

# **Physical Education**

## **Upper Secondary Teacher Guide**



Papua New Guinea  
Department of Education

Issued free to schools by the Department of Education

Published in 2008 by the Department of Education, Papua New Guinea

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ISBN 978-9980-9924-7-5

## **Acknowledgements**

The Upper Secondary Physical Education Teacher Guide was written, edited and formatted by the Curriculum Development Division of the Department of Education. The development of the teacher guide was coordinated by Rodney Topa Sumale.

Writers from schools, tertiary institutions and non-government organisations across the country have contributed to the writing of this teacher guide through specialist writing workshops and consultations. Quality assurance groups and the Physical Education Subject Advisory Committee have also contributed to the development of this teacher guide.

This document was developed with the support of the Australian Government through the Education Capacity Building Program.

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## Secretary's message

This teacher guide is to be used by teachers when implementing the Upper Secondary Physical Education Syllabus (Grades 11 and 12) throughout Papua New Guinea. The Physical Education syllabus identifies the learning outcomes and content of the subject as well as assessment requirements. The teacher guide gives practical ideas about ways of implementing the syllabus: suggestions about what to teach, strategies for facilitating learning and teaching, how to assess and suggested assessment tasks.

A variety of suggested learning and teaching activities provides teachers with ideas to motivate students to learn, and make learning relevant, interesting and enjoyable. Teachers should relate learning in Physical Education to real people, issues and the local environment. Teaching using meaningful contexts and ensuring students participate in appropriate practical activities assists students to gain knowledge and understanding, and demonstrate skills in Physical Education.

Teachers are encouraged to integrate Physical Education activities with other subjects, where appropriate, so that students can see the interrelationships between subjects and that the course they are studying provides a holistic education and a pathway for the future.

I commend and approve the Upper Secondary Physical Education Teacher Guide for use in all schools with Grades 11 and 12 students throughout Papua New Guinea.



**DR JOSEPH PAGELIO**

Secretary for Education

## Introduction

The purpose of this teacher guide is to help you to implement the Physical Education syllabus. It is designed to stimulate you to create exciting and meaningful teaching programs and lessons by enabling you to choose relevant and purposeful activities and teaching activities. It will encourage you to research and look for new and challenging ways of facilitating students' learning in Physical Education.

The teacher guide supports the syllabus. The syllabus states the learning outcomes for the subject; and outlines the content and skills that students will learn, and suggested assessment tasks.

The teacher guide provides direction for you in using the outcomes approach in your classroom. The outcomes approach requires you to consider assessment early in your planning. This is reflected in the teacher guide.

This teacher guide provides examples of learning and teaching activities, and assessment activities and tasks. It also provides detailed information on criterion-referenced assessment, and the resources needed to teach Physical Education. The section on recording and reporting shows you how to record students' marks and how to report against the learning outcomes.

There is an emphasis on student-centred learning and activities, because students learn better when they take part in their own learning through the physical activities. Through the practical activities, they learn to make meaning of theory.

## The outcomes approach

In Papua New Guinea, the Lower Secondary and Upper Secondary syllabuses use an outcomes approach. The major change in the curriculum is the shift to what students know and can do at the end of a learning period, rather than a focus on what the teacher intends to teach.

An outcomes approach identifies the knowledge, skills, attitudes and values that all students should achieve or demonstrate at a particular grade in a particular subject (the learning outcomes). The teacher is responsible for identifying, selecting and using the most appropriate teaching methods and resources to achieve these learning outcomes.

Imagine the student is on a learning journey, heading to a destination. The destination is the learning outcome that is described in the syllabus document. The learning experiences leading to the learning outcome are to be determined by the teacher. The teacher uses curriculum materials, such as syllabus documents and teacher guides, as well as textbooks or electronic media and assessment guidelines, to plan activities that will assist students achieve the learning outcomes.

The outcomes approach has two purposes. They are:

- to equip all students with knowledge, understandings, skills, attitudes and values needed for future success
- to implement programs and opportunities that maximise learning.

Three assumptions of outcomes-based education are:

- all students can learn and succeed (but not on the same day or in the same way)
- success breeds further success
- schools can make a difference.

The four principles of the Papua New Guinean outcomes approach are:

**1 *Clarity of focus through learning outcomes***

This means that everything teachers do must be clearly focused on what they want students to be able to do successfully. For this to happen, the learning outcomes should be clearly expressed. If students are expected to learn something, teachers must tell them what it is, and create appropriate opportunities for them to learn it and to demonstrate their learning.

**2 *High expectations of all students***

This means that teachers reject comparative forms of assessment and embrace criterion-referenced approaches. The 'principle of high expectations' is about insisting that work be at a very high standard before it is accepted as completed, while giving students the time and support they need to reach this standard. At the same time, students begin to realise that they are capable of far more than before and this challenges them to aim even higher.

**3 *Expanded opportunities to learn***

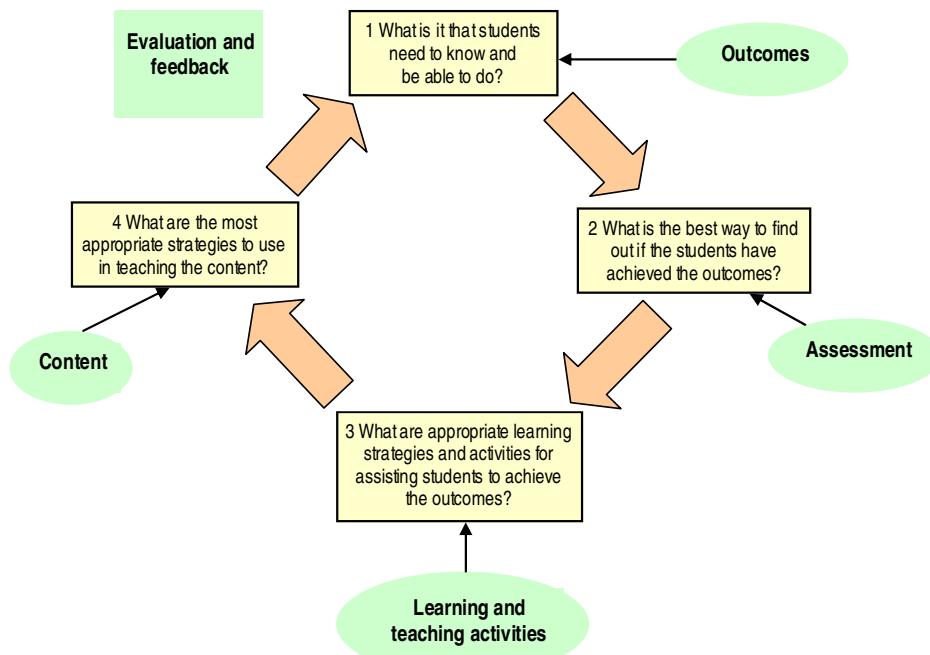
This is based on the idea that not all students can learn the same thing in the same way in the same time. Some achieve the learning outcomes sooner and others later. However, most students can achieve high standards if they are given appropriate opportunities. Traditional ways of

organising schools do not make it easy for teachers to provide expanded opportunities for all students.

4 *Planning and programming by ‘designing down’*

This means that the starting point for planning, programming and assessing must be the learning outcomes—the desired end results. All decisions on inputs and outputs are then traced back from the learning outcomes. The achievement of the outcome is demonstrated by the skills, knowledge and attitudes gained by the student. The syllabuses and/or teacher guides describe some ways in which students can demonstrate the achievement of learning outcomes.

### Outcomes-based approach



Learning outcomes provide teachers with a much clearer focus on what students should learn. They also give teachers greater flexibility to decide what is the most appropriate way of achieving the learning outcomes and meeting the needs of their students by developing programs to suit local content and involve the community.

The outcomes approach promotes greater accountability in terms of student achievement because the learning outcomes for each grade are public knowledge—available to teachers, students, parents and the community. It is not the hours of instruction, buildings, equipment or support services that are the most important aspect of the education process but rather, what students know and can do, as they progress through each grade. The outcomes approach means that learning

- has a clearer purpose
- is more interactive—between teacher and students, between students
- has a greater local context than before
- is more closely monitored and acted upon by the teacher
- uses the teacher as a facilitator of learning as well as an imparter of knowledge.

## Learning outcomes

The syllabus learning outcomes describe what students know and can do at the end of Grade 12. The Physical Education learning outcomes listed below identify the knowledge, skills, attitudes and values all students achieve or demonstrate at the end of Grade 12.

Students can:

1. explain the roles that systems, energy, forces and motion play in their contribution to movement, and their integration in exercise and performance
2. design effective and appropriate fitness programs for themselves and others
3. carry out physical activities incorporating safe and preventive strategies
4. describe the diverse scope of people's participation in physical activity, the levels of effectiveness of this participation, and factors that may influence this effectiveness
5. implement and conduct sports events and physical activities, responding to all requirements of efficient coordination, cooperation, and management
6. demonstrate an understanding of the benefits of outdoor leisure activities
7. analyse a chosen physical activity in a systematic way, taking participatory, leadership and research roles
8. display enjoyment of physical activity through modelling, leadership and high-level participation.

## Learning and teaching

You, as a teacher, must teach the knowledge that is included in the syllabus documents. Not only do you have to be able to teach what students should know, you must also be able to interpret that knowledge for students in a way that makes it relevant to them, and enables them to begin to acquire skills of analysis and problem solving, which will support learning and teaching. You also need to give students some opportunities to apply their knowledge, to be creative and to solve problems.

### Learning and teaching strategies

Students who participate in guided instruction learn more than students who are left to construct their own knowledge (Mayer 2004). You need to employ a variety of learning and teaching approaches because all students do not learn in the same way. The 'auditory learner' prefers to use listening as the main way of learning new material whereas a 'visual learner' prefers to see things written down.

Students should be actively involved in their learning and therefore you need to design appropriate practical activities or experiments, using resources that can be found in your location.

In Grades 11 and 12, students will already have had a wide variety of experiences. You need to make use of your students' experiences when designing and conducting learning in class, so that learning is connected to your students' world. There are many learning and teaching strategies described in the Lower Secondary teacher guides.

The most efficient and long-lasting learning occurs when teachers encourage the development of higher-order thinking and critical analysis skills, which include applying, analysing, evaluation and creating.

Attention should also be paid to developing students' affective and psychomotor skills. To make sure that this takes place, you should encourage deep or rich—rather than shallow—coverage of knowledge and understandings.

## Developing Physical Education skills

In Physical Education, students acquire the following skills:

- writing
- demonstration
- analysing
- planning and designing
- thinking and questioning skills
- researching
- evaluation
- movement and sporting
  - passing, kicking, throwing, jumping, stretching or fitness skills

## What do students do in Physical Education?

What follows is some elaboration of the skills that students should develop through undertaking particular activities.

### Analysing values

‘Values analysis’ involves gathering, analysing, organising and appraising facts in order to understand value positions held by individuals, groups or organisations. The process of analysing values can assist students to:

- identify values involved in an issue, situation or problem
- distinguish facts from interpretations of facts or opinions
- identify different kinds of bias in statements
- identify values implicit in laws or rules and their manner of enforcement
- give reasons based on evidence, for either accepting or rejecting particular values
- predict outcomes from given positions.

### Charts

Helping students to ‘chart’—that is, to organise information in various groupings under different headings—is quite valuable. It not only helps them to make sense out of a previously unrelated mass of data, but is also a crucial step in the process of developing a store of concepts to use in making sense of their experiences. Charts are a powerful organising tool and very helpful in getting students to think about data. They can be used when discussing projects aimed at minimising social issues.

### Debates

‘Debates’ are formalised discussions in which opposing points of view are put forward. These discussions allow students to take a position on an issue and justify that position, to perceive other points of view and to analyse relative strengths of arguments. There are several debating formats that can be used in Physical Education.

- A ‘round robin’ provides opportunity for each student to state a point of view and a supporting argument.
- Divide class members into two groups according to their chosen point of view. Each side takes turns to put forward a persuading statement.
- Students adopt a point of view and develop supporting arguments. They present their arguments in a persuasive manner and counteract arguments in response to opposition.

### Diagrams

‘Diagrams’ are employed by teachers in a variety of situations. They can be used to illustrate outlines and features of an object or process. They can show something complex like the HIV virus, which affects the immune system and its stages of development. The best diagrams are clear and include all the necessary details, with labels to identify features and explain processes.

## Discussions

‘Discussions’ provide opportunities to express ideas and feelings, listen to others and to look at issues from other perspectives. However, it is not practical with more than 20 people. If class discussions are going to be used in a large class, the class should be divided into two or more groups.

## Evaluation

‘Evaluation’ involves weighing options, consequences and evidence in decision-making contexts in order to make decisions and take action in just, caring and effective ways. The evaluation process often requires us to make decisions between values that are in apparent or real conflict.

## Guest speaker or visit

A ‘guest speaker’ or ‘visitor’ is a person who is invited to share his or her knowledge and skills with the students. This may be a teacher from another class, a parent, a member of the local community or a representative from a group, organisation or institution.

## Interviews

An ‘interview’ involves asking someone questions in order to find out more information about the subject. In this way, students can learn about things and peoples’ opinions first hand. There are usually many people that can be interviewed in Physical Education, such as health workers, elite and amateur athletes, sport administrators, leisure and fitness personnel, outdoor educators. Students can invite them to the classroom or meet them during fieldwork. To conduct an interview successfully, students need to:

- prepare their questions beforehand
- make sure questions are simple and to the point, and that they require more than a single-word answer
- make sure they tell the interviewee their purpose and thank them at the end
- listen carefully to answers
- take notes if possible.

## Photographs and pictures

‘Photographs’ and ‘pictures’ are visual texts. They can be used to develop many skills, such as observing, classifying, grouping, comparing and contrasting. Photographs allow for reinvestigation of first-hand experiences at a later date. They also clarify and stimulate further inquiry. Students can take and/or use photographs as a means of gathering and recording information. Computer technology enables photographs to be stored and reproduced in various ways.

## Presentations

‘Presentations’ are used to share information obtained through individual and group research and study. Presentations can be spoken, written or multimedia. They give students experience in organising, planning and presenting information and material to a particular audience and are therefore valuable experiences for both the presenter and the audience.

### **Problem solving**

A learning and teaching strategy that is particularly relevant for Physical Education in Grade 12 is ‘problem solving’. Students can be involved in identifying and working towards solutions; for example, in sociological issues in this context. The classroom, school grounds, arenas for physical activities, community and home all contain problems that are appropriate starting points for investigation by students.

The purpose of learning through applying problem-solving skills is to link conceptual understandings with practical experiences. It is important that students be given the opportunity to apply problem-solving techniques to a range of issues.

The teacher’s role is to:

- assist students to identify problems that are relevant and solvable
- organise learning that develops skills in problem solving
- choose learning activities that encourage responsible actions.

### **Reflective learning**

‘Reflection’ is thinking about what has been learnt. Reflecting often involves putting learning into a new context, looking at the experiences in a new light, interpreting what has been said or done for different applications or a new situation. Teachers need to provide time, both during and at the end of any learning experiences, for students to contemplate the content and processes in which they have engaged. This time needs to allow for individual, small-group and whole-class reflection. As a result of reflective learning, students may develop flexibility and creativity.

### **Research**

One of the best ways to learn in Physical Education is to think of the questions you want answered or what you want to know or ask about the things that interest you. This means doing your own research to find answers. The same applies to your students.

There are a number of steps involved in doing research. The best results are achieved if students do things in the right order and ask the following questions.

#### *Defining*

- What do I want to find out?
- What is my purpose?
- What are the key words and ideas of this task?
- What do I need in order to do to it?

#### *Locating*

- Where can I find the information I need?
- What do I already know?
- What do I still need to find out?

#### *Selecting*

- What information do I really need?

- What can I leave out?
- How relevant is the information I have found?
- How reliable is the information I have found?
- How will I record all the information?

#### *Organising*

- How can I best use this information?
- Do I need to use all the information?
- How can I best combine information from different sources?

#### *Presenting*

- How can I present this information?
- With whom will I share this information?
- How does the audience affect my presentation?

#### *Assessing*

- What did I learn from all this?
- Did I achieve what I set out to achieve?
- How did I go with each step of the information process?
- How I go with presenting my information?
- Where do I go from here?

### **Simulation**

‘Simulation’ means assuming roles according to specified rules and procedures. These can be role-plays or games. Simulation can also involve making working models to show how a process actually works.

### **Surveys**

A ‘survey’ is a method of gathering information for a specific purpose. It may take various forms, such as a values questionnaire or interview.

- Determine the purpose of the survey. What information do we need to obtain?
- Consider the form of survey most appropriate to gather the information needed on a topic or issue or problem. Be aware that if questions are used, they should be carefully formed to elicit the required information. Physical Education students should frame precise questions, perhaps discovering that responses to broad questions often confuse rather than clarify the purpose of the investigation.
- The need to trial a questionnaire could be explored. Supervision, safety and student protection issues need to be considered and discussed; for example, when surveying adults. Students should not survey adults other than their immediate family without teacher or parental supervision.
- Decide with students:
  - the purpose of this survey
  - who or what will be surveyed
  - how the information will be gathered; for example, by questioning, observing, individually by students, in jigsaw groups

- when and where the information will be obtained; for example, at home from parents, on an excursion, at recess in the playground, or in the classroom
- on the collation and final format and presentation of the data

## What do teachers of Physical Education do?

The Physical Education teacher:

- is interested in and concerned about events and movements in the local, national and global sporting community
- actively seeks to keep informed of sports and health issues while maintaining a critical stance towards sources of information
- takes a principled stand, and supports others who do so, against injustices and inequalities relating to race, gender, class, physical or mental attributes
- values democratic processes as the best means of bringing about positive change
- engages in some form of social action to support her or his beliefs.

As a teacher, she or he will:

- model democratic values of fairness, justice and equal respect
- use a range of teaching styles that foster both individual development and group cooperation and enable learners to make the best use of their differing learning styles
- encourage her or his learners to adopt a reflecting and questioning position in relation to physical education knowledge
- teach the prescribed curriculum well with an emphasis on infusing issues dealing with human rights, relationships, self-esteem and respect for diversity
- be a critical and thoughtful teacher.

## Developing a program

A teaching program outlines the nature and sequence of learning and teaching necessary for students to demonstrate the achievement of the learning outcomes. The content of the syllabus describes the learning context and the knowledge required for the demonstration of each outcome. The relevant learning outcomes for each unit or topic are stated at the beginning of the unit and the requirements of the outcomes are elaborated.

Teachers must develop programs that include appropriate learning activities to enable students to develop the knowledge and skills identified in the outcome statements.

The content prescribed in the units indicates the breadth and depth with which topics should be treated. The sequence of teaching is prescribed by the sequence of content. The learning outcomes and assessment, however, must be central to the planning of the teaching program.

## Planning and programming units

The main purpose of planning and programming is to help you to arrange the presentation of the unit in an organised manner. This will help you to know what to teach and when to teach it. It is strongly recommended that you make plans with the other teachers who teach the same subject. By planning together, you will *all* have better lessons and make better use of your limited resources.

### Points to consider when programming

- Which outcomes are students working towards?
- What is the purpose of this unit or topic or learning experience?
- Which learning experiences will assist students to develop their knowledge and understandings, skills, and values and attitudes, in Physical Education?
- What are the indicators of student learning that you would expect to observe?
- How can the learning experiences be sequenced?
- How do the learning experiences in the unit relate to students' existing knowledge and skills?
- How are individual learning needs to be catered for?
- What are the literacy demands of this unit or learning experience?
- What authentic links can be made with the content of other subjects?
- How can school events and practices be incorporated into the program?
- Do the assessment methods address the outcomes and enhance the learning?
- How can the assessment be part of the learning and teaching program?

### The planning process

In this teacher guide, ideas for programming and organising have been provided. These have been arranged in steps to help you teach the unit. The steps follow the thinking processes involved in the outcomes approach.

#### Step 1: Interpreting the learning outcomes

The first step is to read the description in the syllabus. Then study the learning outcomes and what students do to achieve the learning outcomes, in order to determine what students will know and be able to do by the end of the unit. You need to look at the action verb, concept and context of each learning outcome. This will help you to see what skills and knowledge are embedded in the outcome.

#### Step 2: Planning for assessment

It is necessary to plan for assessment early to ensure that you teach the content and skills students need to achieve the learning outcomes. You will have to decide when to schedule assessment tasks to allow yourself time to teach the required content and time for students to develop the necessary skills. You will also need time to mark the task and provide feedback.

Practical tasks may, for example, be broken into a series of stages that are marked over several weeks as students progress with making their product. It is not appropriate to leave all assessment until the end of the unit.

This teacher guide provides performance standards and examples of a marking guide. You should develop marking guides when you are marking tasks to ensure consistency in your assessment. You must also develop clear and detailed instructions for completing the task and make sure all students know exactly what they have to do.

### **Step 3: Programming a learning sequence**

This step requires you to develop a program outlining a sequence of topics and the amount of time spent on each topic. If the unit involves a project, for example, you may plan to teach some theory at appropriate stages during the project, rather than teaching all the theory before the students start the project. To develop your program you need to study the topics listed in the syllabus and to think about which learning activities will best provide students with the opportunity to learn the content and practise the appropriate skills, and how long the activities will take. You will have to think about some major activities that last several weeks and smaller activities that may be completed in a single lesson.

### **Step 4: Elaboration of activities and content**

Once you have mapped out your program for the term, you must then develop more detailed plans for each topic in the unit. All units require students to be actively engaged in learning, not just copying from the board. Make sure you develop a range of activities that suit all learning needs—some reading and writing, some speaking and listening, some observing and doing.

Browse through the textbooks and teaching resources you have access to and list the chapters, pages or items that you will use for each topic in your program. The textbooks should also provide you with ideas for activities related to the topic. You may have to collect or develop some resources for yourself. Once you have sorted out your ideas and information, you can then develop your more detailed weekly program and daily lesson plans.

This teacher guide gives some suggested learning and teaching activities for each unit and some suggested assessment tasks that you might like to use to ensure active learning. It also gives background information on some of the content.

## **Using the internet for classroom activities**

### *Planning*

- Where appropriate, incorporate computer sessions as part of planned learning experiences.
- Be aware that computers can be time-consuming and may require extra teacher support at unexpected times.
- Consider methods of troubleshooting, such as having students with computer expertise designated as computer assistants.
- Design activities that provide the opportunity for students to access, compare and evaluate information from different sources.
- Check protocols, procedures and policies of your school and system regarding the use of the internet.

### *Managing*

- Ensure that all students have the opportunity to explore and familiarise themselves with the technologies, navigation tools, e-mail facilities and

texts on the internet. It is likely that students will have varying degrees of expertise in searching for information and navigating the internet. Students will also have varying experiences of, and be more or less familiar with, the way texts are presented on the World Wide Web.

- Ensure that all students understand how to access the internet and perform basic functions such as searching, sending and receiving e-mail.
- Students with more experience in using the internet may have information that will benefit the whole class. Provide opportunities for students to share their experiences, interests, information and understandings. As well as planning lessons to instruct students in these skills, pairing students and peer tutoring on the computer can enable more experienced students to assist other students.
- Ensure that students critically analyse physical education information gathered on the internet, just as they would for any other text. They should be aware that material posted on the Web is not necessarily subject to the conventional editorial checks and processes generally applied to print-based publications. When evaluating information, students might consider:
  - the intended audience of the site
  - bias in the presentation of information, or in the information itself, including commercial or political motives
  - accuracy of information
  - balanced points of view
  - currency of information, including publishing dates
  - authority of source or author (institution, private individual)
  - ownership of the website (such as corporate, small business, government authority, academic)
  - cultural or gender stereotyping.
- Ensure that software and hardware (computer, modem) are maintained in good working order.
- Ensure that all students are given equal opportunities to use the computer.

#### *Assessing student work containing material from the internet*

- Students can download large quantities of information from the internet. In itself, such information provides very little evidence of student effort or student achievement. Students must make judgements about the validity and safety of information when working from the Web. They must consider the purpose of the text, identify bias, and consider the validity of arguments presented and the nature and quality of the evidence provided.
- When assessing student work that includes material drawn from the internet, it is therefore important to recognise how students have accessed the information, what value they place on it and how they have used it for the topic being studied in class. It is useful to look for evidence of critical evaluation, and the development of students' capacities to access, manipulate, create, restore and retrieve information.

## Physical Education requirements

There are three units in Grade 11, which all students must complete. There are three units in Grade 12, which all students must complete. There are also assessment tasks.

### Physical Education requirements

Grade	Weeks	Term	Unit	Essential resources for activities and assessment
11	1–14	1	Moving Body in Action	On Your Marks Anatomical models School-based manuals
11	15–25	2	Health and Care in Physical Activity	On Your Marks
11	26–40	3	Administration in Sports and Physical Activity	Sport personnel (administrators) Sports administration manuals
12	1–10	1	Analysis of Physical Activity	Clubs or associations On Your Marks
12	11–20	2	Socio-psychological Elements of Physical Activity	Physical Education for Melanesia
12	21–30	3	Recreation, Leisure and Careers in Physical Activity	Outdoor education texts Leisure industry personnel Internet

# Assessing Physical Education

Assessment is an important part of learning and teaching. It is used to:

- evaluate and improve learning and teaching
- report achievement
- provide feedback to students on their progress
- provide feedback to stakeholders.

## Criterion-referenced assessment

Assessment in Physical Education is criterion-referenced and measures students' achievement of the learning outcomes described in the syllabus. In criterion-referenced assessment, particular knowledge, skills or abilities are specified as criteria that must be achieved. The extent to which they are achieved is assessed and facilitated by the teacher.

Criterion-referenced assessment often takes on a problem-centred orientation, rather than a knowledge-based orientation. To achieve an outcome means having to demonstrate the attainment of skills and attitudes, not just write about them. Assessment then becomes more than just a means of judging knowledge and performance—it becomes an integral part of the learning process itself.

Criterion-referenced assessment is:

- standards or criterion-referenced; that is, outcomes are judged against pre-defined standards (see table below)
- direct and authentic, related directly to the learning situation. This has the potential for motivating learning, since students can see a direct relevance between what is learnt and what is assessed.

## Norm-referenced assessment

'Norm-referenced assessment' makes judgements on how well the student did in relation to others who took the test. It is often used in conjunction with a curve of 'normal distribution', which assumes that a few will do exceptionally well and a few will do badly and the majority will peak in the middle, normally judged as average.

## Example of a criterion-referenced test

The driving test is the classic example of a criterion-referenced test. The examiner has a list of criteria, each of which must be satisfactorily demonstrated in order to pass; for example, completing a three-point turn without hitting either kerb. The important thing is that failure in one criterion cannot be compensated for by above-average performance in others; nor can a student fail in spite of meeting every criterion (as they can in norm-referenced assessment) simply because everybody else that day surpassed the criteria and was better than him or her.

Criterion-referenced assessment has the following characteristics:

- a syllabus that describes what students are expected to learn in terms of aims, outcomes and content

- a syllabus that provides a clear sense of the syllabus standards through its aims, outcomes and content
- tasks designed to produce an image of what students have achieved at that point in the learning and teaching process relative to the outcomes
- standards of performance at different levels: the 'performance standards'
- a report that gives marks referenced to predetermined standards
- assessment tasks that refer to syllabus outcomes, content, assessment components and component weightings
- assessment that is better-integrated with learning and teaching.

### Criterion or standards-referenced assessment in Physical Education

Learning outcomes performance standards					
Learning outcomes	Very high achievement	High achievement	Satisfactory achievement	Low achievement	Below minimum standard
1. Explains the roles that systems, energy, forces and motion play in their contribution to movement, and their integration in exercise and performance	Demonstrates extensive knowledge and understanding of the roles that systems, energy, forces and motion play in their contribution to movement, and their integration in exercise and performance	Demonstrates sound knowledge and understanding of the roles that systems, energy, forces and motion play in their contribution to movement, and their integration in exercise and performance	Demonstrate some knowledge and understanding of the roles that systems, energy and motion play in their contribution to movement, and their integration in exercise and performance	Limited demonstration of knowledge and understanding of the roles that systems, energy and motion play in their contribution to movement, and their integration in exercise and performance	Has failed to meet the minimum standard required
2. Designs effective and appropriate fitness programs for themselves and others	Demonstrates extensive knowledge, understanding and skills, in prescribing effective and appropriate fitness programs for themselves and others	Demonstrates sound knowledge, understanding and skills, in prescribing effective and appropriate fitness programs for themselves and others	Demonstrates knowledge, understanding and skills, in prescribing fitness programs for themselves and others	Demonstrates limited knowledge, understanding and skills in prescribing fitness programs required	Has failed to meet the minimum standard required
3. Carries out physical activities incorporating safe and preventive strategies	Demonstrates extensive knowledge, understanding and the capacity to carry out a wide range of physical activities incorporating safe, preventative strategies	Demonstrates knowledge, understanding and the capacity to carry out a range of physical activities incorporating safe, preventative strategies	Shows some knowledge of how physical activities can be carried out incorporating safe, preventative strategies	Shows limited knowledge of how physical activities can be carried out incorporating safe, preventative strategies	Has failed to meet the minimum standard required

Learning outcomes performance standards					
Learning outcomes	Very high achievement	High achievement	Satisfactory achievement	Low achievement	Below minimum standard
4. Describes the diverse scope of people's participation in physical activity, the levels of effectiveness of this participation, and factors that may influence this effectiveness	Researches, identifies and develops extensive ideas to describe a wide range of people's participation in physical activity, the level of effectiveness of this participation and the factors that may influence this effectiveness	Researches, identifies and develops many ideas that describes a range of people's participation in physical activity, the level of effectiveness of this participation and the factors that may influence this effectiveness	researches, identifies and develops some ideas that describes a range of people's participation in physical activity, the level of effectiveness of this participation and the factors that may influence this effectiveness	Develops limited ideas in accordance with the required knowledge and understanding of the outcome	Has failed to meet the minimum standard required.
5. Implements and conducts sports events and physical activities, responding to all requirements of efficient coordination, cooperation and management	Designs efficient plans and strategies required to implement and conduct sports events and physical activities, responding to all requirements of effective coordination, cooperation and management	Designs sound plans and strategies required to implement and conduct sports events and physical activities, responding to all requirements of effective coordination, cooperation and management	Designs plans and strategies to implement and conduct sports events and physical activities, responding to all requirements of effective coordination, cooperation and management	Develops limited ideas required to conduct and implement sports events and physical activities	Has failed to meet the minimum standard required
6. Demonstrates an understanding of the benefits of outdoor leisure activities	Demonstrates extensive knowledge and understanding of wide range of the outdoor leisure activities and their benefits	Demonstrates knowledge and understanding of a wide range of the outdoor leisure activities and their benefits	Demonstrates limited knowledge and understanding of wide range of the outdoor leisure activities and their benefits	Develops limited ideas required about the benefits of the outdoor leisure activities	Has failed to meet the minimum standard required
7. Analyses a chosen physical activity in a systematic way, taking participatory, leadership and research roles	Independently designs quality research on a selected physical activity and proficiently analyses it in a systematic way, taking participatory, leadership and research roles	Independently designs research on a selected physical activity and proficiently analyses it in a systematic way	Designs research on a selected physical activity and proficiently analyses it in a systematic way	Provides limited analysis of physical activity in research with assistance	Has failed to meet the minimum standard required
8. Displays enjoyment of physical activity through modelling, leadership and high-level participation	Displays extensive involvement and enjoyment of physical activity through modelling, leadership roles and high level participation in career paths	Displays reasonable involvement and enjoyment of physical activity through modelling, leadership roles and high level of participation in career paths	Displays some involvement and enjoyment of physical activity through modelling, leadership and high level participation	Displays limited involvement and enjoyment of physical activity through modelling, leadership and high level participation	Has failed to meet the minimum standard required

## Assessment for learning

Assessment for learning is often called 'formative assessment'. It is assessment that gathers data and evidence about student learning during the learning process. It enables you to see where students are having problems and to give immediate feedback, which will help your students learn better. It also helps you plan your program to make student learning, and your teaching, more effective. Often it is informal—students can mark their own work or their friend's. An example is a quick class quiz to see if students remember the important points of the previous lesson.

## Assessment of learning

Assessment of learning is often called 'summative assessment'. Summative assessment is used to obtain evidence and data that shows how much learning has occurred, usually at the end of the term or unit. End-of-year examinations are examples of summative assessment. It is usually done for formal recording and reporting purposes.

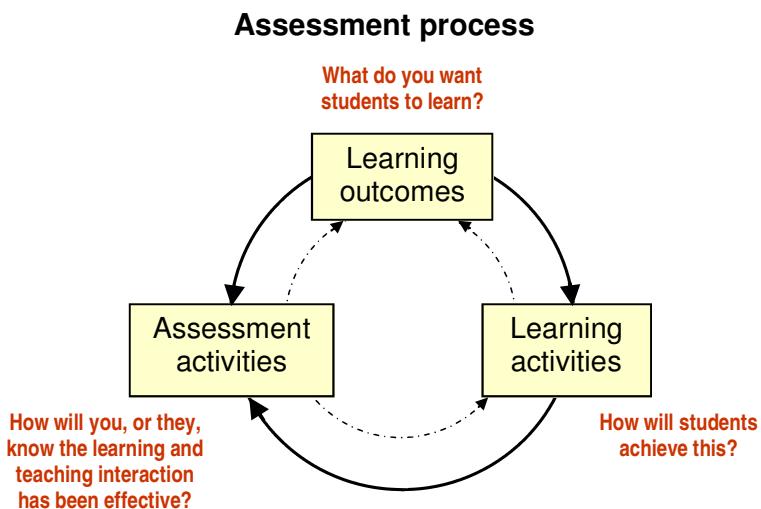
## Assessing Physical Education units

In Physical Education the learning outcomes are assessed using the range of assessment methods specified in the syllabus (in the table of components, weightings and tasks). In deciding what to assess, the starting point is: 'what do you want students to do and/or learn?' and following from this: 'how will the students engage with the material?' which in turn leads to the design and development of learning tasks and activities.

It is crucial that at this point the assessment tasks clearly link back to the learning outcomes and are appropriate for the learning activities.

The assessment can be used for formative and summative purposes.

Assessment can be represented as follows:



Once it is clear what needs to be assessed and why, then the form the assessment will take needs to be determined.

There are many types of assessment tasks that can be implemented; the factors that will determine choices include:

- the students—how many are there, what is expected of them, how long will the assessment task take?
- the learning outcomes of the subject and how they might be best achieved.

During the year you must set assessment tasks that ensure that all the learning outcomes of the subject have been assessed internally. Each task you set must include assessment criteria that provide clear guidelines to students as to how, and to what extent, the achievement of the learning outcomes may be demonstrated.

Marking guides and assessment criteria help you with the marking process and ensure that your assessment is consistent across classes. It is important that marking guides and assessment criteria are collectively developed.

Students must complete the assessment tasks set. Each task must provide clear guidelines to students for how the task will be completed and how the criteria will be applied.

When you set a task, make sure that:

- the requirements of the task are made as clear as possible to the student
- the assessment criteria and performance standards or marking guides are provided to students so that they know what it is that they have to do
- sources or stimulus material used are clear and appropriate to the task
- instructions are clear and concise
- the language level is appropriate for the grade
- it does not contain gender, cultural or any other bias
- materials and equipment needed are available to students
- adequate time is allowed for completion of the task.

## Assessment methods

Although assessment components and weightings are stipulated in the syllabus, you decide which assessment method to use when assessing the learning outcomes. You should use a variety of assessment methods to suit the purpose of the assessment. Assessment can be classified into four categories: tests; product or project assessments; performance assessments; and process skills assessments.

Because each has limitations, maintaining a balance of assessment methods is very important.

### Tests

A ‘test’ is a formal and structured assessment of student achievement and progress, which the teacher administers to the class. Tests are an important aspect of the learning and teaching process if they are integrated into the regular class routine and not treated merely as a summative strategy. Tests allow students to monitor their progress and provide valuable information for you in planning further learning and teaching activities.

Tests will assist student learning if they are clearly linked to the outcomes. Evidence has shown that several short tests are more effective for student

progress than one long test. It is extremely important that tests are marked and that students are given feedback on their performance.

There are many different types of tests. Tests should be designed to find out what students know, and also to find out about the development of their thinking processes and skills. Open questions provide more detailed information about achievement than a question with only one answer.

#### *Principles of designing classroom tests*

Tests allow a wide variety of ways for students to demonstrate what they know and can do. Therefore:

- students need to understand the purpose and value of the test
- the test must assess intended outcomes
- clear directions must be given for each section of the test
- the questions should vary from simple to complex
- marks should be awarded for each section
- the question types (true or false, fill-in-the-blank, multiple-choice, extended response, short answer, matching) should be varied.

Tests should:

- be easy to read (with space between questions to make reading and writing easier)
- reflect an appropriate reading level
- involve a variety of tasks
- make allowance for students with special needs
- give students some choice in the questions they select
- vary the levels of questions to include gathering, processing and applying information
- provide enough time for all students to finish.

### **Assignments**

‘Assignments’ are unsupervised pieces of work that often combine formative and summative assessment tasks. They form a major component of continuous assessment in which more than one assessment item is completed within the term.

Any of the methods of assessment can be set as assignments, although restrictions in format, such as word limits and due dates, are often put on the assessment task to make them more practical.

### **Investigations**

An ‘investigation’ involves students in a study of an issue or a problem. Teachers may guide students through their study of the issue; or individual students, or groups of students, may choose and develop an issue in consultation with the teacher. This assessment component emphasises the student’s investigation of the issue in its context, by collecting, analysing, and commenting on secondary data and information. Students should be encouraged to consider and explore a variety of perspectives as they develop and state their position on the issue. Students may present the investigation for assessment in a variety of forms, including one or a

combination of the following: a written report, an oral presentation, a website, linked documents, multimedia, a video or audio recording.

#### *Criteria for judging performance*

The student's performance in the investigation will be judged by the extent to which the student:

- identifies and describes the issue or problem
- describes and explains the causes and effects
- critically analyses information and outlines possible steps leading to a solution or recommendation.

#### **Portfolios**

Portfolios provide evidence for judgements of student achievement in a range of contexts. Portfolios contain a specific collection of student work or evidence. This collection of work should provide a fair, valid and informative picture of the student's accomplishments.

#### **Computer-based tasks**

Using computers to administer student assessment can provide flexibility in the time, location or even the questions being asked of students. The most common type of computer-based assessment is based on multiple-choice questions, which can assist teachers to manage large volumes of marking and feedback.

#### **Performance or presentation assessments**

A 'presentation' provides opportunities for students to develop skills and confidence when presenting to an audience. When presentations are used for assessment purposes, *how* students present is as important as *what* they present. Performances and presentations can be formal or informal. Class or group performances must be timed and the purpose clearly defined. All participants have a task to perform. However, as part of learning and teaching or formative assessment, all members should have an opportunity to perform different roles throughout the year. Group presentations can be shared among members to allow all members a turn at talking or performing.

Group and individual oral presentations and performances can be very time-consuming, both in their use of valuable lesson time and in marking. The best approach is to allocate topics or allow students to choose from a variety of topics, to develop clear criteria for presentations, and to require the rest of the class (audience) to take notes, identify key points or write an evaluation to enhance their learning.

'Spotlighting' uses individual student checklists. This method can be used to focus on a few selected aspects of student performance or outcomes; for example, when assessing student performances in drama or music. It is best to focus on five to six students at a time, systematically working through the class over time. 'Focused questioning' is a technique often used in conjunction with spotlighting. With focused questioning, teachers can gain a deeper awareness as to whether or not students understand the concepts or skills being taught.

### Process skills assessments

This method of the assessment component, the 'process skills assessment', involves assessing students' understanding of concepts based on the practical skills that can be used, the evaluation of work done, and/or the reporting of information. These skills include, for example:

- interpretation skills
- evaluation skills
- reflection skills
- communication skills (such as writing, speaking and listening).

### Types of assessment tasks

Using different assessment tasks is the way to make sure that students are able to demonstrate the range of their abilities in different contexts. Each category has advantages in assessing different learning outcomes. For example, a selected response assessment task, such as a series of multiple-choice questions, is able to assess all areas of mastery of knowledge, but only some kinds of reasoning.

### Assessment ideas for individual students or groups

Tests	Products or projects	Performances	Process skills
Multiple-choice	Advertisements	Announcements	Anecdotal records
Essay	Audiocassettes	Cooperative learning group activities	Checklist observations for processes
Matching	Autobiographies	Debates	Concept mapping
Short answer	Brochures	Demonstrations	Conferences: teacher and peer
True or false	Case studies	Discussions	Debriefing interviews
Extended response	Displays	Conferences	Experiences checklists
Sports	Drawings	Commercials	Interactional analyses
Team events	Charts, diagrams	Explanations	Interviews
Practical tests	Handbooks	Excursions	
	Essays		
	Photographs	Oral presentations	Journal entries regarding processes
	Portfolios	Role plays	Learning logs
	Posters	News reports	Observations
	Product descriptions and promotions	Reports	Oral questioning
	Projects	Speeches	Process folios
		Warnings	
	Proposals		Retelling in own words
	Questionnaires		Tailored responses
	Research papers		Telling how they did something and justifying the approach
	Journals		
	Letters to editor, television station or business		
	Newspapers		
	Pamphlets		

## Feedback

When you assess the task, remember that feedback will help the student understand why he or she received the result and how to do better next time.

Feedback should be:

- *constructive*, so students feel encouraged and motivated to improve
- *timely*, so students can use it for subsequent learning
- *prompt*, so students can remember what they did and thought at the time
- *focused on achievement*, not effort. The work, not the student, should be assessed
- *specific to the unit learning outcomes*, so that assessment is clearly linked to learning.

### Types of feedback

Feedback can be:

- *informal* or *indirect*—such as verbal feedback in the classroom to the whole class, or person to person
- *formal* or *direct*—in writing, such as checklists or written commentary to individual students, in either written or verbal form
- *formative*—given during the topic with the purpose of helping the students know how to improve
- *summative*—given at the end of the topic with the purpose of letting the students know what they have achieved.

## Who assesses?

### Teacher assessment

Assessment is a continuous process. You should:

- always ask questions that are relevant to the outcomes and content
- use frequent formative tests or quizzes
- check understanding of the previous lesson at the beginning of the next lesson, through questions or a short quiz
- constantly mark or check the students' written exercises, class tests, homework activities and so on
- use appropriate assessment methods to assess the tasks.

### Frequency of assessment

You should schedule the specified assessment tasks to fit in with the teaching of the content of the unit that is being assessed. Some assessment tasks might be programmed to be undertaken early in the unit, others at the end of the unit. You should take care not to overload classes with assessment tasks at the end of the term.

### Judging student performance

Student achievement is recorded and reported against standards. You must use performance standards or marking guides, examples of which are provided in this teacher guide, when making a decision about the

achievement of your students in relation to the learning outcomes. The performance standards describe the level at which the student has to be working to achieve a particular standard or mark.

Students should always have access to a copy of the assessment criteria and the performance standards, so that they know what it is they have to know and be able to do to get a good mark in a particular task. The performance standards will help you in your marking and will help your students improve their performance in the future. They are useful when providing feedback to students, as they explain what it is the student needs to do to improve.

#### *Moderation*

To make sure that you are interpreting the performance standards correctly when assessing your students, it is important to undertake Physical Education moderation of student work within your school and with teachers of nearby schools.

To moderate student work, a common assessment task must be used and a marking scheme developed so that all students complete the same task under the same conditions, and all teachers use the same marking scheme. Teachers can then compare (moderate) the students' work and come to a common understanding of the performance standards and the requirements for a particular mark or level of achievement.

Moderation enables you to be sure that your understanding of the required standards for levels of achievement is similar to the understanding of other teachers and that you are assessing students at the appropriate level.

#### **Self-assessment and peer assessment**

Self-assessment and peer assessment help students to understand more about how to learn. Students should be provided with opportunities to assess their own learning (self-assessment) and the learning of others (peer assessment) according to set criteria.

Self-assessment and peer assessment:

- continue the learning cycle by making assessment part of learning
- show students their strengths and areas where they need to improve
- engage students actively in the assessment process
- enable students to be responsible for the learning
- help to build self-esteem through a realistic view of their abilities
- help students understand the assessment criteria and performance standards.

#### **Managing assessment tasks for Physical Education**

Usually, the marking of assessment tasks is done by the teacher. To reduce the amount of work it is necessary to develop a strategic approach to assessment and develop efficiencies in marking.

In Physical Education there are some assessment tasks that may be new to teachers and students. Below are suggestions on how to manage some of these tasks to minimise marking or presentation time.

## Develop efficiency in marking

### *Clarify assessment criteria*

Plan the assessment task carefully, and make sure that all students are informed of the criteria before they begin. Discuss the task and its criteria in class, giving examples of what is required. Distribute a written copy of the instructions and the criteria, or put them on the board. Making the assessment criteria explicit speeds marking and simplifies feedback.

### *Supply guidelines on what is required for the task*

Supplying guidelines reduces the amount of time wasted evaluating student work that is irrelevant.

### *Use attachment sheets such as marking guides*

An assignment attachment sheet, which is returned with the assessed work, rates aspects of the task with a brief comment. Such a system enables each student's work to be marked systematically and quickly. This strategy can be applied to posters, presentations and performances.

### *Assess in class*

Use class time to carry out and to assess tasks. Performances or presentations, marked by you or the students, enable instant developmental evaluation and feedback. Brief assessments of projects, stages of the design process, or practical work take less time to mark and are useful because they give immediate feedback to students on their progress and allow you to mark the project in stages with minimum effort.

### *Feed back to the whole class*

Giving feedback to the whole class can cut down on the amount of individual feedback required. On returning assessed work, emphasise the criteria for judging the work, discuss the characteristics of good and bad answers, and highlight common strengths and weaknesses.

### *Set group-work alternatives*

Assess one performance per group. The student's mark is the group mark, but may include a component based on the contribution of the individual. A strategy for allocating an individual mark includes each member of the group using criteria to evaluate the relative contributions of individuals, with the marks averaged for the individual.

### *Set clear deadlines*

Set aside a time for marking. Be careful about extending this period (by allowing students to hand in work late).

## **Treat each task differently**

Every piece of work need not be evaluated to the same degree; a mark need not be the outcome in every case; and every piece of student work need not contribute to the final grade. Assessment is designed to enhance the learning and teaching experience for the teacher and the learner, not just to give marks.

## Sample assessment tasks

All assessment tasks must test whether or not the student has achieved the outcome or outcomes. Each task must have clear and detailed instructions. Students must know exactly what they have to do. You should develop marking guides when you are marking tasks to ensure consistency of your assessment.

### Grade 11

The following is an example of an assessment task and marking guide. Teachers can use the sample to develop other assessment tasks, criteria and performance standards.

#### **Sample task: Performance analysis and journalling**

##### **Learning outcomes**

Students can:

2. design effective and appropriate fitness programs for themselves and others
3. carry out physical activities incorporating safe, preventive strategies.

##### **Suggested assessment criteria**

Students will be assessed on the extent to which they:

- develop quality and depth of written entries
  - keep accurate records and measurements
  - use correct terminology
  - apply appropriate methodology

*15 marks*

- recognise trends and changes
- effectively apply knowledge and concepts
- participate in insightful discussion
- support discussion by reference to class notes, other resources
- make sound judgements
- suggest useful recommendations for change.

*55 marks*

- demonstrate consistent, complete and neat presentation.

*10 marks*

##### **Task specifications**

- undertake a basic fitness assessment test (pre-test)
- undertake fitness training activities for 4–6 weeks
- start and maintain a fitness training journal to monitor progress

- repeat the fitness assessment test (post-test) under as close to identical conditions of the pre-test as possible
- assess any performance changes and evaluate, suggesting why these changes may have come about
- evaluate the success (or not) of their fitness training program and suggests how their performance may be improved.

## Sample marking guide

Marking guides, like the one below, should be used to assess the tasks you set. You can tick the appropriate box, look at the performance standards and the students' overall achievement and give an on-balance assessment.

If, for example, the students gets two ticks in the 'Very high achievement' (VHA) column, most of their ticks in the 'High achievement' (HA) column, several ticks in the 'Satisfactory achievement' column and one tick in the 'Low achievement' column, then on balance you would give the students a 'High achievement' and a mark between 70 and 89.

### Sample marking guide

11.2 Performance analysis and journalling		80 marks			
Criteria		VHA	HA	SA	LA
Develop quality and depth of written entries	<ul style="list-style-type: none"> <li>accurate records and measurements</li> <li>correct use of terminology</li> <li>appropriate methodology</li> </ul>				
Demonstrate understanding of the ideas and concepts in discussions and journal entry	<ul style="list-style-type: none"> <li>recognises trends and changes</li> <li>effective application of knowledge and concepts</li> <li>insightful discussion</li> <li>discussion supported by reference to class notes, other resources</li> <li>makes sound judgements</li> <li>suggests useful recommendations for change</li> </ul>				
Adhere to requirements of the task	<ul style="list-style-type: none"> <li>consistent, complete, neat presentation</li> </ul>				

## Grade 12

The following is an example of an assessment task and marking guide. Teachers can use the sample to develop other assessment tasks, criteria and performance standards.

### Sample task: Physical performance

As a class, students negotiate and, by consensus, select an adventure activity in which to participate that is readily available in Papua New Guinea. They choose one from:

- trekking
- camping
- canoeing
- kayaking
- sailing
- snorkelling
- scuba diving

### Learning outcomes

Students can:

6. demonstrate an understanding of the benefits of outdoor leisure activities
8. display enjoyment of physical activity through modelling, leadership and high level participation.

### Assessment criteria

Students will be assessed on the extent to which they:

- participate actively in the chosen physical activity
- demonstrate the correct skills required in the activity
- enhance performance through aspects of fitness, training, psychological, match and strategies
- use essential fitness strategies.

### Task specifications

- identify the physical activity to participate in
- draw up program for performance, highlighting when, how many participants, resources, equipment required and so on
- correctly apply fitness strategies required for that performance

### Sample marking guide

Marking guides, like the one below, should be used to assess the tasks you set. You can tick the appropriate box, look at the performance standards and the students' overall achievement and give an on-balance assessment.

If, for example, the students gets two ticks in the 'Very high achievement' (VHA) column, most of their ticks in the 'High achievement' (HA) column, several ticks in the 'Satisfactory achievement' column and one tick in the 'Low achievement' column, then on balance you would give the students a 'High achievement' and a mark between 70 and 89.

### Sample marking guide

12.3 Physical performance		xx marks			
Criteria		VHA	HA	SA	LA
Participation	<ul style="list-style-type: none"> <li>the extent to which the student participates actively in the chosen physical activity</li> <li>students participation links to appropriate sport chosen</li> </ul>				
Analysis	<ul style="list-style-type: none"> <li>how well does student analyse performance issues relating to the activity</li> <li>how well does student critique the performance procedures and process</li> </ul>				
Communication	<ul style="list-style-type: none"> <li>how logical, clear and appropriate is the performance of the chosen physical activity</li> </ul>				

## Learning activities and assessment tasks

Examples of learning activities and assessment tasks for each of the Physical Education units are provided in the following sections. Some examples are explained in detail.

### Grade 11 units

#### 11.1 Moving Body in Action

##### Suggested activities

###### **Anatomy**

- provide an overview of the skeletal system and name five functions of this system
- describe what you find where two bones are joined that allow for movement
  - types of joints
  - explain functions
  - describe significance to movement and exercise

###### *The muscular system*

- provide an overview of the muscular system showing the nature of skeletal muscles
- indicate the three main muscular system functions
- describe the types of muscles and their significance
  - explain muscle attachment
  - provide causes of muscle strengths and increases
- perform various muscular contractions as force is applied according to the movement that they cause and name them
  - lifting mini-weights
  - leg curls
  - pushing against walls

###### *The circulatory system*

- measure blood pressure using a sphygmomanometer
  - 120/80—normal blood pressure
  - 180/90—during exercise
- measure resting heart rate (normal is about 70–72 beats per minute)
- measure resting heart rate under these conditions:
  - stress
  - excitement
  - eating and smoking

- measure exercise heart rate in walking, running and jogging at maximum using the formula:  
$$\text{maximum heart rate} = 220 - \text{age (in years)}$$

#### *The respiratory system*

- view a diagram of the system and list three main functions
- name the respiratory organs using breathing mechanics of inspiration and expiration

#### *Central nervous system*

- view a diagram of the central nervous system (CNS) and name its parts
- name the major functions of the CNS and how it works
- explain the characteristics of the stimulating of muscle to contract, by electrical impulses from the brain to the muscles, as force is applied

### **Physiology**

#### *Work, power and energy*

- define and explain the terms *anaerobic* and *aerobic*
- describe and explain how ATP is used
- how is ATP produced anaerobically and aerobically
- the aerobic energy systems are the major sources of energy for muscular contractions for up to 90 seconds
  - give 8 examples of sporting activities that require energy for a period no greater than 90 seconds

classify each of these examples according to whether energy is applied anaerobically by: the ATP PC system; the ATP PC and the lactic acid system

- give reasons for the classifications made above
- students participate in two to three minutes of continuous low-intensity activities
- in that performance, the body obtains most of its energy from the aerobic system
  - students will give at least 8 examples of sporting activities that would use this energy system
  - give reasons why these activities primarily use this energy system

#### *Physiological factors affecting performance*

- describe the difference between slow twitched fibres and fast twitch fibres and link to various motor activities (like marathon running, sprinting, basketball)
- classify the different types of muscle contractions and compare isometric exercises and isotonic exercises

#### *Improving physiological capacity*

- explain the value of goal setting as an important tool for physical performance
- describe and explain how arousal, anxiety and imagery can play an essential part in readiness to participation before, during and after sports performance

- design a suitable training program for themselves or other athletes incorporating specific training methods
- identify samples of various sports, periodise training sessions and apply to their chosen sports

### **Biomechanics**

- identify examples of activities that represent linear motion
- conduct simple movement workshops to analyse concepts related to motion; for example:
  - calculate speed and acceleration
  - observe body motion when accelerating or decelerating (stride length; stride frequency; the body itself)

#### *Newton's laws of motion*

- observe and analyse an athlete in the track events and study :
  - the stand start position
  - a crouch start position with head down
  - the body erect
  - the feet parallel and a shoulder-width apart
- make an analysis using Newton's laws of motion and how they apply in those situations
- compare and contrast a player in a team sport with a player in an individual sport
  - analyse their applications of Newton's laws of motion and state the differences between these two types of players
  - compile a report of your analysis
- identify the parts of the body where levers are applied or can be found
  - perform activities to establish the fulcrum, resistance and effort
- perform activities to establish the 3 classes of levers (first class, second class, third class)
  - identify the levers in the body
- discuss and tabulate information on the body parts in terms of the fulcrum, resistance, force and type of body movement

#### *Factors influencing motion*

- perform, observe, analyse, and report on practical activities and compare these, to understand movement patterns with the application of the factors listed above; some activities can include striking a ball, throwing a ball and so on
- evaluate the efficiency of these movements (and others) in terms of technique

#### *Centre of gravity and stability*

- analyse a range of movements to identify balance and stability concepts
  - centre of gravity in partner balances, sprint start, high jump
  - causing an opponent to lose balance by changing directions

*Forces and torques*

- investigate a range of movements to identify force concepts—applying force when:
  - changing direction
  - taking off in long jump
  - throwing a ball
  - absorbing force when landing or catching a ball
- identify situations where torque is applied
- identify factors that torque is dependent on
- calculate, in different activities, the force of torque applied
  - torque = force x length of the lever arm
  - activities may include diving, a golf swing, kicking a rugby ball (at its centre)

*Projectile motion and motion in fluids*

- identify various sports where a projectile is thrown or kicked for maximum distance
- in those activities listed, analyse the following:
  - what is the best angle of release to get maximum distance?
  - does the projectile have a spin? If so, does it affect the flight path?

**Suggested assessment task**

Students will be assessed on the knowledge, skills and attitudes achieved in this unit. Teachers are encouraged to select or adapt or develop their own assessment tasks and criteria. Students must always be made aware of the criteria before each assessment task.

*Test*

Students do a written test based on the knowledge and understanding of anatomy, physiology and biomechanics.

*30 marks*

## 11.2 Health and Care in Physical Activity

**Suggested activities****Preparation for participation***Fitness for health*

- identify one successful local, national and international club that has existed for more than 10 years
- develop a critical analysis of why such clubs are so successful, considering organisational features, structure and procedures and constitution

- students participate in meetings conforming to formal procedures; arrange for students to attend meetings organised by the student body

*Fitness for specific activity or performance*

- analyse levels of fitness of various populations in their community
- students to develop and maintain a training journal to monitor progress
- students to conduct and evaluate a training program for an extended period of time (4-6 weeks)
- students complete a fitness test
- students may design their own fitness testing plan

**Maintaining fitness**

*Nutrition for exercise*

- analyse the relationship between nutrition, exercise and health
- survey a population group to assess their physical activity level and nutritional status
- discuss health and nutritional issues that affect teenagers, together with the impacts on their physical activities; issues may include: obesity, eating disorders, mental health, STIs
- debate arguments for and against the importance of good nutrition and exercise
  - ‘lack of exercise leads to some major health conditions’
  - ‘regular exercise with good nutrition is essential for healthy youth’

**Injury prevention and treatment**

*Prevention*

- describe how to prevent sports injuries through effective warm-up sessions
  - discuss how warm-ups helps to reduce the risk of injury
  - plan and conduct warm-up sessions consisting of low–high intensity activities, stretching and sports-specific activities
- students to be accredited with first aid certificates facilitated by St Johns

*Treatment*

- examine physiological responses of the body at the site of a sport injury
- analyse types of injuries and their treatment applications
  - SALTAPS
  - RICERS
  - strapping
  - if unable to provide immediate help, next course of action
  - identify some common injuries or problems and their causes and describe their preventative measures

*Recovery and rehabilitation*

- identify the professionals that guide rehabilitation to prevent further injury; discuss the importance of such rehabilitation

- research the roles of a doctor, physiotherapist, sports trainer in the diagnosis and rehabilitation of sports injuries

### Suggested assessment task

#### *Performance analysis and journalling*

Each student:

- undertakes a basic fitness assessment test (pre-test)
- undertakes fitness training activities for 4–6 weeks
- starts and maintains a fitness training journal to monitor progress
- repeats the fitness assessment test (post-test) under as close to identical conditions of the pre-test as possible
- assesses any performance changes and evaluates, suggesting why these changes may have come about
- evaluates the success (or not) of their fitness training program and suggests how their performance may be improved.

*80 marks*

#### **Assessment criteria**

quality and depth of written entries

- accurate records and measurements
- correct use of terminology
- appropriate methodology

*15 marks*

- recognises trends and changes
- effective application of knowledge and concepts
- insightful discussion
- discussion supported by reference to class notes, other resources
- makes sound judgements
- suggests useful recommendations for change.

*55 marks*

consistent, complete, neat and presentation

*10 marks*

## 11.3 Administration in Sports and Physical Activity

### Suggested activities

#### **Organisation and management**

##### *Organisational structures and procedures*

- identify one successful local, national and international club that has existed for more than 10 years

- develop a critical analysis of why such clubs are successful, considering the organisational features, structure and procedures and constitution
- students participate in meetings conforming to formal procedures; arrange for students
  - to attend meetings organised by the student body
  - to observe meetings organised by staff members or departments
  - to observe (if possible) a high delegation meeting
- while attending any organised meetings students must monitor, record and evaluate the success of the meetings
- students distinguish the roles and responsibilities of different administrative positions
- situation—students take on the role and responsibilities of a club's president or chairman and, guided by the club's constitution on how to perform the administrative roles and responsibilities, they describe how to do that in paragraphs

*Competitive events*

- students examine the organisational steps involved in a significant sports event (such as a school carnival, corporate events, community events or school afternoon sports)
- in groups, students can choose a sport event (outlined above) and draw up procedures involved in staging the event, taking into account how many people involved, amount of work, days of competition and so on
- students can design sports or tournament draw(s), outlining their nature as systems (round robin, ladder or knock-out)
- students design and administer a sport initiative
- students analyse impacts of different types of tournaments on performance

*Financial planning*

- students prepare submissions for grants, sponsorship or funding
- students can prepare a simple budget

*Legal and safety requirements*

- students discuss legal and ethical issues that affect sports administration
- students visit an insurance company to discover what types of insurance or policies are in place to cater for sports
- students visit a local sports team and investigate their knowledge and understanding of legal requirements like insurance cover for their players

*Equipment and facilities responsibilities*

- students can use designed measurements and procedures to mark out an athletic track and the field and courts sports' dimensions
- students describe procedure for getting quotations and making purchases
- students evaluate a major event and devise recommendations for improvement, taking into consideration:
  - participants' feedback; reporting mechanisms; planning procedures

## Suggested assessment task

Students will be assessed on the knowledge, skills and attitudes achieved in this module. Each Grade 12 unit needs to have 2 assessments with a total of 100 marks. Teachers are encouraged to select or adapt or develop their own assessment tasks and criteria. Students must always be made aware of the criteria before each assessment task.

### *Group work*

- Students can design end-of-term sports program.

### **Criteria for judging student effort**

- How well does the student plan the sports or tournaments draw?
- How well does the student allocate responsibilities or personnel such as tournament officials?
- How well are tournament rules and strategies applied?
- How well can a student prepare a simple budget for the sports tournament?
- Are there initiatives shown in the planning process, and to what extent?

*30 marks*

## Grade 12 units

### **12.1 Analysis of Physical Activity**

#### **Required activity**

This unit may be undertaken through applying learning from all units in this subject (11.1, 11.2, 11.3, 12.2 and 12.3) to the theme of their chosen activity.

- Each student joins a club or physical activity organisation, and applies skills learned as:
  - an athlete or active participant; an official; a coach.
- The student maintains a journal, systematically recording ways in which their knowledge and skills have been implemented in this chosen physical activity context.
- The student collects and collates all material, while deciding on a final submission format.
- The complete folio is submitted as part of the final unit assessment.

#### **Suggested assessment task: Independent study**

For an independent study, each student chooses an organised physical activity (such as a sport club or organisation) they wish to examine and be involved in for the year. In association with the club organisation, the student

- actively performs any or all of the following roles, to a competent level:
  - player; coach; official or administrator
- researches the activity's history, origins and status in Papua New Guinea
- describes specific physiology and movement characteristics
- recommends ways of enhancing performance, including:
  - specific fitness
  - specific training principles
  - matching strategy development
  - applied psychological principles
- provides a short written account of:
  - specific activity coaching requirements
  - officiating requirements, such as available accreditation courses
  - specific administration requirements, such as affiliation with a regional, national or international body
- maintains a journal, systematically recording ways in which their knowledge and skills have been implemented
- collects and collates all material, deciding on a final submission format
- submits the completed folio.

*Note: folios would need to be submitted at the start of Term 4*

#### **The teacher's role**

- The teacher's roles: facilitator, enabler, mentor, guide and supporter

Class time is used for student–teacher conferences, making and confirming decisions and undertaking short instructional sessions with individuals, small groups or the whole class as required.

#### **Assessment criteria**

- Practical participation—as player or coach or official (assessment provided by club or association senior representative; marking guidelines provided to this representative)  
*20 marks*
- Comprehensive folio, comprising:
  - research into activity's history, status  
*10 marks*
  - physiology and movement characteristics  
*20 marks*
  - performance enhancement (aspects of fitness, training, psychological, match strategies)  
*20 marks*
  - report on coaching, officiating, administration  
*20 marks*
  - journal of participation  
*10 marks*

*Total = 100 marks*

## 12.2 Socio-psychological Elements of Physical Activity

### Suggested activities

#### Sociological elements

##### *Equity*

- students list ways in which government, church and other agencies provide support for participation for groups with less access

##### *Body, culture and physical activity*

- students bring posters, magazines and others, such as newspaper articles and photos, to analyse ways in which views of the body are portrayed
  - how has the male or female body been portrayed throughout history and across other cultures?
  - in groups, students select a sport with specific attire, analysing its changes over time; for example, tennis, swimming, rugby
  - students advertise various advertisements—how is the body used to ‘sell’ or portray a product or service?

##### *Patterns of participation and social factors*

- obtain data from National Statistics Office (NSO) concerning Papua New Guinea’s involvement in physical activity: male or female, children, youth, types of activities
- in groups, as a class, analyse the data; suggest reasons, generate ideas and suggestions, generalisations and hypotheses as to why groups participate or don’t participate
  - discuss reasons why certain population groups drop out, while others retain their interest in participation
- in pairs or groups of four, ask about and compile costs associated with participation, such as membership fees, clothing, equipment, travel, lodging

##### *Spectatorship*

- students describe opportunities to watch local and international sport
- they do a survey: how much time is spent reading newspaper articles, watching television; watching sport, attending and/or playing sport
  - make comparisons: benefits and negatives of watching television

##### *Money, media and power*

- students provide images and examples of caps, clothing and shoes
  - discuss issues related to the power of the logo image; for example, Nike, Adidas, Puma
- discuss these issues using examples from television, newspapers and magazines, in groups or in class
- compare changes in various sports over time: for example, cricket, netball, basketball, high jump (changes in rules, uniforms, techniques)

- discuss the events of the 1972 Munich Olympics and the international attention drawn to a terrorist organisation
- prepare reports on the impact on the local community of hosting an Olympic Games, Commonwealth Games or South Pacific Games
- discuss a newspaper article or video clip that has an example of political involvement in a major sporting event

*Gender*

- compare newspaper and television coverage of men's sport, women's sport and youth and children's sport (and *Post-Courier's* success)
- compare uniforms, such as figure-hugging basketball uniforms, low-cut beach volleyball uniforms, and analyse reasons possible reasons why
  - from the boys' point of view
  - from the girls' point of view

*Globalisation*

- discuss, illustrate and portray the discussion point that: 'In remote parts of the country, the world, international sports logos may be found. Why?'
- dominance of powerful nations:
  - sports management—how and where international sports can be conducted
  - discuss how smaller nations can have a 'voice'
  - could Papua New Guinea compromise its values in order to participate in international sport?
  - examples of national pride resulting from international success

**Psychological elements**

*Motivation and goal setting*

- students compare application of the different types of goals
- while actually participating in their physical activity, students can compare task orientation, ego orientation, and types of goals used

*Arousal, anxiety and performance*

*Confidence and self-esteem*

*Concentration and refocusing*

*Mental imagery and visualisation*

- students consider each of the above concepts, and then experience various practical activities that allow them to focus on each concept in the activity context. For example:
  - with eyes closed, visualise your bedroom, recall where everything is
  - picture yourself in your sport context, such as a soccer-free kick—where are the defenders, goal keeper? Visualise where you want the ball to end up, the trajectory you want the ball to follow, how it should be kicked to make that trajectory and the position of your body, especially your feet placement to initiate that ball's trajectory

*Team performance*

- students identify individual sports and team sports; note differences between the two
  - list needs of a team for success
  - list needs for group cohesion
  - role-play positive group cohesion, skills and attitudes

**Suggested assessment task**

Students will be assessed on the knowledge, skills and attitudes achieved in this module. Teachers are encouraged to select or adapt or develop their own assessment tasks and criteria. Students must always be made aware of the criteria before each assessment task.

*Research and reporting*

Students select one sociological aspect on which to present a written, verbal or poster report (800 words or equivalent, up to 3 pages). They select from:

- body, culture and physical activity
- analysing a physical activity or body image
- use of the body to sell a product
- money, media and power
- development of sports and equipment over time
- researching and reporting on political influence on Papua New Guinean sport
- researching and reporting on patterns of participation in physical activity
- the degree to which Papua New Guinean youth participate in physical activity.

**12.3 Recreation, Leisure and Careers in Physical Activity****Suggested activities****Papua New Guinean activities and possibilities***Outdoor leisure industry*

- a guest speaker can be invited to present information about their business or their company
- students prepare questions for discussion leading up to the presentation
- students compare international examples, both successful and unsuccessful
- students access various resources such as presenters and the National Statistics Office (NSO) to gather broad data on the value of leisure and recreation's contribution to Papua New Guinea's economy
- students record what is available to their region, nationally

- students identify gaps in community needs and pose possible industry solutions to fill these gaps

*Economics of outdoor leisure*

- guest speakers invited to present on their business or company
  - students prepare questions for discussion at the presentation
  - students compare international examples, both successful and unsuccessful
- broad data on value of leisure and recreation's contribution to Papua New Guinea's economy provided by presenters and sources like NSO
- students record what is available in their region, nationally
  - they identify gaps in community needs and pose possible industry solutions to fill these gaps

*Urban access*

*Rural access*

- students identify and describe successful programs that enable access to regions and communities
  - students identify problem areas, pose possible solutions

*Adventure activities*

- under guidance, students plan and attend an adventure activity (from one of those listed), involving:
  - planning; inclusion of all students; purposes, outcomes; risk minimisation (insurance); supervision; scheduling; equipment requirements; transportation; meals and water; health and fitness needs; costs; approval; fundraising; sponsorship
  - responsibilities
- they record all requirements and, in groups of 4 or 5, they cooperate to successful implementation
  - they journal all aspects of the project, including their contribution

**Career paths in physical education**

- guest speakers from career areas are invited to present an overview of their service, company or business, focusing on how physical education knowledge and skills contribute to their 'product'
- students discuss benefits, to Papua New Guinea and the community, of each example or an example chosen from:
  - tourism and hospitality
  - coaching
  - fitness
  - leisure
  - allied health
  - government agencies

## Suggested assessment task

Students will be assessed on the knowledge, skills and attitudes achieved in this module. Teachers are encouraged to select or adapt or develop their own assessment tasks and criteria. Students must always be made aware of the criteria before each assessment task.

### Task: Physical performance

As a class, students negotiate and, by consensus, select an adventure activity in which to participate that is readily available in Papua New Guinea. They choose one from:

- trekking
- camping
- canoeing
- kayaking
- sailing
- snorkelling
- scuba diving

## Recording and reporting

All schools must meet the requirements for maintaining and submitting student records as specified in the *Grade 12 Assessment, Examination and Certification Handbook*.

### Recording and reporting student achievement

When recording and reporting student achievement you must record the achievement of the students in each unit and then, at the end of the year, make a final judgement about the overall achievement, or progress towards achievement, of the learning outcomes. To help you do this, descriptions of the levels of achievement of the learning outcomes are provided in the 'Learning outcome performance standards' table.

When reporting to parents, the school will determine the method of recording and reporting. In an outcomes-based system, student results should be reported as levels of achievement rather than marks.

### Levels of achievement

The level of achievement of the learning outcomes is determined by the students' performance in the assessment tasks. Marks are given for each assessment task, with a total of 100 marks for each 10-week unit, or 50 marks for each 5-week unit. The marks show the students' level of achievement in the unit, and hence their progress towards achievement of the learning outcomes.

There are five levels of achievement:

- Very high achievement
- High achievement
- Satisfactory achievement
- Low achievement
- Below minimum standard

A **very high achievement** means overall that the student has an extensive knowledge and understanding of the content and can readily apply this knowledge. In addition, the student has achieved a very high level of competence in the processes and skills and can apply these skills to new situations.

A **high achievement** means overall that the student has a thorough knowledge and understanding of the content and a high level of competence in the processes and skills. In addition, the student is able to apply this knowledge and these skills to most situations.

A **satisfactory achievement** means overall that the student has a sound knowledge and understanding of the main areas of content and has achieved an adequate level of competence in the processes and skills.

A **low achievement** means overall that the student has a basic knowledge and some understanding of the content and has achieved a limited or very limited level of competence in the processes and skills.

**Below the minimum standard** means that the student has provided insufficient evidence to demonstrate achievement of the learning outcomes.

Achievement level					
Total marks	Very high achievement	High achievement	Satisfactory achievement	Low achievement	Below minimum standard
600	540–600	420–539	300–419	120–299	0–119
500	450–500	350–449	250–349	100–249	0–99
400	360–400	280–359	200–279	80–199	0–79
300	270–300	210–269	150–209	60–149	0–59
200	180–200	140–179	100–139	40–99	0–39
100	90–100	70–89	50–69	20–49	0–19
60	54–60	42–53	30–41	12–29	0–11
50	45–50	35–44	25–34	10–24	0–9
40	36–40	28–35	20–27	8–19	0–7

### Sample format for recording Physical Education assessment task results over two years

Student name:

Grade 11 assessment task results			
Unit	Assessment task	Mark	Student mark
<b>11.1</b>			
<b>11.2</b>			
<b>11.3</b>			
	<b>Total marks Grade 11</b>	<b>300</b>	

Student name:

Grade 12 assessment task results			
Unit	Assessment task	Marks	Student mark
<b>12.1</b>			
<b>12.2</b>			
<b>12.3</b>			
	<b>Total marks Grade 11</b>	<b>300</b>	
	<b>Total marks Grade 11 and 12</b>	<b>600</b>	

### Learning outcomes and levels of achievement

Levels of achievement in Grade 11 and Grade 12 are recorded and reported against the learning outcomes. The performance standards for the levels of achievement are described in the table on pages 16 and 17.

### Steps for awarding final student level of achievement

1. Assess unit tasks using unit performance standards and assessment criteria and marking guides.
2. Record results for each task in each unit.
3. Add marks to achieve a unit result and term result.
4. Add term marks to get a year result.
5. Determine the overall achievement using the achievement level grid.
6. Report results using the learning outcome performance standards.

The following is an example of reporting using the learning outcomes performance standards descriptors.

## Using the learning outcomes performance standards descriptors

Student	<b>Eshton Sumale</b>
Subject	<b>Physical Education</b>
School-based assessment	<b>High achievement</b>
<b>This means Lena:</b>	
<p>Demonstrates sound knowledge and understanding of the roles that systems, energy, forces and motion play in their contribution to movement, and their integration in exercise and performance</p> <p>Demonstrates sound knowledge, understanding and skills, in prescribing effective and appropriate fitness programs for themselves and others</p> <p>Demonstrates knowledge, understanding and the capacity to carry out a range of physical activities incorporating safe, preventative strategies</p> <p>Researches, identifies and develops many ideas that describes a range of people's participation in physical activity, the level of effectiveness of this participation and the factors that may influence this effectiveness</p> <p>Designs sound plans and strategies required to implement and conduct sports events and physical activities, responding to all requirements of effective coordination, cooperation and management</p> <p>Demonstrates some knowledge and understanding of a wide range of outdoor leisure activities and their benefits</p> <p>Independently designs research on a selected physical activity and proficiently analyses it in a systematic way</p> <p>Displays reasonable involvement and enjoyment of physical activity through modelling, leadership roles and high level of participation in career paths</p>	

## Resources

Physical Education becomes more interesting and meaningful when you use a variety of resources and local materials in your teaching.

You should be always trying to adapt, improvise, make, find or write material that will be useful for lessons. Physical Education can be taught without expensive equipment by making use of what is around you, though there are some equipment and materials that are essential to teach the Physical Education syllabus.

### Types of resources for Physical Education

#### Equipment

- basic fitness field-testing equipment
- relevant sporting equipment
- computers
- video camera
- still camera or digital camera
- appropriate facility for classes

#### Materials and artefacts

- textbooks, reference books
- magazines, journals
- diagrams, charts, posters
- worksheets, information sheets
- pamphlets, brochures
- television and radio broadcasts
- video, film, film strips
- audio recordings
- computer software
- pictures, photographs
- models
- newspapers
- made or found objects

#### Natural and human resources

- natural environment sites—rivers, beaches, rock pools, forests, cliffs, caves
- craftspeople and athletes
- community elders
- teachers
- parents

## General guidelines for selecting and using resources

How effective a resource is depends on whether it is suitable for the knowledge or skill to be learned and the attitude of the students. Classroom organisation is the key to using resources successfully. You need to:

- prepare thoroughly. Make sure that you are familiar with the resource so that you use it with confidence and assurance. If equipment is involved, check that it is in working order, make sure that you know how to operate it and that it is available when you need it.
- use the resource at the right place and time in the lesson. The resource should fit in with the flow and sequence of the lesson. It should serve a definite teaching purpose.
- (if the resource is radio, film, video or television), introduce the program by outlining the content. You might also set some questions to guide listening or viewing. Follow up after using the resource, by discussing and drawing appropriate conclusions.

## Useful resource books

Bradford, M et al. 2007, *Queensland Health and Physical Education Yrs 8–10*, 2nd edn, Melbourne, Macmillan.

Kirk, D et al. 1999, *Senior Physical Education: An Integrated Approach*, Human Kinetics, Australia

Williams, P and Quinlivan, T 1991, *Fundamentals of Physical Education*. Morton Bay Publishers. Australia.

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Board of Studies NSW 2000, *Content Endorsed Course: Stage 6 Syllabus. Sport, Lifestyle and Recreation*, Board of Studies NSW.

Bradford, M 2007, *Queensland Health and Physical Education Yrs 8–10*, 2nd edn, Melbourne, Macmillan.

Davis, D 2007, *Health and Physical Education for VELS: Book 1*, 3rd edn, Melbourne, Macmillan.

Doecke, P et al. 1999, *Physical Education for Melanesia*, Oxford, South Melbourne.

Mayer, R 2004, 'Should there be a three-strikes rule against pure discovery learning? The case for guided methods of instruction', *American Psychologist*, vol 59, no. 1, pp. 14–19.

Proctor, K, Ruskin, R and Harper K 2005, *Active Outcomes 2: PDHPE stage 5*, Jacaranda, Milton Qld.

QSA 2004, *Senior Syllabus: Physical Education*, QSA

Ruskin, R and Proctor, K 2005, *Active Outcomes 1: PDHPE Stage 4*, Jacaranda, Milton Qld.

SSABSA/SACE 2007, *Curriculum Statements: Physical Education: Stage 1 and Stage 2*, SSABSA/SACE.

Thygerson, AL 2005, *Fit to be Well: Essential Concepts*, James and Bartlett, USA

## Glossary for Physical Education

<b>Adventure</b>	A journey, experience or similar that is strange and exciting and often dangerous
<b>Aerobic</b>	Literally 'with oxygen'. Commonly used to describe the exercise intensity where muscles can use oxygen to convert glucose and fat into energy. Aerobic training is carried out at a comfortable pace to ensure that the muscles have sufficient oxygen available
<b>Aerobic exercise</b>	Brisk physical activity that requires the heart and lungs to work harder to meet the body's increased oxygen demand. Aerobic exercise promotes the circulation of oxygen through the blood
<b>Anatomy</b>	The scientific study of the body and any body parts of people and humans
<b>Anaerobic</b>	Literally 'without oxygen'. A high intensity energy system where the muscles lack sufficient oxygen to successfully burn fuel, resulting in the production of lactic acid. Anaerobic exercise is very intense and can only be sustained for short periods
<b>Biomechanics</b>	The application of mechanical principles in the study of the structure and function of living things
<b>Diet</b>	The food a person usually eats. Can also mean 'to select or limit food to improve health or lose weight'
<b>Drug</b>	Any substance that affects living things. Drugs can be used to prevent or treat disease. They can also cause disorders in the brain or body
<b>Energy systems</b>	Systems responsible for producing energy, either aerobically or anaerobically. For example; ATP, aerobic and anaerobic or lactic systems
<b>Event management</b>	Involves planning, implementing and managing an event
<b>Exercise</b>	Activity that requires physical or mental exertion, especially when performed to develop or maintain fitness
<b>Human immunodeficiency virus (HIV)</b>	A virus that can be passed from an infected person to another person by sexual intercourse, by sharing drug-injecting needles or syringes, or by an HIV-positive mother infecting her born or unborn baby
<b>Isotonic exercise</b>	Exercise in which opposing muscles contract with controlled movement (tension is constant and the whole lengths of the muscles change); the classic isotonic exercise is lifting free weights
<b>Isometric exercise</b>	Muscle-building exercises (or a system of muscle-building exercises) involving muscular contractions against resistance without movement (the muscle contracts but the length of the muscle does not change)
<b>Isokinetic exercise</b>	Exercise performed with a specialised apparatus that provides variable resistance to a movement, so that no matter how much effort is exerted, the movement takes place at a constant speed. Such exercise is used to test and improve muscular strength and endurance, especially after injury
<b>Leisure</b>	A time free of work or duty when we can choose to do things for fun, enjoyment and relaxation
<b>Leisure and recreational activity</b>	Activity chosen for enjoyment and self-satisfaction

<b>Movement analysis</b>	Involves the analysis and investigation of movements such as locomotor and non-locomotor movements
<b>Optimal fitness</b>	The best level of fitness that we can achieve, taking into consideration any limitations we may have, such as a heart condition or a disability
<b>Outdoor education</b>	Involves the learning and teaching of activities outdoors. These may include adventure activities or simply leisure activities
<b>Periodisation</b>	Dividing a training program into smaller periods of time. These smaller periods have specific phases and training objectives
<b>Physical activity</b>	Any movement where the large muscles of the body are working, such as walking, gardening
<b>Physical education</b>	The education, through learning and teaching or training, of physical activity and sport
<b>Physiology</b>	A science that is concerned with the study of how the bodies of living things, and their various parts, work
<b>Sociological elements</b>	In this context, refers to those societal elements that influence physical activities and participation in, for example, sport. These may include people, media, politics, religion, violence and aggression, gender equality, sportsmanship, codes of conduct and so on
<b>Sports psychology</b>	Study of psychological and mental factors that influence or are influenced by participation and performance in sport, exercise and physical activity

## Glossary for assessment

Syllabus outcomes, criteria and performance standards, and examination questions all have key words that state what students are expected to be able to do. A glossary of key words has been developed to help provide a common language and consistent meaning in the syllabus and teacher guide documents.

Using the glossary will help teachers and students understand what is expected in response to examinations and assessment tasks.

### Glossary of key words for assessment

<b>Account</b>	Account for: state reasons for, report on. Give an account of: narrate a series of events or transactions
<b>Analyse</b>	Identify components and the relationship between them; draw out and relate implications
<b>Apply</b>	Use, utilise, employ in a particular situation
<b>Appreciate</b>	Make a judgement about the value of
<b>Assess</b>	Make a judgement of value, quality, outcomes, results or size
<b>Calculate</b>	Ascertain or determine from given facts, figures or information
<b>Clarify</b>	Make clear or plain
<b>Classify</b>	Arrange or include in classes or categories
<b>Compare</b>	Show how things are similar or different
<b>Construct</b>	Make; build; put together (items or arguments)
<b>Contrast</b>	Show how things are different or opposite
<b>Critically (analyse, evaluate)</b>	Add a degree or level of accuracy, depth, knowledge and understanding, logic, questioning, reflection and quality to (analysis or evaluation)
<b>Deduce</b>	Draw conclusions
<b>Define</b>	State meaning and identify essential qualities
<b>Demonstrate</b>	Show by example
<b>Describe</b>	Provide characteristics and features
<b>Discuss</b>	Identify issues and provide points for and/or against
<b>Distinguish</b>	Recognise or note or indicate as being distinct or different from; to note differences between
<b>Evaluate</b>	Make a judgement based on criteria; determine the value of
<b>Examine</b>	Inquire into
<b>Explain</b>	Relate cause and effect; make the relationships between things evident; provide why and/or how
<b>Extract</b>	Choose relevant and/or appropriate details
<b>Extrapolate</b>	Infer from what is known
<b>Identify</b>	Recognise and name
<b>Interpret</b>	Draw meaning from
<b>Investigate</b>	Plan, inquire into and draw conclusions about

<b>Justify</b>	Support an argument or conclusion
<b>Outline</b>	Sketch in general terms; indicate the main features of
<b>Predict</b>	Suggest what may happen based on available information
<b>Propose</b>	Put forward (for example, a point of view, idea, argument, suggestion) for consideration or action
<b>Recall</b>	Present remembered ideas, facts or experiences
<b>Recommend</b>	Provide reasons in favour
<b>Recount</b>	Retell a series of events
<b>Summarise</b>	Express, concisely, the relevant details
<b>Synthesise</b>	Putting together various elements to make a whole