



Accredited

OCR LEVEL 3 CAMBRIDGE TECHNICALS IN HEALTH AND SOCIAL CARE

LEVEL 3 UNIT 5 ANATOMY AND PHYSIOLOGY FOR HEALTH AND SOCIAL CARE DELIVERY GUIDE

VERSION 1 JUNE 2012

INDEX

| | |
|--|---------|
| Introduction | Page 3 |
| Unit 5 - Anatomy and physiology for health and social care | Page 4 |
| Learning Outcome 1 - Know the organisation of the human body | Page 6 |
| Learning Outcome 2 - Understand the functioning of the body systems associated with energy metabolism | Page 8 |
| Learning Outcome 3 - Understand how homeostatic mechanisms operate in the maintenance of an internal environment | Page 10 |
| Learning Outcome 4 - Be able to interpret data obtained from monitoring routine activities with reference to the functioning of healthy body systems | Page 12 |

INTRODUCTION

This Delivery Guide has been developed to provide practitioners with a variety of creative and practical ideas to support the delivery of this qualification. The Guide is a collection of lesson ideas with associated activities, which you may find helpful as you plan your lessons.

OCR has collaborated with current practitioners to ensure that the ideas put forward in this Delivery Guide are practical, realistic and dynamic. The Guide is structured by learning objective so you can see how each activity helps you cover the specification.

We appreciate that practitioners are knowledgeable in relation to what works for them and their learners. Therefore, the resources we have produced should not restrict or impact on practitioners' creativity to deliver excellent learning.

Whether you are an experienced practitioner or new to the sector, we hope you find something in this guide which will help you to deliver excellent learning.

If you have any feedback on this Delivery Guide or suggestions for other resources you would like OCR to develop, please email resourcesfeedback@ocr.org.uk.

PLEASE NOTE

The activities suggested in this Delivery Guide **MUST NOT** be used for assessment purposes. (This includes the Consolidation suggested activities).

The timings for the suggested activities in this Delivery Guide **DO NOT** relate to the Guided Learning Hours (GLHs) for each unit.

Assessment guidance can be found within the Unit document available from www.ocr.org.uk.

OPPORTUNITIES FOR ENGLISH AND MATHS SKILLS DEVELOPMENT

The Wolf Review of Vocational Education recommended that all learners studying post-16 qualifications have the opportunity to further develop their English and maths skills, with the aims of:

- achieving a GCSE in English and/or maths at grade A*-C if they have not already done so or
- making significant progress towards GCSE entry and success if this is some way off for the individual.

We believe that being able to make good progress in English and maths is essential to learners in both of these contexts and on a range of learning programmes. To help you enable your learners to progress in these subjects, we have signposted opportunities for English and maths skills practice within this resource. These suggestions are for guidance only. They are not designed to replace your own subject knowledge and expertise in deciding what is most appropriate for your learners.

OPPORTUNITIES FOR WORK EXPERIENCE

The Wolf Report also recommended that learners have the opportunity to apply their skills and extend their learning outside the classroom through work experience, part time jobs, work shadowing and work placements. There are lots of opportunities within these qualifications to take some of the teaching and learning outside of the classroom and into a work environment. We are working to provide you with resources to support you in achieving this, please visit www.ocr.org.uk shortly for more information.

KEY



English



Maths



Work experience

UNIT 5 - ANATOMY AND PHYSIOLOGY FOR HEALTH AND SOCIAL CARE

Guided learning hours : 60

Credit value: 10

PURPOSE OF THE UNIT

Working in the health and social care sector will often involve either giving health advice to individuals or caring for them. Relatives and friends of people with health issues will be 'hungry' for information. This unit will give learners the opportunity to develop a broad understanding of the body, its workings and its organisation and will provide a foundation of applicable knowledge.

Learners will start with a basic knowledge of cellular structure and function, especially concentrating on the role energy has in driving the processes of the body and how this energy is obtained. Learners will examine how certain systems work together in providing the necessary requirements for energy production and removing potentially poisonous by-products from the body.

Whilst certain systems and tissues will be explored in depth from both an anatomical and functional point of view, learners will also be taken on a brief overview of all major organs and systems of the body, not only discovering their location but what they do.

Conditions within the body are constantly changing and this could have lethal effects. Many human dysfunctions that learners may encounter whilst working in the health and social care sector are the result of disturbances of these conditions. Learners will have the opportunity to study how these harmful effects are avoided in the healthy body by homeostatic mechanisms. They will be able to observe some of these regulatory processes in action by undertaking simple practical activities that will require them to take measurements of the cardiovascular and respiratory systems along with body temperature using noninvasive techniques.

This unit will provide a core understanding and knowledge of human anatomy and physiology that will allow progression on to further specialised physiology units. The unit further encourages learners to develop a working comprehension of the body's operations that may well influence the lifestyle decisions they themselves make or the advice and help they give to others.

| Learning Outcome - The learner will: | Assessment Criteria - The learner can: | Merit | Distinction |
|---|--|---|--|
| 1 Know the organisation of the human body | 1P Outline the functions of the main cell components | | |
| | 2P Outline the structure of the main tissues of the body | | |
| | 3P Outline the gross structure of all the main body systems | | |
| 2 Understand the functioning of the body systems associated with energy metabolism | 4P Explain the physiology of two named body systems in relation to energy metabolism in the body | 1M Explain how two body systems interrelate to provide for the body's energy needs | 1D Analyse how systems of the body use energy |
| 3 Understand how homeostatic mechanisms operate in the maintenance of an internal environment | 5P Explain the concept of homeostasis | 2M Explain how the body maintains the optimum conditions for energy metabolism | 2D Analyse the consequences of homeostatic processes failing in the body |
| 4 Be able to interpret data obtained from monitoring routine activities with reference to the functioning of healthy body systems | 6P Follow guidelines to collect data for heart rate, breathing rate and temperature before and after a standard period of exercise | 3M Explain measures taken to ensure validity and reliability during the practical investigation | |

P = Pass, M = Merit, D = Distinction

LEARNING OUTCOME 1 - KNOW THE ORGANISATION OF THE HUMAN BODY

| Learning Outcome - The learner will: | Assessment Criteria - The learner can: | Merit | Distinction |
|---|---|-------|-------------|
| 1 Know the organisation of the human body | 1P Outline the functions of the main cell components | | |
| | 2P Outline the structure of the main tissues of the body | | |
| | 3P Outline the gross structure of all the main body systems | | |

P = Pass, M = Merit, D = Distinction

| Suggested content | Suggested Activities | Suggested timings | Links to Assessment Criteria |
|---|---|-------------------|------------------------------|
| 1 Bodily organs | Learners could lie down on a big sheet of paper, whilst their colleagues draw around their body in order to create an outline. The learners could indicate, on the outline, where the bodily organs are located. The learners could then research where the organs are located and compare this with their own identification. These posters could be used for display purposes. | 2 hours | |
| 2 Cardiovascular system  | The learners could be shown a film clip on the cardiovascular system. The teacher could give the learners a handout with questions about the cardiovascular system which they could answer whilst watching the film. Learners could discuss their findings and, using their notes, outline the structure and function of the cardiovascular system. | 2 hours | |
| 3 Respiratory and digestive systems  | Learners could be divided into two groups. One group could focus on the respiratory system and the other on the digestive system. The learners could produce an information leaflet in which they outline the main function and structure of their allocated system. They could incorporate labelled diagrams and an interactive activity which they present to their colleagues. | 2 hours | |
| 4 Renal and nervous systems  | Learners could be given a diagram of the renal system which they could research and label. Having completed this activity the learners could complete a 'fill the gap' exercise about how the renal system functions. The learners could then write up their notes on how the renal and nervous systems function. | 1 hour | |
| 5 Endocrine and reproductive systems  | Learners could be divided into three groups. Each group could be allocated one of the following system to focus on; endocrine, female reproductive, male reproductive. Each group could research their allocated system and develop a worksheet that learners could complete whilst watching the other groups' presentations. Each group could present their research. | 2 hours | |
| 6 Musculoskeletal  | Learners could work in groups to develop a life size image of the musculoskeletal system. Learners could pin this onto a notice board and use arrows to identify relevant labels of the skeleton. Learners could then outline the nature and function of the skeletal system. | 2 hours | |

| Suggested content | Suggested Activities | Suggested timings | Links to Assessment Criteria |
|---|---|-------------------|---|
| 7 Bone and skin  | Learners could be divided into two groups. One group could focus on researching skin and the other group could focus on researching bones. Each group could create a 'fill the gap' exercise that the other group could complete whilst watching their presentations. Learners could use the presentation information and gap filling exercise to consolidate their knowledge in relation to bone and skin. | 2 hours | |
| 8 Lymphatic and immune systems  | The teacher could outline the nature of the immune system and ask the learners to consider, 'What causes a poor immune system?'. The learners could identify and discuss factors that impact on peoples' health. This activity could be followed by a research activity in which the learners investigate what an immune system does and the role of the lymphatic system in ensuring that the immune system is effective. The teacher could check learners understanding of the main themes by developing a learner debate, eg learners could discuss the notion that our immune system is hereditary. | 2 hours | |
| 9 Consolidation  | Learners could consolidate their knowledge by creating a body systems booklet in which they outline the gross structure of all the main body systems. Learners could examine the structure, purpose and function of each body system, using diagrams to illustrate their knowledge. Learners could also include in their booklets an examination of the lymphatic and immune systems. | 2 hours | 3P Outline the gross structure of all the main body systems |
| 10 Tissues | Learners could be introduced to the structures of the main tissues in the body, eg epithelial, blood, cartilage, areolar, etc. The teacher could outline the main tissues that learners need to research and explain the structure and function of each. | 1 hour | |
| 11 Consolidation  | Having researched this information the learners could consolidate this research by writing a report. | 2 hours | 2P Outline the structure of the main tissues of the body |
| 12 Cells | Learners could investigate the make-up of a cell and create 3D representations of this. Learners could create life size models using various craft materials. The learners could label the various parts of a cell. | 2 hours | |
| 13 Consolidation  | Learners could consolidate their research by creating a report in which they outline the functions of the main cell components. | 2 hours | 1P Outline the functions of the main cell components |

LEARNING OUTCOME 2 - UNDERSTAND THE FUNCTIONING OF THE BODY SYSTEMS ASSOCIATED WITH ENERGY METABOLISM

| Learning Outcome - The learner will: | Assessment Criteria - The learner can: | Merit | Distinction |
|--|--|--|---|
| 2 Understand the functioning of the body systems associated with energy metabolism | 4P Explain the physiology of two named body systems in relation to energy metabolism in the body | 1M Explain how two body systems interrelate to provide for the body's energy needs | 1D Analyse how systems of the body use energy |

P = Pass, M = Merit, D = Distinction

| Suggested content | Suggested Activities | Suggested timings | Links to Assessment Criteria |
|--|---|-------------------|--|
| 1 Energy and metabolism  | Learners could be introduced to energy and metabolism, through the use of a film clip. Learners could then examine the consequences of an unbalanced diet and the impact that this has on an individual's health. Learners could consolidate their knowledge by discussing how and why energy is important. | 2 hours | |
| 2 Cardiovascular system and energy production  | Learners could develop an information sheet in which they could include diagrams and an analysis of the cardiovascular system and how it supports the body to facilitate metabolism and energy production. | 2 hours | |
| 3 Digestion system and energy production  | Learners could watch film clips of the digestive system of an obese individual and an athlete. The learners could identify how the body functions differently if an individual eats more than is needed for energy. The learners could explain the way in which the digestive system uses and processes food that an individual eats. | 2 hours | |
| 4 Consolidation  | The learners could consolidate their research by explaining the physiology of each individual body system in relation to energy metabolism. Learners could make reference to examples to demonstrate any points that they make. | 2 hours | 4P Explain the physiology of two named body systems in relation to energy metabolism in the body |
| 5 How the systems interrelate | Learners could work in small groups to research the ways in which the two body systems work together to provide for the body's energy needs. The groups could develop diagrams illustrating how the body's systems work together to provide for the body's energy needs. | 3 hours | |
| 6 Consolidation  | Learners could consolidate their research by identifying the ways in which the two systems work together to provide for the body's energy needs. Learners could outline the relationships that the two systems have and assess its importance, by developing an essay. | 2 hours | 1M Explain how two body systems interrelate to provide for the body's energy needs |
| 7 Analysis of systems | In groups the learners could discuss how the various systems of the body use energy in the different ways. Learners could discuss and outline their findings on posters to support their knowledge. | 1 hour | |

| Suggested content | Suggested Activities | Suggested timings | Links to Assessment Criteria |
|--|--|-------------------|---|
| 8 Consolidation  | Learners could consolidate their findings by analysing how the systems of the body use energy referring to various examples, similarities and differences and coming to conclusions. | 3 hours | 1D Analyse how systems of the body use energy |

LEARNING OUTCOME 3 - UNDERSTAND HOW HOMEOSTATIC MECHANISMS OPERATE IN THE MAINTENANCE OF AN INTERNAL ENVIRONMENT

| Learning Outcome - The learner will: | Assessment Criteria - The learner can: | Merit | Distinction |
|---|--|--|--|
| 3 Understand how homeostatic mechanisms operate in the maintenance of an internal environment | 5P Explain the concept of homeostasis | 2M Explain how the body maintains the optimum conditions for energy metabolism | 2D Analyse the consequences of homeostatic processes failing in the body |

P = Pass, M = Merit, D = Distinction

| Suggested content | Suggested Activities | Suggested timings | Links to Assessment Criteria |
|--|---|-------------------|--|
| 1 Homeostasis | The teacher could introduce the learners to the notion of homeostasis and discuss definitions of homeostasis. The learners could use this information to illustrate the homeostasis process, referring to relevant concepts to illustrate the process. | 1 hour | |
| 2 Consolidation  | The learners could consolidate their research by writing an essay in which they explain the process of homeostasis, referring to examples to illustrate their explanations. | 1 hour | 5P Explain the process of homeostasis |
| 3 Temperature control experiment  | The learners could take part in an experiment to assess how, when and to what extent body temperature changes depending on the activities of individuals. Learners could undertake strenuous exercise for 5 minutes and check their temperature. Then check their temperature following a cold drink and identify whether they feel there is any correlation. This information could be documented in a graph format. Learners could then debate whether it is possible to regulate body temperature. | 2 hours | |
| 4 Mechanisms for regulation | Learners could work in small groups to explore the ways in which the homeostatic process works to regulate the different systems in the body to stop an imbalance. Learners could develop a diagram of how the various systems work together to ensure that they all work within a normal range. Learners could research how the various systems work together to ensure energy balance, temperature control, human metabolism and sugar regulation. | 2 hours | |
| 5 Consolidation  | Learners could present this information in the form of a report. Learners could incorporate diagrams and explain how the body maintains the optimum conditions for energy metabolism. | | 2M Explain how the body maintains the optimum conditions for energy metabolism |

| Suggested content | Suggested Activities | Suggested timings | Links to Assessment Criteria |
|--|--|-------------------|--|
| 6 Causes of homeostasis failing  | Learners could be placed in groups to investigate factors that may cause homeostatic failure. Each group of learners could examine a different factor that could cause homeostasis to become imbalanced, eg sugar, temperature, iron etc. Each group could present their findings, explaining the consequences of these factors on the homeostasis process and the overall impact on the body and its systems. | 2 hours | |
| 7 Consequences of homeostasis failing | Learners could work in groups to examine a case study (developed by the teacher) to illustrate the consequences of the homeostasis process failing. The learners could identify the impact of this failure on the individual in the case study and examine the causes of this failure. | 1 hour | |
| 8 Consolidation  | Learners could consolidate their research by compiling a report in which they discuss and analyse the consequences of homeostatic failure, by referring to examples from the case study. The learners could also refer to other explanations in order to ensure that they have cohesively analysed all of the factors that may cause homeostatic failure. | 3 hours | 2D Analyse the consequences of homeostatic processes failing in the body |

LEARNING OUTCOME 4 - BE ABLE TO INTERPRET DATA OBTAINED FROM MONITORING ROUTINE ACTIVITIES WITH REFERENCE TO THE FUNCTIONING OF HEALTHY BODY SYSTEMS

| Learning Outcome - The learner will: | Assessment Criteria - The learner can: | Merit | Distinction |
|---|--|---|-------------|
| 4 Be able to interpret data obtained from monitoring routine activities with reference to the functioning of healthy body systems | 6P Follow guidelines to collect data for heart rate, breathing rate and temperature before and after a standard period of exercise | 3M Explain measures taken to ensure validity and reliability during the practical investigation | |

P = Pass, M = Merit, D = Distinction

| Suggested content | Suggested Activities | Suggested timings | Links to Assessment Criteria |
|---|---|-------------------|--|
| 1 Introduction to measures of health  | The teacher could introduce the learners to various measures of health. The learners could then interview a health practitioner, eg GP, nurse, midwife and identify and explain the measures of health that they use and their importance. Learners can present their findings to their colleagues. | 2 hours | |
| 2 Pulse rate and breathing rate  | Learners could investigate and outline how to take a individual's pulse and monitor his/her breathing rate. The learners could put their learning into practice by completing an activity in which they could monitor each other's pulse and breathing rate prior to and following exercise. The learners could identify their findings through the use of a table or graph and write up their findings discussing whether the pulse is in the normal range and explain any variations. | 2 hours | 6P Follow guidelines to collect data for heart rate, breathing rate and temperature before and after a standard period of exercise |
| 3 Temperature  | The teacher could introduce this theme by arranging for the learners to watch a film clip, eg, http://www.youtube.com/watch?v=KJZCOjdG8e- "8 9 2 Body temperature regulation, in which the human temperature is discussed. Learners could make notes on human temperature and the reactions of the body to increases or decreases in temperature. Having completed this the learners could measure the temperature of colleagues in the group and plot a graph to identify the various temperatures collected from individuals within the room. The learners could discuss the fluctuations that they may have identified. | 2 hours | 6P Follow guidelines to collect data for heart rate, breathing rate and temperature before and after a standard period of exercise |
| 4 Validity and reliability | The teacher could introduce and support the learners to define the concepts of reliability and validity. Learners could individually use these definitions to identify what they did to try to ensure reliability and validity when they conducted their own experiments. | 1 hour | |
| 5 Consolidation  | Learners could consolidate their research and analysis by writing an essay in which they explain the measures that they had undertaken to ensure validity and reliability referring to relevant examples and formulating conclusions. | 2 hours | 3M Explain measures taken to ensure validity and reliability during the practical investigation |



CONTACT US

Staff at the OCR Customer Contact Centre are available to take your call between 8am and 5.30pm, Monday to Friday.

We're always happy to answer questions and give advice.

Telephone 02476 851509

Email cambridgetechnicals@ocr.org.uk

www.ocr.org.uk