FOOD STUDIES 9336
GCE A Level
2007

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FOOD STUDIES
GCE Advanced Level
Subject 9336

This syllabus is available for examination in **November** *only*.

This syllabus provides candidates with opportunities to develop knowledge and skill in both theoretical and practical aspects of nutrition, foods and food preparation.

A Centre offering this course should be able to provide appropriate facilities and equipment for the practical component of the examination. Each candidate should have sole use of a cooker, a range of basic cooking equipment and access to labour saving equipment during the practical test.
Practical Examiners must be independent and qualified to teach this subject at this level. Education authorities and groups of schools in an area may organise their own system of teacher moderation. Arrangements must be acceptable to CIE.

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 utilisation 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.

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, energy/fuel, ingredients, and equipment according to 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 an area of the syllabus and a specific problem within that area to be investigated;

8 justify the choice of this area and of subsequent actions to be taken;

9 identify the main aims and objectives of the investigation;

10 research an area of study for basic information on which to base investigations;

11 plan, justify and implement a course of action using a range of investigative procedures and appropriate use of resources and which is relevant to the identified area of study;

12 record and present findings succinctly, clearly and accurately and to analyse, draw conclusions and make recommendations based on these;

13 assess and evaluate the strengths and weaknesses of the study, the quality of work and benefits to self of carrying out the work.

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 independent and qualified to teach this subject at this level. Education Authorities, Ministries or Centres must organise their own system of teacher moderation.

SCHEME OF ASSESSMENT

This syllabus provides candidates with opportunities to develop knowledge and skill in both theoretical and practical aspects of nutrition and foods and food preparation.

Paper 1	**Theory**	**50%**
Paper 2	**Practical**	**40%**
Paper 3	**Unsupervised Investigation**	**10%**

Paper 1 Theory (3 hrs) - written paper. This will test the candidate's knowledge of theory and practice. Candidates will be required to answer four questions, two from Section A and two from Section B. Section A will primarily concern the science of foods and nutrition. Section B concerns the practical application of food science to food handling and preparation.

Paper 2 Practical

Planning (2½ hrs)

Preparation (30 minutes)

Practical test (2½ hrs)

Instructions for conducting this component of the examination are issued each year.
Candidates will select **one** from a choice of three practical assignments. Practical work should be closely linked to the nutritional aspects of the subject and should include nutritional calculations. The underlying scientific principles of food preparation and cooking should be constantly emphasised. Dishes chosen for the practical examination should show manipulative skills and competent use of equipment.

Paper 3 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 report should be simply but attractively presented and clearly labelled with the candidate's name, name of Centre and Centre number, subject and paper number and the title of the study.

The work should be sent to CIE immediately after the practical examination period but separate from the practical examination documents.

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.

Although the execution of the work is to be unsupervised, before the work begins, teachers should discuss different ways of approaching the work. 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 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.

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

Candidates should demonstrate that they have been able to:

- select an area for study and fully justify their choice;
- collect, select, interpret, and present succinctly information relevant to the area under investigation;
- plan, justify and implement activities (tests, experiments, comparisons, visits, observations, surveys, interviews, questionnaires) based on this information;
- record and present findings concisely (use of tables, annotated graphs, pie charts, photographs, labelled diagrams, flow charts and prose summaries);
- analyse their findings, draw conclusions and make recommendations;
- evaluate their findings and the strengths and weaknesses of their work and of the final report

The final report should be approximately 4000 words in length. This is a guide only and candidates receive credit for presenting their reports succinctly. The following items are not included in this total:

- copies of letters and questions used in interviews and questionnaires;
- tables, annotated graphs, pie charts and photographs, labelled diagrams and flow-charts;
- diary of activities.

NB. Candidates should avoid studies that are too wide and investigations based solely on book or document research. Reports may be typed or hand written in candidates' own words. The report must be the candidate's own work; plagiarism is unacceptable and will be penalised.

SYLLABUS CONTENT

1 Composition and Functions of Nutrients:	
1.1 Chemical structure and nature of proteins, carbohydrates and lipids:	1.1.1 Proteins: Primary, secondary and tertiary structure. 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. 1.1.2 Carbohydrates: Structure and examples of available carbohydrates - monosaccharides, dissaccharides, oligosaccharides, polysaccharides (starch) and unavailable carbohydrates – non-starch polysaccharides or 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. Candidates should understand the Maillard reaction (non-enzymic browning) between reducing sugars and amino acids. 1.1.3 Lipids: Composition of lipid oils and fats - triglycerides. Fatty acids - saturated and unsaturated (monounsaturated and polyunsaturated) the difference between cis and trans 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: Digestion of starch, di-saccharides, 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 simple sugars, amino acids and lipids. (c) Absorption of other substances: Water, minerals and vitamins. Calcium - factors hindering absorption - role of vitamin D. Iron - factors affecting absorption - role of vitamin C. Defective absorption - Cystic fibrosis, Lactose Intolerance, Coeliac disease. (d) Assimilation and use of absorbed nutrients in body cells: Glucose - role of liver and pancreas in maintaining blood sugar levels; cell respiration to produce energy, glycogen formation, lipogenesis.

	Amino acids - Synthesis of body tissues - structural and functional proteins; deamination - energy production; transamination. Reformed triglycerides - energy, adipose tissue.
1.3 Micro-nutrients:	1.3.1 Vitamins: Fat soluble vitamins A,D,E,K. Water soluble vitamins Thiamin, Riboflavin, Niacin, Folate, Cobalamin - their functions, good food sources, recommended daily intakes and results of deficiency and excess where relevant. 1.3.2 Mineral elements: calcium, phosphorus, iron, sodium, fluorine, iodine and chloride - their functions, good food sources recommended daily intakes and results of deficiency and excess where relevant. The main role of the trace elements cobalt, copper, manganese and zinc. 1.3.3 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 body.
1.5 Energy needs:	Measurement of heat energy - kilojoules (kJ) or kilocalories (kcal). Energy products 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 need - Basal Metabolic Rate (BMR) and energy for daily activities. Factors affecting BMR and overall energy need. Energy Balance – results of too high and too low an energy intake. Protein energy malnutrition.
2 Nutritional Needs	
2.1 (a) Basic nutritional guidelines - reasons for advice and ways to implement:	Only 30% daily energy needs to come from fats (10% from saturated fats, 20% from polyunsaturated fats). Dietary and serum cholesterol levels (HDL and LDL), CHD. Associated with this - eat less red meat. Reduce intake of sugars (sucrose) and increase intake of starch - importance of slow release of glucose in blood from starch, dental caries, obesity, increased risk diabetes. Increase intake of dietary fibre - average amount recommended for adult 18g. Reduce sodium (salt) intake - between 2g and 10g. Knowledge of local provisions for nutritional education.
2.2 Average Daily Recommended intake of nutrients for different individuals:	Candidates should understand how these average figures are obtained and how they should be used. Factors affecting the needs of different individuals during: pregnancy and lactation, babyhood, pre-school years, junior school years, adolescence, adulthood, old age and during illness and convalescence.

3. Food Commodities:	
3.1 Knowledge of the nutritional content of:	(a) cereals and cereal products; (b) meat, fish, eggs, milk, cheese and other milk products; (c) fruit; * (d) vegetables; * (e) fats and oils. Choice of these commodities relative to quality, freshness, cost and use. * Candidates should be able to classify different fruits and vegetables and compare their nutritional contents.
3.2 Food production:	(a) Milling of cereals and production of cereal products. (b) Milk - heat treatments, homogenisation and preserved milk products. (c) Production of simple curd and hard cheeses. (d) Fats and oils - refining of cooking oils, animal fats, hydrogenation to produce margarines, white cooking fats, low fat spreads. (e) Soya products including TVP and other novel protein foods - mycoproteins.
3.3 Local food production:	(a) Self sufficiency, cash crops, exports/ imports. (b) Problems associated with local food supplies and possible remedies.
3.4 Decomposition and deterioration of foods:	(a) Ripening and autolysis, effect of bacteria, yeasts, moulds, pest damage. (b) Care of food during transport, storage, distribution and in the home. (c) Food preservation: - commercial freezing methods, canning, curing, smoking, dehydration, accelerated freeze drying, vacuum packaging and irradiation; - domestic preservation - traditional methods of drying and smoking, jam and pickle making, freezing; - cook-chill processing.
3.5 Use of additives and food labelling:	(a) An understanding of the functions of additives and an ability to make a balanced evaluation of their use. Preservatives, colourings, flavourings, flavour enhancers, emulsifiers, stabilisers, antioxidants, sweeteners, additives used as production aids such as flour improvers, humectants and bulking agents. (b) Local legislation and safety for additives. (c) Food labelling.
3.6 Comparison of convenience foods with homemade:	

4	**Meals for the family:**	4.1	Knowledge of local nutritional practices as influenced by racial and religious background; environmental factors, food availability and cost.
		4.2	Food choice bearing in mind quality, nutritive value and cost.
		4.3	Meal planning (a) Consideration of factors such as income, cooking facilities, time available, cooking skills, season, personal preferences and special food requirements such as those for convalescents or vegetarians. (b) The use of food tables 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 RDIs.
5	**The Kitchen:**	5.1	Kitchen planning (a) Layouts for efficiency and safety - work triangle. (b) Choice, cost and care of kitchen equipment - current trends, new developments. (c) Aspects for safety and hygiene.
		5.2	Food storage (a) Food contamination by food poisoning bacteria - Salmonella, Staphylococcus, Clostridium Perfringens, Clostridium botulinum, Bacillus Cereus. (b) Chemical contamination of foods and naturally occurring plant toxins. (c) Prevention of cross contamination by bacteria. Kitchen and personal hygiene. (d) Control of microbial action by temperature. (e) Refrigeration and storage of dried and canned foods.
6	**Preparation and Cooking of Meals for different occasions:**	6.1	Reasons for cooking foods.
		6.2	Methods of heat transference - conduction, convection and radiation, with reference to different cooking methods. Production of heat within food by microwave radiation.
		6.3	Safety, efficiency and economy when cooking.
		6.4	The effect of cooking on foods.
		6.5	Basic Methods and Mixtures: (a) Sauces - blended, roux (Béchamel, Velouté, Espagnole), Hollandaise, mayonnaise, purée sauces. (b) Pastries, short, puff and choux. (c) Scones and cake mixtures - rubbed-in (plain), creamed (rich), whisked, melted. (d) Yeast mixtures. (e) Batters. (f) Raising agents - air, steam, carbon dioxide produced chemically - (heat on sodium hydrogen carbonate, reaction of acid and alkali - sodium hydrogen carbonate and cream of tartar [baking powder]) and biologically - yeast fermentation. Candidates should understand the role of gluten and eggs in baked mixtures.
		6.6	Presentation of food, temperature, decoration and garnish.

RESOURCES LISTED

Basic student text

Fox B.A., Cameron A.G., *Food Science, Nutrition and Health (6th edition),* Arnold (pub.) ISBN 0 340 60483 2

(Earlier editions are still relevant to the syllabus.)

Additional useful texts

*Clarke D. and Herbert B., *Food Facts,* Macmillan

* Davies J. and Hammond B., *Cooking Explained,* Longman.

Dietary Reference Values for Food Energy and Nutrients for the UK, HMSO, ISBN 0 11 321397 2

Gaman P.M. and Sherrington K.B., *The Science of Food: An Introduction to Food Science, Nutrition and Microbiology,* Pergamon ISBN 0 08 036156 0

Proudlove R.K., *The Science and Technology of Foods,* Forbes (pub.), ISBN 0 901 76290 3

Food Tables

Composition of Foods, McCance and Widdowson HMSO

Manual of Nutrition, HMSO

Food Tables, Bender and Bender OUP

* These are texts aimed at a lower level of study but contain useful information on the underlying science of cooking.

ASSESSMENT SCHEME

Paper 3: Unsupervised Investigation

Process	Indicators	Mark Range	Max Mark
Choice and Justification	The chosen area of study is appropriate to the syllabus and well justified (4 reasons) with a title that sets well defined parameters and leads to an investigation with the use of varied methodology (4-5 main methods) using a wide range of resources.	8-10	10
	The chosen area of study is appropriate and the choice is satisfactorily justified (2-3 reasons). Title not so well phrased so parameters of study less well defined leading to the use of fewer investigative techniques (2-3) and resources.	4-7	
	Choice is appropriate but less well justified or not justified at all and the title does not lead to a well structured and 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 research.	1-3	
	The choice of topic may be outside the syllabus - the candidate is penalised here only 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 investigations to be carried out with details of the methodology to be used (how, when, where and with whom), and a description of how collation will be done. There may be a diary of completed activities. Sample questionnaires, interview questions and letters will be included.	8-10	10
	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.	5-7	
	The main aim of the investigation will have been stated but this will not have been analysed to formulate the sub-questions to be answered. The evidence of initial planning will be the format of the study itself. Sample questionnaires etc. will be included.	1-4	
Theoretical Research	A **succinctly** presented but comprehensive **summary**, in the candidate's own words and style, of the theoretical information which forms the basis of the investigation. The information presented will be correctly and efficiently used.	7-10	10
	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. A satisfactory attempt has been made to use most of the information in the subsequent investigations. The candidate may have approached professionals outside the school unnecessarily for basic coursework information.	4-6	
	A lengthy discourse on the subject area but some important points may have been overlooked and others will be irrelevant. The information will not have been used to any great extent in the investigations.	1-3	
	No basic information has been presented.	0	

Investigation Skills	The candidate has used a range of investigative methods (4-5) and has executed these using a good range of resources efficiently and economically to gather 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.	13-20	20
	Candidate has carried out 2-3 investigative methods to a satisfactory standard but has used fewer resources. There is little or no evidence of quantification. Questionnaires and interview questions are not so well thought out and are more subjective in approach resulting in information that was not so readily collated.	6-12	
	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 evidence of quantification and little useful information has been produced by the research.	1-5	

NB. Check lists to aid assessment:

Investigative methodology likely to be used
Market surveys, Questionnaires, Interviews, Nutritional analysis, Visits and observations, Food experiments, Comparisons (food, equipment), Tasting panels, Researching statistical evidence to compare with own findings.

Resources
Time, Personal energy, Fuel energy, Money, Ingredients, Equipment,
People (teacher, peers, family, community, nutrition and health professionals, food service and food manufacturing industries),
Modern technological aids (computers, Internet, etc.).

Collation and Presentation of data	Evidence relevant to the main aim and objectives of the investigation has been presented **clearly, accurately and succinctly** by a variety of methods. Illustrations and graphics have titles and are fully labelled and annotated to facilitate analysis, the drawing of conclusions and making of recommendations.	13-20	20
	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.	6-12	
	At this level very little evidence will have been presented, possibly by one method only (e.g. prose or percentage tables). The presentation will lack detail, and accuracy. The report may be presented as a continuous essay with no attempt to section according to assessment criteria.	1-5	

NB. Methods of presenting gathered data

Prose, lists, tables, tick charts, tick lists, bar graphs, line graphs, pie charts, photographs, comparative charts, evaluation charts based on assessment criteria used by tasting panels etc.

Conclusions	The candidate has made a good analysis of the findings, has drawn conclusions based on the presented evidence and has made recommendations which are relevant and practicable.	8-10	10
	The candidate has been repetitive in analysing the data and drawing conclusions. Recommendations are made but these tend to be idealistic and impracticable.	4-7	
	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.	1-3	
	No conclusions.	0	
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, the quality of the presentation and personal benefits to the candidate from carrying out the work.	8-10	10
	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 benefits to self.	4-7	
	Evaluation points may be mixed in with conclusions of general text, they are limited in their number and coverage of the work and presented in an illogical way.	1-3	
	No evaluation.	0	
Presentation	An attractive, interesting and logically presented record of the work undertaken. Typed or hand written in the candidate's own words and style and within the word limitation. Contents list, acknowledgements, bibliography and diary of activities all well produced. There will be evidence that the **report has been written up as the investigation has progressed**.	8-10	10
	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.	4-7	
	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. Reports may be neatly presented but have little content or they may be very casually put together with scrappy paper cut-outs carelessly stuck in and have been written entirely at the end of the investigation	1-3	
NB. Candidates should hand write or type their own reports. Typists should not be employed.			

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.

The study should be **up to** 4000 words in length. It should be remembered that quantity does not always equate with quality.

The following items are not to be included in the total amount of words:

- copies of questions used in interviews
- copies of letters 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

The first four points can be included in an appendix after the bibliography. Labelling and annotations alongside photographs, graphs, pie charts etc., can convey information concisely and effectively.

Teachers should discuss with candidates the different ways of approaching this paper. Candidates should be aware of the different investigative procedures they can use. It might be a useful exercise to work through a model study/investigation with a teaching group at the start of the course.

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

- identify an area of study 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;
- record and present findings and draw conclusions from these;
- evaluate conclusions and identify applications of findings and areas of further study;
- evaluate strengths and weaknesses of the study itself.

Suggested Sequence of Work (to be written up as the work progresses)

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 which they would like to investigate further. Ideas evolve from classroom teaching and discussion.

It is more appropriate and 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 studies are beyond their ability and 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 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 the bibliography. 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 study. This plan could include any of the following activities:

- Making visits.
- Devising and using questions in interviews.
- Using questionnaires; simplicity is the key note here. There should not be 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 number 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 research should form only part of the study. There is no merit in copying pages from a book or report.
- There should be evidence in the studies that plans have been implemented. Any changes to original plans 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.
- The evidence/data collected should be presented as clearly and concisely as possible. Tables, pie charts, graphs, as well as concisely written accounts are all acceptable. Computer programmes that present information graphically may be used.
- 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 strengths and weaknesses, suggesting any improvements which could have been made and further areas of study worth pursuing.
- The bibliography should include all written sources of information, the names and positions of people interviewed and places that have been visited.
- A contents list can be usefully drawn up after the study has been completed.

Candidates should avoid studies that are too wide or which limit investigations to book research. If short passages from books are quoted, the source of material must be indicated.

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 with simple decorations are adequate. The front cover should clearly show the following information:

- The candidate's name and candidate number
- The Centre name and Centre number
- The title of the study
- The subject code and paper code

Professional typists need not be employed to prepare the final study.

EXAMPLE OF STUDY

1 **Starting point** - classwork on vitamins, their function in the body, RDAs and good food sources.

2 **Area of Study** - vitamin C.

3 **Specific Investigation** - are local elderly people obtaining sufficient vitamin C in their diets?

4 **Introduction** - discussion of reasons for selecting this study and the importance of an adequate supply of vitamin C in the diets of elderly people.

What needs to be investigated:

- Which foods high in vitamin C are available locally?
- Which of these foods are elderly people buying?
- How do they cook and serve these foods?
- How frequently do they eat them?
- What is the effect of the cooking methods they use on vitamin C content of the food?
- Is there any evidence that these people are suffering from a lack of this vitamin?
- If their intake of the vitamin is insufficient, what are the reasons and how can the situation be remedied?

5 **Draw up a Plan of Action**

Survey the markets, street stalls, shops etc., to see which of foods rich in vitamin C are available locally.

Interview a range of elderly people of different ages and different socio/economic groups. Interview people involved with the care of the elderly.

Use questionnaires to find answers to questions. Use tick lists and yes/no questions on all aspects of the questionnaire because they are simpler and quicker for the person completing it.

Research the effect of different methods of preparing and cooking foods with vitamin C content. It may be possible to carry out some experiments to demonstrate this. Ask a selection of individuals to record what they eat for a few days and then analyse the vitamin C content of their diet using tables and compare the results with RDAs.

Prepare dishes rich in vitamin C and set up tasting panel of elderly people to evaluate their acceptability.

Collate the data collected and present it graphically.

Draw conclusions and make recommendations

Based on the evidence collected, produce a leaflet that gives information on the need for vitamin C and suggestions as to how it can be obtained. Give a selection of recipes that have been made and sampled. List other ways of increasing vitamin C content of diet.

Evaluate the study as a whole

6 Implement Plan of Action.

7 Collate, present and analyse data.

8 Draw conclusions. Evaluate the situation and identify specific needs.

9 Make and test recipes and produce leaflet.

10 Evaluate study as a whole.

11 Draw up bibliography.

12 Draw up contents list.

FOOD STUDIES (9336/2)
Practical Examination Working Mark Sheets
GCE HSC and A Level

Centre Number		**Centre Name**	
Candidate Number		**Candidate Name**	
Test Number		**Overseas Examiner's Name**	

B Manipulative Skill and Method	Mark	**C** List of Dishes Chosen / Results and Serving	Mark	**A For UK Examiner use only**	Mark
				Recipe Choice	
				Time Plan	
				Nutritional Factors	
				Calculations	
Total Mark Awarded		Total Mark Awarded			
				Overall Total	

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FOOD STUDIES (9336/2)
Planning Sheet
Page 1 - Plan of Work

Centre Number						**Centre Name**	
Candidate Number						**Candidate Name**	
November	**2**	**0**	**0**			**Test Number**	

Menu or Dishes Chosen	Recipes

Centre Number						**Centre Name**	
Candidate Number						**Candidate Name**	
November	**2**	**0**	**0**			**Test Number**	

Written Answer

(a) Reasons for choice, (b) Relevant nutritional information, (c) Calculations (if required)

Centre Number						**Centre Name**	
Candidate Number						**Candidate Name**	
November	**2**	**0**	**0**			**Test Number**	

Written answer (continued)

FOOD STUDIES (9336/2)
Planning Sheet
Page 4 - Time Plan

Centre Number						**Centre Name**	
Candidate Number						**Candidate Name**	
November	**2**	**0**	**0**			**Test Number**	

Time	Order of work and method	Special points

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Centre Number						**Centre Name**	
Candidate Number						**Candidate Name**	
November	**2**	**0**	**0**			**Test Number**	

Time	Order of work and method	Special points

FOOD AND NUTRITION (9336/2)
Planning Sheet
Page 6 - Shopping List

Centre Number						**Centre Name**	
Candidate Number						**Candidate Name**	
November	**2**	**0**	**0**			**Test Number**	

Milk and milk products	**Fruit and Vegetables**	**Fresh fish, meat and poultry**
		Cereals and cereal products
		Canned, frozen and packaged foods
	Condiments and Spices	**Other ingredients**

Mark with a * items brought from home

Special equipment and/or serving dishes

FOOD STUDIES (9336/3)
UNSUPERVISED WRITTEN WORK

JOINT HSC and A Level

COURSEWORK COVER SHEET

This is to certify that the coursework of the candidates was completed by 1 November and that it is, to the best of my knowledge, the candidate's own work.

Centre Number						Centre Name	
Candidate Number						Candidate Name	

Title of Project

I certify that this Coursework Project is the original work of the above candidate.

Teacher's Signature							
Date							

CCS005

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9336/3/CWCS

FOOD STUDIES (9336/3)
UNSUPERVISED WRITTEN WORK

JOINT HSC and A Level

COURSEWORK COVER SHEET

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Centre Number						Centre Name	
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Teacher's Signature							
Date							

CCS005

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9336/3/CWCS

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	Comments	Mark
Choice of topic and reasons for choice (max 10)		(out of 10)
Planning (max 10)		(out of 10)
Theoretical research (max 10)		(out of 10)
Investigation (max 20)		(out of 20)
Collation of information gathered (max 20)		(out of 20)
Conclusions (max 10)		(out of 10)
Evaluation (max 10)		(out of 10)
Presentation inc. illustration and bibliography (max 10)		(out of 10)
	Total mark (max 100)	
	Total mark ÷2 (max 50)	*

9336/3/CWCS

*Please record this mark on the marksheet (MS2) which is sent to CIE.

	Comments	Mark
Choice of topic and reasons for choice (max 10)		(out of 10)
Planning (max 10)		(out of 10)
Theoretical research (max 10)		(out of 10)
Investigation (max 20)		(out of 20)
Collation of information gathered (max 20)		(out of 20)
Conclusions (max 10)		(out of 10)
Evaluation (max 10)		(out of 10)
Presentation inc. illustration and bibliography (max 10)		(out of 10)
	Total mark (max 100)	
	Total mark ÷ 2 (max 50)	*

9336/3/CWCS

*Please record this mark on the marksheet (MS2) which is sent to CIE.