

BTEC Sport Unit 1 Transition Booklet

Anatomy and Physiology Summer Bridging Work

Course: Extended Certificate in Sport, Unit 1 – Anatomy and Physiology

SIL - Year 11 into Year 12

Complete all tasks neatly and in full

Student name

Welcome and purpose

This booklet is designed to prepare you for BTEC Sport Unit 1: Anatomy and Physiology.

The external assessment rewards accurate terminology, clear explanation, and the ability to apply knowledge to sporting actions and performance.

Complete all tasks. Write neatly, use full sentences where required, and include sporting examples whenever possible.

Overview of the work pack

Task	Title	Suggested time
Task 1	Baseline knowledge audit	20 mins
Task 2	Skeletal system foundations	55 mins
Task 3	Muscular system applied to sport	55 mins
Task 4	Respiratory and cardiovascular systems	60 mins
Task 5	Energy systems challenge	55 mins
Task 6	Movement analysis in sport	60 mins
Task 7	Extended exam practice	60 mins
Task 8	Revision resource creation	45 mins
Task 9	Reflection and personal action plan	20 mins
Total		6 hrs 10 mins

Success criteria
Use correct anatomical and physiological terminology.
Apply answers to sport and exercise wherever possible.
Use full sentences for explanation questions and paragraphs for extended responses.
Take pride in spelling, presentation, and completing every task.

Task 1 – Baseline Knowledge Audit (20 minutes)

Part A: What do you already know?

Question	Response
What is the difference between the axial and appendicular skeleton?	
Name three major bones in the upper body.	
What is a synovial joint?	
What is the role of an agonist muscle?	
Name the three types of muscle tissue.	
What happens to breathing rate during exercise?	
What is the function of red blood cells?	
What does ATP stand for?	
Which energy system is most important in a 100 m sprint?	
What is lactate and when is it produced?	

Part B: Confidence RAG rating

Rate each topic as Red (I know very little), Amber (I know some of it), or Green (I feel confident).

Topic	R / A / G
Skeletal system	
Muscular system	
Respiratory system	
Cardiovascular system	
Energy systems	
Extended exam writing	

Task 2 – Skeletal System Foundations (55 minutes)

Part A: Bone classification and location

Complete the table below. Add whether each bone belongs to the axial or appendicular skeleton in the final column.

Bone	Location	Type of bone	Function in sport	Axial / appendicular
Cranium				
Clavicle				
Ribs				
Sternum				
Scapula				
Humerus				
Radius				
Ulna				
Carpals				
Metacarpals				
Phalanges				
Pelvis				
Vertebral Column				
Femur				
Patella				
Tibia				
Fibula				
Tarsals				
Metatarsals				

Part B: Bone functions in action

1. Explain how the skeleton provides a supporting framework in sport.
2. Explain how the skeleton provides protection, using two examples.
3. Explain how bones act as levers in movement.
4. Explain why sesamoid bones help performers.
5. Explain why long bones are important in running, jumping or throwing.

[illegible]

Part C: Joints and movement analysis

Joint	Type of synovial joint	Bones forming the joint	Movements possible	Sporting example
Shoulder				
Elbow				
Wrist				
Hip				
Knee				
Ankle				

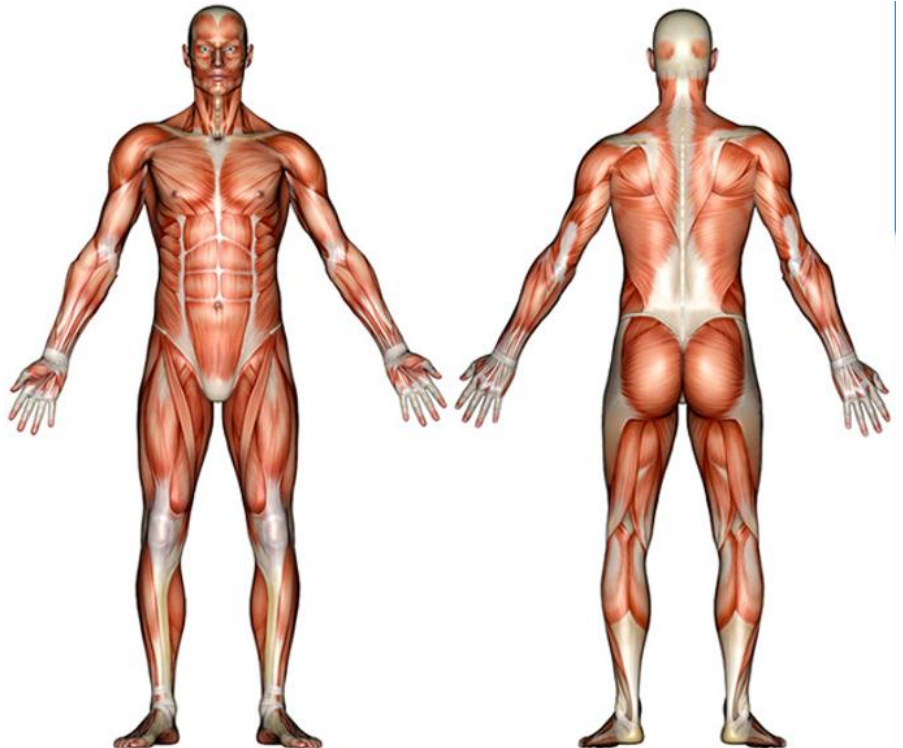
6. Why does the shoulder allow more movement than the knee?
7. State the role of ligament, articular cartilage, synovial fluid and bursa.
8. Describe the difference between flexion/extension, abduction/adduction, dorsiflexion/plantarflexion, and rotation/circumduction.

Task 3 – Muscular System Applied to Sport (55 minutes)

Part A: Muscle identification

Label the following muscles. Then add one sporting movement where each muscle is important.

- Deltoids
- Biceps
- Triceps
- Wrist Flexors
- Wrist Extensors
- Pectorals
- Abdominals
- Obliques
- Quadriceps
- Hip Flexors
- Adductor Longus
- Tibialis Anterior
- Erector Spinae
- Trapezius
- Latissimus Dorsi
- Gluteal's (all 3)
- Hamstrings
- Gastrocnemius
- Soleus



Part B: Types of muscles and contractions

9. Describe the characteristics of cardiac, skeletal and smooth muscle.
10. Explain the differences between concentric, eccentric and isometric contractions.
11. Give one sporting example for each contraction type.

Part C: Antagonistic pairs

Choose three sporting actions from the list below and analyse each one: football kick, bicep curl, squat, sprint start, throwing a javelin, tennis serve.

12. Identify the joint movement.
13. Name the agonist.
14. Name the antagonist.
15. Name a possible synergist.
16. Explain the role of a fixator.

Task 4 – Respiratory and Cardiovascular Systems (60 minutes)

Part A: Respiratory system structure and function

Draw and label the respiratory system, including, nasal cavity, epiglottis, pharynx, larynx, trachea, bronchus, bronchioles, lungs, alveoli, diaphragm and thoracic cavity.

17. What happens during inspiration at rest?
18. What changes during inspiration during exercise?
19. What happens during expiration?
20. Explain gaseous exchange at the alveoli.

Part B: Lung volumes and control of breathing

21. Define tidal volume, vital capacity, residual volume, total lung volume and minute ventilation (VE).

22. Why does tidal volume increase during exercise?
23. What does the medulla oblongata do?
24. How do chemoreceptors affect breathing rate?

Part C: Cardiovascular system structure

Create a glossary for the following terms: atria, ventricles, septum, tricuspid valve, bicuspid valve, semi-lunar valves, aorta, vena cava, pulmonary artery, pulmonary vein, coronary arteries, artery, arteriole, vein, venule and capillary.

Part D: Cardiovascular function and exercise response

- 25. What are the functions of the cardiovascular system in sport?
- 26. State the roles of red blood cells, white blood cells, platelets and plasma.
- 27. Explain what happens to heart rate, stroke volume, cardiac output and blood pressure during exercise.
- 28. Challenge: explain anticipatory rise in heart rate before exercise begins.

Task 5 – Energy Systems Challenge (55 minutes)

Part A: ATP basics

- 29. What is ATP?
 - 30. Why is ATP described as the immediately accessible form of energy?
 - 31. What is meant by the breakdown and resynthesis of ATP?
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Part B: Compare the energy systems

Complete a comparison chart for the ATP-PC system, lactate system and aerobic system.

System	Aerobic or anaerobic?	Fuel / source	Speed of ATP resynthesis	By-products	Dominant duration	Intensity	Recovery time	Sporting example
ATP-PC								
Lactate system								
Aerobic system								

Part C: Sport application

32. 100 m sprint
33. 400 m race
34. 1500 m run
35. A 5-second rugby tackle
36. A long tennis rally
37. A football match overall
38. A high jump attempt
39. A 2 km rowing race

For each activity, identify the main energy system and explain why. Extension: explain how the contribution of the energy systems changes during a football match.

Task 6 – Movement Analysis in Sport (60 minutes)

Choose one sport from the following list and analyse four different actions: football, netball, rugby, athletics, tennis, basketball, swimming.

For each action, include the following:
1. Skeletal system – joints involved, bones involved, movement taking place and type of synovial joint.
2. Muscular system – agonist, antagonist, type of contraction and one synergist or fixator.
3. Respiratory and cardiovascular response – explain what happens to breathing rate, tidal volume, heart rate and cardiac output during repeated performance of the action.
4. Energy systems – identify the main energy system and explain why.
5. Performance link – explain how understanding anatomy and physiology could help improve performance in this action.

Action 1

Action 2

Action 3

Action 4

Task 7 – Extended Exam Practice (60 minutes)

Explain how the skeletal and muscular systems work together to produce movement during a sporting action of your choice.

Question 2 (8 marks)

Discuss the short-term responses of the respiratory and cardiovascular systems to exercise and explain how these help performance.

Explain four long-term adaptations to training from any of the body systems studied in Unit 1 and explain how they improve sports performance.

[illegible]

Choose **TWO** of the following options.

- Option A: Flashcards – create 20 flashcards (5 skeletal, 5 muscular, 4 respiratory, 4 cardiovascular, 2 energy systems). Front = key term, back = definition plus sporting example.
- Option B: Knowledge organiser – create a one-page Unit 1 summary containing key terms, key diagrams, system summaries, command words and sporting examples.

- Option C: Mind map – create a large mind map linking bones, joints, muscles, movement, breathing, circulation, ATP and energy systems.
- Option D: 15-question quiz – write your own quiz and answer it. Include at least 3 multiple choice, 5 short answer, 2 applied sport questions and 1 extended question.

Task 9 – Reflection and Personal Action Plan (20 minutes)

40. Which topic did you find easiest?

41. Which topic did you find hardest?

42. Which 10 terms do you still need to learn?

43. What will you do before September to prepare further?

44. What grade are you aiming for in Unit 1 and why?
