1.1.2: The function of body systems

The cardiovascular system *(Systemic circulatory system)*

Transporting oxygen and other nutrients around the body.

The removal of waste products, such as carbon dioxide and lactic acid, which are a by-product of exercise.

The maintenance of the body's blood pressure.

The regulation of body temperature through the processes of vasodilation and vasoconstriction.

Characteristics of muscle fibre types

	Slow Twitch / Type I Fibers	Fast Twitch / Type II Fibers
Size	Small	Large
Colour	Red due to good blood supply	White due to poor blood supply
Speed of contraction	Slow	Fast
Force of contraction	Slow or low	Large or high
Energy system	Aerobic	Anaerobic
Duration of exercise	Long	Short
Speed of fatige	Slow as working with oxygen	Quick as working without oxygen
Best training activity	Continuous training methods	Interval training methods
Best physical activities	Cardio-vascular endurance activities	Event requiring power, agility or speed

The cardiorespiratory system *(Pulmonary circulatory system)*

To carry out the process of breathing.

Air enters through the nose and mouth during inspiration (breathing in), and then passes down the trachea into the bronchi, then the bronchioles, and ends up at tiny air sacs called alveoli.

Each alveoli has thin walls and is surrounded by a blood vessel called a capillary.

Gaseous exchange takes place - oxygen is diffused into the blood and travels in the blood to the working muscles. At the same time, carbon dioxide and water diffuse into the alveoli and are breathed out by expiration.

The muscular-skeletal system

Allows different types of movement to take place due to muscles being attached to the bones of the skeleton. Muscles are always in pairs or groups (antagonistic movement).

Protection and structure and shape of the body: the skeleton provides support for the body and gives the body its shape. The skeleton also protects the body's vital organs.

Blood cell production: bone marrow within the bones produces red blood cells, white blood cells and platelets.

Storage of minerals: the bones of the skeleton act as a mineral store for calcium and phosphorous, which can then be used by the body when they are needed for various functions.

Energy system	Aerobic / anaerobic	Fuel / energy source	By-product	Exercise intensity	Duration	Sporting examples	NOTES
ATP-PC	Anaerobic	ATP-PC	Creatine	High-maximal	Up to 10 seconds	Sprinting, athletic field events, weightlifting	Small muscular stores of ATP and PC are exhausted quickly to a rapid decline in immediate energy
Lactic acid	Anaerobic	Glycogen glucose	Pyruvic acid/ lactic acid	High-intensity	Up to 3 minutes	400m, 800m, racket sports	Lactic acid is a by-product and can cause rapid fatigue
Aerobic	Aerobic	Fat/glucose mixture	Water/ CO_2	Low	Over 3 minutes	Long distance running / cycling	This system is limited by availability of oxygen