



**Cambridge Assessment
International Education**

Cambridge
International
A Level

SYLLABUS

**Cambridge International A Level
For centres in Brunei and Mauritius
Food Studies**

9336

For examination in November 2020, 2021 and 2022.

Changes to the syllabus for 2020, 2021 and 2022

The syllabus has been updated. The latest syllabus is version 3, published September 2018

An additional bullet point has been added to Section 6: Preparation and cooking of food on page 13 has been updated as follows:

6.1 Cooking food

- Reasons for cooking food
- The effect of cooking on food
- Safety, efficiency and economy when cooking
- Methods of heat transfer
 - Conduction, convection and radiation, with reference to different cooking methods
 - Production of heat within food by microwave radiation
- Presentation of food

Changes to syllabus version 2, published February 2018.

Information about the Practical Test on page 17 has been changed to specify that centres should provide colour photographs as **hard copy** for moderation purposes.

Changes to syllabus version 1, published September 2017 are continued at the end of this syllabus

| Significant changes to the syllabus are indicated by black vertical lines either side of the text. |

You are strongly advised to read the whole syllabus before planning your teaching programme.

Any textbooks endorsed to support the syllabus for examination from 2017 are still suitable for use with this syllabus.

Teachers should take account of the changes described above when using these textbooks.

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Why choose Cambridge Assessment International Education?

Cambridge Assessment International Education prepares school students for life, helping them develop an informed curiosity and a lasting passion for learning. We are part of the University of Cambridge.

Our international qualifications are recognised by the world's best universities and employers, giving students a wide range of options in their education and career. As a not-for-profit organisation, we devote our resources to delivering high-quality educational programmes that can unlock learners' potential.

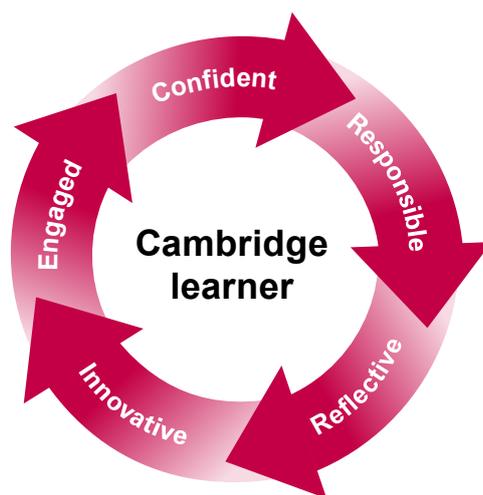
Our programmes and qualifications set the global standard for international education. They are created by subject experts, rooted in academic rigour and reflect the latest educational research. They provide a strong platform for students to progress from one stage to the next, and are well supported by teaching and learning resources.

Every year, nearly a million Cambridge learners from 10 000 schools in 160 countries prepare for their future with an international education from Cambridge International.

Cambridge learners

Our mission is to provide educational benefit through provision of international programmes and qualifications for school education and to be the world leader in this field. Together with schools, we develop Cambridge learners who are:

- **confident** in working with information and ideas – their own and those of others
- **responsible** for themselves, responsive to and respectful of others
- **reflective** as learners, developing their ability to learn
- **innovative** and equipped for new and future challenges
- **engaged** intellectually and socially ready to make a difference.



Learn more about the Cambridge learner attributes in Chapter 2 of our *Implementing the curriculum with Cambridge* guide at www.cambridgeinternational.org/curriculumguide

Why Cambridge International AS & A Levels?

Cambridge International AS & A Levels are international in outlook, but retain a local relevance. The syllabuses provide opportunities for contextualised learning and the content has been created to suit a wide variety of schools, avoid cultural bias and develop essential lifelong skills, including creative thinking and problem-solving.

Our aim is to balance knowledge, understanding and skills in our qualifications to enable students to become effective learners and to provide a solid foundation for their continuing educational journey. Cambridge International AS & A Levels give students building blocks for an individualised curriculum that develops their knowledge, understanding and skills.

Cambridge International AS & A Level curricula are flexible. It is possible to offer almost any combination from a wide range of subjects.

Every year thousands of students with Cambridge International AS & A Levels gain places at leading universities worldwide. Cambridge International AS & A Levels are accepted across 195 countries. They are valued by top universities around the world including those in the UK, US (including Ivy League universities), European nations, Australia, Canada and New Zealand. Learners should check the university website for specific entry requirements before applying.

Did you know?

In some countries universities accept Cambridge International AS Levels in their own right as qualifications counting towards entry to courses in the same or other related subjects.

Learn more

For more details go to www.cambridgeinternational.org/recognition

Why Cambridge International A Level Food Studies?

About the syllabus

Cambridge International A Level Food Studies is accepted by universities and employers as proof of essential knowledge and ability.

Candidates following the Cambridge International A Level Food Studies syllabus study both the theoretical and practical aspects of nutrition, food, and food preparation. They develop their knowledge and understanding of the composition of foods, digestion, and of the food manufacturing and service industries.

Candidates also improve their practical skills, learning how to produce a variety of healthy meals designed to meet different nutritional requirements. As a result of their studies, students also develop an analytical and critical approach to decision-making and problem-solving.

Guided learning hours

Guided learning hours give an indication of the amount of contact time teachers need to have with learners to deliver a particular course. Our syllabuses are designed around 180 guided learning hours for Cambridge International AS Level, and around 360 guided learning hours for Cambridge International A Level.

These figures are for guidance only. The number of hours needed to gain the qualification may vary depending on local practice and the learners' previous experience of the subject.

Prior learning

We recommend that candidates who are beginning this course should have previously completed a Cambridge IGCSE™ or Cambridge O Level course in Food & Nutrition or the equivalent.

Progression

Cambridge International A Level Food Studies provides a suitable foundation for the study of Food Science or related courses in higher education. Equally it is suitable for candidates intending to pursue careers or further study in Food Science or Catering, or as part of a course of general education.

We recommend learners check the Cambridge International recognitions database and the university websites to find the most up-to-date entry requirements for courses they wish to study.

Teacher support

We offer a wide range of practical and innovative support to help teachers plan and deliver our programmes and qualifications confidently.

Please see the syllabus materials DVD for more information.

1 Assessment at a glance

For the Cambridge A Level Food Studies, candidates take three compulsory components: Paper 1 Theory, Paper 2 Practical Test and Paper 3 Coursework Investigation.

Paper 1 Theory	3 hours
Written theory paper testing knowledge of theory and practice. Two questions to be answered from each section. <i>Section A:</i> the science of food and nutrition <i>Section B:</i> the practical application of food science to food handling and preparation	
50% of total marks	

Paper 2 Practical Test 2 hours 30 minutes (plus 30 minutes Preparation) with Planning Session of 2 hours 30 minutes
Candidates select one from a choice of three practical tests. Each practical test links to the nutritional aspects of the subject and includes nutritional calculations. The preparation of the dishes chosen for the Practical Test should show manipulative skills and competent use of equipment. Full details are given in Section 4.
40% of total marks

Paper 3 Coursework Investigation
A written report of an investigation undertaken by the candidate towards the end of the first year of study and completed during the second year of the examination course. The investigation must be a personal study linked to the course as a whole and there must be both theoretical and practical application of nutrition throughout the piece of work. Full details are given in Section 5.
10% of total marks

The Education Authority, Ministry or centre(s) should be satisfied that there are appropriate facilities and equipment for the practical component of the assessment. Each candidate should have sole use of a European-type cooker or stove, a range of basic cooking equipment and access to labour-saving equipment during the Practical Test.

Basic Equipment

Bowls, scales, measuring equipment, various knives for different purposes, various spoons and spatulas, baking tins, cake tins, greaseproof paper, etc.

Specialised Equipment

Hand whisk, draining spoons, graters, pressure cookers, etc.

Desirable Equipment (not essential)

Electric mixers, liquidisers/blenders, etc.

It is expected that candidates will have access to refrigerators and freezers.

Practical Examiners must be qualified to teach this subject at this level.

Availability

This syllabus is examined in the November examination series.

This syllabus is available in Brunei and Mauritius only.

This syllabus is not available to private candidates.

All Cambridge schools are allocated to one of six administrative zones. Each zone has a specific timetable. From 2020 this syllabus is not available in all administrative zones. To find out about the availability visit the syllabus page at www.cambridgeinternational.org/alevel

Combining this with other syllabuses

Candidates can combine this syllabus in an examination series with any other Cambridge International syllabus, except:

- Cambridge IGCSE® Food & Nutrition (0648)
- Cambridge O Level Food & Nutrition (6065)

2 Syllabus aims and assessment objectives

2.1 Syllabus aims

This syllabus aims to stimulate, encourage and develop:

1. a scientific knowledge and understanding of the composition of foods and of the structure, nature, digestion, absorption and use of nutrients in the body
2. an understanding of the relationship between diet and health
3. an awareness of the dietary needs and eating patterns of different ages and groups within society
4. an appreciation of the environmental, cultural and socio-economic factors affecting food choice
5. a scientific knowledge and understanding of food processing practices used within the home and in the food manufacturing and service industries, together with knowledge and understanding of the changes brought about within foods by these processes
6. an awareness of national mandatory policies relating to the provision of a safe food supply
7. the knowledge and skills required to produce healthy meals for the family with regard to safety, effective organisation and management of family resources, and the needs and lifestyles of family members
8. investigative skills and an analytical and critical approach to decision making and problem solving
9. the ability to communicate these abilities in both written and practical activities.

2.2 Assessment objectives

Candidates should be able to:

1. demonstrate knowledge and understanding of all aspects of the syllabus, with the ability to express this knowledge using relevant and correct scientific and technical vocabulary and terminology
2. demonstrate the ability to recall, select and apply knowledge and understanding to specific situations and problems
3. make and justify choices in relation to preparing and cooking meals for different occasions and situations
4. plan and carry out a course of action demonstrating the ability to manage time, money, energy/effort, materials, equipment and tools, and interests according to the stated criteria for a given situation
5. handle food safely and hygienically, demonstrating a variety of manipulative skills to a high standard of execution, and the use of a range of utensils and appliances
6. carry out nutritional analyses using food tables
7. identify and justify an area of the syllabus to be investigated and successfully plan, research and evaluate the findings of this investigation.

3 Syllabus content

Section 1: Composition and functions of nutrients

1.1 Chemical structure and nature of proteins, carbohydrates and lipids

(a) Proteins:

- Amino acids, primary, secondary and tertiary structure of proteins
- Simple or conjugated and globular or fibrous proteins
- Denaturation by heat, acids, alkalis, mineral salts, agitation
- Enzymes, enzymic hydrolysis, enzymic browning
- Protein quality: essential and non-essential amino acids, protein complementation

(b) Carbohydrates:

- Structure and examples of available carbohydrates: monosaccharides, disaccharides, oligosaccharides, polysaccharides (starch)
- Structure and examples of unavailable carbohydrates: non-starch polysaccharides (NSP)/ dietary fibre (insoluble and soluble)
- An understanding of the terms: simple sugars, intrinsic sugars, extrinsic sugars, non-milk extrinsic sugars
- The effect of moist and dry heat on sugars and starches: caramelisation, dextrinisation, gelatinisation (role of amylose and amylopectin in gel formation, and pectin gels in jam making), the Maillard reaction (non-enzymic browning)

(c) Lipids:

- Composition of triglycerides (lipid oils and fats)
- Fatty acids: saturated and unsaturated (monounsaturated and polyunsaturated), cis- and trans-fatty acids, omega fatty acids
- Rancidity: hydrolytic and oxidative
- Plasticity in fats
- Melting and smoke points, decomposition
- Emulsification

1.2 Digestion, absorption and assimilation of proteins, carbohydrates and lipids

(a) Structure of the digestive system:

- Role of the mouth, oesophagus, stomach, pancreas, gall bladder, liver, duodenum and ileum in digestion
- Digestion of starch, disaccharides, proteins and lipids: sites of hydrolysis, specific enzymes and end products

(b) Absorption:

- Structure of intestinal villi
- Passive absorption (osmosis and diffusion), active transport, endocytosis
- Absorption of monosaccharides, amino acids, lipids

- (c) Absorption of other substances:
- Water, minerals and vitamins
 - Calcium: factors hindering absorption, the role of vitamin D
 - Iron: factors affecting absorption, the role of vitamin C
 - Defective absorption: cystic fibrosis, lactose intolerance, coeliac disease, phenylketonuria
- (d) Assimilation and use of absorbed nutrients in body cells:
- Glucose
 - role of the liver and pancreas in maintaining blood sugar levels
 - cellular respiration to release energy
 - glycogen formation
 - Amino acids
 - synthesis of body tissues: structural and functional proteins
 - deamination: energy release
 - transamination
 - Lipids
 - lipogenesis
 - reformed triglycerides and adipose tissue: energy storage, insulation

1.3 Micronutrients

- (a) Vitamins:
- Fat-soluble vitamins: A, D, E, K
 - Water-soluble vitamins: B vitamins (thiamin, riboflavin, niacin, folate, cobalamin), vitamin C
 - The functions of vitamins including their role as antioxidants
 - Good food sources for vitamins
 - Effects of deficiency and excess
- (b) Mineral elements:
- Calcium, iron, phosphorus, potassium, sodium, fluoride, chloride, iodide
 - The functions of minerals
 - Good food sources for minerals
 - Effects of deficiency and excess
 - The main roles of the trace elements cobalt, copper, manganese, selenium, zinc
- (c) The effect of storage, preparation, cooking and preservation on micronutrients

1.4 Water

- Water balance
- Sources of water: from food, drink, metabolic water
- Dehydration
- Functions of water in the body

1.5 Energy needs

- Measurement of energy: kilojoules (kJ) or kilocalories (kcal)
- Energy produced by: 1 g glucose, 1 g protein and 1 g fat
- Use of energy in the body: growth, movement, warmth, stored chemical energy, electrical energy
- Individual energy needs: basal metabolic rate (BMR) and energy for daily activities
- Factors affecting BMR and overall energy needs
- Energy balance
- Protein-energy malnutrition

Section 2: Nutritional needs

2.1 Basic nutritional guidelines

- Recall of the proportion of daily energy needs to come from fats (saturated and polyunsaturated)
- Dietary and serum cholesterol levels, both high-density lipoproteins (HDL) and low-density lipoproteins (LDL), and their association with coronary heart disease (CHD)
- Importance of reducing the intake of sugars and increasing the intake of starch; importance of the slow release of glucose from starch; the problems of dental caries, obesity, increased risk of diabetes
- Recall appropriate daily contributions to the diet and nutritional guidelines relating to the intake of:
 - NSP
 - sodium (salt)
 - water
- Knowledge of local provisions for nutritional education

2.2 Average recommended dietary intake of nutrients for different individuals

- Terminology describing recommended dietary intakes, e.g. Dietary Reference Value (DRV) and Reference Daily Intake (RDI)
- How average figures for recommended dietary intakes are obtained and how they should be used
- Factors affecting the needs of different individuals during:
 - pregnancy and lactation
 - infancy
 - childhood
 - adolescence
 - adulthood
 - old age
 - illness and convalescence

Section 3: Food commodities

3.1 Classification and nutritional content of foods

- Knowledge of the classification and nutritional content of:
 - cereals and cereal products
 - meat, meat-analogues, fish, eggs, dairy products
 - fruit and vegetables
 - fats and oils
- Choice of these commodities related to quality, freshness, cost and use

3.2 Food production

- Milling of cereals and production of cereal products
- Milk: heat treatments, homogenisation, preserved milk products
- Production of simple curd and hard cheeses
- Fats and oils: refining of cooking oils, hydrogenation to produce margarines, production of animal fats, white cooking fats and low-fat spreads
- Soya products, including the production of TVP and other protein foods, e.g. mycoproteins
- Functional foods, including pre- and probiotics, stanols and sterols

3.3 Food supply, demand and trade

- Self-sufficiency, cash crops, exports/imports, fair trade
- Problems associated with local and global food and water supplies and possible solutions

3.4 Decomposition and deterioration of foods

- Ripening and autolysis, effect of bacteria, yeasts, moulds, pest damage
- Care of food during transport, storage, distribution and in the home
- Food preservation:
 - commercial freezing methods: accelerated freeze-drying, canning, curing, dehydration, irradiation, modified atmosphere packaging, smoking, vacuum packaging
 - domestic preservation: traditional methods of drying and smoking, jam and pickle making, freezing
 - cook-chill processing

3.5 Use of additives and food labelling

- Functions of additives and evaluation of their use
- Antioxidants, colourings, emulsifiers, flavour enhancers, flavourings, preservatives, stabilisers, sweeteners
- Additives used as production aids, such as flour improvers, humectants and bulking agents
- Local legislation for the use of additives
- Food labelling: information found on labels, reasons for it

3.6 Comparison of convenience and homemade foods

- Types of convenience foods
- Advantages and disadvantages
- Intelligent use of these foods

Section 4: Meals for the family

4.1 Food choice and knowledge of local nutritional practices

- Local nutritional practices and food choices as influenced by:
 - racial and religious backgrounds
 - environmental factors, including carbon footprint
 - ethical considerations, including genetic modification of foods (GM), factory farming, organic farming, fair trade
 - food availability and cost

4.2 Meal planning

- Consideration of factors affecting meal planning such as:
 - medical conditions linked to diet
 - food intolerance and allergies
 - religious beliefs
 - income
 - cooking facilities
 - time available
 - cooking skills
 - season
 - lifestyle choices
 - personal preferences, including vegetarianism
 - special dietary requirements (see section 2.2)
- The use of food tables and relevant computer software in practical and theoretical work to determine the nutritional composition and energy value of meals, dishes and portions, together with the ability to compare these with recommended dietary intakes

Section 5: The kitchen

5.1 Kitchen planning

- Layouts and factors to consider for efficiency, hygiene and safety, including the work triangle
- Choice, cost and care of kitchen equipment

5.2 Food storage

- Food contamination by food-poisoning bacteria: *Bacillus cereus*, *Campylobacter*, *Clostridium botulinum*, *Clostridium perfringens*, *Escherichia coli*, *Listeria*, *Salmonella*, *Staphylococcus aureus*
- Chemical contamination of foods and naturally occurring plant toxins
- Prevention of cross-contamination
- Kitchen, food and personal hygiene
- Control of microbial action by temperature
- Storage of dried and canned foods
- Storage of food to prevent decomposition by light

Section 6: Preparation and cooking of food

6.1 Cooking food

- Reasons for cooking food
- The effect of cooking on food
- Safety, efficiency and economy when cooking
- Methods of heat transfer
 - Conduction, convection and radiation, with reference to different cooking methods
 - Production of heat within food by microwave radiation
- Presentation of food

6.2 Basic methods and mixtures

- Sauces
 - blended
 - egg custard
 - hollandaise
 - mayonnaise
 - purée
 - roux (bechamel, velouté, espagnole)
- Pastries
 - choux
 - flaky
 - hot-water crust
 - puff and rough puff
 - shortcrust
- Scone, biscuit (cookie) and cake mixtures
 - one-stage
 - creamed
 - melted
 - rubbed-in
 - whisked
- Yeast mixtures
- Batters (coating and pouring)
- Raising agents
 - air
 - steam
 - carbon dioxide produced chemically (heating or adding acid to sodium hydrogencarbonate) and biologically (fermentation using yeast)
- The functions of the ingredients in these mixtures

4 Practical Test

Allocation of marks	
A Planning session	44
B Manipulative skill and method of working	26
C Results and serving	30
Total	100

A Planning session

Maximum 44 marks

Section A of the Practical Test is assessed by an external examiner using the three Preparation Sheets completed by each candidate. The total of 44 is divided as follows:

(a) Recipe choice	10
(b) Time plan	16
Sequence	5
Methods	5
Oven temperature and cooking time	5
Shopping list	1
(c) Written answer	18

B Manipulative skill and method of working

Maximum 26 marks

Section B of the Practical Test is assessed internally by the centre. A *Practical Test Working Mark Sheet* must be completed for each candidate. The 26 marks must be allocated as follows:

(a) General approach	6
(b) Manipulation	5
(c) Judgement of consistencies	5
(d) Hygiene and economy	5
(e) Cooker management	5

Mark scheme for Manipulative skill and method of working:

(a) *General approach*

6 marks

This is an impression mark which takes into account the candidate's ability to work tidily and methodically and organisational skills.

- The most successful candidates will be business-like and confident; poorer candidates will make constant reference to recipe books and time plans and be unsure of themselves.
- Everything required for the preparation and cooking of each dish should be ready before the work begins.
- At each stage the table should be tidied and washing up either stacked or completed.
- Rubbish and food waste should be disposed of appropriately.
- Tables should be wiped down or washed with a clean cloth.
- Hot, soapy water should be prepared in advance and should be replaced frequently.
- Washing up need not be done after the preparation of each dish; three times during the test will probably be enough. The last few pieces of equipment can be washed after all of the dishes have been served.
- It is not expected that equipment from other work areas be used if the candidate's equipment needs to be washed. The equipment needed at each stage should have been anticipated at the planning stage.
- At the end of the Practical Test all unwashed equipment must be stacked; judge the amount of washing up remaining.
- Spilt food must be wiped or mopped up, sinks should not be cluttered; the work table should be left clean.

(b) *Manipulation*

5 marks

One mark is available for each of the main dishes.

- Each dish should demonstrate a fair degree of skill.
- The candidate should be familiar with the techniques used.
- Quick work and dextrous manipulation should be demonstrated.
- Basic skills should be well performed.
- The method followed should be suitable for the dish.
- Tools and equipment (whisk, blender, electric mixer, knives, etc.) should be used appropriately.
- Quick 'short-cut' methods (e.g. one-stage method) should not be marked down if the results prove to be good – the results are the determining factor.
- Accept methods which save time and energy and the use of labour-saving equipment.

(c) *Judgement of consistencies*

5 marks

One mark is available for each of the main dishes.

- The correct consistencies for pastries, cakes, bread and biscuits should be observed at all stages from preparation to serving.
- Sauces and batters should be the appropriate consistency for their use – smooth and either pouring or coating.
- Vegetables should be neatly cut and diced; they should have been tested before serving.
- Candidates should test consistencies and make appropriate adjustments.
- Candidates should check the consistency of, for example, whisked mixtures before the addition of flour; shortcrust pastry before rolling out; or yeast dough before rising.

(d) *Hygiene and economy*

5 marks

This is an impression mark, taking into account the points below. Candidates are expected to show hygienic methods and to demonstrate a high level of personal hygiene. They should also be economical in the use of fuel and food throughout the Practical Test.

- *Hygiene*
 - clean apron and head covering
 - regular washing of hands – no nail varnish
 - no licking fingers or spoons
 - regular cleaning of work area
 - hot, soapy water for washing dishes – replaced frequently
 - clean dish-cloth and tea towel
 - tea towel not used to dry hands
 - throwing away or washing anything dropped on the floor
 - covering food when not being used
 - using a refrigerator to store perishable foods
 - different equipment and surfaces for raw and cooked food
- *Economy*
 - not preparing more ingredients than required
 - not scraping out all the mixture from bowls, e.g. cake mixture, cream
 - not throwing away large pieces of food
 - not peeling vegetables thickly or discarding too many outer leaves
 - leftover ingredients and garnishes not left on food trays
 - using all of the pastry prepared
 - gas or electricity switched off when not in use
 - water not wasted
 - preheating the oven for an appropriate length of time
 - lids for pans
 - appropriate size of pans for hotplates
 - cupboards, drawers and dustbins should be checked at the end of the test for leftovers

(e) *Cooker management*

5 marks

This is an impression mark, taking into consideration the points below:

- The candidate is expected to be able to control the heat on the top of the stove.
- Knowledge of the correct oven temperature and the positioning of each dish in the oven is expected.
- Wherever possible, more than one dish should be cooked in the oven at the same time.
- Candidates are expected to change the position of oven shelves to suit their requirements.
- The oven should be preheated for an appropriate length of time.
- Use should be made of residual heat wherever possible.
- The marks awarded should reflect the amount of work carried out in the test. Candidates who do very little cooking cannot expect to score well in this section.

C Results and serving

Maximum 30 marks

Section C of the Practical Test is internally assessed by the centre. A *Practical Test Working Mark Sheet* must be completed for each candidate.

1. Each dish must be marked out of six marks. The full range of marks should be used. No half marks may be awarded. There is no separate serving mark.
2. If a candidate omits part of the test or does not make one or more of the dishes planned, a nil score must be entered on the *Practical Test Working Mark Sheet* for that dish. Marks cannot be transferred to other dishes. Dishes added after the Planning Session must not receive a mark.
3. Where the preparation of dishes shows insufficient skill or a repetition of skills, the mark awarded must be lower.
4. Each dish must be judged on:
 - quality
 - taste
 - appearance.
5. The following should be taken into consideration:
 - appetising and well-flavoured food
 - correct consistency, texture, temperature and quantity
 - correct size of serving dish
 - the temperature and size of the serving dish
 - attractive presentation
 - tasteful garnishing and decorating
 - cleanliness of serving dishes
 - cleanliness of tablecloth
 - correct use of doilies and dish papers.
6. A hard copy of a good quality colour photograph of each candidate's serving table and completed dishes, labelled with the candidate's name and number, is required for submission to the external examiner.

Completion of the Preparation Sheets and *Practical Test Working Mark Sheet*

1. Preparation Sheets for each candidate and the instructions for completion **must** be downloaded from www.cambridgeinternational.org/samples. A copy must be made of each Preparation Sheet completed by the candidate, one for the external examiner and one for use by the candidate in the Practical Test.
2. A *Practical Test Working Mark Sheet* must be used by the centre for each candidate. The centre should complete parts B and C. The *Practical Test Working Mark Sheet* and the instructions for completion **must** be downloaded from www.cambridgeinternational.org/samples
3. A hard copy of a good quality colour photograph of each candidate's serving table and completed dishes, labelled with the candidate's name and number, must be submitted in **hard copy** with each candidate's Preparation Sheets and *Practical Test Working Mark Sheet*.

5 Coursework Investigation

5.1 Guidelines for teachers and candidates

Work submitted for this paper must be a personal/individual investigation, which is linked to the course as a whole. There must be emphasis on both theoretical and practical application of nutrition throughout the piece of work.

This component carries 10% of the total marks so candidates should not spend a disproportionate amount of time on the work.

The study should be **up to** 4000 words in length. It should be remembered that quantity does not always equate with quality; candidates receive credit for presenting their reports succinctly. Labelling and annotations alongside photographs, graphs, pie charts, etc., can convey information concisely and effectively.

The following items are **not** to be included in the total number of words and maybe included in an appendix, where appropriate:

- copies of questions used in interviews
- copies of letters or emails written to obtain information or to request interviews and visits
- copies of any questionnaires or surveys used in the study
- tables, graphs, pie charts, labelled diagrams and flow charts
- photographs
- a diary of activities.

Although the execution of the work should be unsupervised, teachers should discuss different ways of approaching the work before it begins. Candidates should be aware of different investigative procedures they can use, and of the marks allocated to different aspects of the work. Teachers should also check the suitability of titles and, if necessary, advise candidates if a proposed investigation is outside the syllabus, beyond their capabilities or impractical because of lack of particular resources within the school or community. It should not be necessary for candidates to travel long distances or spend large sums of money in conducting investigations and compiling reports.

Each piece of work should demonstrate that candidates are able to:

- identify an area to investigate, justify their choice and discuss relevant factors
- collect, select and interpret information and data relevant to the investigation
- plan, justify and implement a course of action relevant to the investigation being undertaken (e.g. tests, experiments, comparisons, visits, observations, surveys, interviews, questionnaires)
- record and present their findings concisely (using tables, annotated graphs, pie charts, photographs, labelled diagrams, flow charts and written summaries)
- analyse their findings, draw conclusions and make recommendations
- evaluate their conclusions and identify areas for further investigation
- evaluate the strengths and weaknesses of the investigation itself.

Any sources used by candidates, including photographs and diagrams, must be clearly recorded in a **source list**.

Candidates should show respect and good ethical practice when carrying out their investigation and in their use of any data, particularly personal data, that they collect.

Suggested sequence of work

1. Candidates should select an area of study which interests them. They should undertake research to build on the knowledge which they already have of this area, and then they should select one aspect to investigate further.

It is helpful to the candidates to formulate the title of their investigation as a question. This will limit the scope of their work, preventing the content from becoming vast and unwieldy. Teachers should check the suitability of titles.

Information gained from discussion(s) or collected from sources such as books, the internet and government reports does not have to be recorded in detail. A brief summary leading to the identification of the precise area to be studied can form part of the introduction.

Questions for interviews and questionnaires and the planning of experiments or other practical work will reflect the knowledge and understanding that has been gained.

It is important that **all** sources of information, including photographs and diagrams, should be included in a source list. Teachers can be used as sources of information.

2. After stating the main question to be answered by the investigation, candidates should select and discuss factors that are relevant to the investigation. It is often helpful to write down a series of sub-questions which evolve from the main questions and which can form the basis of the investigation.
3. It is important that candidates plan a complete course of action that they intend to follow. They should clearly state how they intend to collect, select, summarise and apply data relevant to the objectives of their investigation. This plan could include the following activities:
 - making visits
 - devising and using questions in interviews
 - using questionnaires and surveys
Questionnaires should not contain too many questions, and they should be carefully phrased to generate responses that can be collated, analysed and reported on effectively. The number of people taking part in the survey need not be vast, but the size of the sample should be stated.
 - experiments with food recipes
If recipes are tried they should be evaluated by tasting panels and, if relevant, a breakdown of nutritional content should be given.
 - book and internet research.
4. There should be evidence in the investigation that the plan has been implemented. Any changes to the original plan should be indicated and the reasons for the changes stated. Implementing a course of action should demonstrate a candidate's ability to communicate, test, compare, measure, observe and record.
5. The evidence/data collected should be presented as clearly and concisely as possible. Tables, pie charts, graphs and photographs, as well as concisely written accounts, are all acceptable. Computer programmes that present information graphically may be used.
6. All information collected, analysed and presented should be evaluated. Conclusions should be drawn and their relevance and application discussed. Candidates should also comment on their investigation as a whole, pointing out its strengths and weaknesses, suggesting any improvements which could have been made, and further areas of study worth pursuing.
7. The source list should include all written sources, and sources of photographs and diagrams, including websites, the names and positions of people interviewed and places that have been visited.
8. A contents list can be usefully drawn up after the study has been completed.

Presentation of the investigation

This should be simple and must be the candidate's own work. There is no need for elaborate book binding as it is time consuming and expensive to produce and to post. Card or plastic covers are adequate. The front cover should clearly show the following information:

- candidate's name and candidate number
- centre name and centre number
- title of the investigation
- subject and paper code (9336/03).

Reports may be typed or handwritten in the candidate's own words.

The report must be the candidate's own work; plagiarism is unacceptable and will be penalised.

Any sources used by candidates, including photographs and diagrams, must be clearly recorded in a **source list**.

Submitting the investigation

The work should be sent to Cambridge International immediately after the Practical Test period but **separate** from the Practical Test documents.

5.2 Assessment scheme for the Coursework Investigation

Process	Indicators	Mark Range	Max Mark
Choice and justification	The chosen area of study is appropriate to the syllabus and well justified (four reasons), with a title that sets well-defined parameters and leads to an investigation with the use of a variety of investigative techniques (four to five main methods), using a wide range of resources.	4–5	5
	The chosen area of study is appropriate and the choice is satisfactorily justified (two to three reasons). Title is not as well-phrased, so parameters of study are less well defined, leading to the use of fewer investigative techniques (two to three) and a smaller range of resources.	2–3	
	The chosen area of study is appropriate but less well justified or not justified at all, and the title does not lead to a well-structured or well-executed investigation. It is possible that only one main investigative technique is used. With weaker studies it is likely that the complete report is based solely on book or internet research.	1	
	The choice of topic is outside the syllabus – the candidate is penalised here for this error, and the work that follows is then assessed as if the choice were correct.	0	
Planning	The main aims and objectives of the research are clearly stated, together with the key sub-questions, and these are followed by a comprehensive plan of action listing the investigations to be carried out, the methodology to be used (how, when, where and with whom) and a description of how the results will be collated. Appropriate diagrams, such as Gantt charts, may be included. Sample questionnaires, interview questions, letters and emails are included.	11–15	15
	The main aims are clearly stated, but with fewer sub-questions to be answered. The plan of action is incomplete and details of the methodology are lacking. Sample questionnaires etc. are included.	6–10	
	The main aim of the investigation is stated, but without sub-questions to be answered. The evidence of initial planning is the format of the study itself only. Sample questionnaires etc. are included.	1–5	

Process	Indicators	Mark Range	Max Mark
Theoretical research	A succinctly presented and comprehensive summary, in the candidate's own words and style, of the theoretical information which forms the basis of the subsequent investigation. The information presented has been correctly and efficiently used. Information is collected from a variety of reliable sources which are correctly recorded in a source list.	11–15	15
	The information is mostly relevant to the investigation, but is not a succinct summary of the main facts. There may be a mixture of the candidate's own words and quotations from texts. Information is collected from a limited range of sources which may lack validity or reliability. Sources are generally correctly recorded in a source list. A satisfactory attempt has been made to use most of the information in the subsequent investigation.	5–10	
	A lengthy discourse on the subject area, but some important points may have been overlooked and others may be irrelevant. The information is not used to any great extent in the subsequent investigation. Information is collected from a very limited range of sources and may be unreliable. Sources may not be correctly recorded in a source list.	1–5	

Process	Indicators	Mark Range	Max Mark
Investigative skills and data handling	<ul style="list-style-type: none"> The candidate has used a range of investigative techniques (four to five), and has executed these efficiently and economically using a good range of resources to gather quantitative and qualitative evidence which is relevant and can be readily collated. The methodology used demonstrates the candidate's ability to be objective and to use quantitative data, e.g. in the analysis of nutritional intakes. There is evidence that questionnaires and interview questions were tested before use in the investigation. Evidence relevant to the main aims and objectives of the investigation has been presented clearly, accurately and succinctly by a variety of methods. Illustrations and graphics are fully labelled and annotated, to facilitate analysis. 	25–40	40
	<ul style="list-style-type: none"> The candidate has used two to three investigative techniques to a satisfactory standard, but has used fewer resources. There is little or no evidence of quantitative data. Questionnaires and interview questions are not so well thought out and are more subjective in approach, resulting in information that cannot be so readily collated. Most of the evidence presented is relevant to the aims and objectives of the investigation. There is a satisfactory standard of accuracy and clarity, but the potential for some improvements. Some relevant evidence may have been omitted. There may be repetition, with some data being presented in two or more different ways. 	11–24	
	<ul style="list-style-type: none"> The candidate has demonstrated ability in only one investigative technique, with very limited use of resources. Questionnaires and interview questions are badly structured, with no quantitative data analysis possible, and little useful information has been gleaned by the research. Very little evidence has been presented and possibly by one method only. The evidence presented lacks detail and accuracy. 	1–10	

Process	Indicators	Mark Range	Max Mark
Conclusions	The candidate has made a detailed analysis of the findings, has drawn conclusions based on the presented evidence and has made recommendations which are relevant and practicable.	11–15	15
	The candidate has been repetitive in analysing the data and drawing conclusions. Recommendations are made but these tend to be idealistic and impracticable.	6–10	
	A very limited analysis of findings and few conclusions drawn. There is a high degree of repetition and few, if any, recommendations. Conclusions may be presented in the general text of the report, rather than at the end of the study. Conclusions may be confused with evaluation points.	1–5	
Evaluation	The entire report has been reviewed, starting with the main aims, objectives and plan of action. The assessment is comprehensive in its coverage, dealing with the strengths and weaknesses of the methodology used and the validity of the conclusions drawn.	4–5	5
	The candidate may not have referred back to the original aims, objectives and plan of action, but there will be a reasonable attempt to evaluate the strengths and weaknesses of the work and the validity of the conclusions drawn.	2–3	
	Evaluation points may be mixed in with conclusions. Points may be limited in their number and coverage of the work, and presented in an illogical way.	1	
Presentation	An attractive, interesting and logically presented record of the work undertaken which is typed or handwritten in the candidate's own words and style, and within the word limit.	4–5	5
	Similar to the above, but the candidate has less work to record. The order of presentation may not be sequential, and parts may not be written in the candidate's own words and style.	2–3	
	Reports at this level are likely to be random pieces of work which are loosely connected, rather than logically and sequentially fulfilling the aims and objectives of the investigation. Very little work is presented in the candidate's own words and style.	1	

6 Other information

Equality and inclusion

We have taken great care in the preparation of this syllabus and related assessment materials to avoid bias of any kind. To comply with the UK Equality Act (2010), we have designed this qualification with the aim of avoiding direct and indirect discrimination.

The standard assessment arrangements may present unnecessary barriers for candidates with disabilities or learning difficulties. Arrangements can be put in place for these candidates to enable them to access the assessments and receive recognition of their attainment. Access arrangements will not be agreed if they give candidates an unfair advantage over others or if they compromise the standards being assessed. Candidates who are unable to access the assessment of any component may be eligible to receive an award based on the parts of the assessment they have taken.

Information on access arrangements is found in the *Cambridge Handbook*, which can be downloaded from the website www.cambridgeinternational.org/examsOfficers

Language

This syllabus and the associated assessment materials are available in English only.

Grading and reporting

Cambridge International A Level results are shown by one of the grades A*, A, B, C, D or E, indicating the standard achieved, A* being the highest and E the lowest. 'Ungraded' indicates that the candidate's performance fell short of the standard required for grade E. 'Ungraded' will be reported on the statement of results but not on the certificate. The letters Q (result pending), X (no result) and Y (to be issued) may also appear on the statement of results but not on the certificate.

Cambridge International AS Level results are shown by one of the grades a, b, c, d or e, indicating the standard achieved, 'a' being the highest and 'e' the lowest. 'Ungraded' indicates that the candidate's performance fell short of the standard required for grade 'e'. 'Ungraded' will be reported on the statement of results but not on the certificate. The letters Q (result pending), X (no result) and Y (to be issued) may also appear on the statement of results but not on the certificate.

If a candidate takes a Cambridge International A Level and fails to achieve grade E or higher, a Cambridge International AS Level grade will be awarded if both of the following apply:

- the components taken for the Cambridge International A Level by the candidate in that series included all the components making up a Cambridge International AS Level
- the candidate's performance on the AS Level components was sufficient to merit the award of a Cambridge International AS Level grade.

For the assessment of languages other than English, Cambridge International also reports separate speaking endorsement grades (Distinction, Merit and Pass), for candidates who satisfy the conditions stated in the syllabus.

Exam administration

To keep our exams secure, we produce question papers for different areas of the world, known as 'administrative zones'. We allocate all Cambridge schools to one administrative zone determined by their location. Each zone has a specific timetable. Some of our syllabuses offer candidates different assessment options. An entry option code is used to identify the components the candidate will take relevant to the administrative zone and the available assessment options.

Changes to the syllabus for 2020, 2021 and 2022 continued

Changes to syllabus version 1, published September 2017

Section 6: Preparation and cooking of food on page 13 has been updated as follows:

6.1 Cooking food

- Reasons for cooking food
- The effect of cooking on food
- Safety, efficiency and economy when cooking
- Presentation of food

Completion of the Preparation Sheets and *Practical Test Working Mark Sheet* on page 17 has been updated as follows:

1. Preparation Sheets for each candidate and the instructions for completion **must** be downloaded from www.cambridgeinternational.org/samples. A copy must be made of each Preparation Sheet completed by the candidate, one for the external examiner and one for use by the candidate in the Practical Test.
2. A *Practical Test Working Mark Sheet* must be used by the centre for each candidate. The centre should complete parts B and C. The *Practical Test Working Mark Sheet* and the instructions for completion **must** be downloaded from www.cambridgeinternational.org/samples
3. A hard copy of a good quality colour photograph of each candidate's serving table and completed dishes, labelled with the candidate's name and number, must be submitted in **hard copy** with each candidate's Preparation Sheets and *Practical Test Working Mark Sheet*.

Section 5.1 Guidelines for teachers and candidates on page 18, the last two paragraphs have been added as follows:

Any sources used by candidates, including photographs and diagrams, must be clearly recorded in a **source list**.

Candidates should show respect and good ethical practice when carrying out their investigation and in their use of any data, particularly personal data, that they collect.

Significant changes to the syllabus are indicated by black vertical lines either side of the text. |

You are strongly advised to read the whole syllabus before planning your teaching programme.

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