The EverLearner

National Mock Exams 2025

POWERED BY ExamSimulator

Mark Scheme

BTEC NATIONALS SPORT AND EXERCISE SCIENCE

UNIT 2 (Functional Anatomy)

Please read before distributing to students.

Purpose of this document

This document and the associated question paper are based on the data analysis performed by The EverLearner Ltd and published within the 2025 infographics. Please, note the following:

- We believe this mark scheme has a very strong association with previous BTEC Level 3 Sport and Exercise Science Unit 2 Functional Anatomy exams in relation to command terms, skills, extended writing requirements and topics.
- However, this is categorically NOT a mark scheme for a predicted paper. No one can accurately predict an exam paper and we make no claim to this end.
- It is vital that you only use this document internally in your school/college. Publishing the document online or sharing it in any other way is strictly prohibited, as this will undermine the potential educational experiences of students in other schools/colleges.
- Finally, please make sure you attend the associated revision session in April.

This mark scheme contains:

- Copy of each question for reference
- Marking guidance where appropriate
- Marking points containing alternative acceptable responses plus relevant assessment objective

How should schools use this mark scheme?

The mark scheme has been constructed specifically for the exam paper used in The EverLearner's National Mock Exams from 2025. Many of these questions will be discussed in the live revision show provided by James Simms **Tuesday 29th of April 2025 at 17:00** (available to all subscribing schools live and on demand; a shorter version for non-subscribers will be available on YouTube after the live session).

The paper is available to be set, answered and marked online via ExamSimulator. ExamSimulator is a premium resource available via TheEverLearner.com and provides immediate diagnostics of student writing performance after every exam answer. Get in touch with us to start a free trial.

I hope this helps both students and teachers in their exam preparations.

James Simms

The EverLearner

Subject	Physical Education
Course	**BTEC** Level 3 Sport & Exercise Science: Unit 2 Functional Anatomy
Time allowed	1 hour 30 minutes

Title	**BTEC** Sport & Exercise Science Level 3 Unit 2 NME 2025

Guidance	• This paper is marked out of 60 marks. • You have 90 minutes (plus additional time for those who have Exam Access Arrangements). • Answer all questions. • A calculator is permitted for this exam. • This paper contains two 8-mark questions and one 14-mark question. • If the timer reaches zero prior to you submitting your paper, the software will automatically submit your responses. • Good luck.

Total marks	60

1. State **three** features of compact bone.

Marking points **(maximum 3)**

(1) [AO 1] Cortical bone

(2) [AO 1] |Outer layers

(3) [AO 1] Very hard/Dense

(4) [AO 1] Structural support

2. Identify **three** features of the alveoli that make them suitable for gaseous exchange.

Marking points **(maximum 3)**

(1) [AO 1] Capillary beds/Surrounded by capillaries/Capillarisation

(2) [AO 1] Single cell/One cell/One-cell thick

(3) [AO 1] Increased surface area of alveoli to allow more diffusion/Greater surface area for diffusion/Large surface area to allow movement of gases

(4) [AO 1] Moist lining allows for easier diffusion/Moist lining allows for easier movement of gases across the alveoli walls/Moist lining

(5) [AO 1] Higher concentration of oxygen/Higher concentration of O_2/Lower concentration of carbon dioxide

3. Describe the function of the pleura and the epiglottis.

Marking points **(maximum 2)**

(1) [AO 1] Pleura: Lubrication between the soft tissue of the lungs and the ribs/Prevent friction between the lungs and ribs/Helps the lungs glide past the ribs

(2) [AO 1] Epiglottis: Stops food going into the trachea/Prevents choking

4. Identify the bones highlighted in the image that form the ankle joint.

Marking guidance

Accept talus for tarsals. The specific tarsal that is highlighted is the talus. Do not accept calcaneus.

Marking points **(maximum 3)**

(1) [AO 1] A are the tarsals/A is tarsals

(2) [AO 1] B is the tibia/B tibia

(3) [AO 1] C is the fibula/C is fibula

5. Describe what is meant by the following four anatomical descriptions:
Prone
Lateral
Proximal
Posterior

Marking points **(maximum 4)**

(1) [AO 1] Prone: Body position lying on the front/Lying on the front facing downwards/Lies flat chest down and back facing upwards

(2) [AO 1] Lateral: Body part that is further from the centre/Away from midline/Side of the body

(3) [AO 1] Proximal: Point near to the origin of a body part/Close to the origin of a body part/Near to the root

(4) [AO 1] Posterior: Towards the back of the body/Behind the body/Nearer the back of the body

6. Identify a flat bone and describe its role when playing football.

Marking guidance

Accept other flat bones. Accept examples if they are well linked to football.

Marking points (maximum 2)

(1) [AO 1] Cranium/Pelvis/Ribs and sternum

(2) [AO 1] Cranium protects the brain from concussion when heading the ball/Pelvis protects the reproductive organs during a collision with an opponent/Ribs and sternum protect the lungs and heart when a player falls to the ground

7. Identify a short bone and describe its role when boxing.

Marking guidance

Accept other short bones. Accept examples if they are well linked to boxing.

Marking points (maximum 2)

(1) [AO 1] Carpals

(2) [AO 1] Allow fine movements at the wrist to place the jab accurately

8. Describe neural control of the cardiac cycle.

Marking points (maximum 4)

(1) [AO 2] Impulse is initiated by the sinoatrial node/Sinoatrial node is the origin of the impulse/SA node is the start point

(2) [AO 2] Impulses pass across the atria and cause atrial systole/Causes atrial systole/Atria contract at the start of the cycle

(3) [AO 2] Stimulates the atrioventricular node/Causes the AV node to fire/Stimulates the AV node

(4) [AO 2] Signal passes down through the septum/Single signal into the septum/AV node passes the signal down through the septum

(5) [AO 2] Bundle of His breaks the signal into left and right branches/Bundle of His separates the signal into two/Bundle of His separates the signal

(6) [AO 2] Purkinje fibres transmit signal to every cell/Purkinje fibres reach every cell/Purkinje fibres transmit the signal around the ventricles

(7) [AO 2] Ventricular systole occurs/Ventricle contracts and forces blood up and out/Ventricular systole

9. Explain why type IIa muscle fibres are considered the most crucial to a 200m swimmer.

Marking points **(maximum 3)**

(1) [AO 2] 200m swimming is moderate duration and IIa fibres have moderate fatigue resistance

(2) [AO 2] 200m swimming is a moderately high intensity activity and IIa fibres have moderate to high contractile force

(3) [AO 2] 200m swimming is a moderately high intensity activity and IIa fibres have moderate to high contractile speed

(4) [AO 2] 200m swimming is NOT very high intensity and IIa are powerful enough

(5) [AO 2] 200m swimming requires a range of fibre types but IIa fibres are the most important due to moderate duration of a race

10. Describe the term tuberosity.

Marking points **(maximum 1)**

(1) [AO 1] Large prominence on a bone/Rounded prominence on a bone/Raised bump

(2) [AO 1] Provides a site for attachment of muscles or ligaments/Muscles or ligaments attach at the site/Site provides attachment for muscles or ligaments

11. Describe the diastolic phase of the cardiac cycle.

Marking points **(maximum 3)**

(1) [AO 1] When the heart is relaxing/Heart in relaxation phase

(2) [AO 1] Filling of chambers/Chambers filling/Filling

(3) [AO 1] Internal area of the chamber increases

(4) [AO 1] Atrial diastole is relaxation phase of the atria

(5) [AO 1] Ventricular diastole is the relaxation phase of the ventricles

12. Analyse the role of different components of blood during physical activity.

Marking guidance

Credit should be given for any other relevant points. Please read the response in combination with the level descriptors to award an appropriate mark. Eight-mark level descriptors

Marking points (maximum 8)

(1) [AO 3] Red blood cells/Erythrocytes

(2) [AO 3] White blood cells/Leucocytes/Phagocytes

(3) [AO 3] Platelets/Thrombocytes

(4) [AO 3] Plasma

(5) [AO 3] Red blood cells contain haemoglobin

(6) [AO 3] White blood cells fight infection

(7) [AO 3] Platelets help to clot the blood

(8) [AO 3] Plasma suspends blood cells

(9) [AO 3] Red blood cells transport oxygen to the working muscle to be used for aerobic respiration

(10) [AO 3] More aerobic respiration means that OBLA can be delayed

(11) [AO 3] Red blood cells carry small amounts of carbon dioxide from the working muscle to the lung

(12) [AO 3] Better removal of carbon dioxide means that there is a greater rate of diffusion

(13) [AO 3] White blood cells prevent illnesses, therefore allowing an athlete to keep training and performing

(14) [AO 3] Clotting by platelets helps to prevent blood loss if an athlete is involved in a collision or fall

13. Analyse how the axial and appendicular **skeletons** allow the movement necessary at the:
Right knee
Right hip
Trunk

Marking guidance

Credit should be given for any other relevant points. Please read the response in combination with the level descriptors to award an appropriate mark. Eight-mark level descriptors

Marking points (maximum 8)

(1) [AO 3] Right knee: Hinge joint

(2) [AO 3] Right knee: Femur and tibia

(3) [AO 3] Right knee: Sagittal plane

(4) [AO 3] Right knee: Flexion

(5) [AO 3] Right hip: Ball-and-socket joint

(6) [AO 3] Right hip: Pelvis and femur

(7) [AO 3] Right hip: Sagittal plane

(8) [AO 3] Right hip: Flexion

(9) [AO 3] Trunk: Gliding joint/Cartilaginous joint

(10) [AO 3] Trunk: Vertebral column

(11) [AO 3] Trunk: Sagittal plane

(12) [AO 3] Trunk: Limited movement due to the articulating bones

14. Look closely at this image. Analyse the movement when the goalkeeper **moves from** phase A to phase B at the:
Shoulder
Hip
Ankle

Marking guidance

Credit should be given for any other relevant points. Please read the response in combination with the level descriptors to award an appropriate mark. 14-mark level descriptors

Marking points (maximum 14)

(1) [AO 4] Shoulder: Ball-and-socket

(2) [AO 4] Shoulder: Humerus and scapula

(3) [AO 4] Shoulder: Frontal plane

(4) [AO 4] Shoulder: Abduction

(5) [AO 4] Shoulder: Medial deltoid is the prime mover

(6) [AO 4] Shoulder: Latissimus dorsi is the antagonist

(7) [AO 4] Hip: Ball-and-socket

(8) [AO 4] Hip: Femur and ilium/Femur and pelvis

(9) [AO 4] Hip: Frontal plane

(10) [AO 4] Hip: Adduction

(11) [AO 4] Hip: Hip adductors are the agonist

(12) [AO 4] Hip: Hip abductors are the antagonist

(13) [AO 4] Ankle: Hinge

(14) [AO 4] Ankle: Tibia, fibula and talus

(15) [AO 4] Ankle: Sagittal plane

(16) [AO 4] Ankle: Plantar flexion

(17) [AO 4] Ankle: Gastrocnemius is the agonist

(18) [AO 4] Ankle: Tibialis anterior is the antagonist

BTEC Level 3 Sport and Exercise Science **8 Mark Level Descriptors**

Level	Marks	Description
	0	• No rewardable material
1	1-3	• Demonstrates isolated elements of knowledge and understanding. • Provides little or no reference to the question context. • Generic statements may be presented, rather than linked factors/components being identified and explored in the context of the question. Limited attempt is made to address the question. • Response is likely to lack clarity, organisation and the required technical language.
2	4-6	• Demonstrates mostly accurate knowledge and understanding. • Provides references to relevant information in relation to the question context. • Learners will identify linked factors/components, with some development in the form of mostly accurate and relevant factual material, in the context of the question. The accuracy in the detail on the factors identified is likely to vary. • The response may contain parts that lack clarity or proper organisation. There will be evidence of correct technical language being used.
3	7-8	• Demonstrates accurate knowledge and understanding. • Provides sustained references to relevant information, in relation to the question context. • A contextualised analysis is developed using mostly coherent chains of reasoning, leading to a range of factors/components being present. Learners will demonstrate understanding of linkages and relationships. • Response demonstrates good organisation, clarity and use of technical language.

BTEC Level 3 Sport and Exercise Science **14 Mark Level Descriptors**

Level	Marks	Description
	0	• No rewardable material
1	1-5	• Demonstrates isolated elements of knowledge and understanding. • Breaks the situation down into component parts and a few of the points made will be relevant to the context in the question. • Limited analysis which contains generic assertions rather than interrelationships or linkages.
2	6-10	• Demonstrates some accurate knowledge and understanding. • Breaks the situation down into component parts and some of the points made will be relevant to the context in the question. • Displays a partially developed analysis which considers some interrelationships or linkages but not always sustained.
3	11-14	• Demonstrates mostly accurate knowledge and understanding. • Breaks the situation down into component parts and most of the points made will be relevant to the context in the question. • Displays a developed and logical analysis which clearly considers interrelationships or linkages in a sustained manner.