National Unit Specification: general information

UNIT The Human Body (Intermediate 2)

CODE F1RH 11

SUMMARY

This Unit is designed to provide an introduction to the structure and function of the human body. In this Unit candidates will learn the organisation of major systems within the human body and, using specific components as examples, develop an understanding of the relationship between structure and function in each of these systems. Candidates will apply this knowledge to investigate how common disease or injury leads to changes in function.

This Unit is suitable for candidates who wish to progress to employment or study of a variety of subjects where a basic knowledge of human biology is required.

OUTCOMES

1. Describe the organisation of named body systems.
2. Describe the key function of specific components of body systems and relate their structure to function.
3. Investigate changes in function of body systems as a result of a disease or an injury.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

CREDIT VALUE

1 credit at Intermediate 2 (6 SCQF credit points at SCQF level 5*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Administrative Information

Superclass: RH

Publication date: June 2007

Source: Scottish Qualifications Authority

Version: 01

National Unit Specification: general information (cont)

UNIT The Human Body (Intermediate 2)

CORE SKILLS

There is no automatic certification of Core Skills or Core Skills components in this Unit.

National Unit Specification: statement of standards

UNIT The Human Body (Intermediate 2)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME 1

Describe the organisation of named body systems.

Performance Criteria

(a) Identify the components of named body systems.
(b) Identify the locations of components of named body systems.

OUTCOME 2

Describe the key function of specific components of body systems and relate their structure to function.

Performance Criteria

(a) Describe the key function of specific components.
(b) Describe the relationship between the structure of specific components and their key functions.

OUTCOME 3

Investigate changes in function of body systems as a result of a disease or an injury.

Performance Criteria

(a) Identify and describe a specific disease or injury which affects the functions of specific body systems.
(b) Identify and describe the normal functions of the main body system affected by this disease or injury.
(c) Identify and describe the alteration to these functions as a result of this disease or injury.
(d) Use a variety of sources during the investigation.

National Unit Specification: statement of standards (cont)

UNIT The Human Body (Intermediate 2)

EVIDENCE REQUIREMENTS FOR THIS UNIT

The mandatory content for this Unit can be found in the appendix at the end of this Unit Specification

Evidence is required to demonstrate that candidates have achieved all Outcomes and Performance Criteria.

Outcome 1 and 2

Written and /or oral evidence is required which demonstrates that the candidate has achieved Outcomes 1 and 2 to the standard specified in the Outcomes and Performance Criteria. The evidence must be produced under closed-book, supervised conditions within a time limit of **one** hour.

An appropriate instrument of assessment will be a single holistic integrated test which will provide opportunities for Outcomes 1 and 2 to be fulfilled by means of sampling across the relevant range of content. This assessment should cover **four** of the **eight** body systems but the candidates will not be told which four are to be assessed. The assessment will utilise structured questions of a variety of formats but be primarily of the restricted response type, with Outcome 1 partly assessed by candidates annotating relevant diagrammatic representations of the human body.

Each assessment will allow candidates to generate evidence which covers:

- The identity of **four** component parts of each of **four** body systems.
- Location of **four** component parts of each of **four** body systems.
- The function of **one** component of each of the **four** body systems.
- The relationship between structure and the key function of specific components from each of **four** body systems.

The use of a cut-off score may be appropriate for this assessment.

If a re-assessment is required it should examine a different sample from the range of content. This will include sampling across the range of content of **two new** and two body systems from those sampled in the first assessment.

Outcome 3

Written and or recorded oral evidence produced as a result of an investigation is required for this Outcome. Candidates will be given an investigation brief which will allow them to achieve all Performance Criteria. Candidates will gather the information on their own at appropriate points throughout the Unit. The evidence gathered must include:

- One disease or injury chosen by the candidate in discussion with teacher/lecturer.
- The normal functions of the main body system affected by that disease or injury.
- The changes in function of that body system as a result of that disease or injury.
- References to at least three different source materials.

National Unit Specification: statement of standards (cont)

UNIT The Human Body (Intermediate 2)

It will be appropriate for candidates to present the results of their investigation in the form of a report.

Centres must be satisfied that the evidence submitted is the work of individual candidates.

If re-assessment is required this should be remediation and resubmission of the original work.

The standard to be applied, the breadth of coverage and an appropriate cut-off score are illustrated in the National Assessment Bank (NAB) pack available for this Unit. If a centre wishes to design its own assessments they should be of a comparable standard.

National Unit Specification: support notes

UNIT The Human Body (Intermediate 2)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This Unit is an optional Unit within the *National Certificate in Health and Social Care* (Higher) but is also suitable as a freestanding Unit. It is primarily intended to provide candidates with an overview of the human body with emphasis on the relationship between structure of components and the function they perform.

Eight body systems are listed here and all should be taught and be available for assessment.

Outcomes 1 and 2

The eight body systems which this Unit focuses on are the musculo-skeletal; respiratory; cardio-vascular; digestive; reproductive; urinary; nervous and endocrine systems.

Outcome 1

Locations of the component parts of each system to include: head, chest, abdomen, upper and lower limbs.

- Musculo-skeletal system

  Principal components of this system to include scapula, mandible, clavicle, cranium, sternum, ribs, pelvic girdle, tibia, fibula, humerus, ulna, radius, biceps, triceps, trapezius, deltoids, pectorals, gluteus maximus and hamstrings.

- Respiratory system

  Principal components of this system to include lungs, trachea, larynx, bronchi, bronchioles, alveoli, diaphragm and intercostal muscles.

- Cardio-vascular system

  Principal components of this system to include:
  heart *(including chambers and valves)*, aorta, vena cava, pulmonary artery, pulmonary vein, *carotid artery, jugular vein, radial artery and vein, femoral artery and vein,* capillaries and blood.

- Digestive system

  Principal components of this system to include mouth salivary glands, oesophagus, stomach, small intestine, colon, rectum, anus, liver, pancreas, and gall bladder.

National Unit Specification: support notes (cont)

UNIT The Human Body (Intermediate 2)

- Urinary system

  Principal components of this system to include kidneys, ureters, bladder, and urethra.

- Reproductive System

  Principal components of this system to include penis, scrotum, testes, vas deferens, prostate, ovaries, oviducts, uterus, cervix and vagina.

- Nervous system

  Principal components of this system to include major regions of the brain, spinal cord and peripheral nerves including sciatic, radial, thoracic and cranial nerves.

- Endocrine system

  Principal components of this system to include pituitary, hypothalamus, thyroid, adrenals, pancreas, ovaries and testes.

Outcome 2

- Musculo-skeletal system

  — Key functions: muscles and bone in movement and support.
  — Structure to function: structure of bones and role in support and movement, role of tendons and ligaments. Structural arrangement of muscles as antagonistic pairs in relationship to function.

- Respiratory system

  — Key function: gas exchange.
  — Structure to function: structure with respect to function with emphasis on adaptations for efficient gas exchange. Role of diffusion in gas exchange. Mechanics of inspiration and expiration.

- Cardio-vascular system

  — Key function: transport of nutrients, gases and waste.
  — Structure to function: structural aspects relevant to function include chambers of heart, valves in heart, thick walls of arteries, valves in veins, thin walls of capillaries; role of blood cells and plasma.

National Unit Specification: support notes (cont)

UNIT The Human Body (Intermediate 2)

- Digestive system

  — Key function: digestion and absorption to obtain raw materials for energy release, growth and repair.
  — Structure to function: relationship between structure and function illustrated by peristalsis in intestine; adaptations for efficient absorption; release and function of enzymes (general not specific), stomach acid, and bile; mechanical breakdown of food.

- Urinary system

  — Key function: removal of waste.
  — Structure to function: structure with respect to function exemplified by kidney and adaptations for efficient filtration and selective reabsorption.

- Reproductive System

  — Key function: in sperm and egg production and in fertilisation (details of meiosis NOT required).
  — Structure to function: structure with respect to function exemplified by production of seminal fluid and role of cilia in oviducts.

- Nervous system

  — Key function: response to change, eg response to pain or temperature.
  — Structure to function: arrangement of a reflex arc to illustrate structure/function relationship, ie: receptor → sensory neurone → integrating centre → motor neurone → effector.

- Endocrine system

  — Key function: maintenance of homeostasis.
  — Structure to function: concept of communication between gland & target tissue using hormones as chemical messengers. Feedback control mechanisms.

Outcome 3

Suggested common diseases or injuries relevant to each system include, but are not restricted to:

- Musculo-skeletal system

  Sprains, fractures, tendonitis, osteoarthritis.

- Respiratory system

  Bronchitis, asthma, cystic fibrosis, asbestosis, lung cancer, tuberculosis.

- Cardio-vascular system

  Angina, heart failure, myocardial infarction, hardening of the arteries.

- Digestive system

  Gastric ulcers, duodenal ulcers, Crohn's disease, cirrhosis of the liver.

- Urinary system

  Stress incontinence, urinary tract infection, kidney failure, kidney stones.

- Reproductive System

  Polycystic ovary syndrome, prostate cancer, pelvic inflammatory disease, STDs.

- Nervous system

  Motor neurone disease, multiple sclerosis, head and spinal injuries.

- Endocrine system

  Hypo or hyper-active thyroid gland, pituitary tumour, diabetes mellitus.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

The Unit could be delivered in a variety of contexts including, for example health, sport, care and beauty therapy. In each case it is strongly recommended that, where possible, systems are taught in ways relevant to the learner.

A candidate-centred resource-based approach is likely to be most suitable for this Unit. Use of visual aids such as models, posters and videos is strongly recommended along with reference to appropriate Internet sites.

Practical experimental work may be used to demonstrate and investigate key processes within the human body. Suggested practicals include:

- Investigating the specificity of enzymes
- Demonstrating the purpose of digestion and absorption using Visking tubing as a model gut
- Examining a mammalian (sheep) heart
- Examining mammalian (sheep) lungs
- Examining mammalian (sheep/pig) kidneys
- Demonstrating a reflex arc
- Investigating the effect of pH on the digestion of proteins
- Investigating the effect of temperature on the digestion of proteins
- Investigating the effect of temperature on the activity of lipase
- Examining a prepared slide of blood

National Unit Specification: support notes (cont)

UNIT The Human Body (Intermediate 2)

It is suggested that candidates should begin to collate the materials for the Outcome 3 investigative report whilst relevant systems are being taught/studied in Outcomes 1 and 2.

OPPORTUNITIES FOR CORE SKILLS DEVELOPMENT

Throughout this Unit, in learning, teaching and assessment, candidates are required to give written or oral descriptions of component parts of the body systems. This may provide opportunities to develop aspects of the Core Skill of Communication.

In Outcome 3 candidates are required to carry out some investigative work on a specific disease or injury. This can be oral, text, video or internet based. All materials gathered through this investigation are required to be analysed. This activity offers opportunities to develop aspects of the Core Skill of Problem Solving.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Outcomes 1 and 2 will be assessed by an integrated approach which uses a written or oral single holistic assessment. This assessment will provide an opportunity for candidates to demonstrate knowledge and understanding of all Performance Criteria within these Outcomes.

The assessment will utilise structured questions of a variety of formats but be primarily of the restricted response type. Outcome 1 may be partly assessed by candidates annotating relevant diagrammatic representations of the human body.

In **Outcome 3**, it is recommended that candidates should be given the opportunity to select the disease or injury they will research in Outcome 3. However it is recommended that these choices are discussed with the teacher/lecturer before research commences.

Candidates will be given an investigation brief which will allow them to achieve all Performance Criteria. Candidates will gather the information on their own at appropriate points throughout the Unit.

The evidence gathered must include:

- One disease or injury chosen by the candidate in discussion with teacher/lecturer.
- The normal functions of the main body system affected by that disease or injury.
- The changes in function of that body system as a result of that disease or injury.
- References to at least three different source materials.

It will be appropriate for candidates to present the results of their investigation in the form of a report.

Centres must be satisfied that the evidence submitted is the work of individual candidates.

If re-assessment of this Outcome is required this should be remediation and resubmission of the original work.

National Unit Specification: support notes (cont)

UNIT The Human Body (Intermediate 2)

CANDIDATES WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* **(www.sqa.org.uk)**.

National Unit Specification: appendix to the statement of standards

UNIT The Human Body (Intermediate 2)

NB *This appendix forms part of the statement of standards, ie requirements that are mandatory*

Outcomes 1 and 2

The following must be covered in the learning and teaching of this Unit.

The eight body systems listed below, naming major components, showing the structure of components, the key function of each system and how structure relates to the key function:

- Musculo-skeletal system
- Respiratory system
- Cardio-vascular system
- Digestive system
- Urinary system
- Reproductive system
- Nervous system
- Endocrine system

Outcome 3

As part of this Outcome, candidates will investigate a common disease or injury and its effect on one of the systems covered above.