



# SPORT

Teacher name: Victoria Black

Exam board: Edexcel

Email address: victoria.black@stockton.ac.uk

Welcome to Sport! This preparation booklet will provide you with an introduction into the key topic areas that you will further explore whilst studying sport at Bede. Each week, you will have a different focus area in which you will complete small activities, giving you an opportunity to explore all concepts of Sport and Exercise. Topic areas include Sports Coaching, Fitness and Wellbeing, Sports Nutrition and Anatomy in Sport, all of which are core subjects within your studies. These activities will give you an insight into the type of study skills we aim to develop in Sport, from describing to explaining and further exploring key concepts.

## Week 1 Task: Anatomy for Sport and Exercise

### Introduction

Welcome to Anatomy, this part of the booklet will help you develop your knowledge and understanding around the structure of the human body. Within your Anatomy studies, you will cover different bodily systems such as The Skeletal, Muscular, Cardiovascular and Respiratory systems. The questions below, will help you identify the structure of the key systems, the functions behind the bodily systems and how anatomy is linked to sport and the effects it can have on our sporting performance.

### Task 1 – Skeletal System

There are 17 Major Bones in our skeletal system, using resources available to you can you label the major bones listed below on a blank skeleton?

*Cranium, Clavicle, Scapula, Sternum, Rib Cage, Humerus, Radius, Ulna, Carpals, Pelvis, Vertebral Column, Femur, Patella, Tibia, Fibula, Tarsals*

**EXTENSION** – if you have labelled the major bones, have a go at the following:

Metacarpals, Phalanges, Metatarsals, Mandible



## Task 2 – Muscular System

The muscular system has over 700 muscles all working together, to ensure that our body can move and contract. Within our muscular system, there is different muscle fibre types, have a go at identifying the main characteristics of the fibre types below.

Characteristics	Type 1	Type 2
Colour		
Contraction Speed (Fast or Slow)		
Aerobic or Anaerobic?		
Components of Fitness Linked?		
Force Exerted (Big or small)		
Fatigability (High Chance or Low Chance)		
Sporting Examples		

**EXTENSION** – if you have completed the muscle fibre types, try and link the types of muscle contraction with the correct description.

Concentric

Muscle does not change in length, but tension remains on the muscles.

Eccentric

Contraction occurs when the muscle gets shorter.

Isometric

Contraction occurs when the muscle gets longer.

## Task 3 – The Cardiovascular System

The cardiovascular system plays an essential role of keeping our body alive, ensuring we have enough blood to move and exercise and providing oxygen to the working muscles.

Have a go at a true or false quiz based on the cardiovascular system

Statement	True / False
The heart is roughly the size of a clenched fist.	
Your cardiovascular system has 5 main chambers.	
An athletic resting heart rate is between 40 – 60.	
Your heart can move 7 litres of blood per minute.	
Your heart will beat around 115,000 times per day.	

New-born babies have the fastest heartbeat.	
There is 60,000 miles of blood vessels in your body.	

**EXTENSION** – Define the following terms below;

Thermoregulation:

Vasodilation:

Vasoconstriction:

**Answers – 1. TRUE, 2. FALSE, 3. TRUE, 4. FALSE, 5. TRUE, 6. TRUE, 7. TRUE**

#### Task 4 - The Respiratory System

The respiratory systems primary function is to deliver oxygen to your blood stream and ensure we are consuming the right amount of oxygen as well as exhaling carbon dioxide. This is done through the process called Gaseous Exchange.

Attempt to describe the process below, using the missing words at the bottom of the page:

Oxygen enters through your \_\_\_\_\_ which is also known as your \_\_\_\_\_ and \_\_\_\_\_. Once air is in, it will pass through the \_\_\_\_\_ which is a flexible cartilage flap that ensures no food goes down to the lungs. It will then be in the \_\_\_\_\_ which is also known as the 'windpipe', this is roughly 10-12cm. From the windpipe it will pass into \_\_\_\_\_ which then sub divide into thousand of \_\_\_\_\_. Finally, the oxygen will enter the \_\_\_\_\_ which are tiny air sacs that resemble a bunch of grapes. From there, they will diffuse into \_\_\_\_\_ which are located in the \_\_\_\_\_. From there it will be transported to the working muscles. This is the process of gaseous exchange.

Key Words: Capillaries, Red Blood Cells, Trachea, Epiglottis, Bronchioles, Bronchus, Nasal Cavity, Nose, Mouth, Alveoli

**EXTENSION** - Using the website <https://teachmephysiology.com/respiratory-system/ventilation/lung-volumes/>

Have a go at defining the following respiratory volumes:

Tidal Volume:

Total Lung Capacity:

Inspiratory Reserve Volume:

Expiratory Reserve Volume:

## ***Anatomy Resource list***

### **Reading**

Marieb Hoehn – Human Anatomy & Physiology

Pearson Nationals in Sport – Unit 1 (See link below for draft)

<https://www.pearsonschoolsandfecolleges.co.uk/FEAndVocational/SportsStudies/BTEC/BTECNationalsSport2016/Samples/Student-Book-1-/BTEC-National-in-Sport-Unit-1-Updated-Mar-15.pdf>

### **Movies or Documentaries**

Icarus: Russians Sport Doping (Netflix)

Pumping Iron (Netflix)

Generation Iron (Netflix)

Usain Bolt: The Fastest Man Alive (Netflix)

### **Applications**

Anatomy & Physiology Quiz (Apple App Store)

Anatomy Guide (Pocket Book) (Apple App Store)

## Week 2 Task: Fitness Testing in Sport

In this section you will begin to identify the different components of fitness, what sports the components are important in, and also what fitness tests are used to assess the different components of fitness. Work your way through the booklet using the internet to help with the research you need for your answers.

### Website Resources

Below are some important website resources that you can use to help complete your answers:

<https://www.brianmac.co.uk/>

<https://www.topendsports.com/>


### Film and TV resources


Below are some films and TV series that you can watch to help provide a greater understanding of fitness and tests within the sporting world.


- Fittest on Earth – A Decade of Fitness (Netflix)
- Gymshark Fitness Tutorials (Youtube)
- Strava Fitness App

### Instagram

Below are some Instagram accounts you can follow if you wish to try and improve some of the components of fitness at home.

 Bradley Simmonds - @bradleysimmonds

 Ross Dickerson - @dickersonross

 Jessica Ennis Hill - @jessicaennishill

Fill in the following table by completing research on the different components of fitness. For each component, you need to discuss:

- The definition
- A sport that it is used in
- A fitness test used to assess that component

Component of Fitness	Definition	A sport it is used in	A fitness test to assess the component
Flexibility			
Speed			
Muscular strength			
Power			
Aerobic endurance			
Muscular endurance			



1. Below is a selection of popular sports, identify what components of fitness are used within each sport and explain why.

Extension task: You may also want to explain what the most important component is.

For example:

### **Tennis**

#### **Muscular endurance**

To play continuously to the best of your ability without the muscles fatiguing for the duration of the tennis match.

#### **Agility/Reaction time**

To be able to react and change direction at speed at any point during the match. As this is often required in Tennis when returning the ball.

#### **Cardiovascular endurance**

For the body to be able to work as efficiently as possible for long periods of time. This is so that the body can deliver oxygen to the heart, lungs, blood vessels and working muscles and allow the body to function to the best of its ability

#### **Explosive Power**

Explosive power is needed in Tennis for certain shots such as serving, using this component of fitness gives tennis players a greater chance of winning points.

#### **Flexibility**

Flexibility is needed within tennis, as often during a Tennis match a player is required to stretch or overreach to return the ball. If a player has poor flexibility, then there is a greater chance of injury or not being able to return the ball.

#### **My Opinion**

In Tennis I believe that the most important component of fitness is muscular endurance, this is because Tennis matches can go on for long periods of time. Therefore, your muscles are required to work under stress continuously, meaning that if a Tennis player has low levels of muscular endurance the player would not be able to perform to the best of their ability for the duration of the match. This is because muscular fatigue would set in resulting in a drop-in performance.



## Football

1. What Components of fitness are required and why?



2. In your opinion what is the main component and why?

## Swimming

1. What components of fitness are required in swimming and why?



2. In your opinion what is the main component and why?



## Powerlifting

1. What components of fitness are required in powerlifting and why?



2. In your opinion what is the main component and why?

3. Now that you have completed research on the different components of fitness and have identified a fitness test for each component, you now need to understand how coaches assess their athletes when they complete these tests and how each test is scored so a coach and athlete know if it is a strength of theirs or not.

This is completed by using 'Normative Data' or a 'Table of Norms' like the tables below based around the 1m press up test, the 30m sprint and the vertical jump test.

### 30m Sprint Table of Norms

Gender	Excellent	Above Average	Average	Below Average	Poor
Male	<4	4.0 - 4.2	4.3 - 4.4	4.5 - 4.6	>4.6
Female	<4.5	4.5 - 4.6	4.7 - 4.8	4.9 - 5.0	>5.0

### 1 minute Press up Test (Men)

Age	Excellent	Good	Average	Fair	Poor
20 - 29	>54	45 - 54	35 - 44	20 - 34	<20
30 - 39	>44	35 - 44	25 - 34	15 - 24	<15
40 - 49	>39	30 - 39	20 - 29	12 - 19	<12
50 - 59	>34	25 - 34	15 - 24	8 - 14	<8
60+	>29	20 - 29	10 - 19	5 - 9	<5

Symbol	Meaning
>	Greater/ More than
<	Less than



### 1 Minute Press up Test (Women)

Symbol	Meaning
>	Greater/ More than
<	Less than

Age	Excellent	Good	Average	Fair	Poor
20 - 29	>54	45 - 54	35 - 44	20 - 34	<20
30 - 39	>44	35 - 44	25 - 34	15 - 24	<15
40 - 49	>39	30 - 39	20 - 29	12 - 19	<12
50 - 59	>34	25 - 34	15 - 24	8 - 14	<8
60+	>29	20 - 29	10 - 19	5 - 9	<5

### Vertical Jump Test

Gender	Excellent	Above average	Average	Below average	Poor
Male	>65cm	56 - 65cm	50 - 55cm	49 - 40cm	<40cm
Female	>60cm	51 - 60cm	41 - 50cm	35 - 40cm	<35cm

### Case Study task

Anthony Joshua (aged 30) has completed a number of fitness tests and has recorded his score below. He needs you to help him interpret his results by comparing his scores to the table of norms above. Fill in the blank box to determine what AJ's strength and areas for improvement area.

Fitness test	Score	Rating on table of norms	Strength or area to improve?
1 minutes press up	45		
Vertical Jump	58		
30m sprint	4.5 seconds		

## Fitness Testing

### 4. Reliability of Fitness Testing

There are several factors that can affect the validity and reliability of fitness tests.

Can you identify FOUR factors that you think would affect the reliability of several fitness tests and explain why?



For example, administering the sit and reach test.

1. What component of fitness does the sit and reach movement test? = It tests levels of flexibility.
2. What muscles are being tested? = The hamstring muscles and lower back muscles.
3. Research and Identify FOUR factors can affect the reliability of the test?
4. Then explain why you think this is. = Limb length – Technique - The person administering the test - Certain muscles groups may be more flexible than others.
  - Limb length can affect the reliability of the sit and reach test as one person may have longer legs and shorter arms; therefore, they would be at a disadvantage as they would start further away from the sit and reach board. This would mean that they have further to reach before they reach the board, whereas a person with smaller legs is already closer to the board. This could potentially give them an advantage when it comes to the score they achieve; however, it does not necessarily mean they have greater flexibility.
  - The technique that is required to carry out the sit and reach test could influence the reliability of the test, as a person's knees must not bend throughout the test to achieve a true score. Due to this if the person administering the test does not pick up on the persons knees bending during the test and takes that score then the results would suggest that the person is more flexible than they are.
  - The person that is administering the test can have an affect on reliability if they are not trained in administering it, as they may not know the rules of the test or how to administer them correctly. This could potentially make recorded results invalid.
  - If a person who is carrying out the sit and reach test has flexible lower back muscles but is carrying out the test to assess the flexibility in their hamstrings, then the test may not represent the true level of flexibility in their hamstrings. As they may achieve a high score according to the table of norms suggesting they have a high level of flexibility in the hamstrings, however the score they achieved may be down to the level of flexibility in their lower back. It is therefore important to understand the muscles being tested within each fitness test and how they can impact results.

### 1 Minute Press up Test

1. What component of fitness does the 1 Minute Press up test examine?

2. What muscles are being tested?



3. Research and Identify FOUR factors can affect the reliability of the test?

4. Then explain why you think this is.

### 1 Rep Max Test

1. What component of fitness does the 1 Rep Max movement test?

2. What muscles are being tested?



3. Research and Identify FOUR factors can affect the reliability of the test?

4. Then explain why you think this is.

### Multistage Fitness Test (Bleep Test)

1. What component of fitness does the Multi Stage Fitness test assess?

2. What muscles are being tested?



3. Research and Identify FOUR factors can affect the reliability of the test?

4. Then explain why you think this is.

### Vertical Jump Test

1. What component of fitness does the vertical jump movement test?

2. What muscles are being tested?



3. Research and Identify FOUR factors can affect the reliability of the test?

4. Then explain why you think this is.

### Week 3 Task: Sports Nutrition

Nutrition and diet are of vital importance for our health and wellbeing. Can you carry out the following research to complete and answer the questions below?

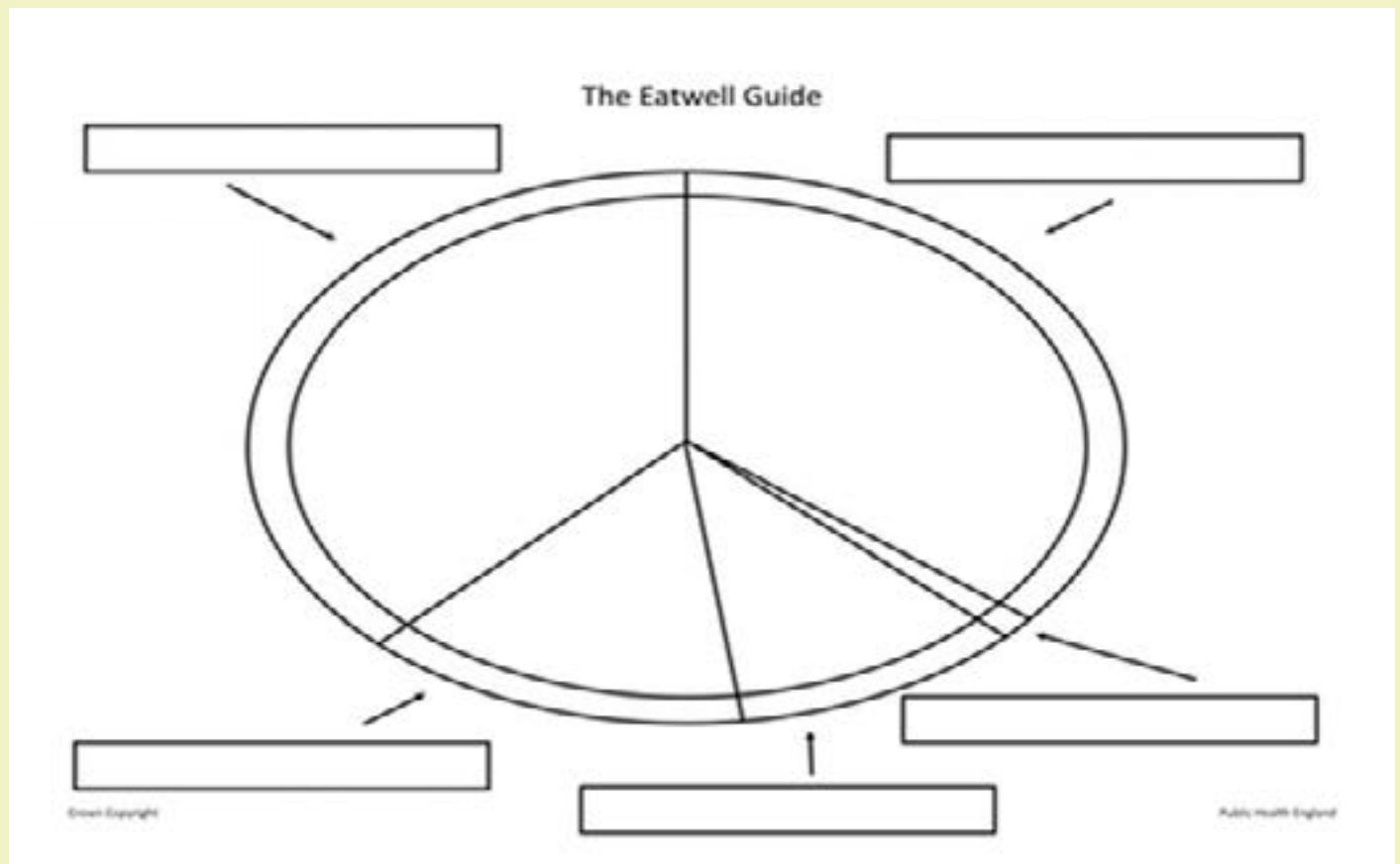
Questions	Answers
<b>Explain what is meant by a balanced diet and what are the main steps to a healthy diet?</b>	
<b>What is the Eat Well Guide?</b>	

Can you list the 3 Macronutrients?

Can you tell me the main function of each Macronutrient?

Can you complete fill in the missing sections of the Eat Well guide?

**Extended Task:** Why not download MY FITNESS PAL and have a go at tracking the foods you eat, this will provide information on the amount of Macronutrients you eat!



**Extended Task:** Can you find out how many amino acids there are? Link to essential and non-essential amino acids. Can you find out the difference between complete and incomplete protein? Be able to link to the impact protein has on sports performance?



How much sugar should a person between the age of 11-30 consume daily?

What types of food/ drinks are high in sugar?

How many grams of sugar are in fizzy drinks? See if you can do some research and find out how many calories and teaspoons of sugar are in your favourite drinks and snacks.

**EXAMPLE:**

Can of COKE 330ml = Calories 142/ 35 grams of sugar/ 9 tsp of sugar

Cadbury's Dairy Milk (45g bar) = calories 240/ 25g of sugar/ 6 tsp of sugar

What are the main risk factors associated with high sugar intake?

Watch the following video and make as many notes as you can on the content covered.

**Extended Task:** You can do extended research on diabetes linking to Type 1 and Type 2.

<https://www.youtube.com/watch?v=dbOHU9s6V5E>

***Nutrition Resource list***

Game Changers Documentary - Netflix

Super-Size Me YouTube - Full Movie

The Complete Guide to Sports Nutrition - Book by Anita Bean





## Week 4 Task: Sports Coaching

This section is dedicated to learning a bit about sports coaching. It **focuses on several areas from the responsibilities of coach, to the skills and behaviours needed to be an effective coach, to the theories on different coaching styles.** You don't need to have had any coaching experience to do this section but it may help!

### Task 1 – Roles and Responsibilities

Role	Responsibilities
Sports Coach	
Sports Leader	
PE Teacher	

**Extension task:** Can you think of any similarities and differences between the 3 roles? List them and explain your answer.

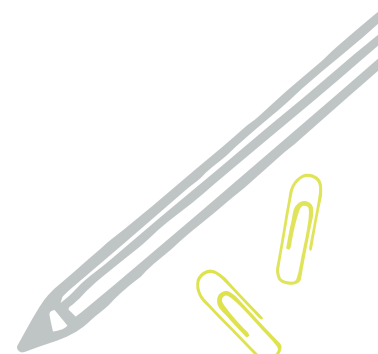
### Task 2 – Coaching Skills and Behaviours

#### Coaching Skills and Behaviours

**Skills:** A skill is something that you can do e.g. communicating with others

**Behaviours:** What you need to show to make your skills more effective, e.g. being confident

There are 5 skills that can be thought of as the key skills that you'll need as a Sports Coach. Each key skill will have certain behaviours that make it happen successfully. In the table on the next page you must outline why these key skills and associated behaviours are important for a Sports Coach. Then you must describe the effect that 2 of the identified associated behaviours will have



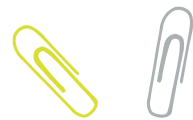
Key skill	Describe what this key skill is	Explain why this key skill will be necessary for a Sports Coach	Associated behaviours	Pick 2 behaviours and describe the effect they have on the key skill
Communication				1)  2)
Self-belief			<ul style="list-style-type: none"> <li>- Confidence</li> <li>- Positive attitude</li> <li>- Enthusiasm</li> <li>- Courage</li> <li>- Resilience</li> </ul>	1)  2)
Teamwork			<ul style="list-style-type: none"> <li>- Reliable</li> <li>- Respect</li> <li>- Encouraging</li> <li>- Trustworthy</li> <li>- Adaptability</li> <li>- Integrity</li> </ul>	1)  2)
Self-management			<ul style="list-style-type: none"> <li>- Organised</li> <li>- Responsible</li> <li>- Reflective</li> <li>- Accountable</li> <li>- Determination</li> </ul>	1)  2)
Problem solving			<ul style="list-style-type: none"> <li>- Awareness</li> <li>- Contributor</li> <li>- Decisive</li> <li>- Creative</li> </ul>	1)  2)

on the success of that key skill.

**Extension task: Reflect on any experiences of coaching**

In order to improve anything, it is important to think about where you are now, where you would like to be and how you plan to get there. Use the table below to rate your current key skills as a Sports Coach, then consider how these skills might be improved.

Key skills	Score 1 = Low and 4 = High				How would you like to improve this skill?
	1	2	3	4	
Communication					
Self-belief					
Teamwork					
Self-management					
Problem solving					



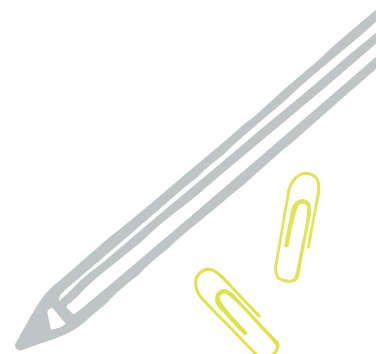
### Task 3 - Coaching Styles

Research the 3 most common coaching styles and complete the table.

Coaching Style	Description
Autocratic	
Democratic	
Laisse Faire	

Extension task: Name a sports coach that epitomises that coaching style and explain why

Coaching Style	Example Sports Coach	Explanation
Autocratic		
Democratic		
Laisse Faire		



### Task 4 – Design your own session

Having good personal skills and behaviours is one thing but what can't be overlooked is the importance of planning when delivering a coaching session. Having a clear plan of the equipment needs along with a sequence of drills, games and activities will help you be organised and prepared. Have a go at creating your own coaching session using the plan below. It can be in a sport of your choice.

Session Plan		
Sport (e.g. football/ netball, etc.)	Duration	Participants (number, age/ ability, etc.)
Focus of the session (e.g. basic introduction/ passing and possession/ attacking/ defending, etc.)		
Facilities (e.g. sports hall/ grass pitch/ astro, etc.)		Equipment list (e.g. balls, cones, bibs, etc.)
Purpose of activity	Name and description of activity Use written descriptions and/or diagrams	Progression, regression and adaptation Suggest changes to make each activity more/less challenging
Introduction and warm up		
Main session		
Cool down		
Other things to remember/be aware of, e.g. health and safety		



## **Sports Coaching Resource list**

### **Online resources:**

<https://www.ukcoaching.org/resources/topics/tips/top-10-qualities-you-need-to-be-a-coach>

<https://www.ukcoaching.org/resources/topics/tips/ten-steps-to-better-communication-with-the-people>

<https://www.ukcoaching.org/resources/topics/podcasts/principles-of-great-coaching-organised>

<https://www.ukcoaching.org/resources/topics/podcasts/the-creative-use-of-space>

<https://www.ukcoaching.org/resources/topics/tips/checklist-for-emotional-regulation>

### **Documentaries:**

Jessica Ennis-Hill: A Coach's Story - <https://www.youtube.com/watch?v=a4D6PNI6GQ8>

All or Nothing: Manchester City – Amazon Prime Video

The Edge – Amazon Prime Video

### **Films:**

Coach Carter

Remember the Titans