**VCE Physical Education Unit Outline**

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| **UNIT TITLE:** The way our bodies move! | **BAND/YEAR:** 11 – Unit 1 |
| **Area of Study (AOS): 1 – Bodies systems and human movement** | **SEQUENCE & LENGTH:** Lessons will run for 60 minutes with 1 or 2 doubles a week. There will be 16 lessons provided over 5 weeks.  |
| **AoS Description:** In this area of study students examine the systems of the human body and how they translate into movement. Through practical activities they explore the major components of the musculoskeletal, cardiovascular and respiratory systems and their contributions and interactions during physical activity.Anaerobic and aerobic pathways are introduced and linked to the types of activities that utilise eachof the pathways. | **WEEK/DATE/TERM:****Term 1** Week 2 – 1st Feb Week 3 – 8th FebWeek 4 – 15th FebWeek 5 – 22nd FebWeek 6 – 29th Feb |
| **Key Knowledge/s:**• the musculoskeletal system working together to produce movement in physical activity: bones of the human body, major muscles and muscle structure, classification of joints and joint action• Characteristics and functions of muscle fibres including fibre arrangement and type• Types of muscular contraction (isotonic, isometric and isokinetic)• Agonists, antagonists and stabilisers and the concept of reciprocal inhibition• Control of muscles including the recruitment of motor units, voluntary and involuntary muscular contractions• The cardiovascular and respiratory systems, including the structure and function of the heart and lungs, mechanics of breathing, gaseous exchange, blood vessels, blood flow around the body at rest and during exercise• Introduction to the characteristics of aerobic and anaerobic pathways (with or without oxygen) and **t**heir contribution to movement and dominant fibre type associated with each pathway. | **Key Skills:**These skills include the ability to:• Use correct anatomical terminology to identify bones, individual muscles (for example, rectus abdominus), joints and joint actions used in human movement• Perform, observe and analyse a variety of movements used in physical activity and identify the bones, muscles, joints and joint actions responsible for movement• Accurately describe the process of reciprocal inhibition• Use correct terminology to identify muscle fibre types and muscular contractions required to perform a variety of activities at different intensities• Describe the relationship between motor unit recruitment and muscular contractions• Perform, measure and report on changes to the cardiovascular, respiratory and muscular systems at rest compared to exercise• Identify the dominant energy pathway utilised in a variety of aerobic or anaerobic activities determined by the intensity and duration of the activity• Collect, analyse and report on primary data related to responses to exercise and anaerobic and aerobic pathways. |
| **Teaching Approaches:**This unit will be run in a flipped classroom format. Therefore students will be given links to Prezi and podcasts to listen to before the begning of each week. The aim of this is to 1. Be more time efficient, 2. Get through most of the content outside of class and spend classr toime refining skills and knowledge with more hands on and engaging activities. There will be ICT use throughout the unit which will allow students to build their skills in this area and explore different methods of learning. The unit also aims to teach through the use of practical experience as is highlighted in the VCE study design. This will allow students to see the content put into action and contexualise their knowledge.  | **Assessment ideas:****Informal –** Due to the unit being run in a flipped classroom format, at the beginning of each lesson students will be quizzed using the interactive website, Kahoot, on the content that they should have learnt from a prepared prezi/powerpoint, a podcast and the relevant chapter in the text book. Every few lesosns students will also be given a mini quiz with practise exam questions relevant to the key knowledges and skills learnt in that week. As a class we will go through the answers. This will not only build their skills in deconstructing exam questions but also provide continous opportunity for students to apply the knowledge to different contexts and deepen their understanding of the content. **Formal** - The **first** formal assessment piece will be a written and verbal instruction test to test the anatomical content. Students will be tested on the bones and muscles of the human body, will be asked to identify body parts when using anatomical terms to describe them and to demomstre a range of different physical movements. The **second** formal assessment will be a group presentaion on content covering the cardiovascular and respiratory systems. Students are given the choice to present in any form which will encourage creativity and teamwork. At the completion of the presentation students will have planned an activity to do with the class which will test and reiterate this knowledge. The **third** formal assessment will be the creation of an interactive website which will require the students to apply their content knowledge and create a study resource for future VCE PE students to utilise.  |

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| **Week****Lesson****Date** | **Links to:*** **Area Of Study**
* **Outcome**
* **Key Knowledge**

**Key skills**  | **Text** **Nelson, VCE Physical Education Units 1&2 5th Edition)** | **Topic & Content to be covered** | **Teaching and Learning Activities** | **Homework** |
| **Week 2**Lessons 1, 2, 3 & 4 1st Feb  | **The neuromuscular and musculoskeletal systems*** AOS 1
* Outcome 1

**KN –** * The musculoskeletal system working together to produce movement in physical activity: bones of the human body.

**KS –*** Use correct anatomical terminology to identify bones, individual muscles (for example, rectus abdominus), joints and joint actions used in human movement
* Perform, observe and analyse a variety of movements used in physical activity and identify the bones, muscles, joints and joint actions responsible for movement
 | Chapter 1 pg. (3-10)PowerPoint/Prezi(<https://prezi.com>) Skeleton Apps – VisAnatomy Kahoot (<https://kahoot.it> ) Butchers paper | **The neuromuscular and musculoskeletal systems*** Anatomical terms (pg. 3)
* The vertebral column (pg. 5)
* Bones & joints (pg. 6)
* Types of movements (pg. 8)

**NOTE\*\* This AOS will be run as a flipped classroom therefore students will be expected to have read the relevant chapters and taken notes on these along with listening to the podcast.**  | * Introduction
* Kahoot quiz’s to test students have read and listened to the podcasts
* Go through PowerPoint of key content points and take notes (students should have already watched a prezi/listened to podcasts before each class)
* Anatomical terms relay where students are in teams and have to find the correct term on one of 20 flashcards for the description read out
* Draw up a outline of body on butchers paper (life size) and label bones (this will be added to throughout the unit to create a resource for revision)
* Simon Says Game (using Movement terminology)
* Kahoot and written Quiz – Anatomical terminology
* VisAnatomy app quiz
* What am I? (Students identify the type of joint being shown/described)
* Quick Practice exam with questions relevant to the content
* Go through answers and discuss with class why the answers are appropriate (how to read a question, how many marks) \*\*Important that students are building these skills early for year 12 and exams

Practicals * Sport analysis – Select a sport, participate in the sport and identify three key positions, identify bones and type of joint actions involved
 | * Thinking things through p. 10
* Create a labelled skeleton (this will be used as a study resource for students to take home)
* Create flash cards of anatomical terms
* Listen to podcast for next week and read relevant chapters
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| **Week 3**Lessons 5,6 & 78th Feb | **The neuromuscular and musculoskeletal systems****KN –** * Major muscles and muscle structure, classification of joints and joint action
* Characteristics and functions of muscle fibers including fibre arrangement and type
* Types of muscular contraction (isotonic, isometric and isokinetic)
* Agonists, antagonists and stabilisers and the concept of reciprocal inhibition
* Control of muscles including the recruitment of motor units, voluntary and involuntary muscular contractions

**KS –** * Perform, observe and analyse a variety of movements used in physical activity and identify the bones, muscles, joints and joint actions responsible for movement
* Accurately describe the process of reciprocal inhibition
* Use correct terminology to identify muscle fibre types and muscular contractions required to perform a variety of activities at different intensities
* Describe the relationship between motor unit recruitment and muscular contractions
 | Chapter 1 – pg. (11-27)Kahoot PowerPoint/PreziApps – - iMuscleYouTube(<https://www.youtube.com>)  | **The neuromuscular and musculoskeletal systems*** Muscles (pg. 11)
* Nervous control of muscles (pg. 14)
* Sliding filament theory (pg. 20)
* Types of contraction & fibre type (pg. 22)
 | * Kahoot on previous classes
* PowerPoint of key content and take notes (again students should have gone through the PowerPoint and podcasts before each class)
* Cover the skeleton made in week 1 with clear paper and draw and label the muscles in a different colour
* Complete Lab Activity pg. 14 (1 of)
* Use iMuscle app and get students to identify which muscles are contracting and relaxing with different movements to understand the concept of reciprocal inhibition
* Show YouTube clips of different sporting movements eg 100m sprint, rugby try, triple jump etc., students to then identify muscle fibre types.
* Muscles relay where students are in teams and have to find the correct term on one of 20 flashcards for the description read out eg. If flexion occurred at the elbow, which muscle would be your agonist?
* Quick Practice exam with questions relevant to the content
* Go through answers and discuss with class why the answers are appropriate (how to read a question, how many marks)

Practicals* Resistance training session using body weight as resistance – identify agonist, antagonist and stabilisers and determine which joint it crosses
* Complete Lab activity pg.27
* Applied Anatomy Circuit – students complete different exercises such as push-ups, sit ups, squats and record the joint type, articulating bones, anatomical movement and agonist, antagonist and supporting muscles.
 | * Thinking Things through p.16
* Thinking Things Through p.22
* Finish muscle diagram
* Listen to podcast and read relevant chapters

**Test –** Written test Verbal instruction test (teacher says show an example of flexion and students have to demonstrate movement or point to muscle/joint/bone being described)   |
| **Week 4**Lessons8,9,10 & 1115th Feb | **The cardiovascular system & Respiratory systems****KN –**• The cardiovascular and respiratory systems, including the structure and function of the heart and lungs, mechanics of breathing, gaseous exchange, blood vessels, blood flow around the body at rest and during exercise**KS –** • Perform, measure and report on changes to the cardiovascular, respiratory and muscular systems at rest compared to exercise | Chapter 2 – pg. (30-44)Kahoot PowerPoint/Prezzi | **The cardiovascular system & Respiratory systems*** Structure of the heart (pg. 31)
* Blood flow through blood vessels & heart (pg. 34-37)
* Managing different workloads
* Blood (RBC, WBC etc.) (p.g 33)
* BP, HR, SV, Q, avO2 diff)
* Responses to exercise
 | * Kahoot quiz’s on previous class/ podcast/ section of textbook
* PowerPoint of key content and notes
* Label diagrams of the heart
* In groups role play the path of a blood cell going through the heart, body and lungs
* Construct a model of the lungs to demonstrate the mechanics of breathing
* Complete Lab pg.39
* Quick Practice exam with questions relevant to the content
* Go through answers and discuss with class why the answers are appropriate (how to read a question, how many marks)

Practicals* Observing and Recording Prac – Students observe 1 student each participating in a sport game to understand what happens with your respiration and circulatory systems with exercise (if not enough students use something different like Zumba or Aerobics). At minute intervals they will be recording:

**Sprints-** How many sprints in that time frame**Pulse-** Take their carotid or radial pulse**Temperature**- Thermometer under the arm pit**Breathing rate-** How many breathes in 30 seconds**SAC –** In groups of 3-4 Create a presentation to deliver to the class that presents the data collected in the prac and explains the cardiovascular and respiratory responses to exercise. It can be presented in any form as long as it covers the content. With the information students will come up with an activity/game to do with the class that tests this knowledge. * Beep Test to understand and test the max VO2
 | * Thinking Things Through P34
* Thinking Things Through P37
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| **Week 5** Lessons12, 13 & 1422nd Feb**.** | **Aerobic and anaerobic pathways** **KN –** * Introduction to the characteristics of aerobic and anaerobic pathways (with or without oxygen) and **t**heir contribution to movement and dominant fibre type associated with each pathway.

**KS –*** Identify the dominant energy pathway utilised in a variety of aerobic or anaerobic activities determined by the intensity and duration of the activity
* Collect, analyse and report on primary data related to responses to exercise and anaerobic and aerobic pathways.
 | Chapter 3 – pg. (46-60)Kahoot PowerPoint/PrezziYouTube | **Aerobic and anaerobic pathways** * Foods & their conversion to energy (pg. 45)
* Carbohydrates, fats & protein (pg. 46)
* Introduction to energy systems (pg. 49)

**Note\*\* There will be two extra lessons designated to this AOS due to unavoidable interruptions that will occur over the weeks** | * Kahoot quiz’s on previous class/ podcast/ section of textbook
* PowerPoint of key content and notes
* Draw graphs of Energy systems
* Case study using Australian Institute of Sport website (<http://www.ausport.gov.au/ais/nutrition>) – What foods contribute to energy and relate this to different sports.
* Watch YouTube clips of different athletes and sports and identify which energy system is predominantly used and which muscle fibre type would be predominantly recruited.
* Quick Practice exam with questions relevant to the content
* Go through answers and discuss with class why the answers are appropriate (how to read a question, how many marks)

Practicals* Play a team sport and identify the dominant energy pathway used in different positions. Identify and discuss the interplay between the three energy systems

**SAC** – Create a website resource that could be used as a study tool. The website should include * The 3 energy systems
* Foods used for energy and how and where they are stored
* The fibre types predominantly recruited in each system
* Examples of athletes/sports and which energy system is being utilised
* The interplay between the three energy systems

Students will be encouraged to use things other than text e.g. Links to useful websites/ images / YouTube clips etc to display their content | * Thinking Things Through P48
* Thinking Things Through P53
* Copy table 3.7 (P54)
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**List of References:**

Telford, A., Seery, P., Whittle, R., Corrie, M., Malpeli, R. (Eds.). (2010). *Nelson Physical Education VCE Units 1 & 2.* (5th ed.). Victoria: South Melbourne.

VCAA. (2011). Physical Education: Victorian Certificate of Education Study Design. Retrieved August 7th, 2015 from <http://moodle.vle.monash.edu/pluginfile.php/3331176/mod_resource/content/1/VCE_StudyDesign.pdf>