Topic: Cardiovascular system		**Duration:** 14 x 1hour lessons	**Composite:** Unit Exam
Key vocabulary:	**Core knowledge Components**	**Powerful knowledge components crucial to commit to long term memory**	**Links to previous and future topics**
Veins Arteries Capillaries Vascular Vasodilation Vasoconstriction Pulmonary Oxygenated Deoxygenated Systolic Diastolic	1.4.1 Structure and function of the blood vessels Learners will know about the structure of the blood vessels and understand how structure relates to the functions of blood distribution. This includes: • Veins o thin walls, contain valves to ensure blood flows in one direction o carry blood to the heart, carry deoxygenated blood, carry blood under low pressure. • Arteries o thick, muscular walls o carry blood away from the heart to the body, carry oxygenated blood, carry blood under high pressure. • Capillaries o the smallest blood vessels, with very thin walls o assist with gaseous exchange at the lungs (see section 1.3.2 Functions of the respiratory system). Learners will know and understand that the blood vessels redistribute blood (vascular shunt) during health and fitness activities. This includes: • Vascular shunt – the function of blood redistribution to the muscles with greater demand, while diverting away from areas of lower demand, through: o the widening of blood vessels (vasodilation) o the narrowing of blood vessels (vasoconstriction). 1.4.2 Structure of the heart Learners will know and understand that the heart is divided into two sides (left and right) and should be able to locate the following structures. This includes: • Atria (left and right), ventricles (left and right), pulmonary vein, pulmonary artery, aorta and vena cava. Learners are not required to locate the valves in the heart. 1.4.3 The cardiac cycle Learners will know and understand the order of the cardiac cycle and the pathway of deoxygenated and oxygenated blood around the heart. This includes: • Deoxygenated blood – from the body → vena cava → right atrium → right ventricle → pulmonary artery→ to the lungs → pick up oxygen and nutrients to become oxygenated (see section 1.3.2 Functions of the respiratory system).	Veins have thin walls Carry blood to the heart Arteries have thick elastic walls Carry blood away from the heart Capillaries are the smallest blood vessels They assist with gaseous exchange Vascular shunt – redirection of blood from areas of low demand to areas of high demand. Vasodilation – widening Vasodilation – narrowing 4 chambers of the heart Atria (left and right) Ventricles (left and right) Vena cava carries blood into the heart from the body – deoxygenated.	Links to year 9 introduction unit. Links to HRE KS3 & 4 unit of work.

	• Oxygenated blood – from the lungs → pulmonary vein → left atrium → left ventricle → aorta → to the body → drop off oxygen and nutrients, pick up waste products and become deoxygenated. 1.4.4 Cardiovascular measurements Learners will know and understand the following cardiovascular measurements, including how they are measured (limited to maximal heart rate and cardiac output) and understand how they are relevant to health and fitness. This includes: • Heart rate • Maximum heart rate (MHR) 220 – age = MHR • Stroke volume • Cardiac output – CO = SV x HR • The relationship between stroke volume, heart rate and cardiac output. Learners will know the equation for cardiac output but will not be required to calculate it. 1.4.5 Blood pressure Learners will know and understand the two different types of blood pressure, the ranges of blood pressure classification and factors that affect blood pressure: • Systolic • Diastolic • Range of blood pressure classifications; o the ideal range - between 90/60mmhg and 120/80mmhg o high blood pressure is140/90mmhg > o low blood pressure is 90/60mmhg < • Factors that affect blood pressure. This includes: o activity levels o diet o age o stress.	Aorta – leaves the heart to the rest of the body – oxygenated. Heart rate – BPM Stroke volume – blood squeezed out in one beat Cardiac output – Stroke volume x HR Normal blood pressure 120/80 mmhg	

Impressive reading	Impressive speaking	Impressive writing	Resilience	Employability via:
• Reding text from whiteboard and textbooks which includes correct terminology. • Key words identified and used regularly within the topics.	• Writing several pieces of extended writing with a wide range of key words and use of impressive Physical Education vocabulary.	• Develop student's ability to learn effectively. To provide constructive feedback for students to improve and develop their written work	• Re-submit work following feedback to progress the work to a better standard. • Pupils can re-sit the exam.	• Communication – group and paired activities • Independent thinking • Problem solving • Working under time pressure.

Communication and Interaction **Cognition and Learning** **SEMH** **Physical/Sensory**	• Follow HAD seating plan policy. • Ensure work is printed and modified to specific needs of the pupils. • Teacher to use targeted questioning technique to identify understanding and to assess learning. • Teacher to communicate with TA and provide guidance.

Topic: Muscular System		**Duration:** 8 x 1hour lessons	**Composite:** Unit Exam
Key vocabulary:	**Core knowledge Components**	**Powerful knowledge components crucial to commit to long term memory**	**Links to previous and future topics**
	1.2.1 Types of muscle Learners will know and understand the types of muscle, where they are located, their characteristics and functions. This includes: • Cardiac o found in the heart o oxygen dependent, involuntary o aids blood flow through the heart. • Smooth o found in multiple locations including digestive tract, blood vessels, and lungs, contracts in all directions o can work without oxygen, involuntary o aids digestion & helps the distribution of blood. • Skeletal o found around the body (see section 1.2.2 Structure of the muscular system) o can work with or without oxygen, works voluntarily o aids with movement. 1.2.2 Structure of the muscular system Learners will be able to locate the main muscles of the muscular system. This includes: • Deltoid, Trapezius, Latissimus Dorsi, Pectoralis Major, Biceps, Triceps, Rectus Abdominis, Gluteus Maximus, hip flexors, Quadriceps, Hamstrings, Gastrocnemius and Soleus. 1.2.3 Muscle movement and contraction Learners will know and understand how muscles work in antagonistic pairs to produce movement at a joint and be able to apply this principle to specific actions in health and fitness. This includes: • Agonist • Antagonist. Learners will know and understand the types of muscle contractions and be able to apply these to specific actions and muscles. This includes:	• Cardiac muscle – Heart & Involuntary. • Smooth muscle – Digestive system & Involuntary. • Skeletal muscles – Creates movement & Voluntary **Identify the following muscles** Biceps, Triceps, Quadriceps, Hamstrings & Gastrocnemius **Explain the following** Agonist Antagonist	Links to year 9 introduction booklet. Links to KS3 & 4 HRE units of work.

	• Isotonic – concentric, eccentric • Isometric. 1.2.4 Muscle fibre types Learners will know and understand the different muscle fibre types and their characteristics (colour, contraction speed and fatigue speed). This includes: • Type 1 (slow twitch fibres) • Type 2 (fast twitch fibres).	Type 1 – marathon runners Type 2 – Sprinters	

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Topic: Respiratory System		**Duration:** 6 x 1hour lessons	**Composite:** Unit Exam
Key vocabulary:	**Core knowledge Components**	**Powerful knowledge components crucial to commit to long term memory**	**Links to previous and future topics**
	1.3.1 Structure of the respiratory system Learners will know and understand the pathway of air through the respiratory system, this includes the following structures: • Nose/mouth, pharynx, larynx, trachea, lungs, bronchi, bronchioles and alveoli.	Label the Pharynx, Larynx, trachea, bronchi and bronchioles.	
	1.3.2 Functions of the respiratory system Learners will know and understand the mechanics of breathing. This includes: • The role of the intercostal muscles, the ribs and the diaphragm in breathing in (inspiration) and breathing out (exhalation).	Intercoastal muscles move rib cage up and outwards.	
	Learners will know and understand the terms diffusion and gaseous exchange. Learners will know and understand the features of the alveoli that assist gaseous exchange. This includes: • Diffusion – gas moving from a high concentration to a low concentration. • Gaseous exchange – the movement of oxygen and carbon dioxide between the lungs and blood at the alveoli. • Features of the alveoli that assist gaseous exchange. This includes: o moist, very thin walls (one cell thick) o provide large surface area for gaseous exchange to occur o short diffusion distance o surrounded by capillaries (see section 1.4.1 Structure and function of the blood vessels).	Diffusion – gas moves from high to low Aveoli walls are one cell thick Aveoli walls are moist Large surface area Surrounded by capillaries	
	1.3.3 Lung volumes Learners will know and understand the following lung volumes and the changes that happen from rest to participating in health and fitness activities. This includes: • Tidal volume • Residual volume • Vital capacity.	Increase in tidal volume Decrease in residual volume Increase in vital capacity	

Impressive reading	**Impressive speaking**	**Impressive writing**	**Resilience**	**Employability via:**

• Reding text from whiteboard and textbooks which includes correct terminology. • Key words identified and used regularly within the topics.	• Writing several pieces of extended writing with a wide range of key words and use of impressive Physical Education vocabulary.	• Develop student's ability to learn effectively. To provide constructive feedback for students to improve and develop their written work	• Re-submit work following feedback to progress the work to a better standard. • Pupils can re-sit the exam.	• Communication – group and paired activities • Independent thinking • Problem solving • Working under time pressure.

Communication and Interaction **Cognition and Learning** **SEMH** **Physical/Sensory**	• Follow HAD seating plan policy. • Ensure work is printed and modified to specific needs of the pupils. • Teacher to use targeted questioning technique to identify understanding and to assess learning. • Teacher to communicate with TA and provide guidance.

Topic: Skeletal System		**Duration:** 14 x 1hour lessons	**Composite:** Unit Exam
Key vocabulary:	**Core knowledge Components**	**Powerful knowledge components crucial to commit to long term memory**	**Links to previous and future topics**
	1.1.1 Structure of the skeleton Learners will know and understand that the skeleton is divided into two sections and should be able to locate bones listed below: • Axial – cranium, sternum, ribs and vertebrae (see section 1.1.7 Structure of the spine and posture) • Appendicular – clavicle, scapula, humerus, radius, ulna, carpals, tarsals, pelvis, femur, tibia, fibula and phalanges. 1.1.2 Functions of the skeletal system Learners will know and understand the functions of the skeletal system. This includes: • Support • Movement • Protection of vital organs • Storage of minerals • Blood cell production • Shape. 1.1.3 Types of bones Learners will know and understand the types of bone in the body, their primary function and how they relate to movement (as applicable). Learners should be able to give examples of each type of bone. This includes: • Long - humerus, femur • Flat - ribs, sternum, scapula • Irregular - vertebrae • Short - carpals, tarsals • Sesamoid – patella. 1.1.4 Types of joints Learners will know and understand the types of joints in the body and be able to give examples of each type of joint. This includes: • Definition of a joint • Fixed joints - skull, pelvis • Slightly moveable joints - spine • Synovial joints o pivot - vertebrae o condyloid - wrist	• Axial Skeleton • Appendicular Skeleton • 6 functions of the skeletal system. Support, Movement, Protection, Storage, Blood Cell production and shape. • 5 Types of bones • Joint is where 2 or more bones meet • Identify the 3 different classification of joints. • Identify the 6 synovial joints	From KS3 practical HRE unit learning the major muscles and bones Links to unit 2 the synoptic task which includes some anatomical knowledge.

	o saddle - thumb o gliding - clavicle o ball and socket - shoulder and hip o hinge - elbow and knee 1.1.5 Joint actions Learners will know and understand the following types of movement, how they relate to ball and socket and hinge joints (see section 1.1.4 Types of joints) and their application to specific actions in health and fitness. This includes: • Flexion • Extension • Rotation • Adduction • Abduction. 1.1.6 Structure of a synovial joint (knee) Learners will know and be able to locate the following structures of the knee joint and understand what their functions are. This includes: • Articulating cartilage • Ligaments • Tendons • Joint capsule • Synovial membrane • Synovial fluid • Hamstrings • Femur, Tibia and Fibula 1.1.7 Structure of the spine and posture Learners will know that the spine is divided into regions and be able to locate each region. This includes: • Cervical • Thoracic • Lumbar • Sacrum • Coccyx Learners will be able to recognise postural changes. This includes: • Kyphosis • Lordosis • Scoliosis	Describe the following movements Flexion Extension Rotation Adduction Abduction Structure of a synovial joint Articulating cartilage Ligaments Tendons Joint capsule Synovial membrane Synovial fluid Hamstrings Femur, Tibia and Fibula Identify the different structures of the spine. Identify Kyphosis Lordosis and Scoliosis.	

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Communication and Interaction **Cognition and Learning** **SEMH** **Physical/Sensory**	• Follow HAD seating plan policy. • Ensure work is printed and modified to specific needs of the pupils. • Teacher to use targeted questioning technique to identify understanding and to assess learning. • Teacher to communicate with TA and provide guidance.