 7

The mean mark for this question was 8.2 from a possible 19 marks.

This question presented a challenge to many students, involving a concept that was not well understood by the cohort. Students appeared to be confused by the term 'lactate threshold', and commonly made the mistake of suggesting that it is associated with mainly anaerobic training. The better responses showed a link between high-level aerobic training and tolerance and delay of OBLA.

In part (a) a range of heart-rates (between 182 and 185 beats per minute, taken from the graph) were accepted.

Steady state was a concept tested in part (b), which indicated that a large number of students recognised the relationship between oxygen availability and oxygen requirements determined by the intensity of the activity.

Part (c) proved difficult for many students. Those who responded well identified that the heart-rate on the graph would indicate the level of intensity of the athlete. The most discerning students used 85% of maximum heart-rate as a marker for lactate threshold and therefore correctly determined that lactate threshold was exceeded in all three stages (A, B, and C).

Many students were able to explain in part (d) that manipulation of the work-to-rest ratio would most likely change energy system use and therefore may affect the training prescription.

In part (e) there were a range of possible responses to the cause of the athlete's fatigue when running the last kilometre. However, most students explained the cause-and-effect relationship as determined by the accumulation of lactic acid. This suggests that students are not fully aware of the other factors that cause fatigue or the mechanism of fatigue induced by lactate accumulation.

In part (d) successful students clearly identified that high-intensity activity directly increases the length of time of EPOC before the body can return to homeostasis.

Part (f) showed that a large range of students are still unable to use data effectively to explain the interplay of energy systems. Students' most common mistake was to simply state the role of each energy pathway rather than give reasons for the

changing contributions of energy systems based on the changing intensities of the activity.

In part (g) students recognised the correct training zone to improve lactate threshold but there appeared to be some guesswork involved. Poor responses incorrectly described lactate threshold training as anaerobic training rather than as high-intensity aerobic training. There was little understanding of how this training would result in chronic aerobic changes to delay OBLA and enhance lactate tolerance, and therefore enhance lactate threshold.

Question 8

The mean mark for this question was 2 from a possible 4 marks.

The questions relating to biomechanics appeared to indicate a clearer understanding of the relationship of biomechanics to technique. The successful students used the principles of inertia or leverage to explain the better starting performance of Blake. Reaction time was mistakenly used as a biomechanical principle on some occasions. The concept of longer levers (leverage) to enable Bolt to have increased stride length was most commonly used to explain the biomechanical advantage of height.

Question 9

The mean mark for this question was 5.1 from a possible 11 marks.

Most parts of this question were answered well. Aerobic training in its various forms (e.g. long slow distance, fartlek, and long interval training) was the most common method of training identified.

A large number of students correctly stated chronic aerobic responses to training in section (i) of part (b).

Section (ii) demonstrated discernment between the better students. Few students were able to apply their knowledge and explain the improvement in performance as a result of aerobic chronic adaptations. Some students just stated ‘they could go longer’.

In relation to the increase in capillarisation, VO_2 maximum, and heart-rate in part (c), students who were awarded full marks recognised that in each case there is most likely an increase in the availability of oxygen to the working muscles.

In part (d) most students were unable to specifically explain how a-VO_2 difference or the heart-rate of an endurance-trained athlete would improve performance at submaximal levels. The more successful students explained that increased oxygen supply would allow the runner to work at higher speeds/intensities, but still remain at submaximal levels. Therefore performance at higher speeds can occur without increased contributions from anaerobic systems and delay fatigue. The very astute students also explained that less perceived effort from training may delay psychological fatigue.

Question 10

The mean mark for this question was 3.1 from a possible 7 marks.

The understanding of physiological adaptations as a result of specific training continues to challenge many students. A large number of students did not refer to the

data in their response. Both the factors listed in the data, that is, resting heart-rate and VO_2 maximum, indicate that Bailey has greater aerobic endurance.

The successful students explained that, as a result of aerobic training, the lowered resting heart-rate with increased stroke volume causes an equivalent submaximal cardiac output for the two runners.

This concept of change to cardiac output with training, both at submaximal and maximal intensity, has been tested several times. Common mistakes included confusion about the terms submaximal intensity and maximal intensity and the role of stroke volume in cardiac output.

PART 2: EXTENDED-RESPONSE QUESTION

Question 11

The mean mark for this question was 4.3 from a possible 10 marks.

In comparison with 2012 there was an improvement in the mean mark and an increase in the number of students who attempted this question. However, students were still challenged by the use of specific terminology.

Marks were awarded for:

- a clear explanation of the three factors chosen from:
  - selective attention
  - signal detection
  - feedback
  - decision-making
  - fatigue
- a clear explanation of the relationship of the chosen factors to successful or unsuccessful performance in a high-pressure situation
- the use of specific terminology
- the use of relevant examples.

The most popular choices were selective attention, signal detection, and fatigue. Confusion between selective attention and signal detection was evident in many responses. The most common cause of fatigue explained was that caused by the effects of lactic acid accumulation. Few students were able to recognise that a resulting reduction in power output would be likely to increase error rate in a high-pressure situation.

Answers that were awarded high marks defined the relevant term and applied the concept in an appropriate context. To be awarded full marks, students had to clearly explain the concept in relation to a high-pressure situation.

For example, many students correctly explained signal detection as the ability to detect the presence of a relevant cue. Some students included in their response the ways in which cue detection can be improved in performance. However, it was more important to explain that effective cue detection allows the performer to process and respond to information with increased accuracy and if necessary with more speed, thereby reducing pressure. It appears that these concepts of skills acquisition are only partly understood and that students are unable to apply them effectively, using correct terminology and in relevant contexts.

OPERATIONAL ADVICE

Teachers were well prepared for the final moderation (on site) of Assessment Type 1: Practical and were aware that student performance needed to be sighted in two centrally developed practicals. Teachers were prepared with appropriate methods of identifying the students for the moderator, and used a variety of specific skills criteria checklists as supportive evidence of specific features against the performance standards. The centrally developed practical specific skills criteria lists are being revised and will be available on the website at the beginning of Term 1 as a single-page document.

When students have their practical assessment varied because of injuries or approved individual negotiated practicals, the Variations — Moderation Materials form must be completed and presented to the moderator along with all the specific skills criteria checklists on the day of moderation.

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 helped the moderators to identify reasons for missing materials. The Variations — Moderation Materials form was also used successfully to provide the moderators 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. When completed assessment work deviates from the approved learning and assessment plan, particularly for the whole class, this must be clearly indicated on the addendum at the end of the learning and assessment plan submitted in the teacher folder.

Physical Education
Chief Assessor