



Accredited

**OCR LEVEL 2
CAMBRIDGE TECHNICAL
CERTIFICATE/DIPLOMA IN
HEALTH AND
SOCIAL CARE**

**ANATOMY AND PHYSIOLOGY FOR
HEALTH AND SOCIAL CARE**

F/600/6880

LEVEL 2 UNIT 7

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10

ANATOMY AND PHYSIOLOGY FOR HEALTH AND SOCIAL CARE

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LEVEL 2 UNIT 7

AIM OF THE UNIT

Most people have a good idea of where the heart and lungs are located, but the liver, the kidneys, and the thyroid? In this unit the learners will have the opportunity to discover the location and function of a number of vital organs. They will also discover how the body is built up from cells and tissues and is organised into systems. We eat, we breathe and we urinate but why? This unit aims to enable learners to understand why these processes are so important in maintaining life and how body systems work together to provide the conditions necessary for thought, movement, reproduction, growth and development. The body systems can easily malfunction and so the learners will be able to investigate some common examples, their possible causes, effects and treatment. The learners will also explore the roles of observation and taking measurements in detecting and monitoring malfunctions. They will have an opportunity to record some measurements themselves.

PURPOSE OF THE UNIT

This unit will allow learners to develop a broad understanding of the body, its workings and its organisation and will provide a foundation of applicable knowledge. This unit introduces learners to the organisation of the human body and the major body systems. Learners will start with a basic knowledge of cells, tissues and organs and will then gain an understanding of how these are organised into systems. Learners will explore the structure and function of two body systems in more detail and this will allow them to develop knowledge and understanding of how the body works; the systems within the body and the processes that are necessary to keep us alive. They will gain an insight as to how body systems work together, interacting to maintain life.

This unit will show learners how body organs can malfunction. Working in the health and social care sectors may involve giving health advice to individuals or caring for them when such malfunctions have occurred. This care will often involve observing physical features and carrying out routine investigations whether for testing, or monitoring purposes. The unit will contribute to an understanding of these procedures, the reasons for carrying them out, and the importance of accuracy. The learners will discover how and why routine observations and measurements are made on people who use services in health and social care settings. The importance of maintaining health and safety during care and treatment will be emphasised. The learners will also have the chance to carry out some simple diagnostic tests or procedures themselves.

There will be the opportunity to investigate identified malfunctions, looking at how they affect those individuals with them, how effective the care is and how care and treatment can affect the quality of life.

This unit will provide a core knowledge and understanding of human anatomy and physiology that will allow progression onto Level 3 courses. Standing alone it allows the learner to develop a rudimentary comprehension of the body's workings that may well influence the lifestyle decisions they themselves make, or the advice and help they give to others.

ASSESSMENT AND GRADING CRITERIA

Learning Outcome (LO)		Pass	Merit	Distinction
The learner will:		The learner can:		
		The assessment criteria are the pass requirements for this unit.	To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1	Know the organisation of the human body	P1 identify the organisation of the human body and the position of the main body organs		
2	Understand the structure, function and interrelationship of major body systems	P2 illustrate the structure and function of two major body systems and how they interrelate	M1 explain how each of the identified body systems performs its function	
3	Be able to carry out routine measurements and observations of body systems	P3 carry out routine measurements and observations used to monitor the two body systems		D1 describe how measurements and observations are used to diagnose the identified malfunctions
4	Know the effects of malfunctions on body systems	P4 outline a common malfunction in each of the two body systems	M2 describe how each malfunction can affect the daily lives of individuals	
		P5 identify potential risk factors for each of the two malfunctions	M3 describe how these risks could be reduced or avoided	
5	Know routine care given to individuals with body malfunctions	P6 identify the routine care given for each malfunction		D2 describe how the routine care given for each malfunction could affect the quality of life of an individual

TEACHING CONTENT

The unit content describes what has to be taught to ensure that learners are able to access the highest grade.

Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work though these do not need to be the same ones specified in the unit content.

1 Know the organisation of the human body

- *Organisation:* cells; tissues; organs; systems
- *Location of organs in the body:* heart, blood vessels, lymph glands; lungs; stomach, intestines, rectum; liver; pancreas, kidneys, bladder; ovaries/testes, uterus; skin; brain; eye, ear; adrenal and thyroid glands.

2 Understand the structure, function and interrelationship of major body systems

- *Systems:* cardiovascular; respiratory; digestive; excretory; reproductive; nervous; endocrine; musculoskeletal
- *Body functions:* maintenance of oxygen supply, transport and supply of materials to cells; digestion of food materials; eliminating waste products; reproduction; reception of information from the environment; coordination; support and locomotion;
- *Interrelationships:* the interactions between systems, (e.g. circulatory and respiratory, circulatory and digestive, circulatory and excretory, endocrine, circulatory and reproductive, nervous and musculoskeletal).

3 Be able to carry out routine measurements and observations of body systems

- *Observations:* as appropriate to body system (e.g. skin colour, skin texture, sweating, skin temperature; breathing rhythm, wheezing, coughing, breathlessness; body appearance, for example, obese, extreme weight loss, feelings of nausea; thirst; pain – location and type)
- *Routine physiological measurements:* (e.g. pulse rate; blood pressure; ECG traces, blood cholesterol level; blood glucose level; breathing rate; peak flow; lung volumes; body temperature)
- *Health and safety considerations; accuracy of measurements:* accuracy of equipment; need for replication or readings repeated over a period of time; safety and wellbeing of individual during measurements; infection control.

4 Know the effects of malfunction on body systems

- *Malfunctions:* as relevant to body system (e.g. angina, heart attack, stroke, high blood pressure, asthma, cystic fibrosis, emphysema, chronic bronchitis, diabetes, coeliac disease, Crohn's disease, renal failure, osteoarthritis, Parkinson's disease, multiple sclerosis, infertility, impaired vision and hearing)
- *Potential risk:* factors (e.g. lifestyle, diet, occupation, environment, genetic, age)
- **M3** describe how these risks could be reduced or avoided.
- **D1** describe how measurements and observations are used to diagnose the identified malfunctions?

5 Know routine care given to individuals with body malfunctions

- *Routine care:* monitoring of body systems as indicated in LO3 plus observations (e.g. clammy or dry skin, bruises and/or pressure sores, weight loss, mobility, appetite changes, incontinence; lifestyle changes; use of mobility aids, oxygen cylinders; self-administered medication and injections, inhalers, physiotherapy)
- appropriate environmental conditions (e.g. temperature)
- controlling risks (e.g. infection, falls, incorrect dosage)
- **D2** describe how the routine care given for each malfunction could affect the quality of life of an individual.

DELIVERY GUIDANCE

LO1 The unit can start with class discussion and group work on the overall layout of the body and the location of the identified organs. Use could be made of anatomical models that require piecing together, TV programmes, DVDs, internet images or cut out paper models or diagrams. The learners are set challenges to indicate the location of organs within the body. Posters and related displays could be produced. If displayed on the wall posters act as an effective reinforcement of learning throughout the time taken to cover the unit. Annotations or labels could be produced that indicate functions of the organs. Separate charts, posters, slide presentations or information leaflets could be produced alongside to illustrate the types of tissue found within the organs and charts could be developed that show how the systems of the body are themselves made up of various organs. The structure of tissues should be related at a basic level to the functions of the organs. Cells need to be understood as the components of tissues but knowledge of cellular structure including organelles would not be expected.

LO2 The gross anatomy of the organs identified in LO1 needs to be studied for LO2. This can be supported by use of models, DVDs, TV programmes, images, books and the internet. Micro anatomy would only be required if that helps understand the function, for example, kidney nephrons, intestinal villi, bone, muscle and nerve tissue. The emphasis is on the function of the systems identified. Knowledge and understanding could be reinforced through the design of posters, written reports or slide presentations. In this section it is vital that the learners gain an awareness of how systems interact. This could be illustrated by reference to the circulatory and respiratory systems working together to transport oxygen to the cells whilst at the same time removing carbon dioxide. Further examples could include how food is digested and how the nutrients are taken to body cells whilst harmful waste products can be removed in the urine. The menstrual cycle could be used as an example of an interaction between endocrine, cardiovascular and reproductive systems and the role of the pancreas in regulating sugar levels as an interaction between endocrine, digestive and cardiovascular systems. Support and movement could illustrate an interaction of the nervous and musculoskeletal systems. Group or paired work could be utilised to produce charts, posters, slide presentations and displays. Individual examples could be researched and fed back to the group. There are a number of useful interactive animations available online, some of which are listed in the resources section. These can be used to reinforce learning and understanding.

LO3 The practical component of this section needs to be restricted to what untrained learners can competently and safely carry out in a class situation. This is likely to be limited to simple observations such as skin colour, body temperature, rate of breathing and pulse. If the necessary equipment is available this could be extended to include blood pressure, peak flow and even spirometry – measuring, for example, tidal volume and expiratory reserve volume. At all times appropriate hygiene and safety requirements must be followed and the need for them understood. The learners need to understand that many individuals undergoing such tests will be both anxious and vulnerable and that therefore steps should be taken to ensure their wellbeing, for example, effective communication and reassurance. If some learners are in appropriate work placements then other examples of observation and monitoring may be witnessed or undertaken. If written up, confidentiality must be observed. In the absence of any relevant work experience the learners could research other techniques such as blood and urine tests and the use of ECG traces via the internet and/or books obtaining appropriate data and images. Visits from health practitioners would be useful at this point. The learners need to understand why these observations or tests are usually carried out and when and how the recorded information is used. The learners need to understand the necessity of accuracy and replication and should be observed taking the necessary steps to ensure this when carrying out the tests themselves.

LO4 This part of the unit centres on some common malfunctions or disorders of the organs and systems identified. Those listed in the contents section are malfunctions that are relatively easy to relate to underlying structure and function. It is not anticipated that all malfunctions are covered. This section could be covered initially by group discussion and then by individual or paired research into chosen malfunctions. The products of research could then be brought together as a class display using posters, leaflets, images, case studies or slide presentations. Experiences gained from work placements, visiting speakers – whether practitioners or people with the disorder or family member, could all be utilised as long as confidentiality and sensitivity are maintained. There is much information available on line from medical sites, for example, the NHS, and from charities and support groups. These often have case studies. Many charities/support groups also produce DVDs that are usually cheap to purchase, if not free. These may include disorders such as heart disease, diabetes and strokes for example. Some of the malfunctions listed have risk factors. Some of these risk factors are unchangeable such as age, genetics or biological gender whilst others relate

to lifestyle choice, diet, environment and occupation. The learners could incorporate these factors into their research and possibly produce advice leaflets or posters as part of their display/end product.

LO5 Following on from the exploration of malfunctions, it requires learners to investigate the routine care that is involved as a result of individuals acquiring or developing these disorders. This section is not concerned with care planning, the roles of practitioners nor medical interventions such as surgery. It is about every day monitoring and treatment much of which might be done by the individual or their family. It may include regular monitoring by a health visitor/practice nurse/GP but the emphasis is on the techniques, therefore building on LO3; it is not exploring the jobs of the personnel involved. Family or placement experiences again may be useful, as would visits by a health visitor, practice nurse or an affected individual. Online blogs, case studies could all be used as long as personal details were not divulged. Case studies or advice leaflets could again be used to support the malfunctions chosen and be incorporated into the display, presentation or written report depending on the learner's and tutor's preferred choice. As with LO3 health and safety aspects need to be considered and procedures or steps taken to reduce infection or incorrect dosages should be included. If appropriate, simple devices and aids for those with restricted movement, e.g. long-handled pincers or grabbers for picking up objects, bath seats, as well as mobility aids e.g. wheelchairs, Zimmer frames, stair lifts, mobility scooters need inclusion. A visit by an occupational therapist would be of benefit.

SUGGESTED ASSESSMENT SCENARIOS AND TASK PLUS GUIDANCE ON ASSESSING THE SUGGESTED TASKS

P1 requires the identification of the organisation of the human body and the position of the main body organs and so the evidence for this could be a self-produced wall chart or poster as long as there is a witness statement by the tutor that this represents the learner's individual work. A slide presentation could also be provided with the same proviso. It is expected that all organs identified in the content section will be included.

P2 From this point onwards practicalities may direct learners into covering only the cardiovascular and respiratory systems for assessment purposes. This is because all pass criteria refer to the same pair of systems which is likely to be determined by the ease of monitoring and observing body systems for most learners. It is likely that for most these will be restricted to the cardiovascular and respiratory systems. If the learners have safe access to other forms of monitoring through work placements or family members then they can opt to investigate other systems and associated malfunctions. For the purpose of P2 onwards it will be assumed that the more obvious route has been chosen.

Learners will need to produce an illustrated account of the organisation, structure and function of both the respiratory and cardiovascular systems. This could be in the form of a poster, a slide presentation or a written report. For this level of assessment a rudimentary outline of the functions are required. The learners must display an understanding of how the systems interrelate and in this context how air is brought into the body and how oxygen is extracted from it and then distributed to the cells of the body. Similarly they would need to describe the return passage of carbon dioxide and its exhalation. To achieve M1 the learners would have to explain how these functions were carried out by describing the action of the lungs and associated components during inhalation, gaseous exchange and exhalation. Similarly they would be expected to describe the action of the heart as a pump and the roles of arteries, capillaries and veins. This could be produced through annotations on existing posters as long as there was suitable depth for this level of work. Alternatively, this could be covered through slide presentations or written work. Use of oral questioning could be used if supported by recorded evidence. Witness statements merely stating that questions were answered satisfactorily are not sufficient.

P3 As stated most learners will probably have to opt for monitoring the respiratory and cardiovascular systems. This could be done as a role play of an interaction between a practitioner and a person who uses services. Alternatively it could centre around an investigation into the effects of exercise on the body. Both scenarios are likely to involve measuring pulse, body temperature and rate of breathing along with observations of skin colour. If equipment is available then using the role play scenario peak flow, spirometry and blood pressure could be included. If following this route then sensitivity and maturity would need to be displayed if carrying out a full clinical observation along the lines of the content listed under LO3, especially with references to weight and appetite. Health and safety and hygiene measures must be observed and the need for replication and accuracy demonstrated. Evidence could be in the form of a write up or in electronic format which must be available for visiting moderation.

P4 requires learners to outline a malfunction of the respiratory system and one of the cardiovascular system assuming that is the route they have chosen. This is likely to be an overview only and so could take any format from posters, charts, slides or written report. The learner will cover possible causes, changes to the organ and how this affects the organ's function. For M2 the learner would describe how these malfunctions could affect the daily lives of individuals. This could be based on case studies or the learner's own primary research. If the latter it would be expected that the learner produces a summary in their own words rather than merely producing a transcript. Evidence could be in any format already mentioned. For 1D the learner needs to describe the role of measurements and observations used to diagnose the malfunctions. This is expected to allow learners the opportunity to research those methods of monitoring beyond ordinary use. This could include spirometry, if not previously accessible, blood tests and ECG traces. It is intended to be restricted to those everyday tests that may be carried out in the home environment or local surgery. It is not intended that learners should refer to more sophisticated tests such as, for example, X-rays and angiograms that would be carried out in hospitals. If the learners refer to these they would not be penalised. Again the form of evidence produced is down to the choice of tutor and learner.

P5 This requires the learner to consider the risk factors that increase the likelihood of developing both respiratory disease or cardiovascular problems (or other dysfunctions if an alternative route has been chosen). There is no set number of risk factors that need to be covered but it is expected

that the learner will cover a range from the types identified in the contents section. The evidence could be written as an advice/information leaflet or as a slide presentation or annotated charts. For M3 the learner needs to describe how the identified risks could be reduced or avoided, if indeed they can. If attempting to achieve M3 then the learner needs to have chosen appropriate risk factors in P5. The evidence could be generated by the production of an advice leaflet on how to minimise risks through, for example, lifestyle changes.

P6 The learner needs to identify the routine care necessary for their chosen malfunctions. This might include regular monitoring of lung capacities, peak flow readings, blood tests for cholesterol, kidney function (linked to standard treatment for high blood pressure), blood pressure monitoring, exercise classes, dietary advice, and physiotherapy for cystic fibrosis. The use of oxygen cylinders could be referred to in cases of severe emphysema. For D2 they are required to describe how this routine care may affect the quality of life. This could refer to lifestyle changes and how some individuals find this hard to do, side effects of medication, restrictions in terms of work and an individual's social life. This is likely to be a written account based on either case studies or primary research. Again evidence needs to be more than just a transcript if based on the latter. The learner's evidence will show both the benefits and any disadvantages or difficulties associated with the care.

SUGGESTED ASSIGNMENTS

The table below shows suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Cambridge Assessment assignments to meet local needs and resources.

Criteria	Assignment title	Scenario	Assessment
P1	The organisation and location of human body organs.	The production of a wall display for a local health centre.	Annotated poster(s) showing human tissues and organs together with their location.
P2, M1	The structure and function of the respiratory and cardiovascular systems and how they work together.	An information guide for individuals with respiratory and cardiovascular malfunction.	A leaflet or leaflets indicating how the two systems operate and work together to perform their functions.
P3	Monitoring respiratory and cardiovascular function.	A role play of monitoring respiratory and cardiovascular function in an individual	A record, either written or visual, of routine observations and measurements taken of respiratory and cardiovascular function showing the steps taken to ensure safety and accuracy.
P4, M2, D1 P5, M3	Investigating respiratory and cardiovascular malfunctions.	An information and advice guide for the family of an individual with respiratory and cardiovascular malfunction.	A written guide/leaflet(s) that outlines common malfunctions of the two systems possibly explaining how they are diagnosed and how they affect individuals; the risk factors that increase the likelihood of these conditions and how these factors may be minimised.
P6, D2	Routine care involved in managing respiratory and cardiovascular malfunctions.		A further written guide/leaflet identifying the likely routine care involved in managing the conditions and possibly indicating how this management could affect the individual's quality of life.

RESOURCES

Textbooks

Clarke L – *Health and Social Care GCSE* (Nelson Thornes, 2002)
ISBN 9780748770724

Haworth E, Allen B, Forshaw C, Nicol D, Volbracht A and Leach J – *Society, Health and Development Level 2 Higher Diploma* (Pearson, 2008) ISBN 9780435401030

Minett P, Wayne D, Rubenstein D – *Human Form and Function* (Hyman, 1989) ISBN 9780713527148

Seamons S *Applied Health & Social Care: A2 Student Book OCR* (Folens, 2007) ISBN: 1850082480

Smith, Tony ed, *British Medical Association Complete Family Health Guide*, (Dorling Kindersley Ltd 2000) 9780751327229

Stoppard, Miriam, *Family Health Guide*, (Dorling Kindersley Ltd 2006) 9781405317467

Stretch B *A2 GCE Health and Social Care Student Book for OCR* (Heinemann, 2006) ISBN 97804353529

Stretch B and Whitehouse M – *BTEC Level 3 Nationals in Health and Social Care Student Book 1* (Pearson, 2010) ISBN 9781846907663

Publications

'*Inside the human Body*' Bright Star Publishing

Care and Health Magazine

Community Care Magazine

Complementary Therapies in Nursing and Midwifery

Disability Now

Nursing Times

Websites

www.bbc.co.uk/schools/gcsebitesize/biology

www.bbc.co.uk/scotland/learning/bitesize/higher/biology

www.biologyguide.net

www.getbodysmart.com

www.educylopedia.be/education/anatomyimages.htm

www.nhs.uk/conditions

www.bhf.org.uk British Heart Foundation

www.bupa.co.uk BUPA

www.cancerresearchuk.org

www.carersuk.org

www.dh.gov.uk

www.iddtinternational.org Insulin Dependent Diabetes Trust

www.nhs.uk

www.nhscareers.nhs.uk

www.stroke.org.uk

www.nice.org.uk

www.patient.co.uk

DVDs

Inside the Human Body [DVD] (DVD - 2011)

The Human Body [DVD] [1998]

MAPPING WITHIN THE QUALIFICATION TO THE OTHER UNITS

Unit 3: Individual Needs in Health and Social Care

Unit 11: The Impact of Diet on Health

LINKS TO NOS

Partial coverage of:

HSC22 Support the health and safety of yourself and individuals

- a – Carry out health and safety checks before you begin work
- b – Ensure your actions support health and safety in the place you work

HSC23 Develop your knowledge and practice

- b – Use new and improved skills and knowledge in your work



CONTACT US

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