**Year 11s into Level 3 BTEC Sport Extended Certificate**

**Unit 1 exam content below;**

**Skeletal system**

Research the functions of the skeleton, bone types and joint classifications identified below.

Function of skeleton-

- Supporting framework/movement
- Leverage
- Protection
- Weight bearing
- Source of blood cell production
- Store of minerals

Bone types-

- Long
- Short
- Flat
- Sesamoid
- Irregular

List sporting movements or actions identifying which joints are being used to execute your selected skill.

-Pivot, Hinge, Condyloid, Saddle, Ball and Socket and Gliding.

**The Muscular System**

2- Research and list sporting examples or characteristics of muscle groups/type/contractions as listed below.

Muscle contraction- Description and example

- Concentric, Eccentric and Isometric

Fibre types- Characteristics of each type with a sporting example

- Type I, Type IIa and Type IIx

**Respiratory system –** Find an image online of an unlabelled respitoratory system

Add the following components

- Nasal cavity, epiglottis, pharynx, larynx, trachea, lungs, alveoli, bronchi, bronchioles, diaphragm and intercostals muscles.

Describe how 3 functions identified below support the respiratory system during sporting performance.

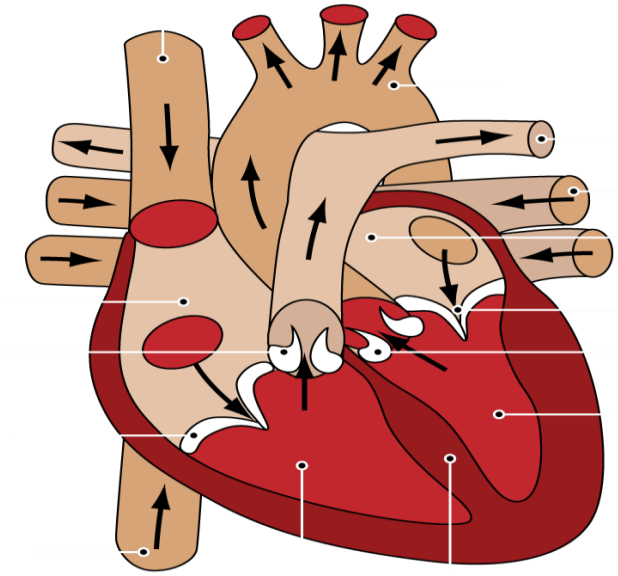
- Thoracic cavity, Respiration and gaseous exchange.

## Cardiovascular system

### Task 1 - correctly label the structure of the heart

Blood is transported to the heart muscle via **coronary arteries** which cover the surface of the heart. You need to know the internal anatomy of the heart and be able to label certain and specific sections. Below is a diagram of a heart. The arrows show the direction of blood flow which enables you to know the difference between an artery and a vein. Remember that **A**rteries transport blood **A**way from the heart, and **V**eins ensure blood **V**isits the heart. The key sections that you need to identify are listed below. Once you have labelled each section, cross it off.

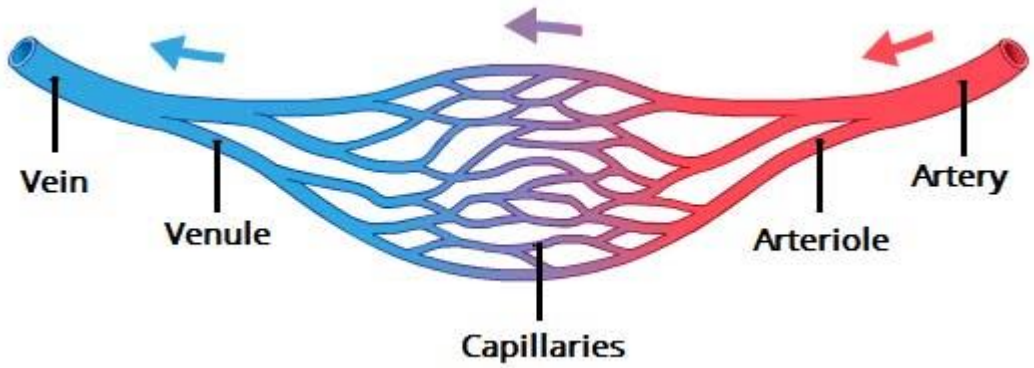
*Atria, ventricles, bicuspid valve, tricuspid valve, semi-lunar valves (pulmonary and aortic valves), septum, major blood vessels (aorta, vena cava, pulmonary artery, pulmonary vein).*



**Task 2 - match up the blood vessel with its definition**

1) Your next task is to correctly identify and label the structure of blood vessels, including arteries, arterioles, veins, venules and capillaries. Below is a description of the blood vessel. You must match them up so you have the name of the blood vessel with its description.

| **Blood Vessel** | **Description** |
|---|---|
| Artery | One cell thick allows exchange of gases, nutrients and waste products; link between arterioles and venules. |
| Arteriole | Carry deoxygenated blood; transport carbon dioxide from the capillary and to the vein. |
| Capillary | Always carry blood away from the heart, elastic so can accomodate for changing volumes of blood, muscular walls to contract to maintain blood pressure. |
| Venule | Return deoxygenated blood to the heart (venous return); muscular walls to push blood back towards heart, pocket valves to prevent backflow. |
| Vein | Link arteries with capillaries, thinner muscular walls as blood is not at such a higher pressure, have the ability to vasodilate and vasoconstrict. |



## Task 3 - describe the composition of blood

Many of the functions of the cardiovascular system are carried out by the components of the blood. You need to know the function of **plasma, red blood cells, white blood cells and platelets** and how they support sport and exercise performance.

***Your task is to research the role of each of these components of blood and their roles within the body.***

1) plasma
2) red blood cells
3) white blood cells
4) platelets

## Task 4 - Functions of the cardiovascular system

The cardiovascular system has many functions.

1) deliver oxygen and nutrients
2) remove waste products such as carbon dioxide and lactate
3) fight infection
4) clot open wounds
5) thermoregulation

***Your task is to research how the body achieves the following: (some of them will overlap from your previous task)***

1) Fight infection through leucocytes (white blood cells)
2) Clot blood through platelets
3) Thermoregulation of the body through vasoconstriction and vasodilation of blood vessels

## Task 5 - Nervous control of the cardiac cycle

The process of the heart filling with blood followed by a contraction where the blood is pumped out is known as the cardiac cycle. The electrical system of your heart is the power source that makes this possible.

Your heart is made up of four main parts. The sinoatrial node, the atrioventricular node, the Bundle of His and Purkinje fibres.

***Your task is to research the role these 4 main parts play in generating our heart beat and the cardiac cycle.***

1) sinoatrial node
2) atrioventricular node
3) Bundle of His
4) Purkinje fibres