SCOTTISH QUALIFICATIONS AUTHORITY

HOME ECONOMICS: HEALTH AND FOOD TECHNOLOGY

Higher

Sixth edition – published April 2003

SCOTTISH QUALIFICATIONS AUTHORITY

NOTE OF CHANGES TO ARRANGEMENTS
SIXTH EDITION PUBLISHED APRIL 2003

COURSE TITLE Home Economics: Health and Food Technology (Higher)

COURSE NUMBER: C118 12

National Course Specification

Course details:	The course number has been changed from C045 12 to C118 12, because of changes to the course structure at Intermediate 1. The code at Higher has been changed to retain the hierarchical sequence.

National Unit Specification

All Units:	No changes.

SCOTTISH QUALIFICATIONS AUTHORITY

National Course Specification

HOME ECONOMICS: HEALTH AND FOOD TECHNOLOGY (HIGHER)

COURSE NUMBER C118 12

COURSE STRUCTURE

The course has two mandatory units as follows:

D271 12	***Health and Food Technology: Resource Management (H)***	***2 credits (80 hours)***
D269 12	***Health and Food Technology: Consumer Studies (H)***	***1 credit (40 hours)***

In common with all courses, this course includes 40 hours over and above the 120 hours for the component units. This is for induction, extending the range of learning and teaching approaches, support, consolidation, integration of learning and preparation for external assessment. This time is an important element of the course and advice on its use is included in the course details.

It is recommended that units be taught concurrently and advice on this approach can be found in the section Approaches to learning and teaching.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates would normally be expected to have attained one of the following:

- Standard Grade at Credit level in Home Economics
- Intermediate 2 Home Economics or its component units

or

- a course or units at Intermediate 2 or Standard Grade at Credit level in a related subject area.

The course is also suitable for 'new starts' and adult returners.

Administrative Information

Publication date: April 2003

Source: Scottish Qualifications Authority

Version: 06

National Course Specification (cont)

COURSE Home Economics: Health and Food Technology (Higher)

CORE SKILLS

Core skills for this qualification remain subject to confirmation and details will be available at a later date.

Additional information about core skills is published in the *Catalogue of Core Skills in National Qualifications* (SQA, 2001).

National Course Specification: course details

COURSE Home Economics: Health and Food Technology (Higher)

RATIONALE

Home Economics is concerned with using and managing resources for the benefit of individuals, the family and society. The course aims to develop candidates' personal effectiveness in using and managing resources in the context of Health and Food Technology, adding to the dimensions of self, family and community a range of challenging experiences relating to the food industry. These experiences will enhance their future opportunities for further study or employment.

Health and Food Technology involves the study of a specialist area of knowledge and the development of a range of skills and abilities. The skills can be defined as: cognitive; scientific; technological; aesthetic; creative and social; those relating to management. Health and Food Technology requires integrated application of these skills to solve technological problems. Candidates are encouraged to respond effectively to social, economic and technological change by the systematic application of appropriate skills and knowledge. This is achieved by placing emphasis on the development of transferable skills through a candidate-centred approach to learning. The acquisition of knowledge and the development of skills are integrated through the delivery of the course content within the component units of Health and Food Technology: Resource Management (H) and Health and Food Technology: Consumer Studies (H).

Study of Health and Food Technology enables candidates to focus on the physical, chemical, nutritional, biological and sensory properties of food, and on ways in which these properties can be manipulated when manufacturers design and make food products. These products have a specified shelf life and are required to meet the needs of many categories of consumer. Some focus is also placed on food preparation for immediate consumption, where consumers' cultural, social and nutritional needs and economic status are known.

The requirement to identify and respond to needs promotes the development of technological capability. In its report *A Framework for Technology Education in Scottish Schools: A Statement of Position*, the Scottish Consultative Council on the Curriculum (SCCC, 1996) states:

'A broadly-based technological component in the curriculum does do much to "privilege the practical" and to redress the imbalance in many young people's educational experience between the acquisition of knowledge, skills and attitudes' and their application to meeting and solving practical problem. Including technology in the curriculum improves the status and attractiveness of the practical and commercial activities which are the heart of industry and business, and helps all young people to recognise the personal satisfaction and enjoyment that can be derived from active participation.'

Home Economics in the context of Health and Food Technology provides opportunities 'to identify and address people's needs and wants for food and health care' (SCCC), through practical activities which provide realistic insights to applications in the home, community and hospitality industry.

The course in Home Economics provides learning experiences for the development of the four aspects of technological capability. For example, candidates develop: technological perspective by showing appreciation of the factors which contribute to the success of a well designed product; technological confidence by questioning the designs and products of others, and by becoming proficient in applying knowledge and skills to solve problems; technological sensitivity by demonstrating appreciation that technological developments have consequences for others and the world in general; technological creativity by solving problems which require the use of a range of resources in the development of feasible and imaginative approaches to the creation of products and systems.

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology (Higher)

Specialist craft skills and management skills are fundamental to Health and Food Technology. The craft skills include the process and manipulative skills concerned with:

- food preparation
- food production.

Management skills include the effective use of time and resources in the creation of products and systems. These skills enable candidates to participate effectively in technological activity.

The publication of 'The Scottish Diet' Report and the amended Dietary Targets for the year 2005 issued in November 1994 has imposed a responsibility on Home Economics to assist in meeting these dietary targets in a practical way. The document calls for a greater emphasis to be placed on practical 'hands-on' experience and recognises how this experience can promote self-assurance and understanding of difficult nutritional concepts. Health and Food Technology provides an opportunity to address some of the recommendations of the document and to gain an industrial perspective on promoting foods for a healthier lifestyle.

An important part of Health and Food Technology is to develop standards in relation to a safe working environment. For example, candidates are encouraged to take responsibility for health and safety in the use of products and equipment which carry potential risks. This is particularly relevant if considering the possibilities of food contamination and food poisoning. These standards are also applied in industry and are, therefore, transferable.

Through the study of Health and Food Technology candidates will have the opportunity to: acquire knowledge and experiences which will influence the quality of their lives; further develop and use specialist craft skills and management skills; develop skills of enquiry, analysis and evaluation and use these to make reasoned decisions; develop a capacity to solve problems using a range of technological and other resources. The course contributes to personal development as it facilitates the opportunity to experience a range of study skills, and encourages a structured approach to independent learning, culminating in a technological project. This form of learning not only develops skills necessary for living today, but also prepares candidates for further study and employment opportunities.

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology (Higher)

AIMS

1 To provide opportunities for the acquisition of specialist knowledge and understanding of the factors which influence some of the choices and decisions made by individuals, families* and society.

2 To apply skills of analysis and evaluation through the study of materials and resources necessary for the identification of, and response to, the physical and social needs of individuals and families*.

3 To develop the management skills necessary for the effective use of materials and resources and to provide opportunities for the application of these skills.

4 To offer opportunities to use specialist craft skills for creative purposes as well as for investigatory and problem solving activities.

5 To develop a critical approach when responding positively to social and technological change and environmental issues.

6 To offer opportunities for the achievement of technological capability in the four aspects of technological perspective, confidence, sensitivity and creativity.

7 To offer opportunities for the development of personal and interpersonal skills in the areas of initiative, responsibility, co-operation, and adaptability and to encourage a positive attitude to independent learning.

8 To foster vocational links and an awareness of the food industry.

* Families can be defined as a unit made up of more than one person, contributing to the well-being of its individual members

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT

Health and Food Technology: Resource Management

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
Candidates should be able to demonstrate knowledge and understanding when proposing solutions to problems concerning:		delivery of this content should, where possible, be delivered/consolidated through practical activity
the interrelationship of groups of nutrients related to function	calcium, phosphorous and vitamin D	function and interrelationship: calcium and phosphorus vitamin D
		factors which hinder calcium absorption: phytic acid NSP fats oxalic acid
		factors which assist calcium absorption: vitamin D calcium enrichment — white flour protein — amino acids combine with calcium lactose
	iron, vitamin C and folic acid	function and interrelationship: factors which hinder iron absorption: a lack of vitamin C in the diet too much NSP

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT
Health and Food Technology: Resource Management

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
the interrelationship of groups of nutrients related to function (cont).	B complex and carbohydrate	function and interrelationship: carbohydrate — sugars intrinsic/extrinsic and starch; B1, B2, and B3
	Iron, NSP and phytic acid	functions and interrelationships: factors which hinder iron absorption: NSP in green vegetables and fresh fruit phytic acid in wholegrain cereals a lack of vitamin C in the diet
effects of storage, preparation and cooking on nutrients	coagulation of protein deterioration of fats when exposed to air in storage digestibility of fats in preparation stability in cooking carbohydrates	effects of overheating rancidity preparation may aid digestion — grating breakdown of fatty acids and glycerol starch effects of heat and liquid: solubility

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT
Health and Food Technology: Resource Management

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
effects of storage, preparation and cooking on nutrients (cont)		sugar effects of heat: caramelisation/charing not impaired as an energy food
	vitamin A	deterioration in storage: oxidation on exposure to light suitable storage methods to reduce loss rancidity in fats
	vitamins B1, B2, B3, folate	deterioration in processing and storage: destroyed by exposure to light lost in milling process effects of heat water-soluble stable in dry heat but not for long destroyed by alkaline solution
	vitamin C	deterioration in storage: oxidation effect of heat water-soluble — destroyed by heat destroyed by alkaline solutions destroyed by enzyme activity (oxidize) during preparation — chopping, etc.

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT
Health and Food Technology: Resource Management

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
effects of storage, preparation and cooking on nutrients (cont)	vitamins D, E and K	effect of heat fat-soluble stable to heat unstable to alkalis
the relationship between diet, lifestyle and health	the use of dietary reference values for specified groups, directly related to:	relating to the intake of: energy, protein, fats and fatty acids, starches and sugars, NSP, vitamins A, B1, B2, B3, C, D, E
	age growth physical activity special circumstance (for the purpose of external assessment the reference value will be provided)	linking with current dietary advice pregnancy and breast feeding, convalescent, weight reduction diets
	prevention of the following dietary diseases: obesity dental caries coronary heart disease (CHD) hypertension diverticulitis osteoporosis osteomalacia	relating to: energy imbalance current dietary advice and dietary targets practical ways of meeting the dietary targets

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT
Health and Food Technology: Resource Management

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
product development determining the specification	the functional properties of food	functional properties are used to bring about change in a product factors causing change: environmental — cold, light, air the proportion and combinations of ingredients the pH level processing techniques, eg mixing using a food processor
	the ways the functional properties of food and the proportions used can be combined to amend, adapt or appraise existing products	crystallisation fermentation gelatinisation — viscosity changes affecting the colour
	identifying needs and developing concepts for products	investigation of existing product by: disassembling to investigate ingredients conducting sensory evaluation to determine the effects of range and proportions of ingredients on texture, flavour, aroma, preference, overall acceptability and quality. investigation of the processing methods used in the manufacture of one product and the HACCP system required for safe production

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT
Health and Food Technology: Resource Management

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
product development determining the specification (cont)	ways in which the properties of nutrients can be used to develop food products to meet specific dietary requirements	use of the dietary targets to influence proportions of ingredients and adaptation of products
causes, symptoms and prevention of food poisoning and contamination	causes of food poisoning	bacterial food poisoning — food contamination by pathogenic bacteria, which multiply due to incorrect storage, eg
		Salmonella *Staphlococcus aureus* *Clostridium perfringens* *Bacillus cereus* *Escherichia coli* (E.coli) *Campylobacter* *Listeria*
		viral food poisoning — viruses transmitted by water or food they require living tissue for growth — therefore, do not multiply in food chemical food poisoning — contaminated by chemicals during growth, storage, preparation or cooking of food
		vegetable food poisoning — natural toxins are found in some vegetable foods, which are poisonous to humans
	conditions for growth	warmth, food, moisture, time, oxygen pH (aerobes and anaerobes), spores

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT
Health and Food Technology: Resource Management

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
causes, symptoms and prevention of food poisoning and contamination (cont)	cross-contamination	definition, causes and prevention in terms of: personal and kitchen hygiene correct cooking temperature for heating and re-heating storage of foods premises – responsibility of employer/employee need for increased public awareness – World Health Organisation states food poisoning is one of the world's largest preventative diseases

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT

Health and Food Technology: Consumer Studies

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
Candidates should be able to demonstrate knowledge and understanding when proposing solutions to problems concerning:		delivery of this content should where possible be delivered/consolidated through practical activity
safety and quality of food	responsibility of the Department for Environment, Food and Rural Affairs (DEFRA)	for composition, labelling, additives, radiation contaminants, new product processes to negotiate in the European Union on the Common Agricultural Policy
	Food Standards Agency (FSA)	The role of the FSA
consumer protection in relation to food safety	Food Safety Act 1990	food hygiene: control of food hygiene in establishments where food is manufactured or sold control of food hygiene in terms of the customer, employee, employer and environment ie facilities and equipment enforcement by environmental health officers food labelling: misleading advertising – false claims requirements for 'use by'/'best before' dates and storage instructions information in terms of legal ingredients control of additives: colouring, flavouring role of Trading Standards – sampling food, analysis of food, court procedures

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT

Health and Food Technology: Consumer Studies

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
consumer protection in relation to food safety (cont)	Food Safety (General Food Hygiene) Regulations 1995.	Aims to ensure common food hygiene rules across the European Union. Regulations cover three main areas: temperature control of food likely to support the growth of harmful bacteria general food hygiene hazard analysis and risk assessment
	Trade Descriptions Act 1968	protection against traders who deliberately or accidentally mislead customers
the consumer within the European dimension	European directives — intention to standardise across Europe	an outline plan only which leaves individual Governments to make their own decisions
		points made in directives are usually incorporated into British legislation, eg 'e' mark for prepacked goods — indicating consistent quantities in, for example, tea, sugar, coffee
		food labelling — additives are identified by 'E' numbers
the impact of technological innovation on consumer choice of food	recent increase in the number and range of ready meals being produced by manufacturers	linked to social trends: less time for food preparation possible greater expendable income increased/reduced shopping trips less food preparation at home/more eating out demand for products which are quick and easy to prepare increased ownership of microwave ovens

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT
Health and Food Technology: Consumer Studies

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
the impact of technological innovation on consumer choice of food (cont)	developments in food technology to improve keeping qualities:	
	chilling/cook-chill products extrusion cooking	increased palatability breakfast cereals, snacks, textured vegetable protein — keeping qualities at room temperature
	UHT products	shelf life increased without use of preservatives
	modified atmosphere packaging	
	irradiation of food	slows down the ripening of fruit and vegetables, eradicates insects, retards sprouting, increases shelf life
	freezing, freeze-drying	
	food additives — substances not normally (or naturally) present in foods	categories — preservatives, anti-oxidants, colour, emulsifier and stabilizers, sweeteners, flavourings and flavour enhancers
		the role they play in product development: provide consistency of product, eg consistency of colour, flavour, viscosity allows for the use of cheaper ingredients — this may benefit the consumer decisions for use are made by the manufacturer pros and cons of using additives in foods

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology – Higher Course

COURSE CONTENT
Health and Food Technology: Consumer Studies

CONTEXT	CONTENT (UNDERPINNING KNOWLEDGE FOR PRACTICAL ACTIVITIES)	ELABORATION
implications of changes in social trends and manufacturers' responses to these changes	social trends relating to the purchasing, preparation and consumption of foods	current trend for additive-free foods
	current development in food production which are responding to consumer trends (developments will be updated as required)	acknowledgment of food manufacturers to dietary targets by producing pre-prepared foods which will help consumers meet the targets
myco-proteins	myco-proteins (Quorn)	new industrial food materials to fulfil dietary modifications
	dietary modified food	produced through modification, biotechnology, genetic engineering — arguments for and against
	hydroponics	commercial methods may be able to assist food production where fertile soil is limited
techniques used in the marketing of food products	the purpose of market research for the launch of a new product and for product evaluation	the stages of a marketing strategy, eg concept generation (including systematic testing and trialling of existing products), concept screening, product development, product testing, packaging and advertising map, first production run, marketing plan, launch

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology (Higher)

The benefit of taking component units as part of a course award is that it allows integration of teaching which can be achieved in a variety of imaginative ways. Classroom activities chosen to deliver course content should match the needs and abilities of candidates, and enable them to:

- develop and practise the skills identified in the rationale
- develop the transferable skills of enquiry, analysis and evaluation
- extend their knowledge base.

Such activities will prepare candidates for external assessment by enabling them to achieve at levels beyond that required to demonstrate competency for each of the unit outcomes, leading them towards technological capability demonstrated within the externally assessed assignment. For, example, candidates could be asked to consider a problem from a number of different perspectives, or in unfamiliar situations. Teachers/lecturers should make candidates aware of the integration between the knowledge and skills of the component units.

The course provides scope for high levels of achievement in the four aspects of technological capability. Candidates also have opportunities to develop management skills in a range of contexts and independence as learners.

ASSESSMENT

To gain the award of the course, the candidate must achieve all the component units of the course as well as the external assessment. External assessment will provide the basis for grading attainment in the course award.

When units are taken as component parts of a course, candidates will have the opportunity to achieve a level beyond that required to attain each of the unit outcomes. This attainment may, where appropriate, be recorded and used to contribute towards course estimates, and to provide evidence for appeals. Additional details are provided, where appropriate, with the exemplar assessment materials. Further information on the key principles of assessment are provided in the paper *Assessment* (HSDU, 1996) and in *Managing Assessment* (HSDU, 1998).

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology (Higher)

DETAILS OF THE INSTRUMENTS FOR EXTERNAL ASSESSMENT

Course assessment will be external and will sample across the outcomes of the component units.

Course assessment will consist of a question paper and a technological project.

The question paper will be of 2 hours duration and total 80 marks.

The question paper will consist of two sections: Section A and Section B.

Section A is a compulsory section worth 20 marks and consisting of short answer and restricted response type questions. All questions in this section are compulsory.

Section B contains four questions each worth 20 marks and consisting of extended response type questions. Question 1 in this section is compulsory and the content for this question will be derived from a specified area of content. Candidates will then complete two questions from the remaining three questions in this section.

The question paper will assess the candidate's ability to:

- Select and apply knowledge to a range of problems and situations
- Make critical appraisals and reasoned decisions, which involve using skills of analysis and evaluation.

Candidates will be required to submit a technological project worth 70 marks. The project will enable students to demonstrate integration of knowledge and skills across the component units in order to realise a solution and demonstrate technological capability. The project will be carried out within the centre. Two project briefs will be issued by the Scottish Qualifications Authority on an annual basis. One of these will be selected by the candidate and completed within 20 hours. The technological project will be wholly externally assessed. Candidates will be provided with the appropriate proforma and guidance by the Scottish Qualifications Authority.

Teacher/lecturer guidance will be provided which set out conditions and arrangements for external assessment.

Teachers/lecturers may offer guidance by giving:

- advice on source information, persons, agencies or establishments that may be able to help
- assistance with planning for deadlines
- advice on the suitability and practicability of the strategy produced by the candidate.

(See Technological Project specification.)

The overall course award will be based on the combined total marks from the question papers and the technological project.

Candidates may carry out research and investigation in their own time, but the assignment must be completed under supervision in the centre.

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology (Higher)

GRADE DESCRIPTIONS

Assessment will be external and will sample across the outcomes of the component units. The grade descriptions for course assessment relate to performance criteria for internal assessment but also place additional demands on candidates by testing their ability to: integrate knowledge and skills acquired across the component units; retain knowledge and skill levels over a longer period of time; apply knowledge and skills in more challenging ways, for example in less familiar contexts. The grade descriptions on their own are unlikely to provide a tool for making judgements. They will require to be augmented in due course by exemplar assessment materials and detailed assessment schemes.

GRADE C	GRADE A
Candidates can: • Demonstrate knowledge and understanding by: recalling some of the facts, terminology, concepts and principles as defined in the content; and selecting and applying knowledge to a range of problems and situations providing basic but accurate explanations and argument.	Candidates can: • Demonstrate knowledge and understanding by: recalling most of the facts, terminology, concepts and principles as defined in the content; and selecting and applying knowledge to a range of problems and situations providing detailed, accurate explanations and argument.
• Devise and implement a strategy to provide a solution to a complex technological problem using appropriate techniques and procedures accurately to obtain some reliable data.	• Devise and implement a strategy to provide a solution to a complex technological problem, using a range of appropriate techniques and procedures accurately to consistently obtain reliable data.
• Apply decision making skills by: identifying some feasible options or solutions as a result of interpreting source information with some accuracy; selecting, with limited justification, the most appropriate choice taking account of defined criteria.	• Apply decision making skills by: identifying some feasible options or solutions as a result of interpreting source information accurately; selecting, with detailed justification, the most appropriate choice taking account of defined criteria.
• Manufacture a solution to a complex technological problem, with occasional lapses in the deployment of time and resources to select, prepare and present the solution to meet specified criteria.	• Manufacture a solution to a complex technological problem, consistently demonstrating effective deployment of time and resources to select, prepare and present the solution to meet specified criteria.
• Make an evaluation of an outcome, strategy or solution against defined criteria providing accurate explanation, some of which is detailed. Some modification/adaptation to the strategy may be evident with limited justification for it.	• Make an evaluation of an outcome, strategy or solution against defined criteria, providing detailed and accurate explanations. Modification/adaptation to the strategy may be evident with detailed justification for it.

National Course Specification: course details

COURSE Home Economics: Health and Food Technology (Higher)

APPROACHES TO LEARNING AND TEACHING

Approaches to learning and teaching should provide opportunities for candidates of varying needs and abilities to acquire the knowledge and develop the skills of the course. Approaches should be chosen which will enhance learning experiences so that candidates achieve their full potential whether working in a whole-class, small group or supported self-study situation. Account should be taken of prior knowledge that candidates may have when delivering the course content. An integrated approach to learning and teaching across the component units of Health and Food Technology: Resource Management and Health and Food Technology: Consumer Studies is recommended.

It is good practice to use a variety of methods so that candidates' interest and motivation are maintained and individual preferences for different learning styles are considered. Teachers/lecturers will need to ensure an appropriate balance between teacher or lecturer-directed approaches and candidate-centred activities. For example, it may be more appropriate to use a teacher/lecturer-directed approach to introduce a new concept.

Knowledge and understanding of facts, terminology, concepts and principles will be developed through a process-based approach to learning, making full use of available resources. The use of specialist craft skills is recommended for a range of purposes, such as investigation, illustration or presentation of knowledge, or for the manufacture of a product. Teacher/lecturer-led discussion should provide opportunities for candidates to communicate ideas and put forward arguments about issues within a particular area of study related to Health and Food Technology. These suggested approaches will encourage consolidation of knowledge and understanding.

Candidates will be required to develop the skills of analysis, enquiry and evaluation within technological activities, using the systematic application of skills and knowledge to solve practical problems or address relevant issues. There should be opportunities for candidates to extend their skills and knowledge beyond that required for achievement of unit outcomes.

A suitable approach for skills development and for the integration of knowledge, understanding and skills would be a case study, an assignment, a project, or an investigation.

Teachers/lecturers must ensure that there is a balance between the development of the transferable skills and the specialist craft skills within Health and Food Technology. It is important that candidates make practical use of food as part of their studies.

The relationship between the learning experience and applications in industry should be emphasised to provide real contexts for learning and realistic problems to solve. These opportunities will increase self-esteem, confidence and motivation for candidates and improve their insight into the needs of industry and the skills required for those entering the job market. An industrial link is an excellent way of promoting understanding of how industry works and the standards which apply, in particular the very high standards of hygiene required in food preparation and production work. This understanding can then be mirrored in classroom activity by candidates displaying a responsible attitude to health and safety. Entrepreneurial activities provide exciting and challenging opportunity for learning, and these are greatly enhanced when they are linked with industry.

It will be important to ensure from the outset that candidates are familiar with unit outcomes and course grade descriptions.

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology (Higher)

Where appropriate, arrangements should be made to ensure that there will be no artificial barriers to learning. The nature of candidates' special needs should be taken into account when planning learning activities and to provide alternative provision or support where necessary. This will ensure the inclusion of all candidates and support them in the learning process. For new starts and adult returners, arrangements should be made to ensure the appropriate acquisition of knowledge required at Higher level. This is particularly important in terms of the following course content areas: principles of design; product development and a knowledge of nutrients (their functions and sources).

Integration of the additional 40 hours into the overall 160 hours for the course
The additional 40 hours of flexible time should be integrated into the course design for use at important stages of delivery:

Stage	***Explanation***
Candidate induction	Familiarisation with the aims and design of the course. Familiarisation with the requirements of internal assessment for the units and external assessment of the course. Setting target deadlines for the units, course and assessment. Presentation of work, for example, the requirement for tabulation and bullet points to reduce extensive text when answering examination questions. Candidate commitment to meet the demands and deadlines of the course.
Technological Project	Time to complete the technological project will be taken from the additional 40 hours and from time available within the component units. For example, a number of outcomes in the component units can be achieved when candidates undertake the technological project, thus reducing the demands and time required for internal unit assessment.
Preparation for external assessment	External course assessment will place additional demands on candidates, requiring them to: • demonstrate the ability to integrate knowledge, understanding and skills acquired in component units • retain knowledge and skill levels over a longer period of time • apply knowledge and skills in less familiar or more complex contexts. Candidates, therefore, will require time and appropriate experiences to permit them to develop and demonstrate these additional requirements. These experiences should include: • consolidation and revision of knowledge and skills identified in the rationale • practice in external assessment examination techniques • opportunities to achieve at levels beyond that required to demonstrate competence in each of the unit outcomes.

National Course Specification: course details (cont)

COURSE Home Economics: Health and Food Technology (Higher)

SPECIAL NEEDS

This course specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative outcomes for units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

SCOTTISH QUALIFICATIONS AUTHORITY

National Unit Specification: general information

UNIT Health and Food Technology: Resource Management (Higher)

NUMBER D271 12

COURSE Home Economics: Health and Food Technology (Higher)

SUMMARY

At the end of this unit, candidates will be able to use management skills necessary for the effective use of materials and resources. Candidates will demonstrate technological capability to solve problems and apply knowledge and understanding of Health and Food Technology to a range of situations.

OUTCOMES

1 Plan, organise and complete a practical activity to meet given needs.
2 Develop ideas for solutions to a given brief.
3 Review and evaluate a problem solving activity
4 Apply specialist knowledge and understanding to address a problem or situation.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates would normally be expected to have attained one of the following:

- Standard Grade Home Economics at Credit level
- Intermediate 2 Home Economics or its component units
- Intermediate 2 or Credit level in a related subject.

This unit is also suitable for 'new starts' and adult returners.

CREDIT VALUE

2 credits at Higher.

Administrative Information

Superclass: NH

Publication date: November 1999

Source: Scottish Qualifications Authority

Version: 04

National Unit Specification: general information (cont)

UNIT Health and Food Technology:
Resource Management (Higher)

CORE SKILLS

This unit gives automatic certification of the following:

Complete core skills for the unit	Problem Solving H
Additional core skills components for the unit	None

Additional information about core skills is published in the *Catalogue of Core Skills in National Qualifications* (SQA, 2001).

National Unit Specification: statement of standards

UNIT Health and Food Technology: Resource Management (Higher)

OUTCOME 1
Plan, organise and complete a practical activity to meet given needs.

Performance criteria

a) The needs to be addressed are identified from the task and explained.
b) A logical sequence of work is planned, which takes account of time constraints and shows informed choice of resources.
c) The practical activity is carried out efficiently.
d) A conclusion is drawn which relates to the original needs of the task.

Evidence requirements

Recorded evidence must be provided to show that each of the performance criteria has been met on one occasion. The proposed instrument of assessment is a practical exercise, which may be part of a design activity. Attainment should be recorded by the use of an observational checklist.

Specific advice:

a) The needs of the task must be considered, and brief reasoned comment given, to show that the candidate has understood the task.
b) The sequence of work shows clear evidence of: time management, requisitioning of resources and equipment; sensible sequencing of the stages taking account of preparation, manufacture time and skill level; use of labour saving equipment, where appropriate, to make the best use of time.
c) Product(s) are prepared with accuracy according to instructions, taking account of the correct techniques and procedures for preparation, efficient use of resources and time, and safe, hygienic practices. Equipment should be used to save time and give consistent results.
d) The conclusion includes comment on how well the products chosen and produced meet the needs of the task.

OUTCOME 2
Develop ideas for solutions to a given brief.

Performance criteria

a) Analysis of the brief identifies the key points and explains the needs arising.
b) Criteria for a specification are identified and are valid.
c) Investigations are clear in purpose, appropriate for the criteria identified in the specification, and justified.
d) Results recorded are concise, easy to interpret and reach conclusions.
e) One idea for a solution is proposed, generated from the results and conclusions of investigation.

National Unit Specification: statement of standards (cont)

UNIT Health and Food Technology: Resource Management (Higher)

Evidence requirements
Recorded evidence must be provided to show that each of the performance criteria has been met on one occasion. The proposed instrument of assessment is a design activity. The conditions which apply to the activity are: teacher/lecturer support should there be malfunction of equipment; negotiation of a time limit for the design activity. The recorded evidence should be produced as defined in performance criteria (a) — (e) using pro-forma. Attainment could be assessed by the use of a marking scheme and recorded by observational checklist.

Specific advice:
a) The key points can be defined by breaking down the brief into the main parts. Explanation of the needs arising from these key points will relate to the brief and include comment on appropriate principles of design, eg function, safety, value for money/cost, aesthetics, durability.
b) The solution should be able to be measured against the specification, that is, it should be possible to test and evaluate the solution against the specification. It should allow for a range of solutions, contain more detail than the brief and be able to be tested.
c) Evidence of search and investigation techniques could include: investigation to gain background information, eg a list of questions to be addressed; technical information, eg looking at existing products that meet the needs of the brief and identifying their characteristics; investigation into availability of resources; time.
d) The recording of results should be concise. A list of bullet points with brief conclusions would be suitable. The procedures used for research are not required for the purpose of assessment.
e) Presentation of an idea for a solution may include one or more of the following: design sketches; brief notes; diagrams; and story boards.

OUTCOME 3
Review and evaluate a problem solving activity.

Performance criteria
a) Appropriate, measurable criteria for reviewing and evaluating are identified.
b) The effectiveness of the overall plan is explained accurately taking account of the criteria.
c) A conclusion is drawn which is justified, suggesting relevant recommendations.

Evidence requirements
Recorded evidence must be provided to show that each of the performance criteria has been met on one occasion. Candidates could achieve this outcome as part of a design activity. Attainment should be assessed by using a marking scheme which takes account of the criteria.

Specific advice:
a) the criteria are devised by the candidate or adopted/adapted from a set of criteria used by another organisation. Criteria may include time, resources, skills, abilities, results of investigation, appropriateness in meeting specified needs/purpose
b) the evaluation will be based on evidence gathered during the problem solving activity. All evidence which relates to the effectiveness of the overall plan should be considered and based on work carried out including amendments/modifications made to the overall plan during implementation
c) a full conclusion should be drawn to make recommendations. The recommendations can include: suggestions for improvements to a product/process/system or event; further work required; more investigations; additional evidence gathering; an alternative strategy required.

National Unit Specification: statement of standards (cont)

UNIT Health and Food Technology:
Resource Management (Higher)

OUTCOME 4
Apply specialist knowledge and understanding to address a problem or situation.

Performance criteria

a) knowledge is applied in order to give accurate explanation and reasoned argument to address a problem or situation.

Evidence requirements

Recorded evidence must be provided to show that the performance criterion has been met on one occasion. The proposed instrument is a question paper which requires a range of short and restricted responses. The questions will sample the content. Attainment could be assessed by the use of a marking schedule.

National Unit Specification: support notes

UNIT Health and Food Technology: Resource Management (Higher)

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 80 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

The content on which this unit is based is listed in the course details for Home Economics: Health and Food Technology (H).

The unit is set in the context of health and food technology. Candidates will be required to demonstrate knowledge and understanding of the content, by using it as a focus for related practical application. Knowledge and understanding of the content can be acquired or consolidated through practical application.

The context for the unit requires candidates to understand the importance of combining several activities in a systematic way, to make effective use of time and resources for both commercial and domestic purposes/situations.

Development of planning and organisational skills, and the completion of practical activities can be integrated with the delivery of the other component units, when they are part of the course in Health and Food Technology.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Learning and teaching approaches for this should match the unit outcomes.

Outcome 1

A group or candidate-centred approach to learning is recommended in the initial stages. Individuals should be encouraged to make contributions to ideas for planning, carrying out and drawing conclusions about practical activities as part of a group experience. It is important that candidates understand:

- why the planning stages are important to the activity
- how the end results can be affected by inefficient use of time and resources
- how the activity will be reviewed
- why it should be evaluated.

A workshop arrangement will promote candidate motivation and allow for opportunities to exchange ideas and views. Review and evaluation should be ongoing throughout the unit as well as teacher/lecturer intervention to support candidates when required.

National Unit Specification: support notes (cont)

UNIT Health and Food Technology: Resource Management (Higher)

Outcomes 2 and 3

A group or candidate-centred approach to learning is recommended in the initial stages of unit delivery. Individuals should be encouraged to make contributions to ideas for product development as part of a group experience. This approach will help to develop candidates' confidence for working independently. Communication skills will be developed through shared ideas and experiences, and through the opportunity to offer opinions, comment and constructive criticism on the ideas of others. To encourage candidate participation and motivation, the pace of work, level of challenge and prior knowledge and experiences of candidates should be considered.

Candidates' skills of evaluation can be developed by encouraging them to look at commercial products. Open discussion and brainstorming can stimulate ideas which may lead to the group formulating opinions about: the product specification; the target group; the raw materials used; how successful the product has been. Food sensory evaluation of existing products is another way of developing evaluation skills. By looking at the designs of others, candidates will develop aspects of technological capability. Candidates will be given design activities which will encourage analysis, investigation and evaluation.

Candidates should be shown how to devise criteria for reviewing and evaluating a design activity. Proposals for improving or modifying future activities should be negotiated and agreed by the group.

Sources of information, such as video material on commercial food preparation, publications on product development, outside speakers and visits to manufacturing plants, will act as a motivating influence. A selection of commercially manufactured food products and their packaging should be available for candidates to analyse, make use of and evaluate.

It is important that candidates are aware of food safety and hygienic practices in food production. The microbiological safety and risk assessment procedure used in industry should be explained and the benefits to the end user highlighted. Visits by Environmental Health Officers will provide an added stimulus to learning experiences, as will participation in setting their own HACCP system.

An integrated approach to delivery of the content is recommended, whereby several aspects may be covered during practical application.

Outcome 4

Candidates should be able to access a range of source information which relates to the content. eg video, text, food commodities, commercial packages. A stations approach could be used as a method for acquiring reinforcing knowledge and understanding, by using different approaches to learning at each station. Outside speakers such as dieticians, EHOs, Home Economists, Food Technologist and Trading Standards Officers could contribute to candidate learning.

National Unit Specification: support notes (cont)

UNIT Health and Food Technology: Resource Management (Higher)

The teacher/lecturer can pre-test knowledge and understanding of the content by using oral questioning techniques during practical activities. When using a group approach, candidates may demonstrate knowledge and understanding by presenting a short talk after a practical activity. It is necessary to cover the entire content of the unit for the benefit of the overall candidate experience.

It is recommended that candidates are given opportunities to demonstrate knowledge and understanding through more formal methods, as well as through practical application. The teacher/lecturer will want to monitor progress throughout the delivery of the unit by using a variety of techniques, for example, direct questioning, short and structured response.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Whilst it is possible to devise test instruments for each of the unit outcomes, it is preferable to use ones which encompass more than one outcome. This approach will reduce the demands of assessment on candidates and leave more time for learning and teaching. The evidence requirements fall into two categories:

- practical activity
- demonstration of knowledge and understanding which underpins the practical activity.

While attainment of outcomes 1- 4 need only be demonstrated on one occasion, it is unlikely that candidates would be ready for assessment until the later stages of delivery. Assessment could take place as an end-of-unit test. However, it is possible for evidence to be gathered when candidates are carrying out practical exercises throughout the unit.

In the interests of confidentiality and national standards, it would be more appropriate for all candidates to carry out this assessment at the same time within any one class.

Further guidance and exemplification on appropriate evidence will be provided in the Subject Guide.

The delivery and assessment of this unit is open to alternative methods to support the inclusion of all candidates. Examples include:

- extension to the notional design length
- use of technology to record information/instruction and to support assessment situations
- appropriate level of teacher/lecturer or auxiliary support in practical activities
- use of specialist equipment.

SPECIAL NEEDS

This unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative outcomes for units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).

SCOTTISH QUALIFICATIONS AUTHORITY

National Unit Specification: general information

UNIT Health and Food Technology: Consumer Studies (Higher)

NUMBER D269 12

COURSE Home Economics: Health and Food Technology (Higher)

SUMMARY

At the end of this unit, candidates will have acquired knowledge and understanding about consumer choice of goods and services. They will also have gained an insight into the manufacturers'/providers' perspective on a range of consumer issues. Candidates will be able to appraise the design of products and consider the consequences that technological developments in the food industry have on others. They will acquire a range of investigative skills enabling them to draw conclusions from information sources and make reasoned choices which are a requirement for the discerning consumer.

OUTCOMES

1 Use a range of investigative techniques to obtain information relevant to consumer issues.
2 Apply decision making skills as a result of interpreting consumer information.
3 Apply specialist knowledge and understanding to address a problem or situation.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates would normally be expected to have attained:

- Standard Grade Home Economics at Credit level
- Intermediate 2 Home Economics or its component units
- Intermediate 2 or Credit value in a related subject.

The unit is also suitable for 'new starts' and adult returners with appropriate prior experience.

CREDIT VALUE

1 credit at Higher.

Administrative Information

Superclass: BA

Publication date: November 1999

Source: Scottish Qualifications Authority

Version: 04

National Unit Specification: general information (cont)

UNIT Health and Food Technology:
Consumer Studies (Higher)

CORE SKILLS

There is no automatic certification of core skills or core skills components in this unit.

Additional information about core skills is published in the *Catalogue of Core Skills in National Qualifications* (SQA, 2001).

National Unit Specification: statement of standards

UNIT Health and Food Technology: Consumer Studies (Higher)

OUTCOME 1

Use a range of investigative techniques to obtain information relevant to consumer issues.

Performance criteria

a) The information required is relevant and accurate, and established through appropriate research techniques.
b) Results and data collected are produced accurately and presented concisely.
c) Conclusions drawn are accurate and based on analysis of the findings.

Evidence requirements

Recorded evidence must be provided to show that each of the performance criteria has been met on one occasion. The proposed instrument of assessment is an investigation, which may form part of a design activity. The investigation could be completed on pro-forma. Attainment should be assessed by the use of a marking scheme and recorded by the use of an observational checklist.

Specific advice:

a) Appropriate research techniques would include at least two of the following: survey by questionnaire; survey by mail; interviews; literature search; scientific experiments or investigations; sensory evaluation; comparison testing. The techniques chosen must reflect appreciation of purpose.
b) Methods used to present data should facilitate ease of interpretation, for example, accurately produced graphs.
c) Evidence must reflect the candidate's ability to use results and draw conclusions showing appreciation of purpose.

OUTCOME 2

Apply decision making skills as a result of interpreting consumer information.

Performance criteria

a) Explanation of the information interpreted is accurate and appropriate to the task given.
b) An option or solution is selected with justification for the decision made.

Evidence requirements

Recorded evidence must be provided to show that each of the performance criteria has been met on one occasions. The proposed instrument of assessment is a report which may form part of a design activity. Attainment should be assessed by the use of a marking scheme.

Specific advice:

a) Explanation should demonstrate how understanding of the information interpreted can be used to make a decision.
b) Justification should include reasoned decisions which meet the requirements of the task/problem given.

National Unit Specification: statement of standards (cont)

UNIT Health and Food Technology:
Consumer Studies (Higher)

OUTCOME 3

Apply specialist knowledge and understanding to address a problem or situation.

Performance criteria

a) Knowledge is applied in order to give accurate explanation and reasoned argument to address a problem or situation.

Evidence requirements

Recorded evidence must be provided to show that the performance criterion has been met on one occasion. The proposed instrument of assessment is a question paper which requires a range of short and restricted responses. The questions will sample the content. Attainment should be assessed by the use of a marking schedule.

National Unit Specification: support notes

UNIT Health and Food Technology: Consumer Studies (Higher)

This part of the unit specification is offered as guidance. The support notes are not mandatory.

While the 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

The content on which this unit is based is listed in the course details for *Home Economics: Health and Food Technology (H)*.

GUIDANCE ON THE LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Learning and teaching approaches for this should match the unit outcomes. The knowledge and understanding of the content for the unit, can be acquired or consolidated through practical activities which focus on the specific area of content.

Outcomes 1 and 2

A candidate-centred approach to learning is recommended. There should be access to source materials such as commercial products and packaging, as well as videos, magazines and catalogues. The shared experiences of the candidates can be a stimulus to learning, for example, home experiences or experience of the workplace. Brainstorming and group discussion should be used in the initial stages to motivate candidates and develop confidence.

Candidates should be given opportunities to identify the main features of commercially prepared food products and to use these features as a basis for comparison. Candidates could set up a range of testing activities to appraise food products, eg for their aesthetic appeal, nutritional value, versatility, or cost. Interpretation of the results should be used to make decisions about consumer choices. It is important that the teacher/lecturer provides examples of the procedures for setting up investigations, testing and presenting results. The procedures must be clear, so that candidates can replicate the processes for a variety of tasks.

Candidates should be encouraged to communicate and use discussion skills with each other and the teacher/lecturer, so that conclusions drawn can be exchanged during group activity.

Outcome 3

The underpinning knowledge and understanding should be reinforced by using a more traditional teacher-centred approach. This will ensure coverage of all the content of the unit. Arrangements for visits and outside speakers should be made to make learning more interesting for the candidate, and give a real-life perspective.

The teacher/lecturer can pre-test knowledge and understanding of the content by using oral questioning techniques during practical activities. When using a group approach, candidates may demonstrate knowledge and understanding by presenting a short talk after a practical activity. It is necessary to cover the entire content of the unit for the benefit of the overall candidate experience.

The use of information technology is recommended to enhance the generation of evidence, and access to appropriate software is important.

National Unit Specification: support notes (cont)

UNIT Health and Food Technology:
Consumer Studies (Higher)

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT.

Whilst it is possible to devise test instruments for each of the unit outcomes, it is preferable to use ones which encompass more than one outcome. This approach will reduce the demands of assessment on candidates and leave more time for learning and teaching. The evidence requirements fall into two categories:

- practical activities - investigation
- demonstration of knowledge and understanding which underpins the practical activity.

Outcomes 1 and 2

While attainment of outcomes 1 and 2 need only be demonstrated on one occasion, it is unlikely that candidates would be ready for assessment until the latter stages of delivery. Assessment could take place as an end-of-unit test. However, it is possible for evidence to be gathered when candidates are carrying out investigations throughout the unit.

The evidence requirements demand that the candidate can use investigative techniques to carry out a range of testing for products and can present results that are clear to the reader. The investigation could be targeted on a particular range of products and candidates should have some choice in the methods and techniques to be used.

For Outcome 2 the report should be structured and concise and contain a conclusion.

Outcome 3

In the interests of confidentiality and national standards it would be more appropriate for all candidates to carry out this assessment item at the same time within any one class.

Further guidance and exemplification on appropriate evidence will be provided in the Subject Guide.

The delivery and assessment of this unit is open to alternative methods to support the inclusion of all candidates. Examples include:

- extension to the notional design length
- use of technology to record information/instruction and to support assessment situations
- appropriate level of teacher/lecturer or auxiliary support in practical activities
- use of specialist equipment.

SPECIAL NEEDS

This unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative outcomes for units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, 2001).