

SYLLABUS

**Cambridge International A Level
Food Studies**

9336

For examination in November 2017, 2018 and 2019

Changes to syllabus for 2017, 2018 and 2019

The syllabus has been updated. The latest syllabus is version 2, published February 2018.

Changes have been made to the information about the Practical Test on page 18 as carbonised sheets will no longer be provided to centres. Information on how to download the preparation sheets is provided in this section. You are strongly advised to read this section of the syllabus before the start of the practical test.

Information about the Practical Test on page 18 has also been changed to specify that centres should provide colour photographs as **hard copy** for moderation purposes.

|| Significant changes to version 2 of the syllabus are indicated by double black vertical lines either side ||
of the text.

| Significant changes to the previous version of the syllabus are indicated by single 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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1. Introduction

1.1 Why choose Cambridge?

Cambridge International Examinations is part of the University of Cambridge. We prepare school students for life, helping them develop an informed curiosity and a lasting passion for learning. 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 set the global standard for international education. They are created by subject experts, are rooted in academic rigour, and provide a strong platform for progression. Over 10 000 schools in 160 countries work with us to prepare nearly a million learners for their future with an international education from Cambridge.

Cambridge learners

Cambridge programmes and qualifications develop not only subject knowledge but also skills. We encourage Cambridge learners to be:

- **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.

Recognition

Cambridge International AS and A Levels are recognised around the world by schools, universities and employers. The qualifications are accepted as proof of academic ability for entry to universities worldwide, although some courses do require specific subjects.

Cambridge AS and A Levels are accepted in all UK universities. University course credit and advanced standing is often available for Cambridge International AS and A Levels in countries such as the USA and Canada.

Learn more at www.cie.org.uk/recognition

1.2 Why choose Cambridge International AS and A Level?

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

Schools can offer almost any combination of 60 subjects and learners can specialise or study a range of subjects, ensuring a breadth of knowledge. Giving learners the power to choose helps motivate them throughout their studies.

Cambridge International A Levels typically take two years to complete and offer a flexible course of study that gives learners the freedom to select subjects that are right for them.

Cambridge International AS Levels often represent the first half of an A Level course but may also be taken as a freestanding qualification. The content and difficulty of a Cambridge International AS Level examination is equivalent to the first half of a corresponding Cambridge International A Level.

Through our professional development courses and our support materials for Cambridge International AS and A Levels, we provide the tools to enable teachers to prepare learners to the best of their ability and work with us in the pursuit of excellence in education.

Cambridge International AS and A Levels have a proven reputation for preparing learners well for university, employment and life. They help develop the in-depth subject knowledge and understanding which are so important to universities and employers.

Learners studying Cambridge International AS and A Levels have opportunities to:

- acquire an in-depth subject knowledge
- develop independent thinking skills
- apply knowledge and understanding to new as well as familiar situations
- handle and evaluate different types of information sources
- think logically and present ordered and coherent arguments
- make judgements, recommendations and decisions
- present reasoned explanations, understand implications and communicate them clearly and logically
- work and communicate in English.

Guided learning hours

Cambridge International A Level syllabuses are designed on the assumption that learners have about 360 guided learning hours per subject over the duration of the course. Cambridge International AS Level syllabuses are designed on the assumption that learners have about 180 guided learning hours per subject over the duration of the course. This is for guidance only and the number of hours required to gain the qualification may vary according to local curricular practice and the learners' prior experience of the subject.

1.3 Why choose Cambridge International A Level Food Studies?

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.

Prior learning

We recommend that candidates who are beginning this course should have previously completed a Cambridge O Level or Cambridge IGCSE course in Food and 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.

1.4 Cambridge AICE (Advanced International Certificate of Education) Diploma

Cambridge AICE Diploma is the group award of the Cambridge International AS and A Level. It gives schools the opportunity to benefit from offering a broad and balanced curriculum by recognising the achievements of candidates who pass examinations in different curriculum groups.

Learn more about the Cambridge AICE Diploma at www.cie.org.uk/aice

1.5 How can I find out more?

If you are already a Cambridge school

You can make entries for this qualification through your usual channels. If you have any questions, please contact us at info@cie.org.uk

If you are not yet a Cambridge school

Learn about the benefits of becoming a Cambridge school at www.cie.org.uk/startcambridge. Email us at info@cie.org.uk to find out how your organisation can register to become a Cambridge school.

2. Teacher support

2.1 Support materials

We send Cambridge syllabuses, past question papers and examiner reports to cover the last examination series to all Cambridge schools.

You can also go to our public website at **www.cie.org.uk/alevel** to download current and future syllabuses together with specimen papers or past question papers and examiner reports from one series.

For teachers at registered Cambridge schools a range of additional support materials for specific syllabuses is available from Teacher Support, our secure online support for Cambridge teachers. Go to **<http://teachers.cie.org.uk>** (username and password required).

2.2 Endorsed resources

We work with publishers providing a range of resources for our syllabuses including print and digital materials. Resources endorsed by Cambridge go through a detailed quality assurance process to ensure they provide a high level of support for teachers and learners.

We have resource lists which can be filtered to show all resources, or just those which are endorsed by Cambridge. The resource lists include further suggestions for resources to support teaching.

2.3 Training

We offer a range of support activities for teachers to ensure they have the relevant knowledge and skills to deliver our qualifications. See **www.cie.org.uk/events** for further information.

3. 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
<p>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</p>	
<p>50% of total marks</p>	
Paper 2 Practical Test 2 hours 30 minutes (plus 30 minutes Preparation) with Planning Session of 2 hours 30 minutes	
<p>Candidates select one from a choice of three practical assignments. Each practical assignment links to the nutritional aspects of the subject and includes nutritional calculations. Dishes chosen for the Practical Test should show manipulative skills and competent use of equipment. Full details are given in Section 6.</p>	
<p>40% of total marks</p>	
Paper 3 Coursework Investigation	
<p>A written report of an investigation undertaken by the candidate toward 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 7.</p>	
<p>10% of total marks</p>	

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 if possible.

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 not available to private candidates.

Detailed timetables are available from **www.cie.org.uk/examsOfficers**

Centres in the UK that receive government funding are advised to consult the Cambridge website **www.cie.org.uk** for the latest information before beginning to teach this syllabus.

Combining this with other syllabuses

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

- 0648 Food and Nutrition
- 6065 Food and Nutrition

4. Syllabus aims and assessment objectives

4.1 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.

4.2 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.

5. 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, globular or fibrous proteins
 - Denaturation by heat, acids, alkalis, mineral salts and agitation
 - Enzymes, enzymic hydrolysis, enzymic browning
 - Protein quality: essential and non-essential amino acids, 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, and 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), 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 and endocytosis
 - Absorption of monosaccharides, amino acids and 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 and 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 and zinc
- (c) The effect of storage, preparation, cooking and preservation on micronutrients

1.4 Water

- Water balance
- Sources of water – from food, drink and 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 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 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 intake of sugars (sucrose) and increasing intake of starch; importance of slow release of glucose from starch; 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)
- Understand how average figures are obtained and how they should be used
- Factors affecting the needs of different individuals during:
 - pregnancy and lactation
 - babyhood
 - 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 and 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 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 and 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 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 – 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 meals

6.1 Reasons for cooking foods

6.2 The effect of cooking on foods

6.3 Safety, efficiency and economy when cooking

6.4 Methods of heat transfer

- Methods of heat transfer: conduction, convection and radiation, with reference to different cooking methods
- Production of heat within food by microwave radiation

6.5 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 (heat or acid on sodium hydrogen carbonate) and biologically (yeast fermentation)
- The functions of the ingredients in these mixtures

6.6 Presentation of food

6. 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 externally assessed by an 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	(total 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 internally assessed by the Centre. A *Practical Test Working Mark Sheet* should be completed for each candidate. The 26 marks should be allocated as follows:

(a) General approach	6
(b) Manipulation	5
(c) Judgement of consistencies	5
(d) Hygiene and economy	5
(e) Oven 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 and approach, tidy and methodical work 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 changed frequently.
- Washing up need not be done at the end 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 dishes must be stacked; judge the amount of washing up remaining.
- Spilt foods must be wiped or mopped up, sinks should not be cluttered; the work table should be left clean.

(b) *Manipulation*

5 marks

This mark is divided equally among the main dishes.

- Each dish should demonstrate a fair degree of skill.
- The candidate should be familiar with the technique.
- 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.
- Consider the use of labour-saving equipment.

(c) *Judgement of consistencies*

5 marks

This mark can be broken down and allocated to each dish.

- The correct consistencies for pastries, cakes, bread and biscuits should be noted 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 be seen to be testing consistencies and making appropriate adjustments.
- It is important that note is taken of 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

The mark for these areas is an impression mark, but the points listed below should be considered. 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 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 prepared pastry
 - gas or electricity switched off when not in use
 - water not wasted
 - preheating oven for no more than ten minutes
 - 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) Oven 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.
- Consideration should be given to preheating the oven, although any more than 10 minutes should be penalised in the previous section (economy of fuel).
- Use should be made of residual heat wherever possible.
- The marks awarded should reflect the amount of work carried out in the test. Those 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* should be completed for each candidate.

1. Each dish will be marked out of six marks. The full range of marks should be used. No half marks should 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 will not receive a mark.
3. Where dishes show insufficient skill or a repetition of skills, the mark awarded must be reduced.
4. Each dish will 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 dish
 - the temperature and size of the serving dish
 - attractive presentation
 - tasteful garnishing and decorating
 - cleanliness of 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 with completed dishes, labelled with the candidate's number and name 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.cie.org.uk/samples**. A copy must be made of each 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.cie.org.uk/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 together with each candidate's Preparation Sheets and *Practical Test Working Mark Sheet*.

7. Coursework Investigation

7.1 Guidelines for teachers and candidates

Work submitted for this paper must be a personal/individual study, 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, 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
- diary of activities.

Although the execution of the work is to 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 of study, justify their choice and discuss relevant factors
- collect, select and interpret knowledge, information and data relevant to the study
- plan, justify and implement a course of action relevant to the study/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 of further study
- evaluate the strengths and weaknesses of the study itself.

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 study 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 and, if necessary, advise candidates if the proposed work is beyond their ability, or impractical because of lack of particular resources in school or in the community.

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 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 study, candidates should select and discuss factors that are relevant to the study. It is often helpful to write down a series of sub-questions which evolve from the main questions and which will 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 study. This plan could include any of 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 get 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 study 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 study 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 of information (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 study

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 study
- subject and paper code (9336/03).

Reports may be typed or handwritten in the candidate's own words. Professional typists need not be employed.

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

Submitting the study

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

7.2 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 varied methodology (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 not as well-phrased, so parameters of study less well defined, leading to the use of fewer investigative techniques (two to three) and 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 method 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 assessed as if the choice were correct.	0	
Planning	The main aims and objectives of the research are clearly stated, 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 will be included.	11–15	15
	The main aim will be clearly stated, but with fewer sub-questions to be answered. The plan of action will be incomplete and details of methodology will be lacking. Sample questionnaires, etc. will be included.	6–10	
	The main aim of the investigation will be stated, but this will not have been analysed to formulate sub-questions to be answered. The evidence of initial planning will be the format of the study itself only. Sample questionnaires, etc. will be 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 investigations.	5–10	
	A lengthy discourse on the subject area, but some important points may have been overlooked and others may be irrelevant. The information will not have been used to any great extent in the subsequent investigations. 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 methods (four to five), and has executed these using a good range of resources efficiently and economically 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 quantify research, especially in analysis of nutritional intakes. There is evidence that questionnaires and interview questions were tested before use in the investigation. Evidence relevant to the main aim and objectives of the investigation has been presented <i>clearly, accurately and succinctly</i> 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 carried out two to three investigative methods 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 evidence of 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 area of investigative methodology, with very limited use of resources. Questionnaires and interview questions are badly structured, with no quantitative data, and little useful information has been gleaned by the research. Very little evidence has been presented, possibly by one method only. The evidence presented will lack 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 main aim, 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 aim, 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 will have 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 items which logically and sequentially fulfil the aims and objectives of the investigation. Very little in the candidate's own words and style.	1	

8. Resource list

Resources are listed on Cambridge's public website at **www.cie.org.uk**. Please visit this site on a regular basis as the resource list is updated through the year.

Access to teachers' email discussion groups, suggested schemes of work and regularly updated resource lists may be found on the Cambridge Teacher Support website at **<http://teachers.cie.org.uk>**. This website is available to teachers at registered Cambridge Centres.

9. Other information

Equality and inclusion

Cambridge International Examinations has taken great care in the preparation of this syllabus and assessment materials to avoid bias of any kind. To comply with the UK Equality Act (2010), Cambridge has 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.cie.org.uk/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 results) 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 results) 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 these components was sufficient to merit the award of a Cambridge International AS Level grade.

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

Entry codes

To maintain the security of our examinations, we produce question papers for different areas of the world, known as 'administrative zones'. Where the component entry code has two digits, the first digit is the component number given in the syllabus. The second digit is the location code, specific to an administrative zone. Information about entry codes for your administrative zone can be found in the *Cambridge Guide to Making Entries*.

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