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Cambridge **TECHNICALS LEVEL 3**

HEALTH AND SOCIAL CARE

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Support for Teaching and Learning of Unit 4
Anatomy and physiology for health and social care

Version 1

ocr.org.uk/healthandsocialcare

CONTENTS

INTRODUCTION

This booklet has been designed to provide further information to guide you through the depth and breadth of knowledge required for Unit 4 Anatomy and physiology for health and social care (Level 3 Cambridge Technicals 2016). This is not a definitive guide and should be used in conjunction with the OCR specification/unit documents and associated published resources for Unit 4.

The information in the booklet is designed to give you additional information to guide your learners on the depth and breadth of learning for this unit. The teaching content links directly to the unit outline, and the depth and breadth of learning is designed to work alongside the delivery guide whilst directing you to additional resources and teaching ideas.

Our endorsed texbook (Peteiro MF, Adams J., & riley M. , 2016) has a section to support you in your delivery of this unit. However, another textbook that teachers will find to be a more thorough grounding in Anatomy and Physiology, is: Waugh, A. & Grant, A., 2018. Ross and Wilson Anatomy and Physiology in Health and Illness. 10th ed. London: Elsevier. If this book is used in combination with the specification and this guidance document, it should prove to be an excellent resource for teachers to use for much of this specification.

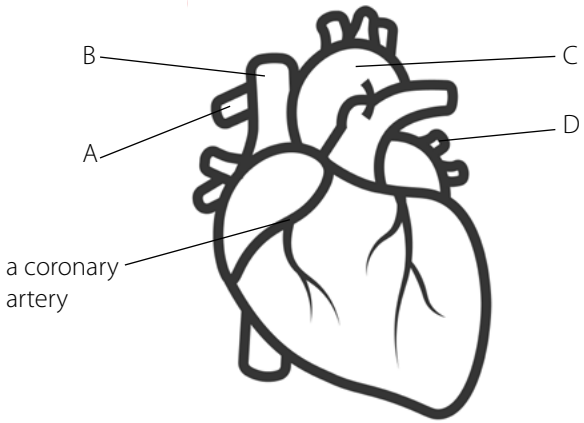
When looking at the impact of disorders on people's lives, you can use the Physical, Intellectual, Emotional and Social (PIES) model. However an Activities of Daily Living (ADLs) model helps to better identify the many ways in which a disorder impacts on a patient's life. Please use the following link to find more information on ADLs: https://www.kindlycare.com/activities-of-daily-living/ Other websites are available.

Unit 4 Anatomy and physiology for health and social care	
LO1	Understand the cardiovascular system, malfunctions and their **impact** on individuals
LO2	Understand the respiratory system, malfunctions and their **impact** on individuals
LO3	Understand the digestive system, malfunctions and their **impact** on individuals
LO4	Understand the musculoskeletal systems, malfunctions and their **impact** on individuals
LO5	Understand the control and regulatory systems, malfunctions and their **impact** on individuals
LO6	Understand the sensory systems, malfunctions and their **impact** on individuals

To find out more about this qualification please go to: http://www.ocr.org.uk/qualifications/cambridge-technicals-health-and-social-care-level-3-certificate-extended-certificate-foundation-diploma-diploma-05830-05833-2016-suite

LEARNING OUTCOME 1

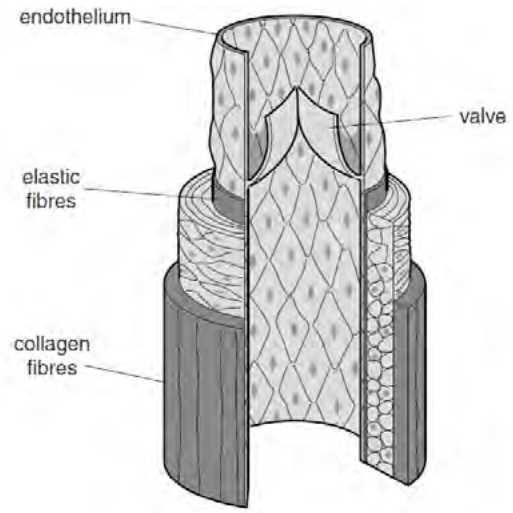
Teaching content	Depth and breadth of learning
Composition of blood Learners will be able to **describe** the composition of blood in terms of : • erythrocytes • lymphocytes • neutrophils • monocytes • platelets • plasma and their role and function	**Tutor Notes (depth and clarification):** • Erythrocytes may also be referred to as red blood cells (RBCs). • Lymphocytes, neutrophils and monocytes are all examples of leucocytes. • Leucocytes may also be referred to as white blood cells (WBCs). • For erythrocytes (RBCs) learners should be able to relate structure **linked** to function (for example, large surface area maximises movement of oxygen into RBC, no nucleus maximises space for storage of oxygen as cell is packed with haemoglobin). For all other blood components, learners will be able to identify structure and **describe** a function. • Learners could be provided with diagrams and photomicrographs of blood components to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams and **describe** blood components. Information about the components of blood. Plasma components http://www.nhs.uk/conditions/plasma-products/pages/definition.aspx The following webpage gives a clear overview of the circulatory system covering the heart, blood vessels and blood. http://www.bbc.co.uk/schools/gcsebitesize/pe/appliedanatomy/0_anatomy_circulatorysys_rev1.shtml OCR lesson elements http://www.ocr.org.uk/Images/282868-unit-04-lesson-element-the-heart.doc **Additional learning activity** Tutors could introduce learners to the composition and functions of blood by directing learners to the attached resource for further information. Tutors could then ask learners to conduct some independent research around the composition of blood and its functions.
Functions of blood Learners will be able to explain the functions that blood performs in the human body in terms of: • Transport • Temperature regulation • Exchange of materials with body tissue • Preventing infection • Blood clotting	The following webpage gives a clear overview of the circulatory system covering the heart, blood vessels and blood. http://www.bbc.co.uk/schools/gcsebitesize/pe/appliedanatomy/0_anatomy_circulatorysys_rev1.shtml **Tutor Notes (depth and clarification):** • ***Transport:*** reference to nutrients, hormones, carbon dioxide and oxygen. • ***Temperature regulation:*** i.e. transport of heat from body core to periphery. (This may be linked to homeostasis in **LO5.8** and importance of maintaining body temperature- no details about mechanisms of temperature regulation will be required for assessment but may be included in taught sessions as an example to support understanding of homeostasis). • ***Exchange of materials with body tissue:*** i.e movement of nutrients and respiratory gases between capillaries and body tissues. • ***Preventing infection:*** i.e the role of leucocytes (phagocytosis / antibody production) and platelets (formation of blood clot at site of wound). • ***Blood clotting*** i.e. prevention of blood loss and prevention of infection. • Learners may be asked to **explain** how the blood performs these functions.

Teaching content	Depth and breadth of learning
Structure of the heart Learners will be able to describe the structure of the heart with regards to the following listed structures: • atria • ventricles • vena cava • pulmonary arteries and veins • aorta • tricuspid and bicuspid valves • semi-lunar valves • coronary arteries	The following webpage gives a clear overview of the circulatory system covering the heart, blood vessels and blood. http://www.bbc.co.uk/schools/gcsebitesize/pe/appliedanatomy/0_anatomy_circulatorysys_rev1.shtml Diagrams such as http://www.ocr.org.uk/Images/83235-unit-01-principles-of-anatomy-and-physiology-in-sport-the-heart-lungs-and-oxygen-a3-heart-diagram.pdf help students learn the name and location of different parts of the heart. Heart Anatomy https://www.thoughtco.com/the-heart-wall-4022792 Information about the heart, its structure and function. https://www.abpischools.org.uk/topic/heartandcirculation **Tutor Notes (depth and clarification):** • Learners could be provided with diagrams and photographs showing both **internal** and **external** structure of the heart. • Learners may be asked to **name**, **label** or **identify** the listed structures of the heart from diagrams as shown below.  • Learners will be able to demonstrate knowledge of the roles of the different structures listed. For example, the role of the coronary artery identified in the diagram above is to provide nutrients and oxygen needed for cellular respiration (**see LO 2.4**) to the heart muscle (cells). Learners should understand the role of these structures in the cardiac cycle and heart function as detailed below. **Additional learning activity** Tutors to ensure that learners can identify and locate the different structures within the heart **and** explain their function.

Teaching content	Depth and breadth of learning
Function of the heart Learners will be able to describe the function of the heart in terms of: • double pump • diastole • systole • cardiac cycle role of component parts	Additional information relating to how the heart works particularly with regards to the phases of the cardiac cycle i.e. diastole and systole, is available at: Cardiac Cycle – Systole & Diastole https://www.youtube.com/watch?v=jLTdgrhpDCg A video clip of the cardiac cycle. **Tutor Notes (depth and clarification):** • Learners will be able to demonstrate knowledge of the **double pump** action of the heart. • Learners will be able to demonstrate knowledge of the **cardiac cycle** in terms of **systole** and **diastole** with regards to the listed structures. • Learners will be able to demonstrate knowledge of what is happening inside the heart during **systole** with regards to **ventricles** and **valves** i.e. ventricles are contracting, the atrio-ventricular (AV) valves close and semilunar valves open. • Learners will be able to demonstrate knowledge of what is happening inside the heart during **diastole** which is when both atria and ventricles are relaxed i.e. The ventricles (and atria) are relaxed, the AV valves are open, semilunar valves are closed, and the heart fills with blood. Different texts may give slight variations on how to explain diastole and systole and there are correct variations on how it has been described here. • Learners should understand the link between cardiac cycle and heart beat (For an average heart rate of 70 beats per minute the cardiac cycle is repeated 70 times per minute). • Learners may be asked to **describe** and **explain** these events and the roles of the relevant structures of the heart listed. **Additional learning activity** Learners to be able to describe the action of the heart with regards to the relevant listed structures.

Teaching content	Depth and breadth of learning
Control and regulation of the cardiac cycle Learners must be able to describe the • location and role of the SA and AV nodes	Learners could be asked to research both heart nodes and indicate their location on a drawing or picture of a heart and then in pairs take it in turns to explain their functions and differences. Organisation: About Education Resource title: Heart Nodes Website link: https://www.thoughtco.com/heart-nodes-anatomy-373242 Description: Information about the SAN and AVN heart nodes. Using the analogy of a car engine is a good way to describe the function of the heart's chambers and the role played by the SA and AV nodes https://health.howstuffworks.com/human-body/systems/circulatory/heart-rhythm1.htm An image https://image.slidesharecdn.com/controlofcardiaccycle-130930180406-phpapp02/95/control-of-cardiac-cycle-10-638.jpg?cb=13805644188 **Tutor Notes (depth and clarification):** • Learners should understand that heart action i.e. cardiac cycle is controlled by the electrical activity that takes place inside the heart. • Heart muscle is **myogenic** which means that it contracts spontaneously and stimulation by nerves is not needed to make it contract. • The **sinoatrial node** (SAN) is situated in the upper wall of the right atrium of the heart and is responsible for setting the rhythm of the body's heart rate / pulse (known as the pacemaker). • The **atrioventricular node** (AVN) is situated at the bottom of the right atrium of the heart and is responsible for delaying the transmission of electrical impulses it receives from the SA node. This delay allows time for blood to empty out of the atria into the ventricles. • Learners may be asked to **name**, **label** or **identify** the position of SAN and AVN from diagrams. • Learners may be asked to describe and explain the roles of the SAN and AVN. • No detail of structure or differences in structure of SAN or AVN is required.

Teaching content	Depth and breadth of learning
• Function of Purkyne fibres	**Tutor Notes (depth and clarification):** • Learners should know that some sources spell Purkyne as Purkinje. Both are accepted spellings. • Learners will be able to demonstrate knowledge of the function of Purkyne fibres. ECG trace images https://www.ole.bris.ac.uk/bbcswebdav/institution/Faculty%20of%20Health%20Sciences/MB%20ChB%20Medicine/Year%203%20Medicine%20and%20Surgery%20-%20Hippocrates/Cardiology%20-%20ECG/images/pic003.gif
• Components of an ECG trace (including the P, Q, R, S and T waves / spikes)	This British Heart Foundation webpage and video explain the electrocardiogram (ECG) https://www.bhf.org.uk/heart-health/tests/ecg More detailed resource is explained below. (https://www.nottingham.ac.uk/nursing/practice/resources/cardiology/function/sinus_rythm.php) **Tutor Notes (depth and clarification):** • Learners should understand that the ECG trace corresponds to the electrical activity in the heart. • Learners should be able to link the waves / spikes shown on an ECG trace with the different stages of the cardiac cycle and the impact of the electrical charges on the heart muscles. • **P** wave is the first upwards spike seen on an ECG. The atria are contracting (atrial **systole**). • **QRS** complex corresponds to the ventricles contracting (ventricular **systole**). • **T** is the final wave before the cycle repeats and show the relaxation of the ventricular muscles (**diastole**).  • Learners can be shown ECG traces like the one above and should be able to **identify** and **label** the P, Q, R, S and T waves / spikes. • Learners may be asked to **explain** what is happening with regards to heart muscle at P, QRS and T. • Links should be made to **LO 1.9** and monitoring cardiovascular malfunctions. • Learners will not be expected to recognise heart malfunctions from ECG traces.

Teaching content	Depth and breadth of learning
Types, structures and functions of blood vessels Learners will be able to describe the differences in structure between • arteries • veins • capillaries	The following BBC bitesize resources provides an accessible description of the three types of blood vessels http://www.bbc.co.uk/schools/gcsebitesize/pe/appliedanatomy/0_anatomy_circulatorysys_rev3.shtml **Tutor Notes (depth and clarification):** • Learners may be asked to **identify** and **label** from diagrams the structure of blood vessels with regards to layers in the walls such as endothelium (lining), smooth muscle and elastic fibres. • Learners can be given diagrams such as that of a vein below.  *Diagram from OCR Human Biology H023 Unit F221 June 2013 Q5* • Learners will be able to demonstrate knowledge of differences in structure, for example, that veins have valves, but arteries and capillaries do not. • Learners will be able to **compare** (similarities and differences in) structures of blood vessels. • Learners will be able to relate how the structure of blood vessels is linked to their function. • Function of capillaries is linked to the formation of tissue fluid and lymph in **LO 1.7**. **Additional learning activity** Small group discussions could take place around the structure and functions of arteries, veins and capillaries. Leaners will be able to describe how the three types of blood vessels differ in their structure. Learners will be able to describe the unique functions of the different blood vessels.

Teaching content	Depth and breadth of learning
Formation of tissue fluid and lymph Learners to be able to describe the: • The role of hydrostatic pressure	Learners may require additional information to be able to understand the meaning and role of hydrostatic pressure. Learners could access a video clip from YouTube that explains what hydrostatic pressure is and why it is important for the cardiovascular system. Learners could then be asked to summarise in their own words the meaning and role of hydrostatic pressure. The key points of each learner's definition could then be collated to agree on a whole group meaning for this term. Organisation: UPLifestyleTraining Resource title: Hydrostatic Pressure & the Cardiovascular System Website link: https://www.youtube.com/watch?v=caXN41VCzTs Description: A video clip that explains what hydrostatic pressure is and why it is important for the cardiovascular system. **Tutor Notes (depth and clarification):** • Learners should know that **hydrostatic pressure** is the pressure from the heart contractions that forces water and dissolved substances in blood plasma out through capillary walls into surrounding tissues thus forming **tissue fluid**. • Learners should know that capillary walls are 'leaky' - see **LO 1.6**. • Learners will be able to demonstrate knowledge of **what is meant by** the term hydrostatic pressure. • Learners will be able to demonstrate knowledge of the role of hydrostatic pressure in the formation of tissue fluid.
• Blood proteins	**Tutor Notes (depth and clarification):** • Learners will not be expected to know the names of the different blood proteins but examples can be used to support learning. • Learners should understand the role of blood proteins in creating **osmotic pressure (e.g. can be understood as 'pulling' water) and blood clotting (LO 1.2)**. • Learners will be able to demonstrate knowledge of the role of blood proteins in the formation of tissue fluid. • Learners will be able to demonstrate knowledge of the relationship between blood proteins and osmosis with regards to the formation of tissue fluid.
• Structure and role of the lymphatic system	This resource by the Khan Academy, explains the lymphatic system https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology/lymphatics/v/why-do-we-need-a-lymphatic-system **Tutor Notes (depth and clarification):** • The majority of tissue fluid returns to the circulatory system through the blood capillaries, but some remains which needs to be drained. This remaining fluid enters the lymphatic system as lymph. • Learners will be able to **compare** (similarities / differences) the composition of blood plasma, tissue fluid and lymph. • Learners will be able to demonstrate knowledge of the formation of **lymph** from **blood plasma**. **Additional learning activity** Blood proteins there are three main proteins which are: • **Albumin** – the main blood protein. A carrier protein for steroids, fatty acids and thyroid hormones. • **Globulin** – main function to support the immune system. • **Fibrinogen** – key function to support blood coagulation. Learners need to understand the lymphatic system as a drainage and filtrations system.

Teaching content	Depth and breadth of learning
Cardiovascular malfunctions Learners need to be able to explain the likely **causes** and **effects** of: • Hypertension	This information sheet clearly describes hypertension - https://www.bupa.co.uk/health-information/directory/h/hypertension and also monitoring, treatment and impacts. **Tutor Notes (depth and clarification)**: **Causes** (and **symptoms**) of **HYPERTENSION**: • Learners should understand that hypertension is the term associated with high blood pressure. • Learners will be able to **identify** a high (**hypertensive**) blood pressure reading. • Learners will be able to list the **symptoms** of hypertension, for example, headaches and dizziness. However, there are often few / no symptoms for hypertension. • Learners will be able to demonstrate knowledge of the **causes** of hypertension. To include primarily physiological causes, such as narrowing of the arteries, but also to include lifestyle and genetic risk factors, for example, obesity and kidney disease. **Effects** of **HYPERTENSION**: • Physiological effects and impact on lifestyle (Personal, intellectual, emotional, social (PIES and / or activities of daily living (ADL) should be included as models to assess impact of disease on the individual). • Learners should understand that hypertension can lead, for example, to increased risk of strokes, coronary heart disease and nephrotic disease (**LO 5.9**). • Learners may be asked to **describe** or **explain** impact of hypertension on the individual. **Additional learning activity** Learners must be able to differentiate between the cause of the condition and the impact of the condition on the individual.
Coronary heart disease e.g. • angina • Heart attack	This information sheet clearly describes Coronary Heart Disease https://www.bupa.co.uk/health-information/heart-blood-circulation/coronary-heart-disease and also the monitoring treatment and impacts. **Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **CHD**: • Learners may also be asked to **list** the **symptoms** of **CHD**, for example, chest pains (angina) and shortness of breath. Myocardial infarction (heart attack) may result. They should also be aware that some people with CHD may not experience symptoms. • Learners will be able to demonstrate knowledge of the **causes** of **CHD**. To include primarily physiological causes, such as, formation of plaques in artery walls / atherosclerosis, but also to include lifestyle and genetic risk factors, for example, smoking and family history of heart disease. • Learners may be asked to **relate** / **link** structure and functions of appropriate parts of the cardiovascular system to **CHD**. **Effects** of **CHD**: • Physiological effects and impact on lifestyle (PIES/ADLs) should be included. • Learners should understand that CHD can lead, for example, to heart failure and heart attacks. • Learners may be asked to **describe** or **explain** impact of CHD on the individual.

Teaching content	Depth and breadth of learning
Monitoring, treatment and care needs of cardiovascular malfunctions as appropriate to the condition. Learners to be able to discuss the impacts of treatment, monitoring and the associated care needs of cardiovascular conditions which might include (but not exhaustive): • Lifestyle changes (treatment) • Medications (treatment) • Blood pressure readings (monitoring) • ECG traces (monitoring) • Operations such as coronary bypass (treatment)	The fact sheets listed above support the delivery of this outcome. Organisations such as the British Heart foundation https://www.bhf.org.uk/heart-health NHS choices - https://www.nhs.uk/conditions/high-blood-pressure-hypertension/ https://www.nhs.uk/conditions/Heart-attack/ https://www.nhs.uk/conditions/Angina/ The use of visiting speakers, for example specialist nurses may illustrate this well. Reflecting an individual's needs against a tool such as ADL may help learners to understand the impact of the conditions. **Tutor Notes (depth and clarification):** **Monitoring** of **HYPERTENSION**: • Learners will be able to demonstrate knowledge of the methods for monitoring **hypertension**, for example, blood pressure readings. **Treatment** of **HYPERTENSION**: • Learners may be expected to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style / activities of daily living. • Learners will be able to **list** possible treatments for hypertension to include medical intervention, e.g. administration of drugs such as beta blockers, and changes that can be made to lifestyle. • Learners may be asked to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for hypertension. **Care needs** of individuals with **HYPERTENSION**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with hypertension, for example advice and support with making changes to lifestyle. **Tutor Notes (depth and clarification):** **Monitoring** of **CHD**: • Learners will be able to **list** or **describe** the methods for monitoring **CHD**, for example, ECGs. **Treatment** of **CHD**: • Learners may be expected to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to demonstrate knowledge of possible treatments for CHD to include medical intervention, e.g. coronary bypass and changes that can be made to lifestyle. • Learners may be asked to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for CHD.

Teaching content	Depth and breadth of learning
	Care needs of individuals with **CHD**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with CHD, for example, post-operative rehabilitation programmes. The learner needs to explain the likely causes and common symptoms of the conditions or malfunctions identified and be able to relate them to the structures studied. Only the conditions identified will be examined. Learners need to be able to link the structure and functions of the transport system to the identified conditions, where appropriate. The learner needs to analyse the impact of the identified conditions on individuals in terms of any necessary monitoring, routine treatment, such as those listed, lifestyle changes and impact on daily life, care needs etc. The use of NHS resources and other organisations' websites may provide a useful source of information about causes, treatment and the impact on the individual for the listed conditions. **Additional learning activity** Learners to be able to show an understanding of how the listed conditions impact on individuals and the monitoring and treatments that they may be undertaking. Learners can be given examples of named medications linked to the malfunctions to support understanding. Learners must be able to show that many people can live well with and manage these conditions as well as those who may have a less positive experience.

Link to information about text book, pages 60-65

https://www.ocr.org.uk/qualifications/by-type/cambridge-technicals/cambridge-technicals-2016/free-level-3-textbooks/

LEARNING OUTCOME 2

Teaching content	Depth and breadth of learning
2.1 Structure of respiratory system i.e. • Larynx • Trachea • Bronchi • Bronchioles • Alveoli • Diaphragm • Intercostal muscles • Pleural membranes	**Tutor Notes (depth and clarification):** • Learners should be able to identify listed components of the respiratory system. • Learners could be provided with diagrams and photomicrographs of components to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams or **describe** structure of components. • Learners should be able to relate structure **linked** to function.
2.2 Inspiration and expiration i.e. • Role of pleural membranes • Role of diaphragm • Role of intercostal muscles	**Tutor Notes (depth and clarification):** • Inspiration may also be referred to as inhalation (breathing in) and expiration as exhalation (breathing out). • Learners will know the locations of intercostal muscles, diaphragm and pleural membranes within the thorax. • Learners should be able to demonstrate knowledge of the mechanisms of inspiration and expiration with regards to roles of the components listed. This should include knowledge of volume and pressure changes that occur resulting in either inspiration or expiration. • Learners may be asked to **name**, **label** or **identify** structures and **describe** or **explain** from diagrams.
2.3 Gaseous exchange i.e. • the role and structure of the alveoli walls • Diffusion gradients • Erythrocytes • Plasma	**Tutor Notes (depth and clarification):** • It is important that learners do not confuse gaseous exchange with the breathing mechanisms in **LO2.2**. • Learners will know that the process involves the exchange of oxygen and carbon dioxide between capillaries and alveoli. • Learners will know the location of alveoli and be able to relate structure **linked** to function e.g. thin walls for short diffusion pathway. • Learners will know from **LO1** the role of erythrocytes (RBCs) in transporting oxygen via haemoglobin to respiring tissues. • Learners will also know from **LO1** the role of plasma in transporting most of the carbon dioxide that has been produced by respiration to the lungs. • Learners will understand what is meant by a diffusion gradient e.g. there will be a lower concentration of oxygen in the capillaries than in the alveoli resulting in diffusion of oxygen from area of higher concentration in alveoli to area of lower concentration in RBCs in capillaries. • Learners may be asked to **name**, **label** or **identify** and **describe** or **explain** from diagrams.

Teaching content	Depth and breadth of learning
2.4 Cellular respiration i.e. • the role of glucose • the role of oxygen • function of ATP • aerobic/anaerobic respiration • the production of carbon dioxide • the production of lactic acid • the production of ATP	**Tutor Notes (depth and clarification):** • Learners need to understand the meaning of cellular respiration with regards to the biochemical process that occurs inside cells to breakdown glucose and **provide** energy in the form of adenosine triphosphate (ATP). • It is often a misconception that learners talk about the **production** of energy which is incorrect. **ATP** is produced and used to **provide energy** for cell activities such as muscle contraction. • Learners will know that cellular respiration is a series of complex biochemical reactions. • Learners will demonstrate knowledge of both aerobic and anaerobic respiration and know the similarities and differences. • Learners will know that **aerobic respiration** involves: glucose + oxygen → carbon dioxide + water + energy released as molecules of ATP. Learners will know that the first stage glycolysis takes place in the cytoplasm and then, if oxygen is available, the electron transport chain (ETC) takes place in mitochondria. **No further detail** of the stages of aerobic respiration is required. • Learners will know that carbon dioxide is the waste product of **aerobic respiration**. • Learners will know that anaerobic respiration involves: glucose → lactic acid (also known as lactate) and that it takes place when oxygen is in short supply. • Learners will know that anaerobic respiration takes place in the cytoplasm. • Anaerobic respiration occurs for example in muscles during exercise. • Learners will know that lactic acid (lactate) can build up in muscles and is toxic to the body and so anaerobic respiration can only continue for a short time until oxygen becomes available. • Lactic acid must be broken down when oxygen becomes available at the end of the exercise. • Learners will know why much less ATP is produced in anaerobic respiration than aerobic.

Teaching content	Depth and breadth of learning
2.5 Respiratory malfunctions – possible causes and effects on the individual i.e. Learners need to be able to explain the likely causes and effects of: • Asthma	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **ASTHMA**: • Learners will be able to show knowledge of the **symptoms** of asthma, for example, breathlessness. • Learners will be able to demonstrate knowledge of the **causes** of asthma. To include primarily physiological causes, such as inflammation and narrowing of airways, but also to include risk factors, for example, allergens. **Effects** of **ASTHMA**: • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **asthma** can lead, for example, to increased risk of lung infections.
• Emphysema (COAD)	**Tutor Notes (depth and clarification):** **COAD – Chronic Obstructive Airways Disease also referred to as COPD - Chronic Obstructive Pulmonary Disease** **Causes** (and **symptoms**) of **EMPHYSEMA**: • Learners will be able to show knowledge of the **symptoms** of COAD, for example, breathlessness. Note: some symptoms similar to those of asthma. • Learners will be able to demonstrate knowledge of the **causes** of COAD. To include primarily physiological causes, such as inflammation of airways and damage to alveoli, but also to include risk factors, for example, smoking. **Effects** of **EMPHYSEMA**: • Physiological effects and impact on lifestyle (PIES and /or ADLs) should be included. • Learners should understand that **COAD** can lead, for example, to increased risk of cardiovascular disease (**LO1.8**). • Learners will be able to show knowledge and understanding of the impact of **COAD** on the individual.
• Cystic fibrosis	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **CYSTIC FIBROSIS**: • Learners will be able to show knowledge of the **symptoms** of cystic fibrosis, for example, reduced lung function. • Learners will be able to demonstrate knowledge of the **causes** of cystic fibrosis. To include primarily physiological causes, such as excess mucus in lungs, but also to include genetic reason for excess mucus production. **Effects** of **CYSTIC FIBROSIS**: • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **CYSTIC FIBROSIS** can lead, for example, to increased risk of lung infections (**LO1.8**). • Learners will be able to show knowledge and understanding of the impact of **CYSTIC FIBROSIS** on the individual to include other associated problems such as infertility and thickening of other body fluids.

Teaching content	Depth and breadth of learning
2.6 Monitoring, treatment and care needs for respiratory malfunctions listed, as appropriate to the condition which might include: • Impact on lifestyle • Inhalers / medication • Peak flow • Physiotherapy • Spirometry • Oxygen Learners may be expected to evaluate the effectiveness of treatment and or the impact on life style. Learners to be able to discuss the impacts of treatment, monitoring and the associated care needs of respiratory conditions which might include (but not exhaustive): • Impact on lifestyle (treatment) • Inhalers / medication (treatment) • Peak flow (monitoring) • Physiotherapy(treatment) • Spirometry(monitoring) • Oxygen (treatment)	**Tutor Notes (depth and clarification):** **Monitoring** of **ASTHMA**: • Learners will be able to show knowledge of the methods for monitoring **ASTHMA**, for example, regular peak flow readings. **Treatment** of **ASTHMA**: • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for asthma to include medical intervention, e.g. administration of drugs such as preventer and reliever inhalers that alleviate symptoms of asthma and changes that can be made to lifestyle such as avoiding triggers. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for asthma. **Care needs** of individuals with **ASTHMA**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with asthma, for example advice and support with making changes to lifestyle and managing symptoms. **Tutor Notes (depth and clarification):** **Monitoring** of **EMPHYSEMA (COAD)**: • Learners will be able to show knowledge of the methods for monitoring **COAD**, for example, spirometry. **Treatment** of **EMPHYSEMA (COAD)**: • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for **COAD** to include medical intervention, e.g. administration of drugs that alleviate symptoms of **COAD** and changes that can be made to lifestyle such as stopping smoking. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for **COAD**. **Care needs** of individuals with **EMPHYSEMA (COAD)**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with **COAD**, for example advice and support with making changes to lifestyle and managing symptoms. **Tutor Notes (depth and clarification):** **Monitoring** of **CYSTIC FIBROSIS**: • Learners will be able to show knowledge of the methods for monitoring **CYSTIC FIBROSIS**, for example, spirometry. **Treatment** of **CYSTIC FIBROSIS**: • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for cystic fibrosis to include medical intervention, e.g. administration of drugs that alleviate symptoms of cystic fibrosis and physiotherapy. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for cystic fibrosis.

Teaching content	Depth and breadth of learning
	Care needs of individuals with **CYSTIC FIBROSIS**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with cystic fibrosis, for example advice and support in managing and living with their condition. • Also details of how lifestyle changes such as vaccinations and avoiding infection can help. The learner needs to explain the likely causes and common symptoms of the conditions or malfunctions identified and be able to relate them to the structures studied. Only the conditions identified will be examined. Learners need to be able to link the structure and functions of the respiratory system to the identified conditions, where appropriate. For example, the alveoli and emphysema. The learner needs to analyse the impact of the identified conditions on individuals in terms of any necessary monitoring, routine treatment, such as those listed, lifestyle changes and impact on daily life, care needs etc. The use of NHS resources and other organisations' websites may provide a useful source of information about causes, treatment and the impact on the individual for the listed conditions.

Link to information about textbook, pages 66-70

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LEARNING OUTCOME 3

Teaching content	Depth and breadth of learning
3.1 Gross structure of digestive system and functions of component parts i.e. • Buccal cavity • Salivary glands • Epiglottis • Oesophagus • Stomach • Small intestine • Large intestine • Rectum • Anus • Liver • Gallbladder • Bile duct • Pancreas • Pancreatic duct	**Tutor Notes (depth and clarification):** • Learners should be able to identify listed components that make up the digestive system. • Learners could be provided with diagrams and photomicrographs of components to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams or **describe** structure of components. Link components to where they are mentioned in other LOs in Unit 4 i.e. • Pancreas-**LO5.4** and **5.9** • Liver- **LO5.7** and **5.9**
3.2 Mechanical and chemical digestion i.e. • Action of chewing • Action of stomach • Action of digestive enzymes in stomach and small intestine	**Tutor Notes (depth and clarification):** • Learners will be able to demonstrate knowledge of the action of chewing as an example of **mechanical** digestion in which the teeth break large food pieces into smaller ones suitable for swallowing. • Learners will demonstrate knowledge of the role of the stomach in **mechanical** digestion (churning to mix food with stomach secretions and further break it down). • **Describe** the role of salivary glands in **chemical** digestion (production of digestive enzymes to start digestion of carbohydrates). No details of specific named enzymes will be required. • Learners will be able to demonstrate knowledge of the action of enzymes in the stomach in chemical digestion to break down protein. **No details** of specific named enzymes will be required. • Learners will be able to demonstrate knowledge of the role of hydrochloric acid produced by the stomach. • Learners will be able to demonstrate knowledge of the action of enzymes in the small intestine in **chemical** digestion to break down protein, carbohydrates and fats. **No details** of specific named enzymes will be required. • Learners will be able to demonstrate knowledge of the action of digestive enzymes. To include: Enzymes have a **specific** shape. Large food **molecules** bind to the **active site** on the enzyme. The enzymes break **chemical** bonds of the food molecules thereby breaking them into smaller molecules that can be absorbed from the small intestine into the blood stream. • Learners will be able to demonstrate knowledge that action of digestive enzymes may be affected by pH and temperature. Basic detail only required with regards to conditions that exist in stomach (acid) and small intestine (alkaline). Digestive enzymes work best at body temperature (37°C).

Teaching content	Depth and breadth of learning
3.3 Digestive roles of liver and pancreas i.e. • Digestive role of pancreatic juice • Digestive role of bile	**Tutor Notes (depth and clarification):** • Learners will be able to demonstrate knowledge of the role of pancreas with regards to production of digestive enzymes that are released into small intestine in pancreatic juice. **No details** of specific named enzymes will be required. • Learners will be able to demonstrate knowledge that the **liver** produces **bile**, which is then stored in the **gall bladder** and enters the **small intestine** via the **bile duct**.(**linked to LO5.7**). • Learners will be able to demonstrate knowledge of the role of bile with regards to emulsification of fats and neutralisation of stomach acid.
3.4 Absorption and assimilation i.e. • Adaptations of the intestinal wall for absorption (of nutrients) • Liver's role in assimilation	**Tutor Notes (depth and clarification):** • Learners will be able to demonstrate knowledge of what is meant by **absorption** in this context. • Learners will be able to demonstrate knowledge of how the walls of the small intestine are adapted for absorption of nutrients with regards to the presence of villi, blood capillaries and lacteals. • Learners will be able to demonstrate knowledge of how these adaptations maximise absorption with reference to surface area and diffusion of nutrients. • Learners will be able to demonstrate knowledge of what is meant by assimilation in this context. • Learners will be able to demonstrate knowledge of the role of the liver in assimilation (**linked to LO5.7**). Learners will not be expected to list examples but may be expected to **recognise** specific examples of absorption and assimilation in context of questions: e.g. that excess glucose is assimilated by the liver into glycogen and that deamination of amino acids (LO 5.7) occurs as part of assimilation of proteins.

Teaching content	Depth and breadth of learning
3.5 Digestive malfunctions – possible causes and effects on the individual i.e. Learners need to be able to explain the possible causes and effects of:	
• Irritable bowel syndrome	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **Irritable Bowel Syndrome (IBS)**: • Learners will be able to **list** the **symptoms** of IBS, for example, bloating and constipation. • Learners will be able to demonstrate knowledge of the **causes** of IBS. To include primarily physiological causes, such as abnormal contractions of intestinal muscles, but also to include lifestyle factors, for example, diet and stress. • Learners will be able to **relate / link** structure and functions of appropriate parts of the digestive system to **IBS**. **Effects** of **IBS**: • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that constipation and diarrhoea associated with IBS can lead, for example, to increased risk of other bowel disorders. • Learners may be asked to **describe** or **explain** impact of IBS on the individual.
• Gallstones	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **Gallstones**: • Learners will be able to **list** the ***symptoms*** of gallstones, for example, pain in the abdomen and nausea. It can also be noted that often there are no symptoms. • Learners will be able to demonstrate knowledge of the **causes** of gallstones. To include primarily physiological causes, such as, formation of lumps of solid material in gall bladder caused by imbalance of chemicals that make up bile, but also to include lifestyle and genetic risk factors, for example, high cholesterol diet and family history of gallstones. • Learners may be asked to **relate / link** structure and functions of appropriate parts of the digestive system to **gallstones**. **Effects** of **Gallstones:** • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that gallstones can lead, for example, to acute inflammation of gall bladder. • Learners may be asked to **describe** or **explain** impact of IBS on the individual.

Teaching content	Depth and breadth of learning
• Coeliac disease	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **Coeliac Disease**: • Learners will be able to **list** the **symptoms** of Coeliac Disease, for example, diarrhoea and unexpected weight loss • Learners will be able to demonstrate knowledge of the **causes** of **Coeliac disease**. To include primarily physiological causes, such as, effect of gluten, damage to lining of intestinal walls and reaction of immune system, but also to include genetic risk factors, for example, family history of Coeliac disease. Learners may be asked to **relate / link** structure and functions of appropriate parts of the digestive system to **Coeliac disease.** **Effects** of **Coeliac disease**: • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that Coeliac disease can lead, for example, to osteoporosis (**LO4**) and anaemia due to malabsorption of nutrients. • Learners will be able to demonstrate knowledge of the impact of Coeliac disease on the individual.
3.6 Monitoring, treatment and care needs for digestive malfunctions listed, as appropriate to the condition which might include: • Impact on diet • Impact on lifestyle • Endoscopy • Ultrasound • Lithotripsy Learners may be expected to evaluate the effectiveness of treatment and or the impact on life style. Learners to be able to discuss the impacts of treatment, monitoring and the associated care needs of digestive conditions which might include Impact on • diet • Endoscopy • Ultrasound • Lithotripsy	**Tutor Notes (depth and clarification):** **Monitoring** of **IBS**: • Learners will be able to demonstrate knowledge of the methods for monitoring **IBS**, for example, SSS-(Severity Scoring System). **Treatment** of **IBS**: • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for IBS to include medical intervention, e.g. administration of drugs that alleviate symptoms of IBS and changes that can be made to lifestyle. • Learners will be able to demonstrate knowledge of the impact on the individual of treatments for IBS. **Care needs** of individuals with **IBS**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with IBS, for example advice and support with making changes to lifestyle and managing symptoms. Note: no cure for IBS. **Tutor Notes (depth and clarification):** **Monitoring** of **gallstones**: • Learners will be able to demonstrate knowledge of the methods for monitoring **gallstones**, for example, ultrasound.

Teaching content	Depth and breadth of learning
	Treatment of **gallstones**: • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for gallstones to include medical intervention, e.g. lithotripsy and surgery to remove gall bladder. • Learners will be able to demonstrate knowledge of the impact on the individual of treatments for gallstones. **Care needs** of individuals with **gallstones**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with gallstones, for example advice and support with making changes to lifestyle and post-operative advice. **Tutor Notes (depth and clarification):** **Monitoring of Coeliac disease:** Learners will be able to demonstrate knowledge of the methods for monitoring Coeliac disease, for example, endoscopy. **Treatment** of **Coeliac disease**: • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style (PIES and / or ADLs). • Learners will be able to demonstrate knowledge of the treatment for Coeliac disease. Note: gluten-free diet for life considered only treatment. • Learners will be able to demonstrate knowledge of the impact on the individual of the treatment for Coeliac disease. **Care needs** of individuals with **Coeliac disease**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with Coeliac disease, for example advice and support with making changes to diet and managing complications that may develop. The learner needs to explain the likely causes and common symptoms of the conditions or malfunctions identified and be able to relate them to the structures studied. Only the conditions identified will be examined. Learners need to be able to link the structure and functions of the digestive systems to the identified conditions, where appropriate. The learner needs to analyse the impact of the identified conditions on individuals in terms of any necessary monitoring, routine treatment, such as those listed, lifestyle changes and impact on daily life, care needs etc. The use of NHS resources and other organisations' websites may provide a useful source of information about causes, treatment and the impact on the individual for the listed conditions.

Link to information about textbook, pages 70-74

https://www.ocr.org.uk/qualifications/by-type/cambridge-technicals/cambridge-technicals-2016/free-level-3-textbooks/

Other resources:

http://www.innerbody.com/image/digeov.html

LO3.4 Resources:

InnerBody-Small Intestine

http://www.innerbody.com/image_digeov/dige10-new3.html

The process of absorption explained.
Liver http://www.innerbody.com/image_digeov/card10-new2.html

LO3.6 Resources:
The Core charity has produced a leaflet about the condition IBS which could be used as the basis of a discussion activity or a quiz about this condition. It can be accessed at: http://corecharity.org.uk/wp-content/uploads/2016/05/CORE-PATIENT-INFORMATION-IRRITABLE-BOWEL-SYNDROME.pdf
Also for IBS: https://www.nhs.uk/conditions/irritable-bowel-syndrome-ibs/
The British Liver Trust's website provides detailed information about gallstones, the causes, symptoms and treatments available and can be used as a basis for an independent research activity. It can be accessed at: http://www.britishlivertrust.org.uk/liver-information/liver-conditions/gallstones/
Coeliac UK's website provides detailed information about coeliac disease, its causes, symptoms and treatments available and can be used as the basis of a small group discussion activity or a quiz about this condition. It can be accessed at: https://www.coeliac.org.uk/coeliac-disease/about-coeliac-disease-and-dermatitis-herpetiformis/
The sources above will support the learners to develop an understanding of the impacts and treatment of these conditions.
Visiting speakers will help to illustrate this, i.e. specialist nurses from the local hospital or a practice nurse from a GP surgery or representatives from organisations such as Coeliac UK

LEARNING OUTCOME 4

Teaching content	Depth and breadth of learning
4.1 Structure of bone i.e • vertical section • transverse section	**Tutor Notes (depth and clarification):** • Learners should be able to identify both **vertical** and **transverse** sections of bone from diagrams. The detail of bone structure will be related to that of long bones, i.e. upper arm (humerus) and thigh (femur). • For **vertical** section learners should be able to demonstrate knowledge of: location of areas of compact bone, spongy bone, bone marrow and cartilage (protective layer at ends) • For **transverse** section learners should be able to demonstrate knowledge of the osteon with regards to: **Haversian canals** (central canal containing blood vessels and nerves), **osteocytes** (bone cells), **lacunae**, (spaces within the hard bone that contain the living osteocytes), **lamellae** (layers of hard bone) and **canaliculi** (tiny channels containing cytoplasmic extensions of the osteocytes). Other than knowing how osteoporosis and arthritis develops **NO** further detail of function will be required. • Learners will have knowledge of the fact that bone is made from proteins e.g. collagen with deposits of mineral salts such as calcium phosphate. • Learners could be provided with diagrams and photomicrographs of components to clarify structure. • Learners should be able to relate structure and composition of appropriate components of bone to the associated malfunctions i.e. arthritis and osteoporosis in **LO4.5**.
4.2 Types of joint i.e. • Ball and socket (e.g. hip shoulder) • Pivot (e.g. neck) • Hinge (e.g., elbow) • Sliding (e.g. wrist) • Fixed (e.g. cranium, pelvis)	**Tutor Notes (depth and clarification):** • Learners should demonstrate the ability to **name**, **label** or **identify** different types of joints from diagrams provided. • Sliding joints are also known as **gliding** joints. • Named examples of joints e.g. hip joint will **NOT** be directly assessed but learners will be able to identify a hip joint as being the type of joint i.e. 'ball and socket'. • **Note**: fixed joints are not synovial and should not be used in the context of **LO4.3**.
4.3 Components of a synovial joint i.e. • Muscle • Bone • Ligament • Tendon • Cartilage • Synovial capsule • Synovial fluid	**Tutor Notes (depth and clarification):** • Learners will be able to **name**, **label** or **identify** components of a synovial joint and know the locations of the components from diagrams. • Learners will be able to demonstrate knowledge of the roles of these components of the joint (**except** bone) especially with regards to movement of the joint.

Teaching content	Depth and breadth of learning
4.4 Muscle action around a joint i.e. • The antagonistic action of skeletal muscles • Contraction • Relaxation • Role of tendons	**Tutor Notes (depth and clarification):** • Learners will know that skeletal muscles work in pairs i.e. they are **antagonistic**. • It would be useful for learners to use a named example of an antagonistic pair of muscles e.g. biceps and triceps to support their understanding as described in next point. • Learners will understand that muscles must work in pairs because they can only 'pull' when they contract and cannot push. For example, the biceps contracts to raise the fore arm at the elbow; the biceps muscle relaxes, but the arm is still bent. The triceps contracts to straighten the arm again. • Learners will be able to demonstrate the role of tendons in the movement of the joint.
4.5 Musculoskeletal malfunctions – possible causes and effects on the individual i.e. Learners need to be able to explain the likely causes and effects of: • Arthritis	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **ARTHRITIS**: • Learners will know the two main forms of arthritis: **osteoarthritis** and **rheumatoid** arthritis. Both types affect joints. • Learners should be able to show knowledge of the **symptoms** of arthritis, for example, stiff and painful joints. Many symptoms are common to both forms of arthritis. https://www.arthritiscare.org.uk/do-i-have-arthritis/symptoms • Learners will be able to demonstrate knowledge of the **causes** of arthritis. • To include primarily physiological causes, e.g. for **rheumatoid**, it is an autoimmune disease and the immune system sends antibodies, which attack the tissues lining your joints. Joints become sore and inflamed, and chemicals are released that can damage structures in the joint such as bone and cartilage. e.g. for **osteoarthritis**, damage to cartilage caused by injury can cause swelling and formation of bony spurs, called osteophytes, eventually leading to bone damage caused by friction of bone on bone. • Include risk factors for both e.g. obesity(osteoarthritis) and genetics (rheumatoid). **Effects** of **ARTHRITIS**: • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **arthritis** can lead, for example, to increased risk of immobility.
• Osteoporosis	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **OSTEOPOROSIS**: • Learners will be able to show knowledge of the **symptoms** of **OSTEOPOROSIS**. Note: few symptoms arise and often diagnosed when minor falls cause bone fractures. • Learners will be able to demonstrate knowledge of the **causes** of **OSTEOPOROSIS**. To include primarily physiological causes, such as imbalance in **osteoblast** (bone-forming cells) and **osteoclast** (bone-removing cells) activity which causes a decrease in bone density, but also to include risk factors, for example, long term use of steroids, gender. **Effects** of **OSTEOPOROSIS**: • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **OSTEOPOROSIS** can lead, for example, to increased risk of further bone fractures.

Teaching content	Depth and breadth of learning
4.6 Monitoring, treatment and care needs for musculoskeletal malfunctions listed, as appropriate to the condition which might include: • Impact on life style • Clinical observations • Blood tests • Bone density scans • Physiotherapy • Exercise • Dietary changes • Assistive technology as appropriate to the condition. Learners may be expected to evaluate the effectiveness of treatment and or the impact on life style. Learners to be able to discuss the impacts of treatment, monitoring and the associated care needs of musculoskeletal conditions which might include • Impact on life style • Clinical observations • Blood tests • Bone density scans • Physiotherapy • Exercise • Dietary changes • Assistive technology	**Tutor Notes (depth and clarification):** **Learners will not be expected to distinguish between the two forms of arthritis for monitoring and treatments.** **Monitoring** of **ARTHRITIS**: • Learners will be able to show knowledge of the methods for monitoring **ARTHRITIS**, for example, regular blood tests and clinical observations. **Treatment** of **ARTHRITIS**: • Learners will be able to **discuss** advantages and disadvantages for the individual the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for arthritis to include medical intervention, e.g. administration of drugs such as steroids and painkillers, that alleviate symptoms of arthritis and changes that can be made to lifestyle such as exercise. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for arthritis. **Care needs** of individuals with **ARTHRITIS**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with arthritis, for example advice and support with making changes to lifestyle and managing symptoms. **Tutor Notes (depth and clarification):** **Monitoring** of **OSTEOPOROSIS**: • Learners will be able to show knowledge of the methods for monitoring **OSTEOPOROSIS**, for example, bone density scans. **Treatment** of OSTEOPOROSIS: • Learners will be able to **discuss** advantages and disadvantages for the individual the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for osteoporosis to include medical intervention, e.g. administration of drugs that strengthen bones and physiotherapy. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for osteoporosis. **Care needs** of individuals with **OSTEOPOROSIS**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with osteoporosis, for example advice and support in managing and living with their condition. • Also details of how lifestyle changes such as assisted technology and avoiding injury can help. The learner needs to explain the likely causes and common symptoms of the conditions or malfunctions identified and be able to relate them to the structures studied. Only the conditions identified will be examined. Learners need to be able to link the structure and functions of musculoskeletal system to the identified conditions, where appropriate. The learner needs to analyse the impact of the identified conditions on individuals in terms of any necessary monitoring, routine treatment, such as those listed, lifestyle changes and impact on daily life, care needs etc. The use of NHS resources and other organisations' websites may provide a useful source of information about causes, treatment and the impact on the individual for the listed conditions.

Link to information about textbook, pages 74-77

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LEARNING OUTCOME 5

Teaching content	Depth and breadth of learning
5.1 Components of nervous system, i.e. • central nervous system • peripheral nerves • autonomic system • spinal cord • sensory and motor neurons	**Tutor Notes (depth and clarification):** • Learners should be able to identify listed components that make up the nervous system (brain, spinal cord and peripheral nerves). Autonomic nerves and sensory and motor neurons are peripheral nerves (for clarification, see later). • Learners could be provided with diagrams and photomicrographs of components to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams or **describe** structure of components. • Learners will demonstrate knowledge that the **spinal cord** as part of the central nervous system and is made up of nerves that transmit motor information from the brain to the periphery and sensory information from the periphery to the brain. • The spinal cord is protected by specialised bones called vertebrae that have a hollow centre within which the spinal cord is found. *Learners **do not** need to learn transverse diagrams of the spinal cord inside a vertebra.* • The sensory and motor neurones are part of the somatic nervous system. • Learners should understand that **peripheral** nerves include both nerves in the autonomic system and sensory and motor nerves (somatic nervous system). *Learners **do not** need to be able to distinguish between autonomic, sensory and motor neurones on a diagram.* • Learners will demonstrate knowledge of both the autonomic nervous system (control and regulation of processes without conscious control, eg heart rate and gut motility) with the functions of the (somatic nervous system) **sensory nerves** that transmit information eg from the eyes, ears to the brain; and **motor nerves** that transmit information from the brain to muscles). and know the similarities and differences. • Learners will understand how the sensory and motor pathways work with the brain via the spinal cord to allow people to perform tasks (eg picking up a cup). *Learners **do not** need to learn the reflex arc.*
5.2 Structure and function of brain, i.e. • cerebral cortex • cerebellum • frontal lobes • corpus callosum • hypothalamus • medulla • meninges	**Tutor Notes (depth and clarification):** • Learners should be able to identify listed structures that make up the brain. • Learners could be provided with diagrams and photomicrographs of components to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams or **describe** structures. • Learners will demonstrate knowledge of the functions of the structures. • Learners will know that the meninges comprise three layers.

Teaching content	Depth and breadth of learning
5.3 Nerve action, i.e. • structure of neuron • role of axon/dendron • myelin sheath • synapse	**Tutor Notes (depth and clarification):** • Learners should be able to label a typical neuron that has dendrites, dendron, axon with myelin sheath. • Learners could be provided with diagrams of neurons to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams or **describe** structures. • Learners will demonstrate knowledge of the functions of the dendron (including that dendrites receive impulses). • Learners will demonstrate knowledge of the function of the axon including the role of the myelin sheath. • Learners will be able to demonstrate knowledge of a simple synapse between neuron and neuron and how this is shown in a simple diagram. *Names of neurotransmitters are NOT required.*
5.4 Organisation and function of endocrine system, i.e. • pancreas • pituitary • adrenal glands • thyroid • hormones	**Tutor Notes (depth and clarification):** • Learners should be able to label the named endocrine glands on a diagram of the body. (ie pancreas, pituitary, adrenal glands, thyroid.) • Learners may be asked to **name**, **label** or **identify** structures from diagrams and **describe** functions. • Learners will demonstrate knowledge of hormones and endocrine glands that secrete hormones directly into the blood stream (that is they are glands without ducts). • For each gland the following hormones and their action should be named and described: **Pancreas**: insulin and its effect on blood glucose. Pituitary: Learners should be able to describe that the pituitary is the 'master gland' that regulates other endocrine glands. Learners should be able to give at least one example of a pituitary gland hormone and which endocrine gland it regulates (e.g. thyroid stimulating hormone stimulates the thyroid to release thyroxin). **Adrenal glands**: adrenaline and its 'flight or fight' function that increases heart rate when an emergency is recognised. **Thyroid**: thyroxin and its effect to sustain metabolism.
5.5 Structure of kidney, i.e. • cortex • medulla • calyx • reters • renal artery/vein • urethra • bladder	**Tutor Notes (depth and clarification):** Gross structure of the kidney: • Learners should be able to identify listed components of the kidney. • Learners could be provided with diagrams and photomicrographs to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams. • Learners should be able to describe a function for each structure. *(Note possible confusion between urethra and ureter).*

Teaching content	Depth and breadth of learning
5.6 Functions of kidney, i.e. • removal of urea • regulation of water levels • ultrafiltration • reabsorption • osmoregulation • parts of nephron involved	**Tutor Notes (depth and clarification):** • Learners should demonstrate knowledge that water input (from food, drink) should equal water output (water lost from the body during breathing, sweating and in urination). • Learners will demonstrate knowledge of how to keep water balance in body (ie water input and water loss should be kept constant despite internal and external changes). This is termed osmoregulation and is important for all body functions. This may include reference to salt and water and reference to homeostasis. • Learners will also demonstrate knowledge of the need to remove urea, a toxic waste that results from deamination / protein breakdown. (This links to the liver LO5.7, as most of the urea found in the blood and excreted by the kidneys is produced by the liver). • Learners may be asked to name, label or identify the structure of a nephron from diagrams. • Learners will demonstrate knowledge of the process of ultrafiltration as it occurs in Bowman's capsule and be able to identify the blood products that remain in the blood during ultrafiltration (ie, protein and red blood cells remain in the glomerulus) and that these products are not found in urine of a healthy person. • Learners will demonstrate knowledge that although glucose is removed from the blood during ultrafiltration, it is always reabsorbed into the blood (Some students may link this to diabetes; people with uncontrolled diabetes will lose glucose in urine if their blood glucose levels reach a high threshold. The glucose 'pulls' water and they will also urinate large volumes of urine if this happens). • Learners will demonstrate knowledge that reabsorption of salts and glucose happens in the proximal (glucose and salts) and distal tubules (salts). • Learners will demonstrate knowledge that the loop of Henle is where most water is reabsorbed. • Learners should be able to link nephron structures to function.
5.7 Breakdown functions of liver, i.e. • deamination, • detoxification, • production of bile	**Tutor Notes (depth and clarification):** • Learners should be able to demonstrate knowledge of **deamination** as a process that occurs during protein metabolism / breakdown. (Some learners may link the term 'deamination' with the amino group found on proteins and that is removed during deamination). • Learners should know that the **liver** is the organ where deamination occurs and that deamination results in the production of ammonia, a very toxic waste product. The liver converts the very toxic ammonia into the less toxic **urea**, that can be transported in the blood to the **kidneys** where it can be removed in urine. • Learners should know that bile is produced by the liver as a result of breakdown of red blood cells (**LO1**) and that it is stored in the **gall bladder** from where it is used in the small intestine to emulsify fats (link to **LO3**).

Teaching content	Depth and breadth of learning
5.8 The concept of homeostasis, i.e. • principles of homeostasis (monitoring, feedback mechanisms, effectors) and its importance	**Tutor Notes (depth and clarification):** • Learners should be able to demonstrate knowledge of homeostasis and negative feedback control. Blood sugar control (by insulin) is a good example. • Learners should be able to identify common methods for monitoring homeostasis, eg, pulse rate, BP, body temperature, respiratory rate. • Learners should be able to give an example of a negative feedback mechanism and apply it to the control of blood sugar and insulin. • Learners should be able to demonstrate knowledge of the response to high and low blood sugar.
5.9 Malfunctions of control and regulatory systems – possible causes and effects on the individual Learners need to be able to explain the likely **causes** and **effects** with regards to: • brain, i.e. stroke	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **STROK**E: • Learners will be able to show knowledge of the symptoms of strokes, for example, F.A.S.T. Learners will need to understand that such symptoms may occur without prior warning and is a medical emergency. • Learners will be able to demonstrate knowledge of the causes of strokes. To include primarily physiological causes, such as reduced or absent blood flow to a part of the brain leading to neurone cell death, but also to include risk factors, for example, hypertension and high salt intake. **Effects** of **STROKE:** • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **stroke** can lead, for example, to increased risk of paralysis.
• CNS, i.e. multiple sclerosis (MS)	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **MS**: • Learners will be able to show knowledge of the **symptoms** of MS, for example, problems with vision and balance. Learners will need to understand that such symptoms may worsen over time. • Learners will be able to demonstrate knowledge of the **causes** of MS. To include primarily physiological causes, such as loss of myelin sheath in both sensory and motor neurones and neurones of the spinal cord and brain due to an autoimmune response to the myelin sheath, but also to include risk factors, for example, genetics. **Effects** of **MS**: • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **MS** can lead, for example, to increasing tremors and problems with functioning of certain organs e.g. bowel.

Teaching content	Depth and breadth of learning
• endocrine, i.e. diabetes	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **DIABETES:** • Learners will be able to show knowledge of the **symptoms** of diabetes, for example, extreme thirst. • Learners will be able to demonstrate knowledge of the **causes** of diabetes. To include primarily physiological causes, such as, that Type 2 diabetes is the most common form of diabetes that results from insulin resistance, but also to include risk factors, for example, obesity and high carbohydrate diet. Some students may also demonstrate knowledge of Type 1 diabetes. **Effects** of **DIABETES**: • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that Type 2 (and Type 1) **diabetes** results in high blood glucose and can lead to, for example, retinopathy (**LO6**). • Learners will be able to show knowledge and understanding of the impact of Type 2 (and Type 1) **diabetes** on the individual.
• kidney, i.e. nephrotic syndrome	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **NEPHROTIC SYNDROME**: • Learners will be able to show knowledge that in nephrotic syndrome, protein is found in urine and also the **symptoms** of nephrotic syndrome for example, severe swelling /oedema. • Learners will be able to demonstrate knowledge of the **causes** of nephrotic syndrome. To include primarily physiological causes, such as, protein is ultrafiltrated out from the blood (found in the glomerulus of the nephron). • Learners will demonstrate knowledge that that normally protein is not filtered from the blood and remains in the blood stream. • Also to include risk factors, for example, infections. **Effects** of **NEPHROTIC SYNDROME:** • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **NEPHROTIC SYNDROME** can lead to, for example, blood clots and kidney failure.

Teaching content	Depth and breadth of learning
• liver, i.e. cirrhosis	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **CIRRHOSIS**: • Learners will be able to show knowledge of the **symptoms** of cirrhosis for example, severe fatigue and nausea. • Learners will be able to demonstrate knowledge of the **causes** of cirrhosis. To include primarily physiological causes, such as, the production of scar tissue (fibrosis) in the liver and that this is in response to damage eg from infection, prolonged over use of alcohol, abuse of some drugs etc which are risk factors. **Effects** of **CIRRHOSIS:** • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **CIRRHOSIS** can lead to, for example, liver failure.
5.10 Monitoring, treatment and care needs for control and regulatory system malfunctions listed, as appropriate to the condition which might include: • Impact on life style • Physiotherapy • Speech Therapy • Assistive technology • Blood tests • Urine tests • Eye tests • Biopsies • Scans • Medications and Dialysis • Dietary changes as appropriate to each condition. Learners may be expected to evaluate the effectiveness of treatment and or the impact on life style.	**Tutor Notes (depth and clarification):** **Monitoring** of **STROKE:** • Learners will be able to show knowledge that a stroke is diagnosed using, for example, scans and not monitored, although recovery will be monitored. eg monitoring of blood cholesterol and blood pressure to identify and treat high cholesterol levels and high blood pressure that may increase likelihood of further strokes. **Treatment** of **STROKE:** • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for stroke to include medical intervention, e.g. administration of drugs and physiotherapy. • Learners will be able to **describe**, **discuss, analyse** or **explain** the impact on the individual of treatments for strokes. **Care needs** of individuals with **STROKE:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with strokes, for example advice and support with making changes to lifestyle and rehabilitation. **Tutor Notes (depth and clarification):** **Monitoring** of **MS:** • Learners will be able to show knowledge that MS is monitored using, for example, blood tests and ongoing assessment of neurological function. **Treatment** of **MS:** • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will understand that there are NO current cure for MS.

Teaching content	Depth and breadth of learning
Learners to be able to discuss the impacts treatment, monitoring and the associated care needs of respiratory conditions which might include • Impact on life style • Physiotherapy • Speech Therapy • Assistive technology • Blood tests • Urine tests • Eye tests • Biopsies • Scans medications • Dietary changes • Dialysis	• Learners will be able to **list** possible treatments for **MS** to include medical intervention, e.g. administration of drugs to alleviate symptoms. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for MS. **Care needs** of individuals with **MS:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with **MS**, for example advice and support with making changes to lifestyle and rehabilitation. **Tutor Notes (depth and clarification):** **Monitoring** of **DIABETES:** • Learners will be able to show knowledge that diabetes is monitored using, for example, blood and urine tests. **Treatment** of **DIABETES:** • Learners will be able to **discuss** advantages and disadvantages for the individual the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for diabetes to include medical intervention, e.g. administration of insulin. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for diabetes. **Care needs** of individuals with **DIABETES**: • Learners will be able to demonstrate knowledge of the likely care needs for an individual with diabetes, for example advice and support with making changes to lifestyle and rehabilitation. **Tutor Notes (depth and clarification):** **Monitoring** of **NEPHROTIC SYNDROME:** • Learners will be able to show knowledge that **NEPHROTIC SYNDROME** is monitored using, for example, blood and urine tests. **Treatment** of **NEPHROTIC SYNDROME:** • Learners will be able to **discuss** advantages and disadvantages for the individual the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for **NEPHROTIC SYNDROME** to include medical intervention, e.g. administration of drugs such as blood thinners. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for **NEPHROTIC SYNDROME**. **Care needs** of individuals with **NEPHROTIC SYNDROME:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with **NEPHROTIC SYNDROME**, for example advice and support with making changes to lifestyle and rehabilitation.

Teaching content	Depth and breadth of learning
	Tutor Notes (depth and clarification): **Monitoring** of **CIRRHOSIS:** • Learners will be able to show knowledge that CIRRHOSIS is monitored using, for example, biopsies. • Treatment of CIRRHOSIS: • Learners will be able to **discuss** advantages and disadvantages for the individual the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for **CIRRHOSIS** to include medical intervention, e.g. administration of drugs to alleviate symptoms and lifestyle changes. There is NO cure for cirrhosis. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for **CIRRHOSIS**. **Care needs** of individuals with **CIRRHOSIS:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with **CIRRHOSIS**, for example advice and support with making changes to lifestyle and rehabilitation after surgery. The learner needs to explain the likely causes and common symptoms of the conditions or malfunctions identified and be able to relate them to the structures studied. Only the conditions identified will be examined. Learners need to be able to link the structure and functions of the control and regulatory systems to the identified conditions, where appropriate. For example, the actions of nerves and how these alter in multiple sclerosis. The learner needs to analyse the impact of the identified conditions on individuals in terms of any necessary monitoring, routine treatment, such as those listed, lifestyle changes and impact on daily life, care needs etc. The use of NHS resources and other organisations' websites may provide a useful source of information about causes, treatment and the impact on the individual for the listed conditions.

Link to information about textbook, pages 77-84

https://www.ocr.org.uk/qualifications/by-type/cambridge-technicals/cambridge-technicals-2016/free-level-3-textbooks/

LEARNING OUTCOME 6

Teaching content	Depth and breadth of learning
6.1 Structure of the eye i.e • pupil • iris • tear glands • humours / fluids • conjunctiva • cornea • retina • macula • optic nerve • ciliary muscle /suspensory ligaments • lens	**Tutor Notes (depth and clarification):** • Learners should be able to identify listed components of the eye. • Learners could be provided with diagrams of components to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams or **describe** function of components. • Learners should be able to demonstrate knowledge of the role of each component to eye function.
6.2 Structure of the ear i.e. • external ear • middle ear • inner ear • ear drum • stapes/incus/malleus ear bones • cochlea • organ of Corti • eustachian tube • round window • auditory nerve • semi-circular canals • ampullae	**Tutor Notes (depth and clarification):** • Learners should be able to identify listed components of the ear. • Stapes, incus and malleus are also known respectively as the **stirrup**, **anvil** and **hammer** bones. • Learners will be able to distinguish between the inner, middle and outer ear and know which structures are found within which part of the ear. • Learners could be provided with diagrams of components to clarify structure. • Learners may be asked to **name**, **label** or **identify** from diagrams or **describe** function of components. • Learners should be able to demonstrate knowledge of the role of each component **linked** to ear function (to include both hearing and balance).
6.3 Malfunctions of eye and ear – possible causes and effects on the individual i.e. Learners need to be able to explain the likely **causes** and **effects** of: • Glaucoma	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **GLAUCOMA:** • Learners will be able to show knowledge of the **symptoms** of glaucoma, for example, blurred vision and eye pain. • Learners will be able to demonstrate knowledge of the **causes** of glaucoma. To include primarily physiological causes, such as build-up of pressure caused by drainage channels not functioning correctly, but also to include other factors, for example, ageing. **Effects** of **GLAUCOMA:** • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **glaucoma** can lead, for example, to increased risk of loss of vision.

Teaching content	Depth and breadth of learning
• AMD	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **AMD:** **Learners will know the two forms of AMD i.e. wet and dry AMD and the difference in physiological causes.** • Learners will be able to show knowledge of the **symptoms** of AMD, for example, blurred central vision and difficulty reading. • Learners will be able to demonstrate knowledge of the **causes** of AMD. To include primarily physiological causes, such as breakdown of cells in macula (dry AMD), but also to include other factors, for example, ageing. **Effects** of **AMD:** • Physiological effects and impact on lifestyle (PIES and / or ADLs) should be included. • Learners should understand that **AMD** can lead, for example, to increased risk of visual hallucinations.
• Cataracts	**Tutor Notes (depth and clarification):** **Causes** (and **symptoms**) of **CATARACTS:** • Learners will be able to show knowledge of the **symptoms** of cataracts, for example, blurred vision and difficulty seeing in low light. • Learners will be able to demonstrate knowledge of the **causes** of cataracts. To include primarily physiological causes, such as cloudy patches of protein building up on the lens, but also to include risk factors, for example, smoking. **Effects** of **CATARACTS:** • Physiological effects and impact on lifestyle (PIES and or ADLs) should be included. • Learners should understand that **CATARACTS** can lead, for example, to increased risk of loss of vision.
• Retinopathy	**Tutor Notes (depth and clarification):** Learners will be able to link retinopathy to diabetes (**LO5.9**) throughout. **Causes** (and **symptoms**) of **RETINOPATHY (diabetic):** • Learners will be able to show knowledge of the **symptoms** of retinopathy, for example, blurred vision and floaters in field of vision. • Learners will be able to demonstrate knowledge of the **causes** of retinopathy. To include primarily physiological causes, such as damage to blood vessels in retina caused by high blood glucose levels, but also to include risk factors, for example, diabetes and high blood pressure.

Teaching content	Depth and breadth of learning
• Deafness	**Effects** of **RETINOPATHY:** • Physiological effects and impact on lifestyle (PIES) should be included. • Learners should understand that **RETINOPATHY** can lead, for example, to increased risk of loss of vision. **Tutor Notes (depth and clarification):** **Deafness may also be referred to as HEARING LOSS** **Causes** (and **symptoms**) of **DEAFNESS:** • Learners will be able to show knowledge of the **symptoms** of deafness, for example, sounds seem quieter than normal or tinnitus. • Learners will be able to demonstrate knowledge of the **causes** of deafness. To include primarily physiological causes, such as damage to components within the ear, but also to include risk factors, for example, listening to very loud music and genetic factors. **Effects** of **DEAFNESS:** • Physiological effects and impact on lifestyle (PIES and /or ADLs) should be included.

Teaching content	Depth and breadth of learning
6.4 Monitoring, treatment and care needs for malfunctions of eye and ear listed, as appropriate to the condition which might include: • Impacts on life style • Visual aids • Auditory aids • Medication • Assistive technology as appropriate to the condition. Learners may be expected to evaluate the effectiveness of treatment and or the impact on life style. Learners to be able to discuss the impacts of treatment, monitoring and the associated care needs of eye/ear conditions which might include (but not exhaustive): • Impacts on life style (treatments) • Visual aids (monitoring and treatment) • Auditory aids (monitoring and treatment) • Medication (treatment) • Assistive technology (monitoring and treatment)	**Tutor Notes (depth and clarification):** **Monitoring** of **GLAUCOMA:** • Learners will be able to show knowledge of the methods for monitoring **GLAUCOMA**, for example, eye tests. **Treatment** of **GLAUCOMA:** • Learners will be able to **discuss** advantages and disadvantages for the individual the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for glaucoma to include medical intervention, e.g. administration of eye drops and laser treatment. It is not known how glaucoma can be prevented. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for glaucoma. **Care needs** of individuals with **GLAUCOMA:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with glaucoma, for example advice and support with making changes to lifestyle and managing symptoms. **Tutor Notes (depth and clarification):** **Monitoring** of **AMD:** • Learners will be able to show knowledge of the methods for monitoring AMD, for example, eye tests. **Treatment** of **AMD:** • Learners will be able to **discuss** advantages and disadvantages for the individual the effectiveness of treatment and / or the impact on life style. • Learners will understand that there are currently no treatments for AMD but visual aids will support individuals. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for AMD. **Care needs** of individuals with **AMD:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with AMD, for example advice and support with making changes to lifestyle and managing symptoms. **Tutor Notes (depth and clarification):** **Monitoring** of **CATARACTS:** • Learners will be able to show knowledge of the methods for monitoring **CATARACTS**, for example, eye tests. **Treatment** of **CATARACTS:** • Learners will be able to **discuss** advantages and disadvantages for the individual the effectiveness of treatment and / or the impact on life style. • Learners will be able to list possible treatments for cataracts to include medical intervention, e.g. lens replacement surgery. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for cataracts. **Care needs** of individuals with **CATARACTS:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with cataracts, for example advice and support with making changes to lifestyle and managing symptoms.

Teaching content	Depth and breadth of learning
	Tutor Notes (depth and clarification): Learners will be able to link retinopathy to diabetes (**LO5.9**) throughout. **Monitoring** of **RETINOPATHY:** • Learners will be able to show knowledge of the methods for monitoring **RETINOPATHY**, for example, eye tests and screening. **Treatment** of **RETINOPATHY:** • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for retinopathy to include medical intervention, e.g. laser treatment. • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for retinopathy. **Care needs** of individuals with **RETINOPATHY:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with retinopathy, for example advice and support with making changes to lifestyle and managing symptoms and also managing their diabetes. **Tutor Notes (depth and clarification):** **Monitoring** of **DEAFNESS:** • Learners will be able to show knowledge of the methods for monitoring **DEAFNESS**, for example, hearing tests. **Treatment** of **DEAFNESS:** • Learners will be able to **evaluate** (**discuss** advantages and disadvantages for the individual) the effectiveness of treatment and / or the impact on life style. • Learners will be able to **list** possible treatments for deafness to include medical intervention, e.g. hearing aids and implants. • • Learners will be able to **describe**, **discuss**, **analyse** or **explain** the impact on the individual of treatments for deafness. **Care needs** of individuals with **DEAFNESS:** • Learners will be able to demonstrate knowledge of the likely care needs for an individual with deafness, for example advice and support with making changes to lifestyle and managing symptoms.

Link to information about textbook, pages 84-88

https://www.ocr.org.uk/qualifications/by-type/cambridge-technicals/cambridge-technicals-2016/free-level-3-textbooks/

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