Training Qualifications UK

Part of the AQA group

Alternative Academic Qualifications

Qualification Specification

TQUK Level 3 Alternative Academic Qualification in Sport and Exercise Science (Extended Certificate) (RQF)

Qualification Number: 610/5498/7

Version DV4

Contents

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Summary of changes

The following table provides a summary of the changes that have been made to the qualification specification since the publication of the previous version.

Version number	Summary of changes
DVI	Please note that this is a draft version of the qualification specification and is subject to further review and updates. The final version will be published once the qualification is live.

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Introduction

Welcome to TQUK

Training Qualifications UK (TQUK) is an Awarding Organisation recognised by the Office of Qualifications and Examinations Regulation (Ofqual) in England and CCEA Regulation in Northern Ireland.

TQUK offers qualifications which are regulated by Ofqual and, in some cases, by CCEA Regulation. All regulated TQUK qualifications sit on the Regulated Qualifications Framework (RQF) and are listed on the Register of Regulated Qualifications.

Qualifications offered by TQUK are designed to support and encourage learners in developing their knowledge and skills. These qualifications may lead to further study or support progression into higher education. TQUK qualifications also provide opportunities to progress to further qualifications. The TQUK website provides news and updates on upcoming developments.

Centre Recognition

To offer any TQUK qualification a centre must be recognised by TQUK.

The TQUK centre recognition process requires a centre to have in place a number of policies and procedures to protect learners undertaking a TQUK qualification and the integrity of TQUK's qualifications. These policies and procedures will also support a recognised centre's quality systems and help the centre meet the qualification approval criteria.

Recognised centres must seek approval for each qualification they wish to offer.

The approval process requires centres to demonstrate that they have sufficient resources, including suitably qualified and occupationally competent staff to deliver, assess, and quality assure the qualification. Centres must also have access to appropriate support in the form of specialist resources. Qualification approval must be confirmed prior to any assessment of learners taking place.

Qualification Specifications

Each qualification offered by TQUK is supported by a specification that includes all the information required by a centre to deliver the qualification. The specification provides mandatory teaching content and assessment details.

The aim of the qualification specification is to guide centres through the process of delivering the qualification.

It is recommended that centres read the qualification specification alongside the documents listed in the mandatory documents section on page 18. TQUK's procedures and policies can be found on the website.

Qualification specifications are also available on the website. If you have any further questions, please contact TQUK for assistance.

Centres must ensure they are using the most recent version of the qualification specification for planning and delivery purposes.

Reproduction of this document

Centres may reproduce the qualification specification for internal use only but are not permitted to make any changes or manipulate the content in any form.

Centres must ensure they use the most up-to-date pdf version of the specification.

Use of TQUK Logo, Name and Qualifications

TQUK is a professional organisation and the use of its name and logo is restricted. TQUK's name may only be used by recognised centres to promote TQUK qualifications. Recognised centres may use the logo for promotional materials such as corporate/business letterheads, pages of the centre's website relating to TQUK qualifications, printed brochures, leaflets, or exhibition stands.

When using TQUK's logo, there must be no changes or amendments made to it, in terms of colour, size, border or shading. The logo must only be used in a way that easily identifies it as TQUK's logo. Any representation of TQUK's logo must be a true representation of the logo.

It is the responsibility of the centre to monitor the use and marketing of TQUK's logos and qualifications on their materials as well as on those of any resellers or third parties they may use. TQUK must be made aware of any centre relationships with resellers of TQUK qualifications. TQUK must be made aware of any additional websites where the centre intends to use TQUK's name and/or logo. If this information is changed, TQUK should be notified immediately. TQUK is required to monitor centres' websites and materials to ensure that learners are not being misled.

If a centre ceases to be/surrenders recognition as a TQUK centre, it must immediately discontinue the use of TQUK's logo, name, and qualifications from all websites and documents.

Accessibility

TQUK is committed to ensuring that all qualifications and assessments are accessible, inclusive, and non-discriminatory.

We ensure that no aspect of this qualification disadvantages any group of learners who share a protected characteristic or introduces unjustifiable barriers to entry, other than those essential to the qualification's intended purpose. Where such features are necessary, they will be clearly stated and justified.

All assessment design processes actively identify and remove unjustifiable barriers that could prevent learners, including those with physical disabilities, from demonstrating their knowledge, understanding, or skills. TQUK monitors and reviews the nine protected characteristics (age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation) throughout qualification development to maintain accessibility and inclusivity. This approach promotes positive attitudes and fosters good relations among all learners.

More information can be found in our Equality and Diversity Policy.

For learners seeking guidance on Reasonable Adjustments, please see our Reasonable Adjustment Policy.

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Section 1: Qualification Essentials

The Qualification

Alternative Academic Qualifications (AAQs) are associated with specific subject area routes and have been designed to meet the requirements set by the Department for Education (DfE) following the level 3 educational reforms.

The primary purpose of this qualification is to support learners to progress into higher education.

The TQUK Level 3 Alternative Academic Qualification in Sport and Exercise Science (Extended Certificate) (RQF) is regulated by Ofqual and is equivalent to one A Level.

In a typical study programme where an AAQ is studied alongside two A Levels, this qualification is designed to be delivered over two years.

Qualification Purpose

The purpose of the AAQ in Sport and Exercise Science is to provide learners with the knowledge and skills necessary to progress to higher education and ultimately work within the sports science sector.

AAQs have been approved by the DfE and are allocated UCAS tariff points. An AAQ Extended Certificate is 360 guided learning hours, equivalent to one A Level and will complement a traditional A Level route. When combined with A Levels as part of a mixed-study programme, AAQs provide learners with a high-quality entry route into higher education.

It provides learners with a strong foundation of knowledge and skills in sport and exercise science principles that complement theoretical concepts covered in the A Level curriculum. This integrated approach will enable learners to gain a full understanding of academic principles and their practical application. This will, in turn, showcase their ability to apply concepts and techniques and strengthen their university/college applications, giving them a competitive edge.

Learners will develop science-led knowledge, understanding, and skills in areas such as the function of the human body, psychology, biomechanics, nutrition, and sports injuries and rehabilitation. Unlike traditional sports-related qualifications, it has a focus on biological, psychological and physical sciences that underpin a sports performer's movement, injury prevention, and rehabilitation.

By undertaking this Extended Certificate, learners will acquire a diverse set of skills that can be effectively applied to higher education studies. The qualification's breadth ensures learners develop transferable skills that are relevant for pursuing higher-level studies. These skills encompass a broad range of areas and can be utilised across various disciplines and fields of study.

Entry Requirements

There are no formal entry requirements, however, learners should have a minimum of a level two in literacy and numeracy or equivalent.

Although TQUK does not require learners to have prior subject knowledge before registering on the AAQ, having a foundational understanding would support their progress.

Entry to the qualification is at the centre's discretion.

The recommended minimum age for this qualification is 16 years.

What Will The Learner Study as Part of This Qualification?

Learners will be introduced to the science that underpins sports participation. They will build a foundation of knowledge in the disciplines of anatomy, psychology, biomechanics, nutrition, and sports injuries and rehabilitation. The integration of the five mandatory units will provide learners with an understanding of how the body responds and adapts to the stresses of sport and exercise.

Learners will study the fundamentals of anatomy and physiology in sport and exercise science by exploring human body systems. They will explore musculoskeletal, cardiovascular, and neuromuscular functionality and investigate how these systems respond and adapt to exercise.

The psychology in sport and exercise science unit examines the role of emotion in sports and learners will explore the role of personality, motivation, and mental resilience for the sports performer. They will research the psychological and cognitive factors that influence an individual's performance and motivation and will explore psychological theories, stress responses, mental resilience, and behaviour change.

Learners will explore biomechanics and the application of the principles of physics and movement analysis. They will gain an understanding of how the human body moves, examining its physiological responses to internal and external forces to create or resist movement in a sporting context. The unit will support the learner's understanding of the role of biomechanics and its impact on sports performance, efficiency of movement, and injury risk factors.

They will learn about the importance of nutrition in sport and exercise science to maintain the sports performer's body health to support their training and sports performance. The unit provides insight into the role of macronutrients and micronutrients in energy metabolism and performance. Learners will examine scientific dietary strategies in optimising sports performance and the different requirements of sports performers.

The final unit explores applied science in the identification and treatment of common sports injuries, and the rehabilitation approaches used to support athletes in their recovery. Learners will consider scientific approaches to treatment protocols and rehabilitation techniques designed to support a safe return to fitness and participation while minimising the risk of future injuries.

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What Knowledge and Skills Will The Learner Develop as Part of This Qualification?

The qualification is designed to provide learners with a strong, academic and transferable skillset essential for studying at a higher level. Throughout the AAQ, learners will have the opportunity to develop written and verbal communication skills, proficiency in academic writing, critical thinking and analysis, time management skills, and the ability to carry out independent research.

These skills closely align with university expectations and will ensure that the learners are prepared for the rigour of higher-level study where they will be able to utilise them at an advanced level.

Which A Level Subjects Will Complement This Qualification?

The A Level subject areas that will complement the qualification include:

- Biology
- Chemistry
- Mathematics
- PE
- Physics
- Sociology.

Which Higher Education Courses Can This AAQ Lead To?

This qualification has been designed to support progression to higher education. It may support entry to a range of degree programmes including:

- Sports Exercise Science
- Biomedical Sciences
- Biomechanics
- Physical Education
- Physiotherapy
- Sports Studies
- Sports Rehabilitation.

UCAS Tariff Points

The qualification will attract UCAS Tariff Points, helping learners progress to higher education. The number of tariff points awarded will depend on the final grade achieved.

The tariff points assigned to this qualification are outlined in the following table:

Grade	UCAS Tariff Points
D*	56
D	48
M	32
P	16

Further details may be found on the UCAS website, where learners can also use the Tariff Calculator to estimate their overall predicted tariff points for this AAQ and A Levels.

Learners should be encouraged to verify individual university entry requirements by visiting the university's website, referring to their admission policies, or contacting their admissions team directly.

Structure and Assessment Approach

Structure

The TQUK Level 3 Alternative Academic Qualification in Sport and Exercise Science (Extended Certificate) (RQF) comprises five mandatory units.

Mandatory units

Year	Unit Number	Unit Title	GLH	Assessment Type
1	A/651/5406	Unit 1 Anatomy and Physiology in Sport and Exercise Science	90	EA
	D/651/5407	Unit 2 Psychology in Sport and Exercise Science	90	NEA
2	F/651/5408	Unit 3 Biomechanics	60	EA
	H/651/5409	Unit 4 Nutrition in Sport and Exercise Science	60	NEA
	L/651/5410	Unit 5 Applied Science in Sports Injuries and Rehabilitation	60	NEA

Assessment approach

The assessment has been designed to ensure validity and its fitness for purpose, aligning with regulatory requirements for Alternative Academic Qualifications.

It is essential that all learners are assessed in English. This ruling also applies to all learner evidence presented for external quality assurance purposes.

Each unit in the AAQ is assessed separately using one of two different assessment methods:

- Examination Assessment (EA):
  - an externally set and marked examination
  - designed to assess the learner's understanding and application of knowledge under controlled conditions
- Non-examination Assessment (NEA):

- an externally set brief that requires the learner to apply their knowledge and skills in a practical or research-based context
- supports the demonstration of critical thinking and independent research skills through structured tasks
- internally marked by a centre's assessors and externally moderated by TQUK.

For specific unit assessment requirements, centres should refer to the teaching content section in this Qualification Specification, from page 20.

Additionally, centres must refer to the Assessment Guidance for the Delivery of Alternative Academic Qualifications document. This essential document provides full instructions for the conduct of the EAs and NEAs and explains TQUK's approach to:

- the administration of both types of assessment under controlled conditions
- internally assessed marking
- standardisation and training
- external moderation.

Synoptic assessment

Whilst this qualification is unitised, there are opportunities for synoptic assessment through the NEA assessments of Units 4 and 5 in Year 2. Underpinning unit-specific content is the application of knowledge and research, project management, problem-solving, and critical thinking skills.

The approach of full compensatory marking and the use of a Uniform Mark Scale (UMS) will also provide an indication of learners' holistic skills, knowledge, and understanding from across the qualification content.

Assessment Delivery

The following table shows the delivery approach for this qualification.

AAQ Extended Certificate Delivery Model										
Year 1										
Unit	**NEA Release**	**Standardisation activities**	**EA Window 1**	**EA Window 2**	**NEA completion, internal marking, retake opportunity**	**Initial external moderation**	**NEA results and feedback**	**NEA resubmission opportunity**	**Final external moderation**	**Results release**
1			Late January/ early February *	Mid-May						Window 1 April Window 2 July
2	September	Between 1 October and 28 February			Until 30 April	Between 1-14 May	Mid-May	Between 30 May and 14 June	Between 15-30 June	July
Year 2										
3			Late January/ early February *	Mid-May						Window 1 April Window 2 July
4	September	Between 1 October and 28 February			Until 30 April	Between 1-14 May	Mid-May	Between 30 May and 14 June	Between 15-30 June	
5	September	Between 1 October and 28 February			Until 30 April	Between 1-14 May	Mid-May	Between 30 May and 14 June	Between 15-30 June	

*** In the first year of delivery, there will be no January assessment window in 2027. Thereafter, two assessment window opportunities for the EA will be available annually.**

**** The results for the full qualification will be confirmed at the end of Year 2 in August to coincide with the release of A Level results.**

Guided Learning Hours (GLH)

These hours are made up of all contact time, guidance, or supervision of a learner by a lecturer, supervisor, tutor, trainer, teacher, or other appropriate provider of education or training.

The GLH for this qualification is 360 hours.

Directed Study Requirements

In addition to the guided learning hours, learners are expected to dedicate a certain amount of time to self-study and the completion of their Non-examination Assessment (NEA). This directed study time allows learners to review and consolidate their learning, engage in independent research, and prepare for the assessments.

This additional time spent on independent study and assessment preparation is an essential component of the learning process and contributes to the overall achievement of the qualification.

The directed study for this qualification is 40 hours.

Total Qualification Time (TQT)

The TQT provides an estimate of the overall time a learner will typically take to achieve and demonstrate the required level of attainment for the award of the qualification. The TQT includes both the guided learning hours and the directed study requirements.

For this qualification, the TQT is calculated by combining the guided learning hours and the estimated directed study hours. The TQT reflects the total commitment required from learners to successfully complete the qualification.

The TQT for this qualification is 400 hours.

Grading Overview

The grading structure for the qualification comprises Pass, Merit and Distinction for the component assessments and Pass, Merit, Distinction, and Distinction* for the overall qualification grade.

Please refer to the Grading and Marking section on page 85 for full details.

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Reasonable Adjustments and Special Considerations Policy

Learners who require reasonable adjustments or special considerations should discuss their requirements with their tutors or teachers. Centres must seek approval from TQUK before any adjustments or considerations can be put in place.

The centre should identify any potential difficulties a learner may face in accessing the Examination Assessment and Non-examination Assessment as early as possible and select appropriate adjustments to ensure accessibility. The centre staff are responsible for ensuring all reasonable adjustments are made and must follow TQUK's process for requesting and implementing adjustments. The centre must ensure that all approved Reasonable Adjustments are applied during the Examination Assessment and Non-examination Assessment.

For more information, please refer to TQUK's Reasonable Adjustments and Special Considerations Policy, or visit our website.

Course Delivery

Pre-course information

All learners should be given appropriate pre-course information regarding any TQUK qualifications. The information should explain the qualification, the fee, the form of the assessment, and any entry requirements or resources needed to undertake the qualification.

Initial assessment

Centres should ensure that any learner registered on a TQUK qualification undertakes some form of initial assessment. The initial assessment should be used to inform a teacher or tutor of the level of the learner's current knowledge, skills, and any additional specific support requirements the learner may need.

Initial assessment can be undertaken by a teacher or tutor in any form suitable for the qualification to be undertaken by the learner/s. It is the centre's responsibility to make available forms of initial assessment that are valid, applicable, and relevant to TQUK qualifications.

Resource Requirements

TQUK expects centres to provide access to appropriate resources and equipment to facilitate the successful delivery of this qualification.

Centres must ensure that facilities and equipment support a safe and engaging learning environment and align with the mandatory teaching content and outcomes. This must include access to digital resources and appropriate technical support.

We do not provide centres with a prescriptive list of equipment to have in place, nor do we stipulate the specific IT requirements or software packages centres should provide.

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Learner Registration

Once approved to offer a qualification, centres must follow TQUK's procedures for registering learners. Learner registration is at the discretion of the centre and in line with equality legislation and health and safety requirements.

Centres must register learners before any assessment can take place.

Staffing Requirements

Centres delivering this AAQ must ensure they appoint individuals who are suitably qualified and competent to carry out their respective roles. It is the centre's responsibility to verify that all appointed personnel possess the necessary expertise and experience to deliver and assess the qualification.

The designated person

The centre must appoint a designated person in a senior leadership role to be responsible for overseeing the administration, delivery, and integrity of assessments.

The designated person could hold the following position:

- Head of Centre
- Principal
- Assistant Principal
- Vice Principal.

The designated person is responsible for ensuring that all staff involved in the teaching, assessment delivery including administration, supervision, facilitation, management, and quality assurance of the AAQs comply with this document to maintain the security and integrity of the NEA and EA.

Any failure to comply may lead to a malpractice or maladministration investigation by TQUK.

The designated person may appoint additional non-teaching member(s) of staff to support the administration, delivery, and integrity of assessments.

The additional member(s) of staff could hold the following positions:

- Examinations Manager
- Examinations Officer
- Administrative Assistant.

Tutor/Teacher, Assessor, and Internal Quality Assurer Requirements

All members of staff involved with the qualification (assessing or IQA) will need to be occupationally competent in the subject area being delivered. This could be evidenced by a combination of:

- A higher level qualification in the same subject area as the qualification approval request
- Experience of the delivery/assessment/IQA of the qualification requested
- Work experience in the subject area of the qualification.

Staff members will also be expected to have a working knowledge of the requirements of the qualification and a thorough knowledge and understanding of the role of tutors/assessors and internal quality assurance. They are also expected to undertake continuous professional development (CPD) to ensure they remain up to date with work practices and developments associated with the qualifications they assess, or quality assure.

Tutor or Teacher

Tutor or Teachers who deliver a TQUK qualification must possess a teaching qualification appropriate for the level of qualification they deliver. This can include:

- Further and Adult Education Teacher's Certificate
- Cert Ed/PGCE/Bed/MEd
- PTLLS/CTLLS/DTLLS
- Level 3 Award/Level 4 Certificate/Level 5 Diploma in Education and Training.

Assessor

Staff who assess a TQUK qualification must possess an assessing qualification appropriate for the level of qualification they are delivering or be working towards a relevant qualification and have their assessment decisions countersigned by a qualified assessor. This can include:

- Level 3 Award in Assessing Competence in the Work Environment
- Level 3 Award in Assessing Vocationally Related Achievement
- Level 3 Award in Understanding the Principles and Practices of Assessment
- Level 3 Certificate in Assessing Vocational Achievement
- A1 or D32/D33.

Specific requirements for assessors may be indicated in the assessment strategy/principles identified in individual unit specifications.

Internal Quality Assurer

Centre staff who undertake the role of an Internal Quality Assurer (IQA) for TQUK qualifications must possess or be working towards a relevant qualification and have their quality assurance decisions countersigned by a qualified internal quality assurer. This could include:

- Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practice
- Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice
- V1 qualification (internal quality assurance of the assessment process)
- D34 qualification (internally verify NVQ assessments and processes).

It is best practice that those who quality assure qualifications also hold one of the assessing qualifications outlined above. IQAs must follow the principles set out in Learning and Development NOS 11 - Internally monitor and maintain the quality of assessment.

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Useful Websites

- Office of Qualifications and Examinations Regulation
- Register of Regulated Qualifications

For further details regarding approval and funding eligibility, please refer to the following websites:

- Department for Education
- Learning Aim Reference Service (LARS)

Mandatory Documentation

Centres must ensure they read this Qualification Specification alongside the following TQUK policies and guidance documentation:

- Appeals Policy
- Assessment Guidance for the Delivery of the Alternative Academic Qualifications
- Complaints Policy
- Conflict of Interest Policy
- Equality and Diversity Policy
- GDPR and Privacy Policy
- Reasonable Adjustments and Special Considerations Policy
- Malpractice and Maladministration Policy.

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Section 2: Teaching and Learning

Teaching Approach

Each unit includes the following information to support its delivery:

- an overview of the unit structure and its assessment approach
- an introduction to the unit and any key considerations that apply
- the mandatory teaching content.
- assessment requirements.

The mandatory teaching content has been structured to provide a clear distinction between the level of breadth and depth of knowledge that the learner must cover. It is presented in the specification as follows:

- **topic**: each subject area is introduced within a light blue box that provides a clear reference point for the content that will be covered
- **breadth:** the introductory "stem" sentence in each outcome outlines the overarching scope of the topic. It defines the key concepts, principles, approaches, and themes that learners are expected to understand. The use of amplification terminology further supports the exploration of the topic.
- **depth:** the bullet points following each stem sentence outline the specific details and expectations for learner knowledge and application. All bullet points must be covered, as they define the required level of detail and establish the scope and focus of mandatory teaching, learning, and assessment.

Each unit includes essential information to support effective planning and delivery. We outline the mode of assessment and any required resources followed by the mandatory teaching content. Additionally, a dedicated assessment approach section specifies key details including the assessment objectives (AOs) tested, important dates, and any specific requirements relevant to the topic.

Centres should inform learners that some topics within qualification specifications and their associated assessments may cover themes that certain learners may find triggering. Centres must be aware that assessment materials may include vocationally relevant content that could be sensitive.

Unit 1 Anatomy and Physiology in Sport and Exercise Science

Unit Number:	A/651/5406		
Level:	3	**GLH:**	90
Unit Introduction:	The human body consists of various systems that work together to enable participation in sport and exercise. The respiratory system allows us to extract oxygen from the air and remove waste products like carbon dioxide, which could be harmful if they accumulate. The cardiovascular system is essential for transporting oxygen to working muscles, where it is used to generate energy. This energy powers the musculoskeletal system, allowing movement necessary for physical activity. To understand how these systems function, you will explore the anatomical structure and physiological processes that contribute to movement in sport and exercise. Additionally, you will explore the effectiveness of each system in facilitating movement and examine how they impact overall performance. By the end of this unit, learners will enhance their knowledge of human movement and the factors that influence performance. It will also provide a strong foundation for further studies or careers in sports science, coaching, and the fitness industry		
Assessment Type:	Examination Assessment (EA)		

Teaching content:	
1.1	**The skeletal system**

1.1.1	The function of the skeletal system:
	
	• support:
	  ○ structural framework for the body
	  ○ gives shape and support to tissues and organs
	• protection:
	  ○ protects vital organs from external impact
	• movement:
	  ○ muscles attached to bones via tendons enable movement by contracting and pulling on the skeletal framework
	• mineral storage:
	  ○ essential to various bodily functions
	  ○ released into the bloodstream as needed
	• haematopoiesis (blood cell production):
	  ○ bone marrow is a major site of blood cell production
	• energy storage:
	  ○ marrow in the bones stores energy in the form of fat.

1.1.2	The structure and function of the skeletal system:
	
	• axial skeleton:
	  ○ forms the central axis of the body
	  ○ consists of 80 bones
	  ○ cranium (skull) - protects the brain:

Teaching content:	
	○ hyoid bone: ▪ u-shaped bone in the neck ▪ supports the tongue ▪ assists in swallowing ○ vertebral column: ▪ made up of 33 vertebrae that provide support and protect the spinal cord: • 7 cervical • 12 thoracic • 5 lumbar • 5 sacral (fused into the sacrum) • 4 coccygeal (fused into the coccyx) ○ ribcage: ▪ 12 pairs of ribs and the sternum ▪ protects vital organs and supports the chest wall • appendicular skeleton: ○ pectoral (shoulder) girdles: ▪ connects the upper limbs to the axial skeleton ▪ each girdle consists of a scapula and clavicle ○ upper limbs: ▪ humerus ▪ ulna ▪ radius ▪ carpals ▪ metacarpals ▪ phalanges ○ pelvic girdle: ▪ ring of bone attached to the vertebral column ▪ attaches the leg to the axial skeleton ▪ each half of the pelvis comprises: • ilium • ischium • pubis ○ lower limbs: ▪ femur ▪ patella ▪ tibia ▪ fibula ▪ tarsals ▪ metatarsals ▪ phalanges • cartilage and ligaments: ○ cartilage: ▪ flexible, rubbery tissue that covers the ends of bones in joints ▪ reduces friction and acts as a cushion to absorb shock ▪ found in the nose, ears and intervertebral discs ○ ligaments: ▪ tough, fibrous tissue ▪ connects bones to bones ▪ provides stability to joints.
1.1.3	The types of skeletal tissue: • osseous: ○ compact bone tissue (also called hard or cortical bone): ▪ denser, stronger, and more rigid than other types of bone tissue

Teaching content:	
	▪ forms the hard outer layer of all bones ○ spongy bone tissue (also called cancellous or trabecular bone): ▪ fills part or all of the interior of many bones ▪ porous, honeycomb-like structure • bone marrow: ○ soft connective tissue found inside the marrow cavity ○ two types: ▪ red bone marrow: • at birth, all bone marrow is red and transitions to yellow with age • in adults, mostly found in the femur, ribs, vertebrae and pelvic bones • site of blood cell production (haematopoiesis) ▪ yellow bone marrow: • develops from birth to around age 7 • stores fat • found in the long bones of the limbs • can convert back to red marrow in response to increased need for blood cell production • periosteum: ○ tough, fibrous membrane ○ covers the outer surface of bones ○ provides a protective layer for compact bone and serves as an attachment point for muscles and tendons ○ produces osteoblasts for new bone formation.
1.1.4	The characteristics ~~range~~ and function ~~structure~~ of bone types: • characteristics: ○ long bones: ▪ longer than they are wide ▪ rounded head at each end of the shaft ▪ predominantly made of compact bone • short bones: ▪ as wide as they are long ▪ approximately cube-shaped ▪ thin layer of compact bone surrounding a spongy bone interior • flat bones: ▪ thin ▪ flat ▪ usually curved • irregular bones: ▪ vary in shape and structure ▪ thin layers of cortical bone surrounding spongy bone interior • sesamoid bones: ▪ small, round bones ▪ embedded in tendons ▪ found in tendons that cross the ends of long bones in limbs • functions: ○ long bones: ▪ support weight of the body and facilitate movement ○ short bones: ▪ provide support and stability ○ flat bones: ▪ provide protection for internal organs and broad surfaces for muscle attachment ○ irregular bones:

Teaching content:	
	▪ provide protection for internal organs and support multiple muscle attachments ○ sesamoid bones: ▪ hold tendons further away from joints so the angle of the tendons is increased ▪ increases the leverage of muscles ▪ protect tendons from stress and wear.
1.1.5	The stages of bone growth: • bone growth (ossification) : ○ bones start as hyaline cartilage which hardens through ossification ○ osteoblasts build new bone/change cartilage to bone ○ osteoclasts resorb (break down) old or damaged bone cells ○ epiphyseal (growth) plates at the end of long bones allow bones to lengthen until these plates fuse during late adolescence • remodelling: ○ lifelong process of replacing old bone tissue with new bone tissue ○ mature bone tissue is constantly regenerating ○ bones reabsorb osteoclasts (cells that break down bone) ○ bone formation by osteoblasts (cells that build bone) ○ crucial for: ▪ shaping the skeleton ▪ repairing micro-damages ▪ regulating mineral homeostasis.
1.1.6	The function of joints: • to act as junctions between bones • facilitate movement to allow a range of motions • support weight – particularly in load-bearing areas of the body • absorb impact during activities • contribute to the stability of the body • distribute forces during movement to minimise wear and tear.
1.1.7	The structure and function of joint types: • fibrous (fixed) joints: ○ joints held together by fibrous tissue ○ do not allow any movement • cartilaginous (slightly moveable) joints: ○ bones are joined by cartilage: ▪ intervertebral joints ○ allow some movement • synovial (moveable) joints: ○ joints are held together by ligaments ○ contains synovial fluid which provides extra cushioning ○ allow a wide range of movements ○ most common joint in the body ○ types of synovial joint: ▪ ball and socket: • spherical head of one bone fitting the concave socket of another • allows rotational movement ▪ hinge: • between two bones with convex and concave surfaces

Teaching content:	
	• allows movement in one plane (flexion-extension) ▪ pivot: • one bone rotates within ring or notch of another bone • allow for rotation on a single axis ▪ condyloid: • an oval-shaped end of one bone fitting into a similarly oval-shaped hollow of another bone • allows flexion-extension and abduction-adduction • allows for circumduction: ○ combination of flexion-extension and abduction-adduction in a circular motion ▪ saddle/sellar: • comprised of one concave bone (shaped like a saddle) and another convex bone (shaped like a rider sitting on a saddle) • allows flexion-extension and abduction-adduction ▪ gliding/plane: • flat or slightly curved surfaces that glide past each other.
1.1.8	The range and function of joint movements: • flexion and extension: ○ flexion: ▪ reduces the angle between the bones of the joint, bringing them closer together ○ extension: ▪ increases the angle between bones of the joint, moving them further apart • abduction and adduction: ○ abduction: ▪ moving a limb away from the midline of the body ○ adduction: ▪ moving a limb towards the midline of the body • rotation: ○ occurs when part of the body turns around on its own axis • circumduction: ○ circular movement combining flexion, extension, abduction, and adduction • pronation and supination: ○ pronation: ▪ of the forearm, rotating the hand so palm is facing downwards ○ supination: ▪ of the forearm, rotating the hand so palm is facing upwards • dorsiflexion and plantarflexion: ○ dorsiflexion: ▪ decreases the angle between the dorsum (top) of the foot and the leg ○ plantarflexion: ▪ increases the angle between the dorsum (top) of the foot and the leg.
1.2	**The muscular system**
1.2.1	The function of the muscular system: • movement: ○ responsible for all types of body movement ○ contract to move parts of the body internally and externally ○ prevent excessive movement • stability and posture:

Teaching content:	
	○ maintain posture by counteracting the force of gravity ○ muscle contraction supports body alignment ○ allows the body to maintain stability, balance and posture when moving or stationary ○ surround joints providing stability and alignment • heat production: ○ contractions produce heat as a by-product • protection: ○ provides a layer of protection for internal organs • control of body openings and passages: ○ muscles around the body's openings control passage of substances into and out of the body • circulatory assistance: ○ contraction of muscles helps push blood through veins towards the heart • breathing: ○ intercostal muscles aid the ribcage to move facilitating inhalation and exhalation.
1.2.2	The function of different muscle types: • skeletal muscle: ○ responsible for voluntary movements and reflexes ○ help to maintain posture and body support ○ produce heat during exercise ○ can fatigue • cardiac muscle ○ contracts to pump blood throughout the body ○ operates continuously and rhythmically ○ does not fatigue • smooth muscle: ○ responsible for involuntary movements ○ resistant to fatigue.
1.2.3	The structure and function of skeletal muscle: • muscle fibre: ○ basic unit of skeletal muscle fibre (also known as muscle cell) ○ fibres are long and cylindrical ○ multinucleated ○ appear striated due to regular arrangement of actin and myosin filaments • sarcolemma: ○ cell membrane that encloses each muscle fibre ○ facilitates transmission of electrical signals that trigger muscle contraction • sarcoplasm: ○ specialised form of cytoplasm ○ contains mitochondria and myofibrils • myofibrils: ○ long, rod-like structures that run parallel to the length of the fibre ○ components: ▪ sarcomere: • fundamental functional unit of striated muscle fibres ▪ H band: • central region of the sarcomere • contains only myosin filaments ▪ A band: • entire length of the thick myosin filaments

Teaching content:	
	• includes regions where actin and myosin filaments overlap ▪ I band: • region on either side of the A band • contains only thin actin filaments ▪ M line: • middle of the sarcomere and within the H band • attachment point for myosin filaments ▪ Z line: • defines the boundaries of the sarcomeres • attachment point for actin filaments • actin and myosin filaments: ○ actin (thin) filaments: ▪ comprised of the globular protein actin ▪ actin proteins link together forming a chain ▪ two chains twist together forming one thin filament ▪ tropomyosin (fibrous protein) twists around two actin chains ▪ troponin (protein) attaches to actin chains at regular intervals ○ myosin (thick) filaments: ▪ comprised of myosin (fibrous protein molecules with globular head) molecules ▪ numerous myosin molecules line up pointing away from the M-line • sarcoplasmic reticulum: ○ specialised endoplasmic reticulum ○ surrounds each myofibril ○ stores calcium ions which are essential for muscle contraction • transverse (t) tubules: ○ extensions of the sarcolemma ○ allow for transmission of electrical signals.
1.2.4	The features and role of neuromuscular junctions: • located where motor neurone meets a skeletal muscle fibre • many junctions along a muscle: ○ necessary to ensure a contraction happens simultaneously throughout the muscle • all muscle fibres supplied by a single motor neurone: ○ act together as a motor unit.
1.2.5	The principles of the sliding filament theory: • movement is caused by muscles contracting • sarcomeres within myofibrils shorten and the Z discs are pulled closer together • main stages: ○ an electrical impulse (action potential) arrives at the neuromuscular junction ○ this stimulates the muscle cell and depolarises the sarcolemma, which spreads down the T-tubules ○ the sarcoplasmic reticulum releases stored calcium ions (Ca^{2+}) into the sarcoplasm ○ calcium ions bind to proteins on the actin filament, causing a shift that exposes the binding sites ○ myosin heads bind to these exposed sites, forming cross-bridges with actin ○ ATP provides the energy for the myosin heads to pull the actin filaments, causing contraction ○ a new ATP molecule is required to detach the myosin head, allowing the cycle to repeat along the filament

Teaching content:	
	○ when muscle stimulation stops, calcium ions are pumped back into the sarcoplasmic reticulum ○ this allows tropomyosin to re-cover the binding sites, ending the contraction.
1.2.6	The function of different muscle types during movement: • agonist: ○ primary muscle responsible for causing a movement through its contraction • antagonist: ○ opposes the action of the agonist ○ when the agonist contracts and shortens, the antagonist relaxes and lengthens ○ helps to control and slow down the movement preventing excessive motion or injury • fixator: ○ muscle that acts as a stabiliser ○ prevents unwanted movement ○ allows the agonist and antagonist to operate more effectively • synergist: ○ assists another muscle in achieving a movement ○ can directly facilitate a movement by contracting at the same time as the agonist ○ can help to stabilise a joint and prevent unwanted movements.
1.2.7	The different types of muscle contraction and their role in movement: • isotonic: ○ muscle changes length while tension remains constant ○ two types: ▪ concentric: • muscle shortens as it contracts, overcoming the opposing force • example: ○ lifting a weight during a bicep curl ▪ eccentric: • muscle lengthens as it contracts • slows down a movement • example: ○ lowering a weight during a bicep curl • isometric: ○ muscle tension increases but muscle does not change length ○ example: ▪ holding a weight in a fixed position.
1.2.8	The diversity of muscle fibre types, their characteristics, and function: • type I fibres - slow-twitch fibres: ○ characteristics: ▪ low force production ▪ large amounts of myoglobin and therefore mitochondria and oxygen ▪ high capillary density ▪ very resistant to fatigue ▪ predominantly uses aerobic respiration to generate ATP ○ function: ▪ suited for sustained, low-intensity activities that require endurance, such as a marathon • type II fibres: ○ type IIa fibres - fast-twitch oxidative:

Teaching content:	
	▪ characteristics: • moderate to high force production • less myoglobin and mitochondria than type I fibres • less fatigue resistant than type I, but more fatigue resistant than type IIb • uses both aerobic and anaerobic respiration to generate ATP ▪ function: • suited for moderate to high-intensity activities requiring power and endurance such as 800m ○ type IIb fibres -fast-twitch glycolytic: ▪ characteristics: • high force production • few mitochondria • low fatigue resistance • predominantly uses anaerobic respiration to generate ATP ▪ function: • suited for short, high-intensity activities
1.2.9	The impact of exercise on the muscular system: • immediate responses: ○ increased blood flow: ▪ active muscles require more oxygen and nutrients, which are delivered by the blood ○ increased energy production: ▪ muscles store energy in the form of adenosine triphosphate (ATP) ▪ for short bursts of activity, muscles use the stored ATP ▪ for longer durations, muscles break down glycogen into glucose which they use to respire ○ more efficient oxygen consumption: ▪ breathing rate increases as muscles need increased amounts of oxygen for respiration ○ increase in muscle temperature: ▪ respiration generates heat as a by-product • short-term adaptations (6-8 weeks): ○ increased metabolic capacity: ▪ muscles improve their ability to store glycogen and increase the activity of enzymes involved in energy production ○ more efficient usage of oxygen: ▪ regular activity enhances the muscles' capacity to utilise oxygen ▪ increases mitochondrial density and efficiency ▪ increased blood flow capacity • long-term adaptations (2 months or more): ○ enhanced strength and endurance: ▪ muscles become more capable of exerting force and sustaining activity for extended periods ○ neuromuscular adaptations: ▪ improves coordination between nerves and muscles ▪ enhances ability to perform complex movements efficiently ○ muscle hypertrophy: ▪ with regular activity, muscles adapt by increasing in size due to thickening of individual muscle fibres ○ capillarisation: ▪ number of capillaries surrounding muscle fibres increases ▪ increased volume of oxygen and nutrients can be delivered to muscle cells ○ reduction in fatigue:

Teaching content:	
	▪ improved efficiency at removing waste products.
1.3	**The cardiovascular system**
1.3.1	The function of the cardiovascular system: • transports blood around the body • delivers oxygen and nutrients to body cells • transports carbon dioxide from cells • removes cellular waste • thermoregulation • assists in fighting infections • clot internal and external wounds • meet the demands of activity.
1.3.2	The structure and function of the heart: • atria: ○ receive blood coming into the heart ○ two upper chambers of the heart: ▪ left atrium: • receives oxygenated blood from the lungs through the pulmonary vein ▪ right atrium: • receives deoxygenated blood from the body through the vena cava • ventricles: ○ pump blood out of the heart ○ two lower chambers: ▪ left ventricle: • pumps oxygenated blood to the body through the aorta ▪ right ventricle: • pumps deoxygenated blood to the lungs through the pulmonary artery • septum: ○ wall that divides the right and left sides of the heart ○ prevents mixing of oxygenated and deoxygenated blood ○ includes: ▪ interatrial septum separates the left and right atria ▪ interventricular septum separates the left and right ventricles • heart rhythm and contraction: ○ controlled by electrical signals that coordinate the heartbeat ○ ensures the atria contract before the ventricles, allowing efficient blood flow • semilunar valves: ○ located between the ventricles and the arteries exiting the heart ○ prevent backflow of blood into the ventricles: ▪ pulmonary valve – at the opening of the pulmonary artery ▪ aortic valve – at the opening of the aorta • atrioventricular valves: ○ located between the atria and ventricles ○ prevent backflow when the ventricles contract ○ ensure blood flows in one direction • pulmonary vein: ○ carries oxygenated blood from the lungs to the left atrium • pulmonary artery: ○ carries deoxygenated blood from the right ventricle to the lungs • vena cava: ○ carries deoxygenated blood from the body to the right atrium

Teaching content:	
	• aorta: ○ carries oxygenated blood from the left ventricle to the rest of the body
1.3.3	The conduction system of the heart: • sinoatrial (SAN) node generates an (electrical) impulse • the impulse passes through the atria causing the atrial to contract • the impulse passes on to the atrioventricular node (AVN) • the impulse passes down the Bundle of His • which delays ventricular contraction • Purkyne tissue spreads the impulse (upwards) through the ventricles • causing ventricular contraction.

1.3.4	The structure and function of blood vessels:
	
	• lumens:
	  ○ function:
	  ▪ allows blood flow through arteries, veins, and capillaries
	  ▪ regulates blood pressure
	  ○ structure:
	  ▪ hollow space inside a blood vessel
	  ▪ varies in size
	• arteries:
	  ○ function:
	  ▪ carry blood away from the heart
	  ▪ blood travels at high pressure
	  ○ structure:
	  ▪ thick muscular walls:
	  • to withstand the high pressure
	  ▪ thick layers of elastic tissue:
	  • allows the walls to stretch and recoil
	  ▪ smaller lumen with a rounder appearance to maintain blood pressure
	• arterioles:
	  ○ function:
	  ▪ carry blood from arteries to capillaries
	  ▪ carries blood at a lower pressure than arteries
	  ○ structure:
	  ▪ thinner layers of muscle and elastic tissue than arteries
	  ▪ small lumen
	• veins:
	  ○ function:
	  ▪ carry blood towards the heart
	  ▪ blood travels at low pressure
	  ○ structure:
	  ▪ thin muscular and elastic walls:
	  • thick walls are not necessary as blood is travelling at a low pressure
	  ▪ contain valves to prevent the backflow of blood
	  ▪ lumen is larger with a flattened appearance to allow blood to flow with less resistance
	• venules:
	  ○ function:
	  ▪ carries blood from capillaries to veins
	  ○ structure:
	  ▪ thinner walls than veins
	  ▪ wide lumen
	  ▪ contain valves to prevent the backflow of blood

Teaching content:	

	• capillaries:
	  ○ function:
	  ▪ site of substance exchange between blood and body tissues
	  ○ structure:
	  ▪ walls are one cell thick:
	  • single layer of endothelial cells allowing for rapid diffusion
	  ▪ extremely narrow lumen:
	  • blood travels through one cell at a time.

1.3.5	The principles and function of vasodilation and vasoconstriction:
	
	• vasodilation:
	  ○ smooth muscles in arterioles relax
	  ○ lumen widens
	  ○ allows more blood to flow through
	  ○ allows more heat to be lost through the surface of the skin by radiation
	  ○ increases the speed and volume oxygen and other nutrients are delivered to cells
	  ○ increases the speed and volume of cellular waste that is removed from cells.
	• vasoconstriction:
	  ○ smooth muscles in arterioles contract
	  ○ lumen narrows
	  ○ allows less blood to flow through
	  ○ allows less heat to be lost through the surface of the skin by radiation
	  ○ decreases the speed and volume oxygen and other nutrients are delivered to cells
	  ○ decreases the speed and volume of cellular waste that is removed from cells.

1.3.6	The function and components of blood:
	
	• erythrocytes:
	  ○ carry oxygen from the lungs to the body cells
	  ○ carry carbon dioxide from body cells to the lungs:
	  ▪ contain haemoglobin:
	  • protein that binds to oxygen
	  ○ makes up 40 – 45% of blood volume
	• leukocytes:
	  ○ part of the immune system
	  ○ aid the body in fighting infection
	• plasma:
	  ○ liquid component of blood
	  ○ makes up 55% of blood volume
	  ○ 90% of plasma is water
	  ○ serves as a transport medium for nutrients, waste products, and other substances:
	  ▪ hormones
	  ▪ glucose
	  ▪ dissolved proteins
	• thrombocytes:
	  ○ small cell fragments that assist the body in blood clotting
	  ○ they gather at the site of injury and adhere to the vessels wall
	  ○ prevent excess blood loss.

1.3.7	The acute effects of exercise on the cardiovascular system:

Teaching content:	

	• increased heart rate:
	  ○ more oxygen rich blood is pumped to the muscles and organs that need it
	  ○ provides sustained endurance during high energy activities
	• increased stroke volume:
	  ○ heart contracts more forcefully to increase amount of blood ejected by the left ventricle in one contraction
	  ○ heart pumps more blood per beat, improving oxygen supply and endurance
	  ○ reduces fatigue by ensuring muscles receive adequate oxygen and nutrients
	• increased cardiac output:
	  ○ volume of blood pumped by the heart increases
	  ○ ensures more blood reaches the working muscles
	  ○ more blood is circulated per minute, preventing exhaustion
	  ○ supports efficient removal of carbon dioxide and metabolic waste
	• increased blood pressure:
	  ○ systolic blood pressure (pressure during heartbeats) increases to deliver more blood to the body
	  ○ diastolic blood pressure (pressure between beats) stays the same or increases slightly
	• redistribution of blood flow:
	  ○ blood vessels in the working muscles dilate, increasing blood flow
	  ○ blood vessels to non-essential areas may decrease temporarily
	• improved capillary exchange:
	  ○ exercise increases the efficiency of exchange of gases, nutrients, and waste products
	  ○ delays muscle fatigue and improves endurance over long distances.

1.3.8	The long-term effects of exercise on the cardiovascular system:
	
	• cardiac muscle hypertrophies:
	  ○ heart muscle strengthens enabling it to pump more efficiently for an extended period of time
	  ○ this can lead to:
	  ▪ lower resting heart rate
	  ▪ higher stroke volume
	• number of erythrocytes increase:
	  ○ red blood cells are able to carry oxygen more efficiently
	  ○ enhances endurance by delaying fatigue
	• density of capillary beds increases:
	  ○ provides working muscles with a richer blood supply:
	  ▪ receive oxygen more efficiently
	  ▪ remove waste products more efficiently
	• reduced blood pressure:
	  ○ blood vessel elasticity increases
	  ▪ reduces strain on the heart
	  ▪ helps maintain endurance and reduces risk of cardiovascular issues during prolonged activities.

1.4	**The respiratory system**

1.4.1	The main function of the respiratory system:
	
	• gas exchange:
	  ○ transports oxygen (O_2) from the air to the bloodstream:
	  ▪ during inhalation
	  ○ transports carbon dioxide (CO_2) from the bloodstream to the air:

Teaching content:	
	▪ during exhalation.

1.4.2	The structure and function of the respiratory system:
	
	• upper respiratory tract:
	  ○ mouth, nose, and nasal cavity:
	  ▪ the main entry and exit points for air
	  ▪ warms, filters, and moistens incoming air
	  ▪ has a hairy lining which secretes mucus:
	  • traps dust and microorganisms from entering the respiratory system
	• lower respiratory tract:
	  ○ trachea (windpipe):
	  ▪ rigid tube connecting the larynx (voice box) to the bronchi
	  ▪ allows air to pass to and from the lungs
	  ▪ reinforced by C-shaped rings of cartilage that prevent it from collapsing
	  ▪ lined with ciliated epithelium and goblet cells:
	  • goblet cells secrete mucus, trapping dust and microorganisms
	  • cilia move the mucus and any trapped items away from the lungs
	  ○ thoracic cavity:
	  ▪ lungs:
	  • bronchus/bronchi:
	  ○ trachea divides into right and left main bronchus, each leading to one lung
	  ○ similar in structure to trachea, only smaller
	  ○ the main primary bronchi divide further into smaller secondary bronchi
	  • bronchioles:
	  ○ bronchi divide into bronchioles
	  ○ smallest air passages in the lungs
	  ○ no rings of cartilage
	  ○ end in clusters of air sacs
	  • alveoli:
	  ○ tiny air sacs at the end of bronchioles
	  ○ where gaseous exchange takes place
	  ○ each alveolus is surrounded by a network of capillaries
	  ▪ diaphragm – found in the thoracic cavity:
	  • dome-shaped muscle at the base of the lungs
	  • attached to the lower ribs, sternum, and lumbar spine
	  • forms the base of the thoracic cavity.

1.4.3	The structural and functional adaptations of the alveoli:
	
	• large surface area in the alveoli:
	  ○ lungs contain millions of alveoli
	  ○ greatly increases the surface area for gas exchange
	• thin alveolar and capillary walls:
	  ○ walls of the alveoli and adjacent capillaries are one cell thick
	  ○ minimises the distance gases have to diffuse
	  ○ short diffusion path speeds up exchange of gases
	• moist alveolar surfaces:
	  ○ alveoli lined with thin layer of fluid
	  ○ essential for dissolving of gases
	  ○ facilitates their diffusion into and out of the blood
	• rich blood supply:
	  ○ alveoli surrounded by a dense network of capillaries

Teaching content:	
	○ abundant blood supply maintains a steep concentration gradient for oxygen and carbon dioxide.
1.4.4	The processes of ventilation: • inspiration (or inhalation): ○ uses energy ○ process: ▪ diaphragm contracts, flattens, and moves downwards ▪ external intercostal muscles contract ▪ ribs move up and outwards ▪ volume of thorax increases ▪ pressure in thorax decreases ▪ air is drawn into the lungs • expiration (or exhalation): ○ does not use energy (passive process) ○ process: ▪ diaphragm relaxes and moves upwards ▪ intercostal muscles relax ▪ ribs move down and inwards ▪ volume of thorax decreases ▪ pressure in thorax increases ▪ air is forced out.
1.4.5	The principles of gaseous exchange: • pressure gradient: ○ oxygen moves from an area of high concentration (the air in the lungs) to an area of low concentration (the blood) ○ carbon dioxide moves from an area of high concentration (the blood) to an area of low concentration (the air in the lungs) • diffusion: ○ molecules travel down their concentration gradient (across the alveolar-capillary membrane) until equilibrium is reached.
1.4.6	The range of respiratory volumes: • tidal volume (TV): ○ amount of air inhaled and exhaled during a normal resting breath ○ typically 500ml in a healthy adult • vital capacity (VC): ○ total amount of air that can be exhaled after a maximal inhalation ○ sum of TV, IRV, and ERV ○ VC ranges from 3000ml to 4800ml in a healthy adult • total lung capacity (TLC): ○ total volume of air contained in the lungs after a maximal inhalation ○ sum of VC and RV ○ TLC ranges from 4200 ml to 6000ml in a healthy adult.
1.4.7	The principles of volume of oxygen (VO2) max and its measurement: • measures the maximum rate an individual can consume oxygen during exercise • measured using a graded exercise test where exercise intensity is progressively increased until exhaustion

Teaching content:	
	• individual breathes into a mask connected to a device that measures the volume and oxygen concentration of inhaled and exhaled air • highest rate of oxygen consumption observed is considered the VO2 max.

1.4.8	The acute effects of exercise on the respiratory system:
	
	• increased breathing rate:
	  ○ allows for rapid increase in the volume of airflow into and out of the lungs
	  ○ facilities higher intake of oxygen and expulsion of carbon dioxide
	• increased tidal volume:
	  ○ more air is drawn into the lungs with each breath.

1.4.9	The long-term effects of exercise on the respiratory system:
	
	• increased strength of respiratory muscles
	• increased lung function:
	  ○ vital capacity increases
	  ○ efficiency of gaseous exchange increases
	• increased capillary density:
	  • number of capillaries around the alveoli increases, improving the blood's ability or take in oxygen and release oxygen.

1.5	**Energy systems**

1.5.1	The role of adenosine triphosphate (ATP) in exercise:
	
	• energy source for contraction:
	  ○ stores chemical energy which is released when its phosphate bonds are broken:
	  ▪ ATP is broken down into adenosine diphosphate (ADP) and a phosphate group
	  ▪ energy is released that powers the contraction
	• energy replenishment:
	  ○ muscle cells store limited amounts of ATP
	  ○ during exercise, ATP must be continuously replenished
	  ○ replenishment pathways:
	  ▪ phosphocreatine pathway
	  ▪ glycolysis
	  ▪ aerobic respiration.

1.5.2	The principles of the phosphocreatine (ATP-PC) energy system in exercise:
	
	• duration:
	  ○ 0-10 seconds
	  ○ one molecule of PC yields 1 molecule of ATP
	• intensity:
	  ○ high intensity
	• by-products:
	  ○ adenosine
	  ○ one phosphate
	  ○ no fatiguing waste products
	• recovery:
	  ○ 50% of phosphocreatine in 30 seconds
	  ○ full recovery in 2-3 minutes.

Teaching content:	

1.5.3	The principles of anaerobic glycolysis (lactic acid) system in exercise:
	
	• type of reaction:
	  ○ anaerobic - glucose is broken down without the use of oxygen
	• occurs:
	  ○ during high-intensity exercise
	  ○ when the body demands energy faster than oxygen can be delivered
	  ○ during sustained exercise under aerobic conditions:
	  ▪ provides pyruvate to the mitochondria for oxidative phosphorylation
	• site of reaction:
	  ○ sarcoplasm of muscle cells
	• fuels used:
	  ○ glucose:
	  ▪ taken directly from the bloodstream or broken-down glycogen stored in muscles and liver
	  ▪ no energy required for this energy system
	• amount of ATP produced:
	  ○ 1 molecule of glucose yields 2 molecules of ATP:
	  ▪ occurs through a series of 10 enzyme-catalysed reactions
	  ▪ 4 ATP molecules produced, but 2 are used in the early stages of the pathway
	  ▪ provides rapid ATP production for short, high-intensity efforts
	  ▪ quick energy, but inefficient
	  ▪ ATP-PC system is faster but lasts only a few seconds, so anaerobic glycolysis extends energy availability slightly longer (30-60 seconds)
	• by-products:
	  ○ pyruvate:
	  ▪ in the presence of oxygen, it is oxidised during the Krebs cycle
	  ▪ without oxygen it is converted to lactate acid
	  ○ NADH:
	  ▪ used to produce ATP during aerobic respiration
	  ○ lactate:
	  ▪ converted from pyruvate
	  ▪ can accumulate and lead to muscle soreness, fatigue and reduced performance
	• recovery:
	  ○ linked to the removal of lactate from muscles, and its conversion back to glucose in the liver
	  ○ can take up to 24 hours depending on the intensity of the exercise and individual's fitness levels
	  ○ lactate removed once oxygen is available
	  ○ active recovery speeds up lactate clearance
	  ○ ability to recover quickly can impact future performance in activities.

1.5.4	The principles of the aerobic energy system in exercise:
	
	• duration:
	  ○ over 3 minutes
	  ○ up to 38 molecules- one molecule of glucose yields two molecules of ATP (in muscle cell sarcoplasm), the Krebs cycle yields 2 ATP and the electron transport chain yields 34 ATP
	• intensity:
	  ○ low intensity
	• by-products:
	  ○ water
	  ○ heat

Teaching content:	
	• recovery: o depends on the intensity of the exercise o after intense or prolonged activity the body needs time to replenish reserves of glycogen o any oxygen deficit will be re-paid as an oxygen debt after exercise.

Unit 1: Assessment Approach

The mode of assessment used for this unit is an Examination Assessment (EA). This assessment method is externally set and marked by TQUK, ensuring consistency and reliability in the evaluation of learner's knowledge and understanding.

The EA for an individual unit cannot commence until the unit content has been fully taught to learners.

An overview of the assessment approach is outlined in the table below:

Assessment description	The EA comprises a balance of multiple-choice questions (MCQ), extended-response questions (ERQ) and short-answer questions (SAQ).
Assessment windows	Late January/early February** and early May Centres have the flexibility to timetable the Examination Assessment within the specified assessment window.
Duration of EA	2 hours

** **Important**: in the first year of delivery, there is no assessment window opportunity in January 2027. Thereafter, EAs will be available annually in late January/early February and mid-May.

The Examination Assessment will be conducted under exam conditions in a controlled environment. Centres must refer to the Assessment Guidance for the Delivery of Alternative Academic Qualifications document available on our website for further information to support the administration of the EA.

The assessment has been carefully aligned with the unit's assessment objectives (AOs) to create a consistent framework for learners. The table below confirms the assessment objectives that will be covered in the Examination Assessment.

Assessment objective	Description
AO1 – Recall knowledge and information	Learners are to **recall** knowledge and information
AO2 – Apply knowledge and information	Learners are to **apply** knowledge and information to questions, problems and scenarios
AO3 – Interpret, analyse or evaluate information, ideas or different viewpoints	Learners are able to **interpret**, **analyse** or **evaluate** information, ideas or different viewpoints to make judgements that are reasoned or draw conclusions.

Unit 2 Psychology in Sport and Exercise Science

Unit Number:	D651/5407		
Level:	3	**GLH:**	90
Unit Introduction:	Sport performers benefit from extensive knowledge of psychology and how an individual's mind and emotions govern the way they perform in sport. The ability to understand and apply psychological theories to various emotions and reactions in sport can enable sports performers to embrace strengths and challenge weaknesses, and therefore successfully reflect on how performance can be improved. Learners will study emotion in sport, including common types of emotions, their positive and negative impact, and a range of emotional theoretical frameworks. They will also study the different types of personalities in sport, types of motivation and relevant theories. Principles of arousal and over-arousal will also be examined, as well as a range of arousal theories, the impact of stress and anxiety and strategies to manage these. Learners will develop an understanding of the role and responsibilities of a sport and exercise psychologist and strategies they utilise to support sports performers. Lastly, learners will study self-confidence in sport, the benefits of positive mental health and strategies that can be employed to achieve this. This unit can enable learners to understand their own mental health and mindset as a sports performer, the professional role in supporting mental health, and how to develop healthy strategies to maintain mental health longevity. This unit is relevant for all learners aiming to progress to a career as a sport performer, or in a role that supports their mental health.		
Assessment Type:	Non-examination Assessment (NEA)		

Teaching content:	
2.1	**Emotion in sport**

2.1.1	Common types of emotions observed in sports:
	
	• positive emotions:
	  ○ excitement: anticipation and enthusiasm before a competition or during a critical moment in a game
	  ○ joy: happiness and satisfaction derived from success, achievement, or camaraderie with teammates
	  ○ confidence: self-assurance and belief in one's abilities to perform well under pressure
	  ○ determination: persistence and resilience in the face of challenges or setbacks
	  ○ euphoria: intense feelings of elation and triumph following a significant victory or personal best performance
	• negative emotions:
	  ○ anxiety: nervousness, worry, or apprehension about performance, outcomes, or expectations
	  ○ fear: apprehension or dread of failure, injury, or negative consequences during competition
	  ○ frustration: irritation or annoyance stemming from perceived obstacles, mistakes, or unfair decisions

Teaching content:	
	○ anger: hostility, aggression, or resentment towards opponents, officials, or oneself ○ disappointment: sadness, regret, or disillusionment resulting from unmet expectations or underperformance • mixed emotions: ○ nervous excitement: a combination of excitement and anxiety experienced before a crucial event or competition ○ relief: feelings of reassurance and relaxation following a successful outcome or resolution of a stressful situation ○ pride: satisfaction and self-worth derived from personal achievements or team accomplishments ○ anticipation: eagerness and expectancy about future events, challenges, or opportunities ○ resentment: bitterness or indignation towards perceived injustices, unfair treatment, or unfavourable outcomes • transient emotions: ○ in-the-moment: emotions experienced spontaneously during the course of a game, such as elation after scoring a goal or frustration after missing a shot ○ post-event: emotions that arise after competition, such as relief, disappointment, or satisfaction, reflecting on performance outcomes and experiences.
2.1.2	The positive and negative impact of emotions on the sports performer: • influence on performance: ○ positive emotions: ▪ enhance motivation ▪ improve focus ▪ increase energy levels ○ negative emotions: ▪ impair concentration ▪ decrease coordination ▪ impact decision-making • arousal levels: ○ optimal arousal: ▪ balances energy and focus ▪ ensures peak performance ○ finding balance: ▪ avoids under-arousal ▪ prevents over-arousal • attentional focus: ○ positive emotions: ▪ broaden attentional focus ▪ increase awareness of surroundings ○ negative emotions: ▪ narrow attentional focus ▪ lead to tunnel vision • decision-making: ○ positive emotions: ▪ enhance cognitive flexibility ▪ improve problem-solving abilities ○ negative emotions: ▪ cloud judgement ▪ increase risk aversion • performance feedback: ○ positive feedback: ▪ boosts self-confidence

Teaching content:	
	▪ increases motivation ○ negative feedback: ▪ demotivates sports performers if not constructive.
2.1.3	A range of emotional theoretical frameworks in sport: • control theory: ○ emotions arise from perceptions of control over performance outcomes ○ sports performers' emotional responses are influenced by their sense of control in competition • transactional model of stress and coping: ○ sports performers encounter stressors that elicit emotional reactions ○ coping strategies, such as problem-focused and emotion-focused coping, influence emotional regulation and performance resilience • achievement goal theory: ○ sports performers' goals and motives influence emotional experiences and performance outcomes ○ mastery and performance goals impact sports performers' motivation, self-efficacy, and emotional wellbeing • appraisal theory: ○ emotions result from subjective evaluations of events and situations ○ sports performers' appraisals of competition, feedback, and outcomes shape their emotional responses • biofeedback theory: ○ physiological arousal influences emotional experiences ○ biofeedback interventions help sports performers modulate arousal levels and manage emotions during competition.
2.2	**Personality and motivation in sport**
2.2.1	Common personality types in sport: • Type A: ○ driven by a strong desire to win and achieve success ○ highly focused and motivated ○ often displaying intense determination in training and competition • Type B: ○ maintains a calm and composed demeanour, even in high-pressure situations ○ values enjoyment and participation in sport ○ prioritises fun and camaraderie over solely winning • extrovert: ○ thrives in group settings ○ enjoys the social aspects of team sports ○ outgoing nature ○ builds strong relationships with teammates • introvert: ○ prefers solitary activities and self-reflection ○ thrives in environments where they can focus solely on their own performance and goals • conscientious: ○ highly organised and dedicated ○ strong work ethic ○ commitment to training ○ values structure and routine ○ excels in sports that require consistent practice and preparation • neurotic: ○ demonstrates mental toughness and the ability to bounce back from setbacks

Teaching content:	
	○ despite experiencing stress and anxiety, they channel their emotions into positive energy to overcome challenges • agreeable: ○ supportive and cooperative nature ○ contributes positively to team dynamics ○ values teamwork and collaboration ○ morale booster for their teammates • open to experience: ○ embraces creativity and innovation ○ seeks out new challenges and approaches to training ○ adaptability and willingness to experiment with unconventional techniques to improve performance.
2.2.2	Common types of motivation and their impact on sports performance: • intrinsic motivation: ○ driven by internal factors such as enjoyment, satisfaction, or personal fulfilment derived from participating in sport: ▪ greater persistence, effort, and enjoyment in training and competition ▪ improved performance ▪ long-term engagement in sports • extrinsic motivation: ○ driven by external rewards or outcomes, such as trophies, awards, or praise from others: ▪ short-term incentives for performance ▪ diminished intrinsic motivation and passion for the sport over time • achievement motivation: ○ focuses on striving for success, mastery, or personal improvement in sport: ▪ sets challenging goals ▪ demonstrates persistence ▪ enhanced skills development ▪ strives for performance excellence • social motivation: ○ driven by the desire for social connection, approval, or belongingness within the sporting community: ▪ prioritises team camaraderie and peer recognition ▪ positive influence on team cohesion, morale, and enjoyment • task orientation: ○ focuses on mastering skills, learning, and self-improvement in sport: ▪ focuses on personal progress and skill development ▪ promotes intrinsic motivation and resilience • ego orientation: ○ focuses on outperforming others, winning, or demonstrating superiority in sport: ▪ heightened anxiety and fear of failure ▪ potential for unethical behaviour and undermining long-term performance.
2.2.3	A range of motivation theories and their impact on sports performance: • attribution theory (Fritz Heider): ○ examines how sports performers attribute success and failure ○ influences motivation, persistence, and resilience ○ applicable in sport for understanding sports performers' responses to success and failure • hierarchy of needs theory (Abraham Maslow): ○ hierarchical needs ranging from basic to self-actualisation

Teaching content:	
	○ sports performers' motivation influenced by needs for achievement, belongingness, and self-esteem ○ relevant in sport for addressing sports performers' psychological needs and motivation • need for achievement theory (David McClelland): ○ motivation driven by the desire to achieve success and avoid failure ○ sports performers with high need for achievement set challenging goals and persist in pursuing excellence ○ impacts goal-setting strategies and performance outcomes in sport • achievement goal theory (Nicholls): ○ explores sports performers' goal orientations in achievement situations ○ distinguishes between task and ego involvement, influencing motivation and performance ○ guides coaches in fostering adaptive goal orientations and motivation • mindset theory (Carol Dweck): ○ differentiates between fixed and growth mindsets ○ sports performers with growth mindset embrace challenges and persist in the face of setbacks ○ supports coaches in promoting adaptive beliefs and enhancing motivation and resilience • achievement motivation theory (Andrew J Elliot et al): ○ examines the impact of achievement goals, competence perceptions, and affective responses on motivation ○ guides coaches in understanding motivational processes and optimising performance outcomes ○ relevant in sport for promoting adaptive motivational patterns and enhancing wellbeing • competence motivation theory (Susan Harter and Robert W White): ○ focuses on desire to feel competent and effective ○ influences motivation, persistence, and engagement in sport ○ provides insights for coaches in fostering perceptions of competence and enhancing motivation • self-determination theory (Edward L Deci & Richard M Ryan): ○ emphasises intrinsic motivation, autonomy, and competence ○ highlights the role of autonomy-supportive environments in enhancing motivation and wellbeing ○ guides coaches in promoting self-determined motivation and fostering optimal performance in sports.
2.3	**Arousal in sport**
2.3.1	The principles of arousal and over-arousal in sports performance: • arousal in sports performance: ○ level of physiological and psychological activation experienced by a sports performer: ▪ optimal arousal levels vary depending on the task ▪ moderate arousal typically associated with peak performance ▪ arousal can be influenced by psychological factors such as: • competition importance • audience size • personal significance of the event ▪ physiological effects: • increased heart rate • respiration • adrenaline release

Teaching content:	
	▪ arousal regulation techniques: • deep breathing • visualisation • relaxation strategies • over-arousal: ○ arousal levels exceed the optimal range for performance: ▪ physical symptoms: • tense muscles • increased heart rate • decreased coordination ▪ psychological symptoms: • anxiety • panic • cognitive interference • disrupting attention and concentration ▪ performance outcomes: • decreased motor skills • diminished reaction time • impaired judgement ○ over-arousal management strategies: ▪ relaxation techniques ▪ mindfulness practices ▪ cognitive restructuring.
2.3.2	A range of arousal theories and their impact on sports performance: • drive theory (Zajonc): ○ the relationship between arousal and performance is linear ▪ predicts a linear relationship between arousal and performance ▪ suggests that increased arousal leads to improved performance ▪ emphasises the importance of arousal management to maintain optimal performance levels • inverted-u hypothesis (Yerkes & Dodson): ○ performance increases with arousal up to a point, after which it declines: ▪ highlights the nonlinear relationship between arousal and performance ▪ emphasises the need to find the optimal arousal level for peak performance ▪ recognises that both under-arousal and over-arousal can impair performance • catastrophe theory (Thom): ○ combines elements of both drive theory and the Inverted-U hypothesis: ▪ acknowledges the sudden decline in performance when arousal becomes too high ▪ emphasises the complex interaction between arousal, cognitive anxiety, and performance ▪ highlights the importance of managing arousal levels to prevent catastrophic performance drops • individual zones of optimal functioning (IZOF) Model (Hanin): ○ focuses on the unique arousal level at which a sports performer performs best: ▪ emphasises the uniqueness of optimal arousal levels for each sports performer ▪ recognises that sports performers perform best within their individualised arousal zones ▪ highlights the need for personalised arousal regulation strategies tailored to each sports performer's optimal performance zone.

Teaching content:	

2.3.3	The impact of stress on sports performance:
	
	• physiological:
	  ○ increased heart rate, respiration rate, and muscle tension
	  ○ altered hormonal levels
	  ○ impaired coordination
	  ○ reduced fine motor skills
	  ○ slower reaction time
	• cognitive:
	  ○ decreased concentration
	  ○ reduced decision-making ability
	  ○ negative thoughts, worry, and rumination
	  ○ difficulty processing information and problem-solving
	• emotional:
	  ○ increased anxiety and fear
	  ○ nervousness
	  ○ feelings of frustration, anger, or helplessness
	  ○ reduced confidence and self-esteem
	  ○ low motivation
	• behavioural:
	  ○ changes in sleep patterns, appetite, and energy levels
	  ○ avoidance of training or competition
	  ○ risk-taking behaviours
	  ○ heightened aggression
	• performance:
	  ○ decreased accuracy, precision, and consistency
	  ○ impaired physical and mental endurance
	  ○ reduced overall performance levels and achievement of goals.

2.3.4	A range of strategies to manage and relieve stress:
	
	• mindfulness and relaxation:
	  ○ practise meditation, deep breathing, and visualisation
	  ○ use imagery techniques to reduce anxiety before competition
	• physical activity:
	  ○ regular exercise to reduce stress hormones
	  ○ diverse activities in training to prevent burnout
	• goal setting and time management:
	  ○ set achievable goals
	  ○ prioritise tasks to manage time effectively
	• social support:
	  ○ seek support from coaches and teammates
	  ○ foster positive relationships and open communication
	• healthy lifestyle:
	  ○ maintain a balanced diet
	  ○ ensure adequate sleep and rest
	• stress management skills:
	  ○ learn coping strategies:
	  ▪ Cognitive Behaviour Therapy (CBT)
	  ▪ stress inoculation training
	  ○ attend mental skills training sessions
	• positive self-talk:
	  ○ cultivate a growth mindset
	  ○ practise positive affirmations for confidence
	• rest and recovery:
	  ○ schedule regular rest days

Teaching content:	
	○ use relaxation techniques for recovery.
2.3.5	The impact of anxiety on sports performance: • anxiety symptoms: ○ nervousness or apprehension ○ racing heart or breathing ○ sweating and trembling ○ negative thoughts or worry ○ difficulty concentrating • impact on performance: ○ decreased focus and attention ○ impaired decision-making and reaction time ○ reduced confidence and self-belief ○ physical tension affecting coordination ○ increased risk of mistakes or errors • strategies to manage anxiety: ○ deep breathing and relaxation techniques ○ positive self-talk and visualisation ○ goal setting and focusing on process rather than outcome ○ seeking support from coaches or sports psychologists ○ implementing pre-performance routines for consistency.
2.3.6	A range of anxiety theories in sport: • multidimensional anxiety theory (MAT) (Parfitt, Jones & Hardy): ○ distinguishes between cognitive anxiety (mental) and somatic anxiety (physical) ○ proposes a negative linear relationship between cognitive anxiety and sport performance ○ suggests that cognitive anxiety remains high when confidence is low ○ states that somatic anxiety typically decreases once performance begins • reversal theory (Apter & Smith): ○ describes shifts between contrasting states of mind based on needs and desires ○ identifies four pairs of alternative states known as meta-motivational states ○ states that sports performers may exhibit inconsistent behaviour based on perceived meanings and motives ○ highlights the impact of specific states on emotions and anxiety levels during performance • competitive anxiety theory (CAT) (Martens): ○ states that sports performers experience higher levels of somatic and cognitive anxiety before competitions ○ predicts that anxiety symptoms decrease after successful performances ○ highlights the importance of anxiety management for optimal performance ○ emphasises the role of minor fluctuations in anxiety control on performance outcomes.
2.4	**Sport and exercise psychologists**
2.4.1	Aspects of a sport and exercise psychologist's role and practice: • qualifications and training: ○ holds advanced degrees in psychology ○ specialised training in sport and exercise psychology ○ potential certifications from: ▪ British Psychological Society (BPS)

Teaching content:	
	▪ Health and Care Professions Council (HCPC) • scope of practice: o works with sports performers, coaches, teams, and exercisers o addresses issues related to: ▪ performance ▪ mental health ▪ injury rehabilitation ▪ team dynamics ▪ goal setting ▪ career transition • confidentiality and ethics: o adheres to ethical guidelines o maintains confidentiality and informed consent • consultation and collaboration: o collaborates with interdisciplinary teams o offers consultation services to sports organisations • research and evidence-based practice: o conducts research to advance knowledge o uses research findings to inform interventions • cultural competence: o recognises cultural diversity and sensitivity o adapts interventions to cultural backgrounds • continuing education and professional development: o engages in ongoing training and development o attends conferences and workshops for skills enhancement.
2.4.2	The role and responsibilities of a sport and exercise psychologist: • enhance performance: o teach mental skills such as goal setting, visualisation, and self-talk o use techniques such as imagery and simulation for mental rehearsal o provide feedback to develop effective pre-competition routines • mental health support: o assess mental health concerns and provide interventions like CBT o offer individual counselling or group therapy sessions o collaborate with other healthcare professionals for holistic care • injury rehabilitation: o help sports performers cope with injury-related psychological impacts o provide strategies to manage pain and adhere to rehabilitation o facilitate a smooth transition back to sport with coaches and medical staff • team dynamics: o facilitate team-building activities and communication exercises o offer conflict resolution and leadership training o provide strategies for coaches to create a supportive team culture • goal setting: o collaborate on SMART goal setting aligned with values o break down goals into achievable milestones o use goal-setting techniques to enhance commitment and resilience • career transition: o offer career counselling and guidance o provide support for retirement transitions and identity loss o assist with career planning and accessing resources • mental toughness: o foster resilience by reframing challenges positively o provide strategies for managing pressure and staying focused o encourage self-awareness to identify strengths and weaknesses.

Teaching content:	
2.5	**Mental health in sport**

2.5.1	Types of confidence in sport and their impact on sports performance:
	
	• trait confidence:
	  ○ a stable, enduring belief in one's abilities across various situations and contexts:
	  ▪ consistent performance across different situations and challenges
	  ▪ greater resilience in the face of setbacks or failures
	  ▪ higher levels of self-belief and motivation to pursue challenging goals
	• state confidence:
	  ○ a temporary, situational confidence level influenced by factors such as recent performance, preparation, or environmental conditions:
	  ▪ momentary fluctuations in performance based on current levels of confidence
	  ▪ improved focus, effort, and execution during periods of high confidence
	  ▪ decreased performance or risk aversion during periods of low confidence.

2.5.2	The differences between self-confidence, self-efficacy, and self-esteem in sport:
	
	• self-confidence:
	  ○ belief in one's abilities to successfully perform tasks or achieve desired outcomes in a specific domain, such as sports:
	  ▪ enhances motivation, resilience, and assertiveness
	  ▪ promotes:
	  • positive mindset
	  • mental toughness in competitions
	• self-efficacy:
	  ○ belief in one's capability to execute specific actions or behaviours required to attain desired goals or outcomes in a given situation:
	  ▪ influences goal setting, effort, and perseverance during training and competitions
	  ▪ leads to:
	  • increased engagement
	  • effective use of strategies to overcome challenges
	• self-esteem:
	  ○ overall subjective evaluation of one's worth or value as a person, based on internal beliefs and perceptions:
	  ▪ affects self-concept, emotional wellbeing, and motivation to participate in sports
	  ▪ associated with:
	  • resilience
	  • coping with setbacks
	  • maintaining a positive self-image during performance.

2.5.3	The benefits of positive mental health in sport:
	
	• performance optimisation:
	  ○ enhanced focus, concentration, and decision-making abilities
	  ○ improved self-confidence and motivation levels
	  ○ better management of pressure and stress during competitions
	• resilience and coping:
	  ○ effective stress management and coping strategies
	  ○ ability to bounce back quickly from setbacks and challenges
	  ○ consistent performance despite adversity or distractions
	• injury rehabilitation:

Teaching content:	
	○ adherence to treatment plans and rehabilitation protocols ○ faster recovery times and reduced risk of re-injury ○ positive mindset and outlook during the recovery process • team dynamics: ○ fostered cohesion, trust, and communication among teammates ○ supportive environment for sharing struggles and seeking help ○ enhanced teamwork and synergy in training and competition • longevity and wellbeing: ○ sustainable athletic career and continued enjoyment of sports ○ prevention of burnout and mental exhaustion ○ overall improvement in quality of life on and off the field.
2.5.4	Strategies to achieve mental health benefits: • maintaining focus: ○ use pre-performance routines or rituals ○ practise visualisation techniques ○ employ mindfulness exercises ○ use cue words or phrases • handling pressure: ○ engage in positive self-talk ○ use imagery for mental preparation ○ seek support from coaches or psychologists ○ establish routines for familiarity and control • recovering from setbacks: ○ reflect and identify lessons learned ○ set short-term goals for momentum ○ seek feedback for guidance ○ use setbacks as growth opportunities ○ maintain optimism and be forward-thinking • adapting to challenges: ○ embrace a growth mindset ○ remain flexible and open-minded ○ seek input from others for solutions ○ break challenges into manageable tasks ○ persist and persevere through adversity • building resilience: ○ cultivate a strong support network ○ maintain a positive outlook ○ embrace failure as part of learning ○ practise self-care for wellbeing.
2.6	**Conducting research**
2.6.1	The role, benefits, and limitations of qualitative and quantitative data collection: • qualitative: non-numerical data that describes characteristics, opinions, or categories: ○ benefits: ▪ provides insights into the participant's feelings and motivations ▪ captures individual experiences ▪ considers contextual factors ▪ allows for flexibility allowing adaptability ▪ explores new theories and concepts before quantitative testing ○ limitations: ▪ difficult to quantify and analyse statistically

Teaching content:	
	▪ subjective with the potential for bias in interpretation ▪ time-consuming to collect and analyse data • quantitative: numerical data that can be measured and statistically analysed: o benefits: ▪ provides objective data ▪ allows for large sample sizes ▪ enables statistical analysis to identify patterns and trends ▪ produces replicable results to support reliability ▪ produces results that may be easily measurable ▪ data produced can be replicated. o limitations: ▪ lacks depth and context about the participant's motivations and emotions ▪ may over-simplify complex psychological experiences ▪ may not capture subjective or complex factors ▪ may focus on numbers rather than the participant's holistic experiences.
2.6.2	A range of factors in data collection and their importance for conducting research: • accuracy: o data is correct and valid for the research to be conducted o reduces potential for errors and misinterpretation o can be influenced by research method used and data collection technique o may be influenced by participant's honesty • reliability: o data is consistent o data should produce similar results if conducted in identical conditions o supports evidenced-based conclusions • objectivity: o free from bias and subjectivity o based on evidence not personal opinion or assumption o supported by a standardised collection method • currency: o data used is up to date o ensures the research is relevant to the participants o supports validity of the results • context o provides meaning to the data collected o supports interpretation of how results were obtained o crucial for qualitative data collection where personal experiences influence the findings • collection technique: o methods used to gather data will impact: ▪ quality: ensure accuracy of the data ▪ relevance: ensure data aligns with research questions and objectives ▪ usability: ensures data can be analysed to produce meaningful results
2.6.3	A range of data collection methods and their advantages and disadvantages: • interview: a direct, face-to-face, or virtual conversation between a researcher and a participant: o advantages: ▪ gathers personal responses ▪ allows for a deep exploration of personal thoughts and experiences ▪ provides and the opportunity for flexibility with follow-up questions based on the responses ▪ allows for clarification of any ambiguous responses

Teaching content:	
	▪ supports rapport building with participants to encourage engagement ○ disadvantages: ▪ time-consuming to organise and conduct ▪ time needed to transcribe and analyse the results ▪ may result in interviewer bias from the interviewer's tone and body language ▪ sample size may be reduced due to time constraints ▪ participant reliability may be influenced by answering the way that is expected • questionnaire: structured method involving written questions that participants answer: ○ advantages: ▪ efficient for large samples ▪ can gather large amounts of data quickly and effectively ▪ cost-effective ▪ ensures data is collected in a standardised format ▪ supports collection of anonymous responses for sensitive topics ○ disadvantages: ▪ framing of questions may lead to a limited depth in the responses ▪ questions may be misinterpreted by participants without the ability to seek clarification ▪ potential for low response rates if participants ignore the questionnaire ▪ fixed choice questions may limit responses and introduce bias in the interpretation of the data • biofeedback: real-time measurement of physiological functions to monitor responses to stress, exercise, or sports performance: ○ advantages: ▪ data is objective and reliable ▪ reduces bias from self-reporting ▪ reporting tracks immediate responses ▪ real-time information is difficult to manipulate ▪ produces data that may be statistically analysed ▪ enhances performance analysis ▪ can enable participants to understand their performance and gain control of their physical responses ○ disadvantages: ▪ specialised equipment is required ▪ equipment can be expensive and impact research costs ▪ may malfunction ▪ requires technical training for both the participant and researcher which can be time-consuming ▪ wearing biofeedback devices may impact natural behaviour of the participant ▪ may require additional qualitative data to support physiological data
2.6.4	A range of ethical considerations when carrying out research involving human participants: • ensuring informed consent is obtained – participants must: ○ agree to their taking part ○ confirm understanding of its purpose ○ confirm understanding of any risks • confirm protection of the participants' rights • right to withdraw from the research • maintain participant confidentiality • minimise risk of harm by avoiding physical, psychological, or emotional distress • ensure research reporting is objective and truthful

Teaching content:	
	• review and approval of the research by an ethics committee.
2.6.5	The considerations when storing and retaining research data: • arrange secure data storage • use encrypted, password-protected electronic systems • physical data must be retained in a secure, locked facility • data must only be stored for as long as necessary • data must be disposed of when no longer required • data retention processes must comply with GDPR and Data Protection Act 2018.

Unit 2: Assessment Approach

The mode of assessment used for this unit is a Non-examination Assessment (NEA). This assessment method is externally set by TQUK and internally marked by centres.

The NEA for an individual unit cannot commence until the unit content has been fully taught to learners and TQUK's mandatory standardisation training is completed.

An overview of the assessment approach is outlined in the table below:

Assessment description	The NEA comprises a brief designed to assess learners' applied knowledge and skills, as well as their ability to evidence critical analysis and reflective evaluation of the subject content.
Duration of NEA	The timeframe for the completion of the NEA is 10-12 hours.
Assessment windows	The NEA brief is released in September each year. Centres have the flexibility in scheduling the NEA within the academic session but must ensure it is completed by 30 April at the latest to allow for marking, internal quality assurance, and external moderation activities.

The Non-examination Assessment will be conducted in a supervised, controlled environment.

Centres **must** refer to the Assessment Guidance for the Delivery of Alternative Academic Qualifications document, available on our website, to ensure the appropriate administration and marking of this assessment and adherence to TQUK regulations.

The NEA has been carefully aligned with the assessment objectives (AOs) to create a consistent framework for learners. The table below confirms the assessment objectives that will be covered in the Non-examination Assessment.

Assessment objective	Description
AO4a Research and plan	Learners are able to **research**, **investigate** and **plan** tasks, **choose** appropriate methods and actions.
AO4b Review skills, methods and actions	Learners are able to **review** their skills, methods and actions.
AO5 – Demonstrate and apply skills and methods relevant to the given sector	Learners are able to **demonstrate** their application of technical skills relevant to the sector by **applying** the appropriate processes, tools and techniques.

Unit 3 Biomechanics

Unit Number:	F/651/5408		
Level:	3	**GLH:**	60
Unit Introduction:	Physics impacts all aspects of a sport performance, and the ability to understand how physical forces can enhance or inhibit a performance can enable learners to adapt how they perform for their own benefit. Learners will study the fundamentals of motion such as linear motion, biomechanical concepts, the role of inertia and momentum, and other key principles such as speed, velocity and acceleration. They will also study the different forces that can impact sport performance including Newton's Three Laws of Motion, friction, aerodynamics, air resistance, and Bernoulli's principle. Angular motion and stability will also be examined including the principles of centre of mass and stability, the application of levers, and axes of rotation. This unit can support learners in understanding the relationship between a sport performer and their environment. It will enable learners to understand how physics can inhibit or improve technique and performance. Additionally, when utilised effectively, knowledge of biomechanics can be beneficial for sport performers in conserving energy and preventing the risk of injury.		
Assessment Type:	Examination Assessment (EA)		

Teaching content:	
3.1	**Fundamentals of motion in sport and exercise**

3.1.1	Types of linear motion, biomechanical concepts, and their application in sports performance analyses:
	
	• definition of linear motion:
	  ○ the movement of a body or object in a straight line
	  ○ prevalent in various sports activities
	• types of linear motion:
	  ○ rectilinear motion:
	  ▪ motion that occurs in a straight line
	  ○ curvilinear motion:
	  ▪ motion that occurs along a curved path
	• biomechanical concepts:
	  ○ biomechanics distinguishes between vector and scalar quantities
	  ○ vector quantities, like velocity, acceleration, and weight, are described in terms of both size and direction
	  ○ scalar quantities, like mass and speed are described solely by magnitude
	• application in sports performance analysis:
	  ○ using vector quantities:
	  ▪ analysing the force required to overcome inertia in linear motion tasks, such as a sprinter accelerating from the starting block
	  ○ using scalar quantities:
	  ▪ assessing the impact of mass distribution on stability and balance during movements, such as a gymnast's body position during a balance beam routine.

Teaching content:	

3.1.2	The fundamental principles of motion in sport:
	
	• speed:
	  ○ the rate of motion
	  ○ representing how fast an object is moving regardless of direction
	• velocity:
	  ○ speed in a specific direction
	  ○ taking into account both the rate and direction of motion
	  ○ calculating velocity: velocity = displacement divided by time / v=d/t
	  ○ measured: metres per second (m/s)
	  ○ formula to calculate velocity: angular momentum = moment of inertia x angular velocity
	• distance and displacement:
	  ○ distance is the total length of the path travelled
	  ○ displacement is the straight-line distance between the initial and final positions
	• acceleration:
	  ○ rate of change of velocity
	  ○ indicates how quickly an object's speed or direction is changing
	• deceleration:
	  ○ negative acceleration or a decrease in velocity
	  ○ indicates a reduction in speed or a change in direction opposite to the initial motion
	• calculating acceleration and deceleration:
	  ○ both acceleration and deceleration can be calculated using formulae that involve changes in velocity over time:
	  ▪ acceleration/deceleration: (final velocity – initial velocity) / time (s) (ms^{-2}) = (V_f – V_i) / time (s)
	  ▪ measured: metres per second squared (m/s^2)
	• factors influencing acceleration and deceleration:
	  ○ sports performer technique:
	  ▪ slowing down
	  ▪ speeding up
	  ▪ changing direction
	  ▪ part of body being used:
	  • optimise acceleration and minimise deceleration
	  ○ external forces:
	  ▪ gravity
	  ▪ friction
	  ▪ resistance
	  ○ surface conditions/type:
	  ▪ conditions:
	  • wet
	  • dry
	  • smooth
	  • rough
	  ▪ type:
	  • natural grass fields
	  • artificial turf
	  • indoor/outdoor court surfaces
	  • outdoor track materials.

3.1.3	The role of inertia and momentum in sports performance: • inertia: ○ object's resistance to changes in motion

Teaching content:	

	• momentum:
	  ○ product of an object's mass and velocity
	• calculating momentum:
	  ○ momentum (p) = mass (m) × velocity (v)
	  ○ measured: kilograms in metres per second (kg m/s)
	• application in sports:
	  ○ sprinter's acceleration from a stationary position
	  ○ soccer player kicking a ball into motion
	• relationship with sports equipment:
	  ○ golf club's inertia affects swing distance and accuracy
	• optimising inertia and momentum:
	  ○ applying appropriate technique
	  ○ strength training
	  ○ equipment selection
	  ○ increase mass
	  ○ increase velocity.

3.2	**Forces in sports performance**

3.2.1	The components of Newton's Three Laws of Motion:
	
	• Newton's First Law (Law of Inertia):
	  ○ an object will remain at rest or in uniform motion in a straight line unless acted upon by an external force
	• Newton's Second Law (Law of Acceleration):
	  ○ the acceleration of an object is directly proportional to the net force acting on it and inversely proportional to its mass
	• Newton's Third Law (Law of Action and Reaction):
	  ○ for every action, there is an equal and opposite reaction
	  ○ when one object exerts a force on a second object, the second object exerts an equal and opposite force on the first.

3.2.2	The application of reaction forces:
	
	• definition:
	  ○ reaction forces are exerted in response to action forces, as per Newton's Third Law of Motion.
	• application in sports:
	  ○ execute various movements and skills:
	  ▪ running
	  ▪ jumping
	  ▪ throwing
	  ▪ changing direction
	• impact on sports performance:
	  ○ training and techniques:
	  ▪ enhance a sports performer's ability to generate and control reaction forces
	  ○ biomechanical analysis:
	  ▪ aid in biomechanical analysis of sports movements
	  ▪ optimise technique and performance
	  ○ injury prevention:
	  ▪ training programmes designed to minimise the risk of overloading joints and tissues.

Teaching content:	

3.2.3	The application of friction:
	
	• definition:
	  ○ force that opposes the motion of objects in contact with each other, influencing how surfaces interact during movement
	• types of friction:
	  ○ static friction:
	  ▪ occurs when two surfaces are not moving relative to each other
	  ○ kinetic friction:
	  ▪ arises when two surfaces slide against each other
	  ○ rolling friction:
	  ▪ resistance between rolling surfaces
	  ○ fluid friction:
	  ▪ resistance encountered by objects moving through a fluid
	• application in sports:
	  ○ friction determines traction between sports performers and surfaces, impacting their ability to:
	  ▪ accelerate
	  ▪ decelerate
	  ▪ change direction
	  ▪ maintain stability
	• impact on sports performance:
	  ○ training and techniques:
	  ▪ improving sports performers' ability to utilise friction effectively
	  ▪ enhance sports performers' control and efficiency in managing friction during movements:
	  • agility drills
	  • strength training.

3.2.4	The application of aerodynamics:
	
	• definition:
	  ○ air flows around objects in motion, influencing the behaviour and performance of those objects
	• types of flow:
	  ○ steady flow:
	  ▪ velocity and flow parameters remain constant over time at any point within the fluid
	  ○ unsteady flow:
	  ▪ velocity and flow parameters change over time at a particular point within the fluid
	  ○ laminar flow:
	  ▪ smooth, orderly flow with parallel streamlines and minimal turbulence
	  ○ turbulent flow:
	  ▪ chaotic, irregular flow with mixing, eddies, and fluctuations in velocity and pressure
	  ○ transitional flow:
	  ▪ exhibits characteristics of both laminar and turbulent flow
	  ▪ often occurring as a transition between the two regimes
	• factors affecting aerodynamics:
	  ○ shape and surface smoothness
	  ○ size and scale of an object
	  ○ angle of attack
	  ○ surface roughness
	  ○ speed of movement

Teaching content:	

	• application in sports:
	  ○ enhance throwing projectiles or moving vehicles through the air
	  ○ optimise technique and equipment design to reduce air resistance and enhance performance
	• impact on sports performance:
	  ○ training and techniques:
	  ▪ optimising aerodynamics can significantly improve performance
	  ▪ minimising air resistance and maximise speed or distance by improving:
	  • body position
	  • equipment design
	  • overall technique.

3.2.5	The application of air resistance:
	
	• definition:
	  ○ force exerted by air molecules on objects moving through the air, which opposes the direction of motion
	  ○ also known as drag
	• types of resistance encountered in sports:
	  ○ form or pressure drag:
	  ▪ caused by the shape and frontal area of the object
	  ▪ form drag is the forces affecting the leading edge of an object increase form drag and the forces affecting the trailing edge reduces form drag
	  ▪ form drag offers less turbulent air to the object following
	  ○ skin friction/surface drag/skin drag:
	  ▪ interaction between the surface of the object and the air molecules
	  ○ induced drag:
	  ▪ generated by the production of lift, commonly encountered in activities involving aerodynamic lift
	• application in sports:
	  ○ when moving at high speeds, such as sprinters running or cyclists riding:
	  ▪ minimising air resistance, maximises speed and efficiency
	  ▪ ability to maintain velocity and conserve energy
	• impact on sports performance:
	  ○ training and techniques:
	  ▪ mitigating the negative effects of air resistance and improving performance
	  ▪ optimising body position
	  ▪ equipment design
	  ▪ aerodynamic techniques to reduce drag and enhance speed and efficiency.

3.2.6	The application of lift and Bernoulli's principle:
	
	• definition of lift:
	  ○ lift is the force generated by the pressure difference between the upper and lower surfaces of an object moving through a fluid, such as air or water
	  ○ this force allows objects to rise or maintain altitude.
	• definition of Bernoulli's principle:
	  ○ as the speed of a moving fluid increases, the pressure within the fluid decreases.
	• factors affecting lift:
	  ○ the shape of the object
	  ○ angle of attack
	  ○ velocity of the object
	• application in sports:

Teaching content:	
	○ manipulation airflow to achieve desired outcomes such as greater distance or height: ▪ throwing ▪ kicking ▪ jumping ○ leverage lift to optimise their performance: ▪ adjusting the angle of attack ▪ manipulating airflow to enhance lift and achieve desired trajectories • impact on sports performance: ○ training and techniques: ▪ optimise the angle of attack and orientation of sports equipment, ensuring optimal lift and trajectory.
3.3	**Angular motion and stability**
3.3.1	The principles of centre of mass and stability: • definition of centre of mass: ○ the point where the mass of an object or sports performer is concentrated ○ it represents the balance point of an object • location of centre of mass: ○ varies depending on the shape, size, and distribution of mass within the object or sports performer's body ○ movement of the body affects location of centre of mass ○ increasing the base of support area lowers the centre of mass • definition of stability: ○ the ability of an object or sports performer to maintain balance and resist tipping over or falling during movement when the centre of mass remains over the base of support ○ height of the centre of mass affects stability ○ the position of line of gravity to base of support affects stability ○ lowering the centre of mass increases stability • importance of determining stability: ○ to predict and control movements ○ optimise performance ○ reduce the risk of injury • techniques for enhancing balance and stability: ○ bending the knees ○ leaning forward or backward causes the centre of mass to move forward or backward ○ spreading the arms in the air allows correction movements/controls angular rotation/increases moment of inertia.
3.3.2	The application of levers in sport: • definition of levers: ○ simple machines consisting of a rigid bar (or rod) that rotates around a fixed point called the fulcrum ○ enable sports performers to generate and control forces to achieve desired movements and outcomes • components of levers: ○ fulcrum ○ effort (force) applied ○ resistance (load) • types of levers:

Teaching content:	
	○ first class: ▪ the fulcrum is located between the effort (applied force) and the resistance (load): • diving board • contraction of triceps causing extension of the arm at the elbow ○ second class: ▪ the resistance is located between the fulcrum and the effort: • contraction of the gastrocnemius causes plantar flexion of the ankle • rowing ○ third class: ▪ the effort is applied between the fulcrum and the resistance: • contraction of the bicep causing flexion of the arm at the elbow • tennis serve.
3.3.3	The application of axes of rotation: • definition: ○ represents imaginary lines around which an object rotates or pivots • types of axes of rotation and movements: ○ longitudinal axis: ▪ runs from head to feet, perpendicular to the ground ▪ rotational movements involve spins ○ transverse axis: ▪ runs horizontally from side to side, perpendicular to the longitudinal axis ▪ rotational movements involve rotating the torso (somersault, forward or backward roll) ○ anteroposterior axis: ▪ runs from front to back, perpendicular to both longitudinal and transverse axes ▪ rotational movements involve tilting from side to side or cartwheel • role of axes of rotation in sports: ○ enhanced agility: ▪ quick and precise rotational movements ▪ facilitating rapid changes in direction and agility ○ improved coordination: ▪ precise coordination of muscular actions and body positioning ▪ enhanced coordination and motor control ○ skill execution: ▪ intricate spins ▪ flips ▪ twists ▪ showcasing skill and artistry.
3.3.4	Angular momentum and the sports performer: • angular momentum: ○ quantity of momentum the body possesses ○ moment of inertia x angular velocity • angular velocity: ○ refers to the rotational speed of an object • momentum of inertia: ○ how the body's mass is distributed around an axis of rotation.
3.3.5	The application of angular momentum: • increasing momentum of inertia:

Teaching content:	
	○ caused by moving mass away from axis of rotation ○ decreases angular velocity • impact for a sports performer: ○ trampolinist performing a half-twist jump with their arms spread ○ diver performing an open somersault • decreasing momentum of inertia: ○ caused by moving mass towards the axis of rotation ○ increases angular velocity • impact for a sports performer: ○ trampolinist performing a half twist jump with their hands and arms straight up, above their head ○ diver performing a tucked somersault.

Unit 3: Assessment Approach

The mode of assessment used for this unit is an Examination Assessment (EA). This assessment method is externally set and marked by TQUK, ensuring consistency and reliability in the evaluation of learner's knowledge and understanding.

The EA for an individual unit cannot commence until the unit content has been fully taught to learners.

An overview of the assessment approach is outlined in the table below:

Assessment description	The EA comprises a balance of multiple-choice questions (MCQ), extended-response questions (ERQ) and short-answer questions (SAQ).
Assessment windows	Late January/early February** and early May Centres have the flexibility to timetable the Examination Assessment within the specified assessment window.
Duration of EA	1 hour 30 minutes

** **Important**: in the first year of delivery, there is no assessment window opportunity in January 2027. Thereafter, EAs will be available annually in late January/early February and mid-May.

The Examination Assessment will be conducted under exam conditions in a controlled environment. Centres must refer to the Assessment Guidance for the Delivery of Alternative Academic Qualifications document available on our website for further information to support the administration of the EA.

The assessment has been carefully aligned with the unit's assessment objectives (AOs) to create a consistent framework for learners. The table below confirms the assessment objectives that will be covered in the Examination Assessment.

Assessment objective	Description
AO1 – Recall knowledge and information	Learners are to **recall** knowledge and information
AO2 – Apply knowledge and information	Learners are to **apply** knowledge and information to questions, problems and scenarios
AO3 – Interpret, analyse or evaluate information, ideas or different viewpoints.	Learners are able to **interpret**, **analyse** or **evaluate** information, ideas or different viewpoints to make judgements that are reasoned or draw conclusions.

Unit 4 Nutrition in Sport and Exercise Science

Unit Number:	H/651/5409		
Level:	3	**GLH:**	60
Unit Introduction:	This unit introduces the principles of nutrition in sport and exercise science and its role in enhancing an athlete's sports performance and overall health. Learners will examine how nutrition supports energy levels, immune function, and well-being while reducing the risk of illness and injury. The importance of a tailored diet in sustaining peak performance, aiding training adaptation, and improving cognitive function is also explored. A key focus is understanding macronutrients and micronutrients, their functions, and their contribution to physiological processes. Learners will explore how dietary needs vary based on factors such as age, training goals, and the demands of different sports. Practical aspects, including methods for measuring the energy content of food and determining daily caloric requirements, are also considered. The unit concludes with the development of individualised nutrition plans for sports performers. Learners will consider factors such as training intensity and dietary preferences to create meal plans that support performance and recovery. This knowledge will enable sports performers to make informed dietary choices that optimise their long-term health and success.		
Assessment Type:	Non-examination Assessment (NEA)		

Teaching content:	
4.1	**The fundamentals of sports nutrition**
4.1.1	The purpose of nutrition to support a sports performer's health: • maximise the efficiency of nutrient intake to support bodily functions • support the immune system • support hormone function • illness prevention • reduce susceptibility to chronic disease • injury prevention • support the body's recovery • promote mental health wellbeing • maximise the body's performance.
4.1.2	The importance of nutrition to support sports performance: • ensure sufficient energy levels to carry out essential physiological processes • help achieve and maintain optimum body mass and composition • facilitate participation in training regimes • strengthen the immune system to reduce illness and the severity of symptoms • enhance cognitive function for skills acquisition and decision-making • promote motivation and positive mood • sustain peak performance levels • accelerate recovery after physical exertion • aid recovery after injury.

Teaching content:	
4.2	**The components of a balanced diet for sports performance**

4.2.1	The characteristics of macronutrients and micronutrients:
	
	• macronutrients:
	  ○ nutrients required by the body in large amounts that provide energy and raw materials for cellular processes and comprise:
	  ▪ carbohydrate: provide quick energy for cellular processes and support brain function
	  ▪ protein: essential for building and repairing tissues, enzymes, and hormones
	  ▪ fat: aid in the absorption of fat-soluble vitamins and provide long-term energy storage
	• micronutrients:
	  ○ nutrients required by the body in relatively small amounts to facilitate the biochemical reactions that drive processes and comprise:
	  ▪ vitamins
	  ▪ minerals.

4.2.2	The purpose of macronutrients to support bodily functions:
	
	• energy production:
	  ○ power muscle contractions
	  ○ nerve function
	  ○ organ activity
	• cellular function and integrity:
	  ○ formation of cell membranes
	  ○ cellular support
	  ○ regulation of cell activity
	• metabolic processes:
	  ○ enzymatic reactions
	  ○ hormone production
	• organ function:
	  ○ support cardiovascular health
	  ○ maintain blood flow and pressure
	  ○ essential components for brain function
	• tissue repair:
	  ○ repair damaged cells
	  ○ contribute to collagen production
	  ○ can reduce inflammation and speed recovery
	• immune function:
	  ○ support production and activation of immune cells
	  ○ regulate response to infection and injury
	• appetite regulation:
	  ○ control levels of hunger and satiety
	  ○ support blood sugar levels.
	• carbohydrates:
	  ○ energy source:
	  ▪ provides immediate fuel for physical activity
	  ▪ conversion into adenosine triphosphate (ATP) for cellular energy
	  ▪ cellular processes and maintains organ function
	  ○ glycogen storage:
	  ▪ stores glucose in muscles and liver for later use
	  ○ blood glucose regulation:
	  ▪ maintains stable blood sugar levels during exercise
	  ○ enhanced endurance:

Teaching content:	
	▪ supports prolonged exercise sessions ○ glycogen resynthesis: ▪ replenishes depleted glycogen stores after exercise ○ muscle preservation: ▪ prevents muscle breakdown during intense training. • proteins: ○ muscle repair: ▪ essential amino acids for tissue repair and growth ▪ helps repair damaged muscle tissues post-exercise ○ muscle growth: ▪ supports muscle hypertrophy and strength gains ○ enzyme and hormone production: ▪ essential for the synthesis of enzymes and hormones involved in various metabolic processes ○ immune function: ▪ plays a role in immune response and defence against infections by the production of antibodies ○ tissue repair and synthesis: ▪ facilitates the repair and growth of tissues throughout the body ○ promote satiety and regulate appetite. • fats: ○ energy storage and use: ▪ provides a concentrated source of energy for endurance activities ○ cell membrane structure: ▪ forms the structural component of cell membranes ○ hormone production: ▪ precursors for hormone synthesis, including steroid hormones ▪ contribute to hormone regulation and appetite signalling ○ vitamin absorption: ▪ facilitates the absorption of fat-soluble vitamins (A, D, E, K) ○ insulation and protection of organs: ▪ helps maintain body temperature and provides cushioning to vital organs ○ brain health: ▪ supports cognitive function and neurological health.
4.2.3	Measurements used when determining the energy content of food and beverages: • small calories • kilocalories (kcal): 1 kcal = 1000 calories • kilojoules (kJ): 1 kcal = 4,184 kJ • energy expenditure: ○ metabolic rate ○ daily living ○ training ○ performance • training load daily energy level requirements: ○ low: 3-5 g/kg ○ moderate: 5-7 g/kg ○ high: 6-10 g/kg ○ very high: 8-12 g/kg.
4.2.4	The minimum percentage of macronutrients required for a sports performer: • carbohydrates: ○ 45-65% of total daily calories

Teaching content:	

	• proteins:
	  ○ 10-35% of total daily calories
	• fats:
	  ○ 20-35% of total daily calories.

4.2.5	The minimum recommended daily calorific intake in the UK:
	
	• women:
	  ○ sedentary: 1,800 -2,000 per day
	  ○ moderately active: 2,000-2,200 per day
	  ○ active: 2,200-2,400 per day
	• men:
	  ○ sedentary: 2,200-2,400 per day
	  ○ moderately active: 2,400-2,800 per day
	  ○ active 2,800-3,000: per day.

4.2.6	The contributing factors that can affect the diversity of macronutrients and a sports performer's calorific requirements:
	
	• age:
	  ○ growth: nutritional requirements vary during periods of growth
	  ○ development: nutrient needs may change during different stages such as childhood, adolescence, and adulthood
	  ○ metabolic rates: varies across different age groups, influencing energy requirements
	• sex:
	  ○ biological differences: males and females may have differing nutrient needs due to physiological variations
	• individual needs:
	  ○ metabolism: metabolic rate and efficiency impact nutrient intake and energy expenditure
	  ○ body composition: body size, muscle mass, and fat distribution can influence nutritional requirements
	  ○ dietary preferences: individual preferences and dietary habits affect nutrient intake and dietary choices
	• training goals:
	  ○ muscle building: nutrient intake may be adjusted to support muscle growth and repair
	  ○ endurance improvement: energy needs may increase to support prolonged physical activity and endurance
	  ○ weight management: calorific intake may be adjusted to achieve weight loss, maintenance, or gain goals
	  ○ recovery optimisation: nutrient timing and composition may be tailored to enhance post-exercise recovery
	• training schedule:
	  ○ timing: nutrient intake may be adjusted based on the timing of training sessions and competition
	  ○ frequency: the frequency of training sessions may impact overall energy expenditure and nutrient requirements
	• sport-specific demands:
	  ○ energy expenditure: different sports may require varying levels of energy expenditure during training and competition
	  ○ muscle exertion: some sports may place higher demands on specific muscle groups, requiring targeted nutritional support

Teaching content:	
	○ endurance: endurance sports may require sustained energy availability and hydration strategies ○ recovery needs: post-exercise recovery may vary depending on the intensity and duration of physical activity, influencing nutrient timing and composition.
4.2.7	The function of micronutrients to support bodily functions: • regulate metabolism: ○ play a role in metabolic processes, aiding in the conversion of food into energy • maintain cellular function: ○ essential for the proper functioning of cells, supporting various cellular activities and processes • support immune cell function: ○ involved in supporting immune system function, helping to defend against pathogens and infections • promote growth and development: ○ necessary for growth, development, and maintenance of tissues and organs throughout the body • protect against oxidative stress: ○ can act as antioxidants, helping to neutralise harmful molecules known as free radicals and protect cells from damage • support nervous system function: ○ play a role in maintaining the health and function of the nervous system, including nerve signalling and neurotransmitter production • protect cells from damage: ○ help protect cells from damage caused by environmental factors and oxidative stress, contributing to overall cellular health and longevity.
4.2.8	The features and role of micronutrients to support overall health: • water-soluble vitamins: (vitamins B, C) ○ not stored in the body ○ excreted in urine ○ need to be replenished ○ support the nervous system ○ support the release of energy ○ wound repair • fat-soluble vitamins: (vitamins A, D, E, K) ○ absorbed through fat and stored in the body's fatty tissue ○ can be stored by body tissue and liver until needed ○ not readily excreted in urine ○ support healthy bones and muscles • minerals: ○ support a healthy immune system ○ maintain strong bones ○ support muscle function ○ oxygenation and red blood cell health.
4.2.9	The role of micronutrients in supporting the bodily functions of a sports performer: • vitamin B: (leafy green vegetables, eggs, fish, poultry, dairy products): ○ supports energy metabolism ○ supports energy production ○ muscle repair • vitamin C: (citrus fruit, berries, leafy green vegetables, cruciferous vegetables, herbs):

Teaching content:	
	○ assists immune function ○ antioxidant defence ○ supports collagen synthesis ○ assists iron absorption • vitamin A: (dairy products, orange-coloured fruits, animal liver, coloured vegetables): ○ supports vision ○ assists immune function ○ supports bone health ○ antioxidant defence • vitamin D: (egg yolks, mushrooms, fatty fish, cod liver oil): ○ supports bone health ○ assists muscle function ○ inflammation regulation ○ supports positive mental health • vitamin E: (nuts and seeds, plant-based oils, fruit, green leafy vegetables): ○ supports cardiovascular health ○ muscle repair ○ assists immune function ○ antioxidant defence • vitamin K: (leafy green and cruciferous vegetables, herbs and spices, fermented food): ○ blood clotting ○ supports bone health ○ calcium regulation ○ supports a healthy heart • calcium: (dairy, tofu, canned fish with bones, fortified plant milk): ○ assists bone health ○ muscle function ○ nerve transmission ○ electrolyte balance • magnesium: (leafy green vegetables, nuts and seeds, whole grains, legumes): ○ energy metabolism ○ muscle function ○ electrolyte balance ○ supports bone health • potassium: (bananas, sweet potatoes, kidney beans, yoghurt): ○ muscle function ○ blood pressure regulation ○ electrolyte balance • sodium: (salt, cured meats, cheese, bread): ○ fluid absorption ○ fluid retention ○ thermoregulation • iron: (red meat, lentils, beans, nuts, spinach): ○ oxygen transport ○ energy metabolism ○ red blood cell formation • zinc: (fortified cereals, beans, nuts, dairy): ○ immune function ○ supports cell growth ○ assists wound healing • selenium: (Brazil nuts, eggs, seafood, mushrooms): ○ supports thyroid function ○ muscle repair ○ cognitive function

Teaching content:	

	• iodine: (seafood, dairy products, seaweed, eggs):
	  ○ supports thyroid function
	  ○ assists energy metabolism
	  ○ muscle function
	  ○ muscle recovery.

4.2.10	The minimum daily requirements for micronutrient consumption:
	
	• vitamin A:
	  ○ 700-900 micrograms (mg) for men
	  ○ 600-700 mg for women
	• vitamin D1:
	  ○ 10 mg for adults
	• vitamin E:
	  ○ 4-10 mg for adults
	• vitamins B1, B2, B3, B6, B12:
	  ○ a range between 1-2 mg for most B vitamins
	• calcium:
	  ○ 700-1000 mg for adults
	• iron:
	  ○ 87 mg for men
	  ○ 148 mg for women
	• zinc:
	  ○ 95 mg for men
	  ○ 7 mg for women
	• potassium:
	  ○ 3500-3900 mg for adults.

4.3	**Calculating the nutritional value of food**

4.3.1	A range of methods for calculating the nutritional value of food:
	
	• food labels:
	  ○ helps consumers make informed choices about the nutritional content of the foods they purchase:
	  ▪ calories
	  ▪ macronutrients (carbohydrates, proteins, fats)
	  ▪ vitamins
	  ▪ minerals
	  ▪ sometimes allergen information
	• nutrient databases:
	  ○ comprehensive collection of data
	  ○ often used by nutritionists, dietitians, and researchers to assess the nutritional value of diets and meal plans
	• food scale and measuring cups:
	  ○ precise tools for measuring the weight or volume of food items
	  ○ enables accurate portion control and measurement of ingredients when cooking or preparing meals
	• nutritional apps:
	  ○ provide nutritional information for various foods
	  ○ allow users:
	  ▪ to track their daily intake
	  ▪ set nutritional goals
	  ▪ access databases of food items and recipes
	• recipe analysis:
	  ○ software or online tools that analyse the nutritional content of recipes

Teaching content:	
	○ useful for calculating the overall nutritional profile of a dish: ▪ calories ▪ macronutrients ▪ vitamins ▪ minerals.
4.4	**Factors to consider when planning diets for sports performance**
4.4.1	The range of factors to consider when planning an individual diet for a sports performer: • consideration of the performer's characteristics: ○ age ○ gender ○ weight ○ height ○ activity level ○ disability ○ medical conditions ○ strength/endurance level • training intensity: ○ low ○ moderate ○ high • energy requirements: ○ calorific needs based on activity level and training intensity • timing of nutrition: ○ pre-event ○ during event ○ post-event • special dietary needs: ○ vegetarian ○ vegan ○ gluten-free ○ lactose-free diets • cultural considerations: ○ traditions ○ customs ○ behaviours • religious practices: ○ practices ○ restrictions • type of sport ○ endurance sports ○ strength athletes ○ team sports ○ individual sports ○ racquet sports ○ water sports ○ adventure sports ○ gymnastics ○ combat sports.
4.5	**Nutritional planning and sports performance**
4.5.1	The purpose of individualised nutrition planning:

Teaching content:	

	• ensures optimal dietary balance:
	  ○ specific nutrients for performance
	  ○ correct calorific intake
	  ○ balanced macronutrients and micronutrients
	  ○ maximised food combinations
	• facilitates efficient food preparation:
	  ○ time-saving for training
	  ○ reduces food waste and costs
	  ○ ensures availability of essential items
	  ○ encourages healthier choices
	• alleviates athlete stress:
	  ○ promotes calmness and focus
	  ○ enhances performance outcomes
	• provides access to healthy choices:
	  ○ minimises convenience food consumption
	  ○ controls portion sizes
	  ○ supports weight management.

4.5.2	The stages of nutrition planning:
	
	• assessment and goal setting:
	  ○ evaluation of current habits
	  ○ consideration of health status
	  ○ sport-specific considerations
	  ○ identification of specific issues
	• goals:
	  ○ specific
	  ○ measurable
	  ○ achievable
	  ○ relevant
	  ○ time-bound
	• calorie and micronutrient distribution:
	  ○ basic parameters:
	  ▪ age
	  ▪ gender
	  ▪ weight
	  ▪ height
	  ○ activity level consideration:
	  ▪ sedentary
	  ▪ light
	  ▪ moderate
	  ▪ heavy activity
	  ○ performance goals alignment:
	  ▪ endurance
	  ▪ strength
	  ▪ speed
	  ▪ skill improvement
	• food selection, meal planning and hydration:
	  ○ breakfast
	  ○ mid-morning snack
	  ○ lunch
	  ○ pre-workout snack
	  ○ post-workout snack
	  ○ dinner
	  ○ evening snack and hydration

Teaching content:	

	• portion control and monitoring
	• supplements (if required)
	• behavioural strategies and support
	• review:
	  ○ monitor progress
	  ○ verify alignment with objectives
	  ○ nutritional balance
	  ○ dietary restrictions
	  ○ hydration balance
	  ○ modify based on progress and feedback.

Unit 4: Assessment Approach

The mode of assessment used for this unit is a Non-examination Assessment (NEA). This assessment method is externally set by TQUK and internally marked by centres.

The NEA for an individual unit cannot commence until the unit content has been fully taught to learners and TQUK's mandatory standardisation training is completed.

An overview of the assessment approach is outlined in the table below:

Assessment description	The NEA comprises a brief designed to assess the learners' applied knowledge and skills and their ability to evidence critical analysis and reflective evaluation of the subject content.
Duration of NEA	The timeframe for the completion of the NEA is 6-8 hours.
Assessment windows	The NEA brief is released in September each year. Centres have the flexibility in scheduling the NEA within the academic session but must ensure it is completed by 30 April at the latest to allow for marking, internal quality assurance, and external moderation activities.

The Non-examination Assessment will be conducted in a supervised, controlled environment.

Centres **must** refer to the Assessment Guidance for the Delivery of Alternative Academic Qualifications document, available on our website, to ensure the appropriate administration and marking of this assessment and adherence to TQUK regulations.

The NEA has been carefully aligned with the assessment objectives (AOs) to create a consistent framework for learners. The table below confirms the assessment objectives that will be covered in the Non-examination Assessment.

Assessment objective	Description
AO4a Research and plan	Learners are able to **research**, **investigate** and **plan** tasks, **choose** appropriate methods and actions.
AO4b Review skills, methods and actions	Learners are able to **review** their skills, methods and actions
AO5- Demonstrate and apply skills and methods relevant to the given sector	Learners are able to **demonstrate** their application of technical skills relevant to the sector by **applying** the appropriate processes, tools and techniques

Unit 5 Applied Science in Sports Injuries and Rehabilitation

Unit Number:	L/651/5410		
Level:	3	**GLH:**	60
Unit Introduction:	Learners will develop an understanding of sports-related injuries and rehabilitation. Learners will explore common sports-related injuries, methods for assessing and diagnosing injuries, and best practices for rehabilitation and prevention. They will develop an understanding of how to support athletes in maintaining performance and reducing injury risks. By the end of this unit, learners will gain the knowledge needed to pursue further studies in sports therapy, physiotherapy, coaching, or fitness training, as well as careers in the broader field of sports science and rehabilitation.		
Assessment Type:	Non-examination Assessment (NEA)		

Teaching content:	
5.1	**Introduction to sports-related injuries**

5.1.1	A definition and classification of sports-related injuries:
	
	• sports-related injuries:
	  ○ acute conditions:
	  ▪ occur as a consequence of a direct trauma or specific incident:
	  • fall
	  • collision
	  • direct blow or impact
	  • twist
	  ▪ categorised as:
	  • sprains: ligament injuries resulting from sudden stretching or tearing
	  • fractures: bone breaks due to high-force impacts
	  • dislocations: joint injuries where the bones are forced out of their normal positions
	  • concussions: traumatic brain injuries caused by sudden head impacts or acceleration/deceleration forces
	  ▪ manifest as:
	  • immediate pain
	  • swelling
	  • bruising
	  • loss of function
	  ○ chronic conditions:
	  ▪ develop over time
	  ▪ occur as a consequence of repetitive stress or overuse of a body part due to repeated loading and insufficient recovery
	  ▪ categorised as:
	  • tissue breakdown
	  • inflammation
	  • stress fractures
	  • muscle imbalances
	  ▪ manifest as:

Teaching content:	
	• gradual onset of symptoms • dull pain • aching • stiffness • weakness • swelling that worsens over time ○ type of tissue involved: ▪ bone: • fractures • stress fractures • bone contusions ▪ muscle: • strains • contusions • compartment syndrome ▪ tendon: • tendonitis • tendon ruptures ▪ ligament: • sprains • tears • instability ▪ cartilage: • cartilage tears (meniscus) • degenerative changes (osteoarthritis).
5.2	**Common sports-related injuries**
5.2.1	A range of common types of sports-related injuries: • head and neck injuries: ○ concussion: ▪ traumatic brain injuries resulting from head impacts or sudden acceleration/deceleration forces ○ skull fracture: ▪ breaks in the skull bone due to high-force impacts ○ neck injuries: ▪ cervical strains: muscle injuries in the neck region due to sudden movements or impacts ▪ whiplash: neck injuries caused by rapid back-and-forth movements of the head • upper limb injuries: ○ shoulder injuries: ▪ rotator cuff tears: tears in the muscles and tendons surrounding the shoulder joint ▪ shoulder dislocations: displacement of the shoulder joint due to excessive force or trauma ○ elbow injuries: ▪ tennis elbow (lateral epicondylitis): overuse injury causing pain and inflammation on the outer side of the elbow ▪ golfer's elbow (medial epicondylitis): similar to tennis elbow but affects the inner side of the elbow ○ wrist and hand injuries: ▪ wrist sprains: ligament injuries in the wrist joint

Teaching content:	
	▪ hand fractures: fractures in the bones of the hand, often caused by direct impact or falls ▪ carpal tunnel syndrome: repetitive hand or wrist movements involving flex or extension causing numbness, pain, or weakness ▪ tendonitis: repetitive gripping, twisting, or bending movements causing strain or inflammation of the tendons • lower limb injuries: ○ hip injuries: ▪ labral tears: tears in the cartilage (labrum) of the hip joint ▪ hip flexor strains: muscle injuries in the front of the hip ○ knee injuries: ▪ anterior cruciate ligament (ACL) tears: commonly occur during sports that involve pivoting or sudden changes in direction ▪ meniscus tears: tears in the cartilage of the knee joint, often due to twisting or rotational movements ○ ankle and foot injuries: ▪ ankle sprains: ligament injuries in the ankle joint, often caused by inversion or twisting ▪ plantar fasciitis: inflammation of the plantar fascia, a thick band of tissue on the bottom of the foot ▪ Achilles tendonitis: pain, stiffness and swelling of the Achilles tendon, this is a tendon connecting your calf muscle to your heel. • spinal injuries: ○ vertebral fractures: fractures in the bones of the spine, which may result from high-impact collisions or falls ○ disc herniation: bulging or ruptured discs in the spine, leading to nerve compression and pain • soft tissue injuries: ○ strains: overstretching or tearing of muscles or tendons ○ sprains: ligament injuries caused by excessive stretching or tearing ○ contusions: bruises resulting from direct impact or trauma to soft tissues • overuse injuries: ○ tendinopathies: chronic tendon injuries characterised by pain, swelling, and decreased function ○ stress fractures: hairline fractures in bones due to repetitive loading and insufficient recovery.
5.2.2	The common types of sports-related injuries and incidence: • frequency and distribution of injuries, influenced by: ○ type of sport: ▪ contact sports: • higher rates of acute injuries • influenced by player size and strength, speed of play, level of competition, and adherence to safety protocols ▪ endurance sports: • reduced incidence of acute injury • risk of overuse injuries due to high level of training and repetitive nature of movements ○ age: ▪ children and adolescents: • may experience growth plate related injuries • less developed coordination • cartilage more vulnerable to injury • changes in muscle strength

Teaching content:	
	▪ older adults: • decline in flexibility and muscle strength • more prone to degenerative conditions predisposing to joint injuries • decreased bone density • reduced balance and stability ○ skill level: ▪ novice athletes: • more prone to acute injuries due to lack of experience • lack of proper technique in executing movements and skills • place excessive stress on muscles and joints • lower level of physical conditioning ▪ elite athletes: • mastery of techniques and skills • may face higher injury risks due to increased training intensity and competition demands ○ environmental conditions: ▪ weather-related factors: • temperature • humidity • precipitation • wind ▪ visibility ▪ air quality ▪ playing surfaces: influence risk of slips, falls, and impact-related injuries • uneven • hard ○ equipment type: ▪ poorly fitting kit ▪ outdated equipment.
5.2.3	The importance of sports-related injury prevention and rehabilitation: • importance of prevention: ○ reduce occurrence: ▪ implement warm-up and cool-down routines ▪ gradually increase training intensity and volume ○ reduce the severity of injuries: ▪ provide education on safe playing techniques ▪ ensure proper nutrition and hydration ○ minimise impact on athlete performance and longevity: ▪ maintain physical conditioning through injury prevention ▪ prevent chronic conditions that may lead to early retirement • prevention strategies: ○ target modifiable risk factors: ▪ training load – monitoring workload and scheduling rest periods ▪ technique errors – providing coaching on proper form and technique ▪ equipment deficiencies – conduct regular equipment inspections and replacements ▪ environment hazards – identify and mitigate environmental hazards in training and competition areas • rehabilitation: ○ essential for recovery: ▪ incorporating rest, ice, compression, and elevation (RICE) protocols

Teaching content:	
	▪ gradually reintroduce activity to prevent deconditioning ○ focus on tissue healing: ▪ utilise therapeutic modalities such as ultrasound and electrical stimulation ▪ implement progressive strengthening and flexibility exercises ○ function restoration: ▪ incorporate sport-specific drills and movements into rehabilitation programmes ▪ addressing biomechanical imbalances through corrective exercises ○ minimise reoccurrence: ▪ emphasise injury prevention strategies during rehabilitation ▪ conduct thorough movement assessments to identify risk factors for re-injury.
5.3	**Assessment and diagnosis of sports-related injuries**
5.3.1	The purpose of gathering history and assessment of the performer's injury: • gathering history: ○ determine circumstances surrounding the injury ○ mechanism of the injury ○ onset and duration of symptoms ○ previous medical history and underlying conditions ○ assess pain intensity, location, and aggravating factors ○ identify any relevant environmental or activity-related factors • evaluating functional status: ○ assessing the performer's range of movement ○ identify any functional limitations or compensatory patterns.
5.3.2	A range of physical examination techniques: • inspection: ○ visual assessment of the injured area for signs of swelling, bruising, deformity, or asymmetry • palpation: ○ using hands to feel for tenderness, crepitus, bony abnormalities, or soft tissue abnormalities • Range of Motion (ROM) testing: ○ assessing the joint's flexibility and mobility through passive and active movements • strength testing: ○ evaluating muscle strength and integrity using manual resistance or dynamometry • special tests: ○ performing specific manoeuvres or tests to assess ligament integrity, joint stability, or neurological function.
5.3.3	The purpose of diagnostic imaging modalities: • X-ray: ○ useful for detecting fractures, dislocations, and bone abnormalities ○ provides detailed images of bones and can identify structural damage ○ identify presence of a foreign object • MRI (Magnetic Resonance Imaging): ○ offers high-resolution images of soft tissues such as muscles, tendons, ligaments, and cartilage

Teaching content:	
	○ helpful for diagnosing soft tissue injuries, ligament tears, and joint pathology ○ identify musculoskeletal abnormalities • CT scan (Computed Tomography): ○ provides detailed cross-sectional images of bones, joints, and soft tissues ○ useful for assessing complex fractures, spinal injuries, and internal organ damage ○ detect internal bleeding ○ guide interventional procedures.
5.3.4	The purpose of functional movement assessments: • movement analysis: ○ observe the performer's movement patterns during functional activities such as walking, running and jumping ○ identify any deviations from normal movement mechanics or compensatory strategies • functional tests: ○ perform specific functional tests or tasks related to the performer's sport or activities of daily living ○ assess dynamic stability, balance, coordination, and proprioception • functional outcome measures: ○ using validated outcome measures to assess the performer's functional status and progress over time ○ common test methods: ▪ Functional Movement Screen (FMS) ▪ dynamic balance assessment (Y-balance test) ▪ single leg squat test ▪ hop test.
5.4	**Principles of sports-related injuries management**
5.4.1	The role of immediate care and first aid: • assessment of the scene: ○ ensuring athlete and bystander safety ○ identifying any immediate dangers or hazards • ABCDE approach: ○ Airway: ensuring the airway is clear and unobstructed ○ Breathing: assessing breathing rate and quality ○ Circulation: checking pulse and assessing for signs of shock ○ Disability: evaluating neurological function and responsiveness ○ Exposure: assessing for additional injuries and providing appropriate cover.
5.4.2	The function of the rest, ice, compression, elevation (RICE) protocol: • rest: ○ advise the performer to avoid activities that exacerbate pain or further damage ○ restore tissue integrity and prevent additional stress on injured structures • ice: ○ apply ice packs or cold therapy to reduce pain, inflammation, and swelling ○ recommended duration and frequency of ice application to minimise tissue damage • compression: ○ apply compression bandages or wraps to limit swelling and provide support to injured tissues ○ ensure proper application to avoid excessive pressure or constriction • elevation:

Teaching content:	
	○ elevate the injured limb or body part above heart level to facilitate drainage of excess fluid and reduce swelling ○ maintain elevation during rest periods to optimise fluid movement away from the injury site.
5.4.3	A range of pharmacological interventions: • analgesics: ○ prescribing or recommending over-the-counter pain medications to manage acute pain and discomfort ○ considerations for dosage, timing, and potential side effects • anti-inflammatories: ○ administering nonsteroidal anti-inflammatory drugs (NSAIDs) to reduce inflammation and pain ○ monitoring for gastrointestinal and renal side effects, especially with prolonged us • topical agents: ○ applying topical analgesic creams or gels to alleviate pain and provide localised relief ○ considering the performer's skin sensitivity and potential allergic reactions.
5.4.4	The features of rehabilitation phases and goals: • acute phase: ○ goals: minimise pain and inflammation, protect injured tissues, and promote early tissue healing ○ interventions: rest, ice, compression, elevation, gentle range of motion exercises • subacute phase: ○ goals: restore full range of motion, improve strength and flexibility, and initiate functional activities ○ interventions: progressive strengthening exercises, flexibility training, manual therapy techniques • chronic phase: ○ goals: enhance functional performance, optimise biomechanics, and facilitate safe return to sport ○ interventions: sport-specific drills, neuromuscular training, agility exercises, gradual return to full activity.
5.5	**Rehabilitation techniques**
5.5.1	A range of motion exercises: • Passive Range of Motion (PROM): ○ assisted movements of the injured joint performed by the therapist to prevent stiffness and maintain flexibility • Active Range of Motion (AROM): ○ active movements of the injured joint performed by the individual to improve mobility and control • Active-Assistive Range of Motion (AAROM): ○ assisted movements initiated by the individual but aided by the therapist to gradually increase range of motion.
5.5.2	A range of strengthening and conditioning exercises: • isometric exercises:

Teaching content:	
	○ muscle contractions without joint movement to improve muscle activation and stability • concentric and eccentric exercises: ○ dynamic muscle contractions during muscle shortening (concentric) and lengthening (eccentric) phases to improve strength and control • plyometric exercises: ○ explosive movements to enhance muscle power, agility, and neuromuscular coordination • functional training: ○ sport-specific exercises that mimic the demands of the individual's activity to improve performance and reduce injury risk.
5.5.3	A range of proprioceptive and neuromuscular training: • balance training: ○ exercises performed on unstable surfaces or with perturbations to challenge proprioception and improve balance • neuromuscular control drills: ○ coordination exercises targeting muscle timing, sequencing, and recruitment patterns to enhance joint stability and movement efficiency • agility and coordination drills: ○ dynamic movements and change-of-direction exercises to improve agility, reaction time, and sport-specific coordination.
5.5.4	A range of manual therapy techniques: • massage therapy: ○ soft tissue manipulation techniques to reduce muscle tension, improve circulation, and promote relaxation • joint mobilisation: ○ passive movements applied to the joint to restore normal joint mechanics, reduce stiffness, and improve range of motion • manipulative therapy: ○ high-velocity, low-amplitude thrusts applied to joints to improve mobility, reduce pain, and restore joint function.
5.5.5	A range of therapeutic modalities: • ultrasound therapy: ○ application of high-frequency sound waves to promote tissue healing, reduce inflammation, and alleviate pain • electrical stimulation: ○ use of electrical currents to stimulate muscle contraction, control pain, and improve muscle recruitment • cryotherapy: ○ application of cold therapy to reduce pain, inflammation, and swelling by constricting blood vessels and decreasing metabolic activity • heat therapy: ○ application of heat to increase blood flow, relax muscles, and improve tissue extensibility, promoting healing and reducing pain.

Teaching content:	
5.6	**Injury prevention strategies**
5.6.1	The purpose of pre-participation screening: • medical history: ○ comprehensive assessment of past medical conditions, injuries, and surgeries ○ identification of risk factors such as previous musculoskeletal injuries, cardiovascular conditions, or allergies • physical examination: ○ evaluation of vital signs, general health status, and musculoskeletal function ○ screening for joint stability, flexibility, and neuromuscular control.
5.6.2	The function of training load management: • periodisation: ○ structuring training programmes into distinct phases to optimise performance and reduce injury risk ○ managing training volume, intensity, and frequency to prevent overtraining and fatigue-related injuries • monitoring: ○ tracking training load metrics such as mileage, duration, and intensity using wearable technology or training logs ○ adjusting training plans based on athlete feedback, performance metrics, and physiological markers.
5.6.3	The importance of equipment selection and maintenance: • proper fitting: ○ ensure athletes use appropriately sized and fitted equipment to optimise comfort and performance • regular inspection: ○ conduct routine checks of equipment condition, including wear and tear, damage, or malfunction ○ prompt repair or replacement of damaged or outdated equipment to minimise injury risk.
5.6.4	The role of appropriate technique and biomechanics: • coaching and education: ○ providing performers with instruction on correct movement patterns, technique, and body mechanics specific to their sport ○ emphasising proper body alignment, posture, and movement mechanics during training and competition • skill progression: ○ gradually introducing new skills and movements in a progressive manner to allow performers to adapt and develop proper technique safely.
5.6.5	Nutritional considerations for injury prevention and recovery: • hydration: ○ maintaining proper fluid balance before, during, and after exercise to prevent dehydration and optimise performance ○ monitoring urine colour and frequency as indicators of hydration status • macronutrient balance:

Teaching content:	
	○ ensuring performers consume adequate amounts of carbohydrates, proteins, and fats to support energy production, muscle repair, and recovery ○ timing nutrient intake to optimise fuelling before, during, and after training sessions or competitions • micronutrient supplementation: ○ address potential nutrient deficiencies through supplementation of vitamins, minerals, and antioxidants as needed ○ consult with a sports dietitian or nutritionist to tailor supplementation protocols based on individual needs and goals.

Unit 5: Assessment Approach

The mode of assessment used for this unit is a Non-examination Assessment (NEA). This assessment method is externally set by TQUK and internally marked by centres.

The NEA for an individual unit cannot commence until the unit content has been fully taught to learners and TQUK's mandatory standardisation training is completed.

An overview of the assessment approach is outlined in the table below:

Assessment description	The NEA comprises a brief designed to assess the learners' applied knowledge and skills and their ability to evidence critical analysis and reflective evaluation of the subject content.
Duration of NEA	The timeframe for the completion of the NEA is 6-8 hours.
Assessment windows	The NEA brief is released in September each year. Centres have flexibility in scheduling the NEA within the academic session but must ensure it is completed by 30 April at the latest to allow for marking, internal quality assurance, and external moderation activities.

The Non-examination Assessment will be conducted in a supervised, controlled environment.

Centres **must** refer to the Assessment Guidance for the Delivery of Alternative Academic Qualifications document, available on our website, to ensure the appropriate administration and marking of this assessment and adherence to TQUK regulations.

The NEA has been carefully aligned with the assessment objectives (AOs) to create a consistent framework for learners. The table below confirms the assessment objectives that will be covered in the Non-examination Assessment.

Assessment objective	Description
AO4a Research and plan	Learners are able to **research**, **investigate,** and **plan** tasks, **choose** appropriate methods and actions.
AO4b Review skills, methods, and actions	Learners are able to **review** their skills, methods, and actions
AO5- Demonstrate and apply skills and methods relevant to the given sector	Learners are able to **demonstrate** their application of technical skills relevant to the sector by **applying** the appropriate processes, tools, and techniques

Section 3: Assessment and Achievement

Assessment Objectives and Weightings

The assessment objectives for the qualification are set out below and provide the basis for the assessment of each unit.

- AO1, AO2, and AO3 are assessed through Examination Assessments (EAs)
- AO4 and AO5 are assessed through Non-examination Assessments (NEAs).

The following table outlines the overall weightings of each assessment objective across the qualification.

	Assessment Objective	Weighting
EA	AO1 Recall knowledge and information Learners are able to recall knowledge and information.	4%
	AO2 Apply knowledge and information Learners are able to apply knowledge and information to questions, problems, or scenarios.	18%
	AO3 Interpret, analyse, or evaluate information, ideas, or different viewpoints Learners are able to interpret, analyse, or evaluate information, ideas, or different viewpoints to make judgements that are reasoned or draw conclusions.	18%
NEA	AO4a Research and plan AO4b Review skills, methods, and actions Learners are able to research, investigate, and plan tasks, choose appropriate methods and actions as well as review these skills, methods, and actions.	26%
	AO5 Demonstrate and apply skills and methods relevant to the given sector Learners are able to demonstrate their application of technical skills relevant to the sector by applying the appropriate processes, tools, and techniques.	34%

In Examination Assessments, the primary focus is on applying knowledge, interpreting, and analysing information.

In Non-examination Assessments, the weighting is more balanced between research, planning, review, and the demonstration of sector-relevant skills and methods.

This table details how marks are allocated across the assessment objective in each assessment.

	AO1	AO2	AO3	AO4a	AO4b	AO5
Unit 1	11%	45%	44%			
Unit 2				33%	11%	56%
Unit 3	10%	42%	48%			
Unit 4				43%		57%
Unit 5				43%		57%

Assessment Adaptation

Centre adaptation of the Examination Assessment or Non-examination Assessment is **not permitted**. This is to ensure that the qualification as a whole, and each associated assessment task, retains its reliability and comparability across centres and learners. TQUK has taken the approach of externally setting the assessments to ensure that each learner has a fair opportunity to achieve the qualification.

Grading and Marking

Grading and aggregation

The grading structure for the qualification comprises Pass, Merit, and Distinction for the component assessments and Pass, Merit, Distinction, and Distinction* for the overall qualification grade.

TQUK will use a Uniform Mark Scheme (UMS) to aggregate grades. The standard for a pass will be decided by a minimum mark which is correlated to a UMS. The UMS will be able to factor in variations across unit achievement and over time to ensure comparability across mark ranges and assessment series.

Each assessment will be marked against the raw marks, and at the awarding meeting, cut scores for each of grade boundaries for pass, merit, and distinction will be decided. These will then be converted into the UMS for that unit. The UMS for each unit will then be aggregated into a qualification grade.

The qualification follows a compensatory grading model, meaning that marks from different assessments are aggregated. Learners do not need to achieve a minimum mark in individual units, as the final qualification grade is based on the total UMS marks gained across all assessments.

Each unit assessment contributes a set percentage to the final qualification grade. The total UMS score for the qualification is 500 marks, with assessments weightings and marks as follows:

Unit	Assessment method	Weighting	Raw Marks	UMS marks
Unit 1	EA 90 GLH	24%	75	120
Unit 2	NEA 90 GLH	24%	72	120
Unit 3	EA 60 GLH	16%	50	80
Unit 4	NEA 60 GLH	18%	56	90
Unit 5	NEA 60 GLH	18%	56	90
			309	500

The overall percentage grading scale for each unit is:

Grade	%
Not Yet Achieved	0-39%
Pass	40-59%
Merit	60-79%
Distinction	80-100%

Grade boundaries

The grade boundaries for the UMS for each unit are as follows:

Unit	Pass	Merit	Distinction
Unit 1	48	72	96
Unit 2	48	72	96
Unit 3	32	48	64
Unit 4	36	54	72
Unit 5	36	54	72

Learners' final grades for the qualification are determined using the following UMS boundaries:

Grade	Boundary
Not Yet Achieved	0-199
Pass	200-299
Merit	300-399
Distinction	400-449
Distinction*	450-500

The grade of Distinction* will be awarded at **qualification level** to learners scoring marks of 450 and above overall.

Aggregation for the award of the qualification will be based on the sum of marks awarded for the UMS across all the units, and awards will be made in line with the qualification grade thresholds. There will be no minimum expectation within units as the qualification is fully compensatory.

These UMS grade boundaries ensure consistency across assessment series while allowing for adjustments in raw mark thresholds, which are finalised in the awarding meeting.

A grading calculator is available to support centres in calculating final grades. This can be downloaded from TQUK's management system, Verve.

Marking approach

The qualification follows a structured marking approach designed to ensure that learners are assessed consistently across all qualification outcomes. This approach rewards learners for demonstrating their knowledge, understanding, and skills, providing a fair and reliable indication of their achievement.

The marking system allows for full compensation, meaning that there is no minimum threshold of achievement required within individual assessments. Learners can demonstrate a broad range of knowledge and skills across the qualification, making their final grade a meaningful indicator of ability for higher education institutions and employers.

This approach also supports assessors in differentiating between different levels of performance within units. It provides a detailed and accurate measure of learner achievement while balancing positive and negative variations in assessment performance, ensuring that the final aggregated mark reflects a learner's overall ability.

Examination Assessments are marked using a combination of points-based and levels-based mark schemes, depending on the type of question and level of demand. For example:

- multiple-choice questions (MCQs) are marked using a points-based system.
- short-answer questions (SAQs) and extended response questions (ERQs) are marked using a levels-based approach.

The examination paper is designed to align with the assessment objective weightings, ensuring that knowledge recall, application, and evaluation skills are measured appropriately.

Non-examination Assessments are marked using a levels-based approach with four distinct mark bands. This structure provides a clear and consistent way for assessors to differentiate between levels of performance. The four-band system helps prevent grades clustering at the Merit level (known as 'regression to the mean') and instead ensures that learners are more reliably placed within the grading structure of Pass, Merit, or Distinction. Please refer to the Assessment Guidance for the Delivery of the Alternative Academic Qualifications for full marking guidance.

Once raw marks have been assigned, they are converted into the Uniform Mark Scheme (UMS), ensuring that final grades remain fair and comparable across different assessment series.

This marking approach ensures that all assessments provide a robust, valid, and fair measure of learner performance, supporting progression to further study or employment.

Awarding meeting and grade boundary setting

TQUK will hold an awarding meeting following each assessment session to determine grade boundaries for the qualification. The awarding meeting is a critical part of the quality assurance process, ensuring that results are fair, reliable, and comparable across different assessment sessions.

During the judgemental review, the committee will independently review learner work for all units at Pass, Merit, and Distinction, focusing on mark ranges identified within each grade boundary.

While the grading scale and UMS boundaries have been pre-set, the actual raw mark cut scores may vary from series to series based on assessment difficulty.

The awarding meeting will use statistical analysis and expert judgement to review learner performance. If an assessment is found to be more or less challenging than expected, the raw mark boundaries may be adjusted to ensure fairness and consistency.

Once awarding activities, including internal scrutiny, are completed, TQUK will:

- convert raw marks to UMS marks for each unit.
- apply unit grades based on UMS scores.
- determine the final qualification grade for each learner based on their aggregated UMS score.

TQUK will issue the AAQ results for the full qualification at the end of Year 2 to coincide with A Level results in August and within our standard certification timeframe following the post-results appeals period.

Grade descriptors

TQUK will use the following performance descriptors to indicate the level of attainment overall across the qualification.

Grade	Descriptor
Pass	Learners show adequate recall and communication of the basic elements of much of the content being assessed. They can apply their knowledge and understanding to some basic and familiar questions, problems, or scenarios. Responses to higher-order tasks involving detailed evaluation and analysis are often limited. Research, investigation, and planning of tasks are executed effectively but lack refinement, and the demonstration and application of skills and methods will produce often functional outcomes. More advanced skills and processes might be attempted, but not always executed successfully. Learners will be able to review their skills, methods, and actions, but this may lack a detailed reflection or analysis.
Merit	Learners show good recall and communication of many elements of the content being assessed. They can sometimes develop and apply their knowledge and understanding to different questions, problems, or scenarios, including some that are more complex or less familiar. Responses to higher-order tasks involving detailed evaluation and analysis are likely to be mixed, with good examples at times and others that are less detailed. Research, investigation, and planning of tasks are executed effectively, and the demonstration and application of skills and methods, including those that are more advanced, are developed in range and quality. Outcomes are good quality as well as being functional. Learners will be able to review their skills, methods, and actions with good application of reflection and analysis.
Distinction	Learners show thorough recall and communication of most elements of the content being assessed. They can consistently develop and apply their knowledge and understanding to different questions, problems, or scenarios, including those that are more complex or less familiar. Responses to higher-order tasks involving detailed evaluation and analysis are mostly successful. Research, investigation, and planning of tasks are executed effectively and the demonstration and application of skills and methods, including those that are more advanced, are well developed and executed. Outcomes are mostly of high quality. Learners will be able to review their skills, methods, and actions with consistent and thorough application of reflection and analysis.
Distinction*	Learners show comprehensive recall and communication of the content being assessed. They can develop and apply their knowledge and understanding to a range of complex or less familiar questions, problems, or scenarios. Research, investigation and planning of tasks are comprehensively demonstrated, and the demonstration and application of skills and methods, including those that are complex, are highly developed and executed. Outcomes are consistently highly developed and executed. Learners will be able to comprehensively review their skills, methods, and actions with comprehensive application of reflection and analysis.

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Resits, Retakes, and Resubmissions

The qualification includes resit, retake, and resubmission opportunities, with availability determined by the mode of assessment and specific assessment stipulations.

Resit (EA only)

Learners are permitted resit opportunities for the Unit 1 and Unit 3 Examination Assessments (EA) as outlined in the table below:

	Year 1 May	Year 2 Jan	Year 2 May
Unit 1	First sit	Resit	Resit
Unit 3	X	First sit	Resit

Once the learner has sat the EA, their completed paper cannot be amended or improved. When the EA result is released, if a learner wishes to improve their mark, they must do so by resitting a new EA in a subsequent assessment series.

The highest mark achieved will be used to calculate the final grade.

Centres must discuss the resit process with their learners and consider any practical implications.

Retake (NEA only)

Learners may refine specific elements of their completed NEAs based on the internal feedback they receive. This provides them with a **retake** opportunity. The retake must take place **before** the final submission of the NEAs for external moderation. This process allows learners to improve their submissions, but any feedback given to them must be documented and retained by the centre. Once an NEA is submitted for external moderation, no further changes can be made to it.

Resubmission (NEA only)

A **resubmission**, in contrast to a retake, occurs **after** external moderation has taken place with **one** resubmission opportunity permitted per NEA brief (Units 2, 4, and 5).

Only learners who receive a 'Not Yet Achieved' (NYA) outcome following moderation are eligible to resubmit their NEA.

If a learner wishes to resubmit, they will be given 50% of the original supervised assessment time to complete the work for resubmission. This must be submitted by 14 June to ensure that the external moderation process is completed before final grades are awarded.

If a learner has exhausted both submission attempts on the same NEA project brief (retake and resubmission) and their evidence is graded 'Not Yet Achieved', they must complete the next live NEA project brief in the following session. In the event of a learner receiving an NYA grade, the marks achieved will count towards the overall grade.

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Reviews and Appeals

TQUK is committed to ensuring any decisions it makes remain fair, reliable, and provide accurate and comparable results; however, we recognise that there may be situations where an individual wishes to appeal a decision or judgement TQUK has made.

Centres may appeal the results of the NEA moderation process. If a centre has concerns about the moderation of a cohort, it must request a review for all learners within that cohort. Written consent from all affected learners is required for the appeal to proceed.

Full details of the appeals process, including reviews of moderation, can be found in the Appeals Policy on our website.

Section 4: The NEA Moderation Process

The moderation process ensures that assessment decisions are fair, consistent, and are aligned with national standards to ensure the qualification's integrity.

In line with JCQ (Joint Council for Qualifications) regulations, our moderation process ensures that assessors have applied our marking criteria accurately across all centres and learners.

The process involves standardisation activities, the sampling of learner work, and a review of the centre-assessed marks allocated to NEA completion.

Internal standardisation and training

To maintain consistency in our assessment approach, all centres must complete standardisation training between 1 October and 28 February before marking begins. Training on administrative processes is available via Verve, with completion confirmed on conclusion of the standardisation training. Centres must sign and submit a declaration to TQUK to confirm adherence to this policy. Standardisation materials, including exemplar assessments, will be accessible from September each year.

Submission of marks and moderation

Centres must submit the learner marks awarded for the NEAs via the TQUK Portal by 30 April each year.

On 1st May, (or the next working day if this date falls on a weekend or Bank Holiday), TQUK will release to centres the list of the learners selected for moderation.

The moderation sample will be selected following the submission of all centre marks and will include learners with the lowest and highest marks and a balanced range of learners between these points. Centres are not allowed to select their own learner sample for moderation.

The moderation sample size requested adheres to JCQ sampling guidelines and will be determined by the size of the learner cohort as outlined in the table below:

Number of Learners in Cohort	Sample Size Stage 1	Sample Size Stage 2	Sample Size Stage 3
Up to 5	All	All	All
6-10	5	All	All
11-15	6	10	All
16-100	6	10	15
101-200	6	15	20
Over 200	6	20	25

Centres have three working days to upload the selected learner work. Mark submission guidance is provided in the Portal User Guide to support this activity, and all learner work must be securely retained until final grades are awarded and any queries or appeals are resolved.

If all centre marks are within tolerance of the Moderator review, they will be accepted as final. If any centre marks are outside of tolerance, the moderation moves to stage 2, and the moderation sample is increased. If marking is not consistent, the sample size will be further increased as illustrated in the sampling size table.

Late submissions

A late submission will only be considered at TQUK's discretion, and extensions are only granted in exceptional cases. Centres anticipating any delays must submit a Special Consideration request. Failure to meet the deadlines may result in delays to results, ineligibility for results day, and a review of the centre's risk rating, potentially leading to compliance investigations.

External moderation process

TQUK will assign Moderators to remotely review selected samples, ensuring that the assessments align with national standards. Moderation outcomes, alongside provisional results, will be accessible to centres via the Portal.

If the centre-assigned marks and moderation outcomes are within an acceptable tolerance range, the centre's marks will be applied.

Where the marks fall outside the tolerance range, a regressed mark may be applied across the learner cohort.

TQUK may request the submission of all learner work for review.

A Final Moderation Report will be provided to centres via the Portal by 14 May and will include confirmation of results, feedback on good practice, and identify any areas of improvement.

The table below outlines the key dates relating to the moderation process.

Moderation Schedule		
Activity	**Deadline date**	**Notes**
NEA brief released	September (annually	NEA briefs are available to approved centres by Verve
Standardisation training window	1 October – 28 February	All assessors must complete standardisation using TQUK materials
Submission of learner marks	30 April	Centres must submit marks via the Portal
Release of moderation sample lists	1 May	TQUK releases a list of learners to be sampled
Upload of selected learner work	Within 3 working days of 1 May	
Resubmission deadline	14 June	

Review of NEA moderation

Following the completion of a clerical check, the centre may appeal the results of the NEA moderation process. In such cases, TQUK will review the original moderation to ensure that all adjustments were applied fairly, reliably, and consistently.

If a centre has concerns regarding the moderation of a specific cohort, it must request a review of moderation for all learners within that cohort. Written consent from all learners in the cohort is required for the appeal to proceed.

A review of moderation is expected to take 20 working days from when the centre formally instructs TQUK to undertake the review. TQUK will inform the centre if circumstances dictate that this timescale cannot be met.

Full details of the appeals process, including reviews of moderation, can be found in the Appeals Policy on our website.

Section 5: Appendices

Terminology

The following table defines the terminology used in this qualification specification.

Term	Definition
Examination Assessment	An externally set assessment that is internally marked and externally moderated by TQUK
Extended Response Question	An assessment question format that requires a detailed response and is often used to assess a learner's reasoning, analysis, or evaluation skills
External Moderation	The process of reviewing assessment decisions to ensure they meet accepted standards. TQUK will assign a moderator to review samples of learner work
Internal Standardisation	The process of ensuring consistency and fairness in the application of assessment decisions across assessors within a centre
Late Submission	Any submission received after the published deadline will be considered late and will only be marked at TQUK's discretion
Mark Scheme	A structured framework to determine how marks are awarded, outlining expected and acceptable answers, and the grading criteria to support grade application
Multiple Choice Question	An assessment question format where learners select the correct answer from a list of predefined options
NEA Brief	The Non-examination Assessment
Non-examination Assessment	A mode of assessment involving a project and a series of tasks that learners complete in a controlled environment in a timeframe defined by TQUK
Raw Marks	The initial score achieved before any adjustments are applied
Retake	An opportunity for a learner to reflect on their NEA and the internal feedback received and improve it **before** it has been externally moderated by TQUK.
Resubmission	An opportunity for a learner to revise and submit their work again **after** their original attempt(s) have been externally moderated by TQUK.
Short Answer Question	An assessment question format where a brief, concise response is required and is typically used to assess the recall or understanding of key facts or concepts.
Special Consideration Request	A formal application for reasonable adjustments to be put in place due to unforeseen circumstances that impact a learner's assessment performance.
Uniform Mark Scheme (UMS)	A standardised scoring system that is used to convert raw marks from assessments and is used across different assessment series to support the fair comparison of results.

Verve	TQUK's management system is used by centres for learner registration, the submission of marks, and certification claims. The system is also referred to as the Portal.

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Amplification Terminology

The following table provides a selection of amplification statements used in the Alternative Academic Qualifications. This list is not exhaustive but does provide a range of commonly used statements to provide teaching staff with the intent and scope of the learning objectives.

Common amplification statements	
Characteristics and scope	**Definition**
Aspects of …	The various parts, features, or perspectives of a subject
A range of …	A collection of related items or things
The characteristics/features of …	The unique attributes or qualities of something
Common types of …	The usual classifications found within a subject
The components of …	The individual parts that combine to form a whole
The concepts of …	The ideas that are fundamental to understanding something
The elements of …	The primary components within a specific context
The fundamentals of …	The essential principles for understanding a particular subject
The types of …	The classification of different parts of a subject
The properties of …	The constituent parts or inherent characteristics of something
Function	
The contribution of …	The role something plays in achieving a result
The definition of …	The explanation or meaning of something
The function of …	The specific action or role performed by something
The principles of …	The fundamental concepts or rules underlying something
The purpose of …	The underpinning reason or intent behind something
The role of …	The specific function that something plays in a given context
Implementation	
Approaches for …	Methods or strategies for addressing a problem or achieving an objective
The application of …	The practical use or implementation of an idea or method
Considerations …	The factors to take into account
Controls when …	Measures to guide actions in certain situations
The procedures for …	The established steps for completing a task
Steps to take when …	Specific actions to be taken in a particular sequence
Strategies to …	Plan of action designed to achieve a desired result
Technical considerations …	Specific technical factors to be considered in a particular context
The use of …	The act of utilising something for a particular purpose
The ways in which …	The ways or techniques used to achieve something

Significance	
The benefits of …	The positive effects or advantages of something
The challenges associated with …	The difficulties or obstacles related to a specific topic
The criteria for …	The standards or principles used for judging or deciding something
The cultural considerations of …	Aspects related to the customs, beliefs, and social behaviour of a particular society that affects a subject
The impact / potential impact of …	The effect that something has on another
The importance of …	The significance or value of something
The meaning of …	The explanation or definition of a term or concept
A range of factors to consider when …	The elements that influence the outcome or development of something
Impact	
How X affects Y …	The direct impact one factor has on another
The consequences of …	The results or effects of or influence of an action or decision
The effects of …	The changes that result from an action
The influence of …	The capacity to have an effect on something
The implications of …	The possible future effects of a decision or action
The potential barriers to …	The factors that may hinder progress
The risks of …	The potential negative outcomes of an action
Development	
Methods of …	The ways of doing something
The origin of …	The beginning or source from which something develops
The evolution of …	The gradual change or development of something over time
The stages of …	The distinct phases or periods in a process
The structure of …	The organisation or arrangement of something
Distinctiveness	
The advantages of …	The beneficial aspects of something
The differences between …	The distinguishing characteristics between two or more things
Different ways of …	Various approaches to accomplishing something
The disadvantages of …	The unfavourable or detrimental aspects of something
The diversity of …	The variety or range of differences within a group
The limitations of …	The restricting factors or constraints of something
The positive and negative impact of …	The beneficial and detrimental effects of something
Regulatory	
Legal requirements …	The legal obligations related to something
The minimum requirements …	The lowest acceptable standards or thresholds

The responsibilities of …	The required actions and considerations
The scope of practice …	The boundaries of an individual's competence or responsibilities
Review	
Best practice for …	The most effective method or approach to achieve the desired result
The evaluation of …	The process of assessing the value or significance of something