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Important information

Accreditation period

Units 1–4: 1 January 2025–31 December 2029

Implementation of this study commences in 2025.

Other sources of information

The [*VCAA Bulletin*](https://www.vcaa.vic.edu.au/news-and-events/bulletins-and-updates/bulletin/Pages/index.aspx) is the only official source of information about changes to regulations and accredited studies. The Bulletin also regularly includes advice on VCE studies. It is the responsibility of each VCE teacher to refer to each issue of the Bulletin. The Bulletin is available as an e-newsletter via [free subscription](https://www.vcaa.vic.edu.au/Footer/Pages/Subscribe.aspx) on the VCAA website.

To assist teachers in developing courses, the VCAA publishes online [Support materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Drama/Pages/Index.aspx) (incorporating the content previously supplied in the *Advice for teachers*).

The current [*VCE Administrative Handbook*](https://www.vcaa.vic.edu.au/administration/vce-handbook/Pages/index.aspx?Redirect=1) contains essential information about assessment processes and other procedures.

VCE providers

Throughout this study design, the term ‘school’ is intended to include both schools and other VCE providers.

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Introduction

Scope of study

VCE Physical Education explores the complex interrelationships between biophysical (anatomical, biomechanical, physiological and skill acquisition) and psychosocial (psychological and sociocultural) principles to understand their role in producing and refining movement for participation and performance in physical activity, sport and exercise.

Through physical, written, oral and digital learning experiences, students apply theoretical concepts and reflect critically on factors that affect all levels of participation and performance in physical activity, sport and exercise.

Integrating theoretical understanding and practice is central to the study of VCE Physical Education. Theoretical knowledge and skills are developed and utilised in and through practical activities, which can be opportunistic, structured or investigative experiences. Practical activities challenge students to reflect on and share their participatory perspectives, while emphasising the educational value of human movement to develop theoretical understanding. These opportunities ultimately help students to develop deeper holistic connections that support their understanding of biophysical and psychosocial movement concepts.

Rationale

The study of VCE Physical Education enables students to integrate a contemporary understanding of the theoretical concepts of physical activity with practical application. This develops the knowledge and skills required to critically evaluate influences that affect their own and others’ participation and performance in movement.

Movement is a valid and valued context for learning that also provides students with the opportunity to appreciate the physical, social, emotional, mental and spiritual benefits associated with movement in promoting health and wellbeing. Therefore, movement experiences in VCE Physical Education encourage students to intrinsically appreciate movement while developing theoretical understanding.

This study equips students with the appropriate knowledge and skills to plan, develop and maintain their involvement in physical activity, sport and exercise across their lifetime. The study also prepares students for employment and/or further study at the tertiary level or in vocational education and training settings in fields such as exercise and sport science, health science, education, recreation, sport development and coaching, health promotion and related careers.

Aims

This study enables students to:

* engage in practical activities that integrate theoretical understanding with practical application in all types and intensities of movement
* develop the knowledge and skills to critically evaluate their participation and learning in, through and about movement
* engage in practical activities to determine and analyse how the body systems work together to produce and refine movement
* critically evaluate trends in participation in physical activity, sport and exercise from a
psychosocial perspective
* analyse movement skills from a biophysical perspective and apply relevant training principles and methods to improve performance in physical activity at an individual, club and elite level.

Structure

The study is made up of 4 units:

* Unit 1: The human body in motion (PE011)
* Unit 2: Physical activity, sport, exercise and society (PE022)
* Unit 3: Movement skills and energy for physical activity, sport and exercise (PE033)
* Unit 4: Training to improve performance (PE034).

Each unit deals with specific content contained in the areas of study and is designed to enable students to achieve a set of outcomes for that unit. Each outcome is described in terms of key knowledge and key skills.

Entry

There are no prerequisites for entry to Units 1, 2 and 3. Students must undertake Unit 3 and Unit 4 as a sequence. Units 1–4 are designed to the equivalent standard of the final 2 years of secondary education. All VCE studies are benchmarked against comparable national and international curriculums.

A glossary defining terms used across Units 1–4 in the *VCE Physical Education Study Design* is included in the [Support materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/physicaleducation/Pages/Index.aspx)*.*

Duration

Each unit involves at least 50 hours of scheduled instruction.

Changes to the study design

During the study’s period of accreditation, minor changes to the study will be announced in the [*VCAA Bulletin*](https://www.vcaa.vic.edu.au/news-and-events/bulletins-and-updates/bulletin/Pages/index.aspx). The Bulletin is the only source of information about changes to regulations and accredited studies. It is the responsibility of each VCE teacher to monitor changes or advice about VCE studies published in the Bulletin.

Monitoring for quality

As part of ongoing monitoring and quality assurance, the VCAA will periodically undertake an audit of VCE Physical Education to ensure the study is being taught and assessed as accredited. The details of the audit procedures and requirements are published annually in the [*VCE Administrative Handbook*](https://www.vcaa.vic.edu.au/administration/vce-handbook/Pages/index.aspx?Redirect=1). Schools will be notified if they are required to submit material to be audited.

Safety and wellbeing

It is the responsibility of the school to ensure that duty of care is exercised in relation to the health and safety of all students undertaking the study. Principals and teachers must ensure that appropriate precautions and safety measures are taken to minimise any potential risk to students. The implementation of effective safety management plans and processes should ensure that all activities are conducted safely. This includes ensuring that all rules and regulations for the conduct of practical activities are rigorously followed. Teachers should refer to the [Department of Education's Safety Guidelines](https://www2.education.vic.gov.au/pal/physical-and-sport-education-safety/policy) for Physical and Sport Education.

Requirements for delivery

The principal must make sure that students have access to adequate facilities and resources to complete any VCE study they are offered. Learning in and through movement is the foundation of VCE Physical Education and therefore students are required to be provided with adequate practical activity time to connect theoretical content with practical application.

Employability skills

This study offers a number of opportunities for students to develop employability skills. The [Support materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/physicaleducation/Pages/Index.aspx) provide specific examples of how students can develop employability skills during learning activities and assessment tasks.

Legislative compliance

When collecting and using information, the provisions of privacy and copyright legislation, such as the Victorian *Privacy and Data Protection Act 2014* and *Health Records Act 2001*, and the federal *Privacy Act 1988* and *Copyright Act 1968*, must be met.

Child Safe Standards

Schools and education and training providers are required to comply with the Child Safe Standards made under the Victorian *Child Wellbeing and Safety Act 2005*. Registered schools are required to comply with *Ministerial Order No. 1359 Implementing the Child Safe Standards – Managing the Risk of Child Abuse in Schools and School Boarding Premises*. For further information, visit the websites of the [Victorian Registration and Qualifications Authority](https://www.vic.gov.au/child-safe-standards-education-providers), the [Commission for Children and Young People](https://ccyp.vic.gov.au/) and the [Department of Education](https://www2.education.vic.gov.au/pal/child-safe-standards/policy).

Assessment and reporting

Satisfactory completion

The award of satisfactory completion for a unit is based on the teacher’s decision that the student has demonstrated achievement of the set of outcomes specified for the unit. Demonstration of achievement of outcomes and satisfactory completion of a unit are determined by evidence gained through the assessment of a range of learning activities and tasks.

Teachers must develop courses that provide appropriate opportunities for students to demonstrate satisfactory achievement of outcomes.

The decision about satisfactory completion of a unit is distinct from the assessment of levels of achievement. Schools will report a student’s result for each unit to the VCAA as S (satisfactory) or N (not satisfactory).

Levels of achievement

Units 1 and 2

Procedures for the assessment of levels of achievement in Units 1 and 2 are a matter for school decision. Assessment of levels of achievement for these units will not be reported to the VCAA. Schools may choose to report levels of achievement using grades, descriptive statements or other indicators.

Units 3 and 4

The VCAA specifies the assessment procedures for students undertaking scored assessment in Units 3 and 4. Designated assessment tasks are provided in the details for each unit in VCE study designs.

The student’s level of achievement in Units 3 and 4 will be determined by School-assessed Coursework (SAC), as specified in the VCE study design, and external assessment.

The VCAA will report the student’s level of achievement for each assessment component as a grade from A+ to E or UG (ungraded). To receive a study score, the student must achieve 2 or more graded assessments in the study and receive an S for both Units 3 and 4. The study score is reported on a scale of 0–50; it is a measure of how well the student performed in relation to all others who completed the study. Teachers should refer to the current [*VCE Administrative Handbook*](https://www.vcaa.vic.edu.au/administration/vce-handbook/Pages/index.aspx?Redirect=1) for details on graded assessment and calculation of the study score.

Percentage contributions to the study score in VCE Physical Education are as follows:

* Unit 3 School-assessed Coursework: 20 per cent
* Unit 4 School-assessed Coursework: 30 per cent
* end-of-year examination: 50 per cent.

Further details about the assessment program are described in the sections on Units 3 and 4 in this study design.

Authentication

Work related to the outcomes of each unit will be accepted only if the teacher can attest that, to the best of their knowledge, all unacknowledged work is the student’s own. Teachers need to refer to the current [*VCE Administrative Handbook*](https://www.vcaa.vic.edu.au/administration/vce-handbook/Pages/index.aspx?Redirect=1) for authentication rules and strategies.

Characteristics of the study

This section contains information about the key concepts, contexts, skills and approaches to learning that underpin VCE Physical Education.

Key concepts, contexts and skills

Conceptual knowledge

VCE Physical Education explores the complex interrelationships between biophysical and psychosocial concepts to understand their role in producing and refining movement for participation and performance in physical activity, sport and exercise.

The following diagram contextualises and defines the commonly used terms ‘movement’, ‘physical activity’, ‘sport’ and ‘exercise’ for VCE Physical Education. It builds upon the development and use of these terms as concepts in Health and Physical Education in the Victorian Curriculum F–10.

Physical activity that is not ‘sport’ or ‘exercise’ can include activities that are incidental and/or utilise movement with minimal energy expenditure, such as active transport and gardening.

**‘Practical activities’** refers to the movement experiences completed in class (physical activity, sport or exercise). These can be opportunistic, structured or investigative in nature.

Context for learning

Learning activities devised for VCE Physical Education should enable students to demonstrate achievement of the set of outcomes for the unit. The areas of study describe the learning context and the knowledge and skills required for the demonstration of each outcome.

In VCE Physical Education, the learning context for students to develop understanding across the units is focused on the participation and performance aspects of physical activity, sport and exercise. Specifically, the intention is for students to develop their understanding of how to enhance participation and optimise performance in physical activity, sport and exercise.

Propositions of Health and Physical Education

The following propositions of Health and Physical Education allow students to use the skills developed through F–10 Health and Physical Education to further their understanding in VCE Physical Education.

Take a strengths-based approach

Learning in VCE Physical Education is informed by a strengths-based approach. Students use a reflective folio to record their experiences in and through participation in practical activities. This supports their development of the knowledge and cognitive and behavioural skills required to establish lifelong physical activity habits that will enhance their own and others’ health and wellbeing. This approach affirms the value of recognising that all students and their communities have strengths and resources that can be nurtured to improve their own and others’ movement competence, participation and performance in physical activity, sport and exercise.

Include a critical inquiry approach

VCE Physical Education engages students in critical inquiry processes that assist students to research, analyse and apply knowledge in physical activity, sport and exercise settings within participation and performance contexts. In doing so, students will critically analyse and evaluate biophysical and psychosocial influences on participation and performance.

VCE Physical Education recognises that values, behaviours, priorities, actions and movement competence related to physical activity reflect varying contextual factors that influence the ways in which people live. Students develop an understanding about the varying influences on physical activity participation and performance, which informs the design and tailoring of approaches and strategies to enhance movement.

Value movement

VCE Physical Education sits within the Health and Physical Education learning area, which is unique in its focus on explicitly developing the movement skills and concepts that students require to participate in physical activities with competence and confidence. Developing, refining and valuing movement competence and confidence is an important personal and community asset.

Students who elect to study VCE Physical Education do so with a developing appreciation for how movement provides opportunities for active living, as well as opportunities to understand the broad and established scientific, social, cultural and historical knowledge base. Together, these inform student understanding of how and why we move and how we can improve participation and physical performance. In acknowledging diversity within a student cohort, teachers are encouraged to offer a range of movement opportunities in VCE Physical Education. Promoting student agency provides greater scope to appreciate the physical, social, emotional, mental and spiritual benefits associated with movement while not solely privileging the development of theoretical understanding in a traditional classroom context.

Data analysis

Throughout VCE Physical Education, students are expected to collect and analyse both primary and secondary data.

Primary data collected from student involvement in practical activities may include numerical data, visual evidence and written observations. Students should be provided with opportunities to collect and record data, as well as opportunities to take part in the practical activities being analysed. Where students are collecting data for analysis, the process may involve the whole group or small groups; however, the analysis of data must be an individual task.

Secondary data may also include numerical data, visual evidence and written accounts. Secondary data can be sourced from a range of organisations (see the [Support materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/physicaleducation/Pages/Index.aspx) for a comprehensive list of organisations) and can be used for analysis and/or for comparisons to primary data.

Approaches to learning in VCE Physical Education

Integration

VCE Physical Education is a subject that recognises the academically supported notion that learning *in* and *through* movement is a valued way of knowing, in the same manner as traditional theoretical ways of knowing, such as learning *about* movement. The notion of integration is integral to the study of VCE Physical Education and refers to the theoretical knowledge and skills developed and utilised in and through practical activities, contexts and settings.

Students shouldbe provided withopportunities to use practical activities for various purposes, including for guided investigation to discover a theoretical concept, to introduce a theoretical concept and to reinforce a previously taught concept.

Importantly, practical activities should be seen as a genuine and valued opportunity to develop knowledge and skills in the same way as traditional, theoretical ways of learning that occurin a classroom setting. Therefore, practical activities should not be viewed as adding to the amount of time required to cover a unit. As a guide, across each unit, a minimum of 20 hours of class time should be devoted to practical activities.

Practical activities may include laboratory work, data collection, physical activity, sport and exercise. Activities do not necessarily need to run for the whole class and can be done outside and/or in the classroom, gym, a sporting facility or at another suitable venue. Students who are injured or unable to participate should have practical activities modified accordingly or, where appropriate, they should be given a supportive role within the practical activity.

Reflective folio

Students undertaking this study must maintain a reflective folio of activities completed in each of Units 1–4 as a source of primary data. This reflective folio is to be maintained for recording, authentication and assessment purposes.

The reflective folio provides students with the opportunity to reflect on and record their participatory perspectives on each activity completed. Data may include a description of the activity, physical experiences within the activity, psychosocial experiences or perspectives on the activity and the theoretical links developed or identified through the activity.

Entries in the folio could be in written, visual (drawing, photo), audio (self-recorded) or audiovisual (self-recorded) format(s). School-based assessment tasks that require students to reference primary data should be designed in a way that allows students to refer to their folio when applying their knowledge. Students are expected to make direct reference to the practical activities completed via the entries in their folio. A hard copy format of the folio is to be used by students when completing school-based assessment tasks.

Interdisciplinary approach

To strengthen their understanding of specific biophysical and psychosocial concepts across areas of study, students should apply an interdiscplinary approach that identifies and explores interconnectedness between theoretical concepts.

The use of a reflective folio throughout Units 1–4 provides an opportunity for students to reflect on their participation and make interdisciplinary theoretical connections that extend beyond the key knowledge and key skills being explored at that point in time.

Unit 4 Area of Study 3: Using integration to inform an interdisciplinary approach

Unit 4 Area of Study 3 provides an explicit opportunity for students to integrate theory and practice that enables them to analyse the interrelationships across Units 3 and 4 between skill acquisition, biomechanics, energy production and training concepts and the impacts these have on performance.

Teachers of Units 1 and 2 are encouraged to use the reflective folio as a means for students to apply an interdiscplinary approach to make connections between knowledge across each unit.

Unit 1: The human body in motion

In this unit, students explore how the musculoskeletal and cardiorespiratory systems work together to produce movement. Students investigate the role and function of the main structures in each system and how they respond to movement. Through participation in practical activities, students explore and analyse the relationships between the body systems and movement, and how these systems interact and respond at various intensities. Students investigate possible conditions and injuries associated with the musculoskeletal system and recommend and implement strategies to minimise and manage such injuries and conditions. They consider the ethical implications of using permitted and prohibited practices to improve the performance of the body systems, evaluating perceived physiological benefits and describing potential harms.

Area of Study 1

How does the musculoskeletal system work to produce movement?

In this area of study, students examine the muscular and skeletal systems of the human body and how the muscles and bones work together to produce movement. Through practical activities, they explore, from a biophysical perspective, the major components of the musculoskeletal system and its contributions and interactions during physical activity, sport and exercise.

Possible causes of illness and injury to the musculoskeletal system are investigated. Strategies and aids to assist in the prevention and management of such conditions are also explored. Students consider a variety of permitted and prohibited substances and methods used to enhance performance of the musculoskeletal system.

Outcome 1

On completion of this unit, the student should participate in and analyse information from a variety of practical activities to explain how the muscular and skeletal systems function and interact to produce movement, and evaluate the use of performance enhancement substances and methods.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 1.

Key knowledge

* structure and function of the skeletal system:
* bones of the human body
* classification of joints
* joint actions
* major muscles of the human body
* characteristics and functions of muscle fibres such as fibre arrangement and type (fast twitch and slow twitch)
* types of muscular contractions (concentric, eccentric and isometric)
* the concept of reciprocal inhibition (the role of agonists, antagonists and stabilisers)
* neural control of muscles, including the recruitment (size principle) and activation (all or nothing principle) of motor units in relation to force production
* interactions of muscles and bones to produce movement, including the structure and examples of anatomical lever systems
* causes of potential acute and chronic injuries and illnesses associated with the musculoskeletal system such as overtraining syndrome, arthritis and osteoporosis
* physiological strategies to prevent musculoskeletal injuries such as warm up, cool down and rehabilitation
* the role of physical aids that support the musculoskeletal system such as protective equipment, taping and braces
* potential benefits and harms of permitted and prohibited substances and methods that enhance performance of the musculoskeletal system, such as training, nutritional supplements, creatine supplementation and hormones (including steroids and growth hormones).

Key skills

* apply and use anatomical terminology to identify the structures and functions of the muscular and skeletal systems in producing movement
* participate in and analyse a variety of movements used in physical activity, sport and/or exercise to explain the interaction between bones, muscles, joints and joint actions using examples of lever systems responsible for producing movement
* examine different types of muscle contractions and differentiate the role of agonists, antagonists and stabilisers in movement
* investigate and describe the relationship between motor unit recruitment, activation and force production in movement
* explore a variety of causes of musculoskeletal injuries
* implement and describe the correct application of physical aids and physiological strategies in a variety of sporting activities to maintain optimal functioning of the musculoskeletal system
* investigate, evaluate and critically analyse the effects of a range of performance-enhancing substances and methods on the musculoskeletal system from a physiological perspective.

Area of Study 2

What role does the cardiorespiratory system play in movement?

In this area of study, students investigate the cardiovascular and respiratory systems of the human body and how the heart, blood vessels and lungs function at rest and during physical activity. Through practical activities, students explore the structures and function of the cardiorespiratory system and the contributions and interactions of each system during physical activity, sport and exercise at various intensities. The impacts of regular aerobic exercise on the functioning of these systems are also examined. Students consider a variety of permitted and prohibited substances and methods used to enhance performance of the cardiorespiratory system. They also explore the ethical and sociocultural considerations of using permitted and prohibited performance-enhancing substances and methods.

Outcome 2

On completion of this unit, the student should be able to participate in and analyse information from a variety of practical activities to explain how the cardiovascular and respiratory systems function and interact, and evaluate the use of performance enhancement substances and methods.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 2.

Key knowledge

* the structure and function of the cardiovascular system, including the heart, blood, blood vessels and blood flow around the body at rest and during various intensities of physical activity, sport and/or exercise
* the role of the cardiovascular system in thermoregulation, including vasodilation and vasoconstriction of the blood vessels to regulate blood distribution at rest and during physical activity, sport and/or exercise
* the relationship between stroke volume, heart rate and cardiac output at rest, and submaximal and maximal exercise intensities
* the structure and function of the respiratory system, including the lungs, mechanics of breathing and gaseous exchange at the alveoli/capillary and the capillary/muscle interface
* the interaction of the cardiovascular and respiratory systems to transport oxygen around the body at rest and during physical activity, sport and/or exercise
* the impacts of regular aerobic exercise on enhancing the capacity and function of the cardiovascular and respiratory systems
* potential benefits and harms of permitted and prohibited substances and methods that enhance performance of the cardiorespiratory system, such as altitude training, erythropoietin (EPO), beta-blockers, and gene and blood doping
* ethical and sociocultural considerations associated with the use of permitted and prohibited performance-enhancing substances and methods.

Key skills

* apply and use anatomical terminology to identify the structures and function of the cardiovascular and respiratory systems
* use primary data to measure and analyse the changes to the cardiovascular and respiratory systems at rest compared with various exercise intensities
* examine the role and process of thermoregulation through participation in physical activity, sport and/or exercise
* investigate and describe the process of gaseous exchange
* evaluate the impacts of regular aerobic exercise on enhancing the capacity and functioning of the cardiovascular and respiratory systems
* investigate and evaluate the effects of a range of performance-enhancing substances and methods on the cardiorespiratory system from a physiological perspective
* explore the ethical and sociocultural considerations relating to the use of permitted and prohibited performance-enhancing substances and methods.

Assessment

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of outcomes specified for the unit. Teachers should use a variety of learning activities and assessment tasks that provide a range of opportunities for students to demonstrate the key knowledge and key skills in the outcomes.

The areas of study, including the key knowledge and key skills listed for the outcomes, should be used for course design and the development of learning activities and assessment tasks. Assessment must be a part of the regular teaching and learning program, and should be completed mainly in class and within a limited timeframe.

All assessments at Units 1 and 2 are school-based. Processes for assessing levels of achievement in Units 1 and 2 are a matter for school decision.

For this unit, students are required to demonstrate 2 outcomes. As a set, these outcomes encompass the areas of study in the unit.

A suitable assessment task for Outcomes 1 and 2 is:

* a written report analysing participation in at least 4 physical activities that demonstrates the integration of theoretical knowledge and practical application of how the musculoskeletal and cardiorespiratory systems work together.

Additionally, at least one task for the assessment of each of Outcomes 1 and 2 is to be selected from the following:

* a practical laboratory report linking key knowledge and key skills to a practical activity or practical activities
* a case study analysis
* a data analysis
* an extended-response question that uses a visual planning tool such as a concept/mind map to synthesise information and develop a response
* a visual presentation such as an annotated poster, a concept/mind map, or a digital presentation (including physical simulation)
* an oral presentation such as a podcast or debate.

Where teachers allow students to choose between tasks, they must ensure that the tasks they set are of comparable scope and demand.

Unit 2: Physical activity, sport, exercise and society

This unit develops students’ understanding of physical activity, sport and exercise from a participatory perspective. Students are introduced to types of physical activity and the role that physical activity participation and sedentary behaviour plays in their own health and wellbeing, as well as in other population groups and contexts.

Through a series of practical activities, students experience and explore different types of physical activity promoted within and beyond their community. They gain an appreciation of the movement required for health benefits and the consequences of physical inactivity and sedentary behaviour. Using various methods to assess physical activity and sedentary behaviour, students analyse data to investigate perceived barriers and enablers, and explore opportunities to enhance participation in physical activity. Students explore and apply the social-ecological model to critique a range of individual- and settings-based strategies that are effective in promoting participation in regular physical activity. They create and participate in a personal plan with movement strategies that optimise adherence to physical activity and sedentary behaviour guidelines.

By investigating a range of contemporary issues associated with physical activity, sport and exercise, students explore factors that affect access, inclusion, participation and performance. Students then select one issue at the local, national or global level and analyse key concepts within the issue, including investigating, participating in and prescribing movement experiences that highlight the issue.

Students develop an understanding of the historical and current perspectives on the issue and consider the future implications on participation and performance.

Area of Study 1

How do physical activity, sport and exercise contribute to healthy lifestyles?

In this area of study, students focus on the role of physical activity, sport and exercise in developing and promoting healthy lifestyles across the lifespan. Students explore the sociocultural influences on participation in various forms of physical activity. They investigate the physical, social, mental, emotional and spiritual benefits of participation in regular physical activity at the individual and population levels, and the potential health risks associated with physical inactivity and sedentary behaviour.

Students examine sociocultural factors that influence physical activity and consider opportunities and barriers to participation. They develop an understanding of the use of subjective and objective methods for assessing physical activity and sedentary behaviour at the individual and population levels and compare these to physical activity and sedentary behaviour guidelines. Students identify and describe the components of the social-ecological model to assist in the critique and creation of strategies aimed at increasing physical activity and/or reducing sedentary behaviour within a given population. Students conduct a Functional Movement Assessment (FMA), then design and implement a personalised plan that is sustainable and adheres to the physical activity and sedentary behaviour guidelines.

Outcome 1

On completion of this unit, the student should be able to collect and analyse data related to individual and population levels of participation in physical activity and sedentary behaviour and conduct an FMA to create, undertake and evaluate a personalised plan that promotes adherence to the relevant physical activity and sedentary behaviour guidelines.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 1.

Key knowledge

* types of physical activity such as play, games, sports (formal and informal), transportation, chores, exercise and recreational activities
* physical, social, mental, emotional and spiritual benefits of regular participation in types of movement
* sociocultural enablers and barriers to individual physical activity behaviour such as gender, family, peers, socioeconomic status, community and cultural norms
* prevalence and trends of physical activity, physical inactivity and sedentary behaviour
* physical activity and sedentary behaviour guidelines for different age population groups
* subjective and objective methods of assessing physical activity and sedentary behaviour, such as recall surveys or diaries, pedometry, observation tools, digital tools and wearable technology
* components of the social-ecological model (individual, social environment, physical environment and policy)
* a range of population-based initiatives that target enablers of and barriers to physical activity
* health-related fitness components and factors affecting aerobic power, muscular strength and endurance and flexibility
* Fundamental Movement Assessment (FMA):
* physiological, psychological and sociocultural considerations
* pre-participation health screening
* informed consent
* assessment reliability, validity and accuracy
* considerations of a personalised plan, including self-management skills, used to promote physical activity and reduce sedentary behaviour.

Key skills

* participate in and explain different types of movement experiences, including a variety of culturally diverse and inclusive physical activities
* participate in a variety of movement experiences to reflect on and record information related to the physical, social, mental, emotional and spiritual benefits of physical activity
* investigate, through participation, the sociocultural influences on physical activity behaviour across the lifespan
* describe the physical activity and sedentary behaviour guidelines for different age population groups
* analyse and interpret secondary data related to physical activity behaviour to explain outcomes of physical activity and sedentary behaviour
* justify and use appropriate methods to collect and analyse data related to physical activity and sedentary behaviour at the individual and population levels
* apply the social-ecological model to critique and create physical activity initiatives and strategies aimed at increasing physical activity and/or reducing sedentary behaviour
* explain health-related fitness components, including factors affecting each component
* justify an appropriate FMA for a targeted individual/group, from a physiological, psychological and sociocultural perspective
* conduct and evaluate an FMA using reliable, valid and accurate methodology
* using self-management skills, design a sustainable personalised plan that promotes adherence to physical activity and sedentary behaviour guidelines
* implement strategies from a personalised plan to gather primary data about strengths and limitations of the program design.

Area of Study 2

What are the contemporary issues associated with physical activity and sport?

In this area of study, students focus on a range of contemporary issues associated with physical activity and sport at the local, national and global levels.

They investigate a range of intrapersonal and interpersonal factors that affect access to, and inclusion, participation and performance in, physical activity and sport, such as injuries, coaching, sports technology and the media, psychological strategies and equity for a range of population groups, including Aboriginal and Torres Strait Islander Peoples.

Students explore one contemporary issue relevant to physical activity and/or sport and prescribe and participate in practical activities to highlight the issue.

Students develop an understanding of the historical and current perspectives on the issue and forecast future trends. They form conclusions about the impacts these issues have on physical activity and sport in society.

Outcome 2

On completion of this unit, the student should be able to explain a range of intrapersonal and interpersonal contemporary issues that influence access to, and inclusion, participation and performance in, physical activity and sport at the local, national and global levels.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 2.

Key knowledge

* intrapersonal issues that influence access to, and inclusion, participation and performance in, physical activity and sport, such as:
* hormonal considerations for physical activity prescription
* injuries, such as concussion and knee injuries, and safety
* psychological skills, including sleep and accompanying strategies
* mental fitness, including the role of physical activity and the responsibility of elite sport pathways
* interpersonal issues that influence access to, and inclusion, participation and performance in, physical activity and sport, such as:
* geographic location (rural and urban)
* coaching (styles, planning/program design and ethical behaviour, such as safeguarding athletes)
* sports technology and the impacts of media on beliefs and behaviour
* institutional and structural inclusion and equity in sport (for Aboriginal and Torres Strait Islander Peoples, and in consideration of cultural diversity, physical and intellectual diversity, and gender and sexual diversity)
* gender equity, such as pay gap, and representation in coaching positions and decision-making bodies at the local, national and global levels
* key concepts within the selected contemporary issue linked to participation in physical activity and/or sport in society
* local, national and/or global perspectives on the selected issue
* historical, current and future implications of the selected issue.

Key skills

* explain contemporary intrapersonal and interpersonal issues associated with access to, and inclusion, participation and performance in, physical activity and sport
* collect information on a range of intrapersonal and interpersonal issues from a variety of resources, such as primary data, and print and electronic media
* propose ethical strategies to enhance access to, and inclusion, participation and performance in, physical activity and sport
* prescribe, participate in and reflect on movement experiences that illustrate different perspectives on the selected issue
* analyse the historical, current and future implications of the selected issue.

Assessment

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of outcomes specified for the unit. Teachers should use a variety of learning activities and assessment tasks that provide a range of opportunities for students to demonstrate the key knowledge and key skills in the outcomes.

The areas of study, including the key knowledge and key skills listed for the outcomes, should be used for course design and the development of learning activities and assessment tasks. Assessment must be a part of the regular teaching and learning program and should be completed mainly in class and within a limited timeframe.

All assessments at Units 1 and 2 are school-based. Processes for assessing levels of achievement in Units 1 and 2 are a matter for school decision.

For this unit, students are required to demonstrate 2 outcomes. As a set, these outcomes encompass the areas of study in the unit.

A suitable assessment task for Outcome 1 is:

* a written plan or multimedia presentation designed to either increase physical activity levels and/or reduce sedentary behaviour for an individual or a selected group, based on reflections from participation in physical strategies/programs designed to promote physical activity and limit sedentary behaviour.

Suitable tasks for the assessment of Outcome 2 may be selected from the following:

* an extended-response question that uses a visual planning tool such as a concept/mind map to synthesise information and develop a response
* a visual presentation, such as an annotated poster, a concept/mind map, or a digital presentation (including physical simulation)
* an oral presentation
* a written report.

Where teachers allow students to choose between tasks, they must ensure that the tasks they set are of comparable scope and demand.

Unit 3: Movement skills and energy for physical activity, sport and exercise

This unit introduces students to principles used to analyse human movement from a biophysical perspective. Students use a variety of tools and coaching techniques to analyse movement skills and apply biomechanical and skill-acquisition principles to improve and refine movement in physical activity, sport and exercise. They use practical activities to demonstrate how correctly applying these principles can lead to improved performance outcomes.

Students consider the cardiovascular, respiratory and muscular systems and the roles of each in supplying oxygen and energy to the working muscles. They investigate the characteristics and interplay of the 3 energy systems for performance during physical activity, sport and exercise. Students explore the causes of fatigue and consider different strategies used to postpone fatigue and promote recovery.

Area of Study 1

How are movement skills improved?

In this area of study, students examine the biomechanical and skill-acquisition principles that can be applied when analysing and improving movement skills for participation and performance.

Through practical activities, students explore and analyse their own movement and use coaching to investigate factors that influence skill acquisition. They develop an understanding of how appropriately applying biomechanical and skill-acquisition principles leads to the development of optimal movement patterns to enhance participation and performance.

Outcome 1

On completion of this unit, the student should be able to analyse primary data collected from participation in physical activity, sport and exercise to develop and refine movement skills from an individual and coaching perspective, by applying biomechanical and skill-acquisition principles.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 1.

Key knowledge

* classification of movement skills, including fundamental movement skills, sport-specific skills, open and closed skills, gross and fine skills, and discrete, serial and continuous motor skills
* the link between motor skill development, participation and performance
* considerations when coaching to enhance participation and performance:
* sociocultural factors that affect skill development
* characteristics of the 3 stages of learning (cognitive, associative and autonomous)
* theories of skill acquisition (linear vs non-linear) applied through direct and constraint-based approaches
* psychological skills (confidence, motivation, optimal arousal and concentration) and accompanying strategies
* scheduling of practice including type (part and whole), distribution (massed and distributed) and variability (blocked and random)
* frequency and type of feedback including intrinsic and augmented (knowledge of results and knowledge of performance)
* biomechanical principles for analysis of human movement:
* linear and angular concepts of human movement including force/torque, momentum, impulse and speed/velocity
* Newton’s 3 laws of linear motion: inertia, acceleration and action-reaction
* projectile motion (height, angle and speed of release)
* anatomical third-class levers (axis, force, resistance and mechanical advantage)
* equilibrium: stability (centre of gravity, base of support and line of gravity)
* qualitative movement analysis stages (preparation, observation, evaluation and error correction).

Key skills

* analyse primary data
* analyse and classify movement skills
* analyse the link between motor skill development, participation and performance
* participate in, describe and develop coaching strategies to enhance participation and performance, considering the needs of the learner and the performance requirements of the skill
* analyse, interpret and apply graphical, visual and physical representations of biomechanical principles to improve movement skills
* perform a qualitative movement analysis of a movement skill using video and systematic observation to analyse and improve a variety of movement skills.

Area of Study 2

How does the body produce energy?

In this area of study, students explore the various systems and mechanisms associated with the production of energy required for human movement. They consider the cardiovascular, respiratory and muscular systems and the roles of each in supplying oxygen to, and creating energy at, the working muscles. They examine the ways in which energy for movement is produced by the 3 energy systems and the associated fuels used for physical activity, sport and exercise of varying intensity and duration. Students also consider the many factors contributing to fatigue, nutritional tools to delay fatigue and recovery strategies used to optimise the return to pre-exercise conditions. Through practical activities, students explore the interplay of the energy systems during physical activity, sport and exercise.

Outcome 2

On completion of this unit, the student should be able to use data collected in practical activities to analyse how the major body and energy systems work together to enable movements to occur; explain the factors causing fatigue; and recommend suitable recovery strategies.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 2.

Key knowledge

* oxygen uptake at rest and during physical activity and recovery, including oxygen deficit, steady state and excess post-exercise oxygen consumption (EPOC)
* acute physiological responses to exercise in the cardiovascular, respiratory and muscular systems
* the 3 energy systems (ATP-CP, anaerobic glycolysis and aerobic), including their fuels (chemical and food); rate and yield of each system; their contribution at rest and varying intensities; and recovery rates associated with active and passive recovery
* the interplay of energy systems in relation to the intensity and duration of physical activity, sport and exercise
* muscular fatigue mechanisms, including fuel depletion, accumulation of metabolic by-products and thermoregulatory fatigue linked to varied sport and exercise intensities and durations
* nutritional and hydration strategies used to enhance performance, delay fatigue and improve recovery, including carbohydrate ingestion, protein and water.

Key skills

* explain the changes in oxygen supply and demand at rest, and during sub-maximal and maximal exercise
* participate in laboratory activities to collect and analyse data on the range of physiological responses the body experiences during exercise
* perform, observe, analyse and report on practical activities designed to explore the relationship between the energy systems during activity and recovery
* participate in physical activity, sport and exercise to describe, using appropriate terminology, the interplay and relative contribution of the 3 energy systems
* explain the muscular fatigue mechanisms associated with the use of the 3 energy systems and the individual and environmental factors that influence fatigue under various intensities and durations
* describe nutritional and hydration strategies and how these are used to enhance performance, delay fatigue and improve recovery.

School-based assessment

Satisfactory completion

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of outcomes specified for the unit. Teachers should use a variety of learning activities and assessment tasks to provide a range of opportunities for students to demonstrate the key knowledge and key skills in the outcomes.

The areas of study and key knowledge and key skills listed for the outcomes should be used for course design and the development of learning activities and assessment tasks.

Assessment of levels of achievement

School-assessed Coursework

The student’s level of achievement in Unit 3 will be determined by School-assessed Coursework (SAC). School-assessed Coursework tasks must be a part of the regular teaching and learning program and must not unduly add to the workload associated with that program. They must be completed mainly in class and within a limited timeframe.

Where teachers provide a range of options for the same School-assessed Coursework task, they should ensure that the options are of comparable scope and demand.

The types and range of forms of School-assessed Coursework for the outcomes are prescribed within the study design. The VCAA publishes [Support materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/physicaleducation/Pages/Index.aspx) for this study, which include advice on the design of assessment tasks and the assessment of student work for a level of achievement.

Teachers will provide to the VCAA a numerical score representing an assessment of the student’s level of achievement. The score must be based on the teacher’s assessment of the performance of each student on the tasks set out in the following table.

Contribution to final assessment

School-assessed Coursework for Unit 3 will contribute 20 per cent to the study score.

|  |  |  |
| --- | --- | --- |
| **Outcomes** | **Marks allocated** | **Assessment tasks** |
| **Outcome 1**Analyse primary data collected from participation in physical activity, sport and exercise to develop and refine movement skills from an individual and coaching perspective, by applying biomechanical and skill-acquisition principles. | **45** | Structured questions that draw on primary data that analyses a movement skill using biomechanical and skill-acquisition principles |
| **Outcome 2**Use data collected in practical activities to analyse how the major body and energy systems work together to enable movements to occur, explain the factors causing fatigue and recommend suitable recovery strategies. | **45** | A laboratory report based on primary data collected during participation in a practical activity, which analyses the acute responses to exercise, energy system characteristics, energy system interplay, fatigue and recovery |
| **Total marks** | **90** |  |

External assessment

The level of achievement for Units 3 and 4 is also assessed by an end-of-year examination (see [page 31](#Examination)), which will contribute 50 per cent to the study score.

Unit 4: Training to improve performance

In this unit, students’ participation and involvement in physical activity will form the foundations of understanding how to improve performance from a physiological perspective. Students analyse movement skills and fitness requirements and apply relevant training principles and methods to improve performance at various levels (individual, club and elite).

Improvements in performance, in particular fitness, depend on the ability of the individual and/or coach to gain, apply and evaluate knowledge and understanding of training. Students assess fitness and use collected data to justify the selection of fitness tests based on the physiological requirements of an activity, including muscles used, energy systems and fitness components. Students then consider all physiological data, training principles and methods to design a training program. The effectiveness of programs is evaluated according to the needs of the individual and chronic adaptations to training.

Area of Study 1

What are the foundations of an effective training program?

In this area of study, students analyse the information required to form the foundation of an effective training program. Through participation, they undertake and collect data from an activity analysis and justify the specific physiological requirements of an activity.

Students determine the relevant factors that affect each of the fitness components and conduct an assessment of fitness that demonstrates correct and appropriate implementation of testing protocols and procedures and informs the design of the training program.

Outcome 1

On completion of this unit, the student should be able to undertake an activity analysis to justify the physiological requirements of an activity that informs an appropriate assessment of fitness.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 1.

Key knowledge

* types of data collected from an activity analysis, including skill frequencies, movement patterns, heart rates and work-to-rest ratios used to identify physiological requirements
* factors affecting fitness components required in physical activity, sport or exercise (aerobic power, anaerobic capacity, muscular strength, power and endurance, flexibility, balance, coordination, speed and agility)
* assessment of fitness for an activity:
* the purpose of fitness testing from physiological and psychological perspectives
* pre-participation health screening and informed consent
* standardised, recognised fitness tests that test appropriately identified physiological requirements
* test reliability, validity and accuracy.

Key skills

* undertake an activity analysis and analyse associated data to justify the necessary physiological requirements
* justify the selection of standardised, recognised fitness tests for the specific physiological requirements of the activity
* perform and observe a reliable, valid and accurate assessment of fitness.

Area of Study 2

How is training implemented effectively to improve fitness?

In this area of study, students focus on participation, implementation and evaluation of training principles and methods from practical and theoretical perspectives. They consider the ways in which fitness can be improved by applying appropriate training principles and methods when designing and critiquing a training program. Students identify and consider components of an exercise training session, and they record and analyse relevant data that can be used to adjust training. Students explain the chronic adaptations of the cardiovascular, respiratory and muscular systems that improve fitness and enhance performance.

Outcome 2

On completion of this unit, the student should be able to participate in a variety of training methods; design and evaluate training programs; and explain performance improvements that occur due to chronic adaptations, depending on the type of training undertaken.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 2.

Key knowledge

* strategies to monitor and record physiological, psychological and sociological training data, including training diaries, digital tools and wearable technologies
* components of an exercise training session, including warm up, the conditioning phase and cool down
* training program principles, including frequency, intensity, time/duration, type, progression, specificity, individuality, diminishing returns, variety, maintenance, tapering, overtraining and detraining
* training methods, including continuous, interval (short, intermediate, long and HIIT), fartlek, circuit, weight/resistance, flexibility and plyometrics
* chronic adaptations of the cardiovascular, respiratory and muscular systems to aerobic, anaerobic and resistance training that produce improvements in:
* VO2 max
* lactate inflection point (LIP)
* speed and force of muscular contraction
* lactate tolerance.

Key skills

* participate in and reflect on training sessions by recording physiological, psychological and sociological data in a reflective folio
* participate in and conduct components of an exercise training session
* design a training program that demonstrates the correct application of training principles and methods to enhance and/or maintain fitness components
* analyse training data to identify and prescribe appropriate modifications to a training program
* evaluate and critique the effectiveness of different training programs
* explain how the chronic adaptations of the cardiovascular, respiratory and muscular systems to training lead to improved performance.

Area of Study 3

Integrated movement experiences

In this area of study, students reflect on their participation in a practical activity and use primary data collected to demonstrate their integration of theory and practice across Units 3 and 4. Using an interdisciplinary approach, students are required to analyse the interrelationships between skill acquisition, biomechanics, energy production and training, and the impacts these have on performance.

To do this, students reflect on their participation in either:

* a practical activity focusing on a particular movement skill, the performance of which can be compared to another individual completing the same skill
* a practical activity focusing on comparing their participation in 2 different movement skills.

The specific practical activity can occur at any time during Unit 3 or Unit 4, as evidenced in students’ reflective folio.

An extended response will be used to assess this area of study, in which students will answer a prompt(s) utilising the evidence recorded in their reflective folio. Prior to the extended response, students will use a planning tool such as a mind map to determine and explore links between theoretical concepts and the practical activity.

Outcome 3

On completion of this unit, the student should be able to integrate theory and practice that enables them to analyse the interrelationships between skill acquisition, biomechanics, energy production and training, and the impacts these have on performance.

To achieve this outcome, the student will draw on key knowledge and key skills outlined in Area of Study 3.

Key knowledge

* the integration of theory and practice utilised in and through participation in practical activity
* interdisciplinary learning that connects knowledge related to skill acquisition, biomechanics, energy production and training and the impacts these have on performance.

Key skills

* reflect on primary data from participation in a practical activity
* use primary data to demonstrate integration of theory and practice
* analyse interrelationships between skill acquisition, biomechanics, energy production and training knowledge for the practical activity completed in consideration of/in relation to the impacts these have on performance between movement skills or performers.

School-based assessment

Satisfactory completion

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of outcomes specified for the unit. Teachers should use a variety of learning activities and assessment tasks to provide a range of opportunities for students to demonstrate the key knowledge and key skills in the outcomes.

The areas of study and key knowledge and key skills listed for the outcomes should be used for course design and the development of learning activities and assessment tasks.

Assessment of levels of achievement

School-assessed Coursework

The student’s level of achievement in Unit 4 will be determined by School-assessed Coursework (SAC). School-assessed Coursework tasks must be a part of the regular teaching and learning program and must not unduly add to the workload associated with that program. They must be completed mainly in class and within a limited timeframe.

Where teachers provide a range of options for the same School-assessed Coursework task, they should ensure that the options are of comparable scope and demand.

The types and range of forms of School-assessed Coursework for the outcomes are prescribed within the study design. The VCAA publishes [Support materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/physicaleducation/Pages/Index.aspx) for this study, which include advice on the design of assessment tasks and the assessment of student work for a level of achievement.

Teachers will provide to the VCAA a numerical score representing an assessment of the student’s level of achievement. The score must be based on the teacher’s assessment of the performance of each student on the tasks set out in the table on the next page.

Contribution to final assessment

School-assessed Coursework for Unit 4 will contribute 30 per cent to the study score.

|  |  |  |
| --- | --- | --- |
| **Outcomes** | **Marks allocated** | **Assessment tasks** |
| **Outcome 1**Undertake an activity analysis to justify the physiological requirements of an activity that informs an appropriate assessment of fitness.  | **25** | A written report analysing data from an activity analysis to determine the relevant physiological requirements in a selected activity including justification of the selection of appropriate tests to assess fitness. |
| **Outcome 2**Participate in a variety of training methods; design and evaluate training programs; and explain performance improvements that occur due to chronic adaptations, depending on the type of training undertaken.  | **40** | A case study that draws on experiences from participation in at least 5 training sessions to design a personalised 6-week training program |
| **20** | A response in one or more of the following formats, which links chronic adaptations of the cardiovascular, respiratory and muscular systems to training methods and improved performance: * a case study analysis
* a data analysis
* structured questions
 |
| **Outcome 3**Integrate theory and practice that enables them to analyse the interrelationships between skill acquisition, biomechanics, energy production and training, and the impacts these have on performance. | **25** | An extended-response question drawing on personal experiences from a chosen practical activity recorded in the reflective folio, that analyses the interrelationships between skill acquisition, biomechanics, energy production and training program theoretical knowledge for their impacts on participation and/or performance. An emphasis should be placed on using a suitable tool, such as a concept or mind map, to plan a response.  |
| **Total marks** | **110** |  |

External assessment

The level of achievement for Units 3 and 4 is also assessed by an end-of-year examination.

End-of-year examination

Contribution to final assessment

The examination will contribute 50 per cent to the study score.

Description

The examination will be set by a panel appointed by the VCAA. All the key knowledge and key skills that underpin the outcomes in Units 3 and 4 are examinable.

Conditions

The examination will be completed under the following conditions:

* Duration: 2 hours.
* Date: at the end of the year, on a date to be published annually by the VCAA.
* VCAA examination rules will apply. Details of these rules are published annually in [*VCE Administrative Handbook*](https://www.vcaa.vic.edu.au/administration/vce-handbook/Pages/index.aspx?Redirect=1).
* The examination will be marked by assessors appointed by the VCAA.

Further advice

The VCAA publishes specifications for all VCE examinations on the VCAA website. Examination specifications include details about the sections of the examination, their weighting, the question format(s) and any other essential information. The specifications, together with any sample material, are published in the first year of implementation of the revised Unit 3 and 4 sequence.