

FOOD STUDIES

Paper 9336/01

Theory

General comments

Most candidates completed the required number of essays and, on the whole, allocated their time efficiently. A few candidates spent too long on the first question to the detriment of the standard of the last one or two essays. It is extremely important that candidates pay close attention to the mark allocation for each part of the essays. Several candidates spent too long on certain parts of an essay which, of course, often had an effect on the final essay mark as other parts were unable to have the required time to complete each part.

It is important that candidates read the questions carefully, not only to prevent including irrelevant information but also to take note of words such as 'explain', 'discuss', 'describe' etc. These all demand different types of responses.

Question 3 was answered most successfully with several candidates scoring full marks. **Questions 4, 7 and 8** were the least well answered.

Comments on specific questions

Section A

Question 1

- (a) This part was worth 5 marks. Many candidates included only two reasons as to why people may follow a vegetarian diet. To improve, candidates needed to give more reasons and explanations in their answers. For example, candidates gave the reason as religion but the question asked for an explanation and, therefore, it was necessary to give an example, such as the Hindu religion forbids the consumption of beef. Answers needed to be more precise. For example, writing that people might be influenced by someone is insufficient detail for an A level answer. Answers should have included detail of who might have been influenced such as family or friends/peer groups or celebrities.
- (b) The question asked for problems and ways of addressing them in a vegan diet, other than those caused by lack of HBV protein. Many candidates included only problems and solutions concerned with HBV protein. There were 10 marks available and, therefore, candidates should have spent more time and provided more information for this part of the question. To improve, candidates needed to refer to more than two nutrients which vegans may find difficult to include in their diet. Very few candidates included any points which were not nutritional, but in order to score higher marks additional points should have been considered such as the diet can be monotonous or bulky and may cause digestive problems. High marks, however, were easily available in this part by including purely nutrients as long as the candidate could name several nutrients which may cause problems, name the relevant deficiency diseases and give examples of foodstuffs containing the nutrients which a vegan can consume.
- (c) (i) Again candidates tended to concentrate on nutritional points where in actual fact there were lots of other answers such as the variety of soya products, they are cheap, versatile etc. It was important when dealing with the nutritional content of soya to mention that it is the only plant source of HBV and to define the terms HBV protein, complementary proteins etc.
- (ii) Very few candidates could describe the production of TVP. The advantages and disadvantages, however, were often listed in detail.



Question 2

This question was generally well answered. To improve, candidates need to keep to the requirements of the question and should make sure enough information is included e.g. naming more than two sources of a vitamin. When candidates dealt with functions, sources and results of deficiencies of the vitamins systematically, they tended to score highly. It was when they mixed up the parts in their essays, jumping from function to deficiency back to function etc. that they omitted relevant information.

- (a) The responses concerning vitamin A were usually successful. Good answers included the formation of rhodopsin and its role in aiding vision in dim light, the production of healthy mucous membranes e.g. cornea, digestive tract, respiratory tract etc. They also included examples of foodstuffs from both retinol and beta-carotene. Good responses in the deficiency part of vitamin A included explanations of night blindness, xerophthalmia etc.
- (b) Surprisingly, vitamin C was often the least successfully answered of the three vitamins. Most candidates limited the functions to absorption of iron and protection from illness. Had they also mentioned the formation of collagen or production of connective tissue they would have scored higher marks. To gain better marks, candidates' descriptions of scurvy should have gone beyond reference to swollen gums.
- (c) Responses to vitamin D were also better than ascorbic acid. Nearly all candidates were able to give the absorption of calcium as well as strengthening of bones and teeth. Fewer mentioned phosphorus but most were able to list a good range of sources, including sunlight. Nearly all candidates were able to list rickets and give the correct symptoms but several became mixed up when dealing with osteoporosis and osteomalacia.

Question 3

This question scored the highest marks on the paper.

- (a) A great number of candidates scored full marks on this part. Candidates were able to describe in detail the primary and secondary structures of proteins, gaining their marks by describing a protein chain, a peptide bond, a dipeptide, a polypeptide, the folding and pleating of the primary structure, hydrogen bonds, ionic bonds, disulphide bonds etc.
- (b) This was another part in which candidates scored highly. They named globular and fibrous proteins and described their properties well.
- (c)(i) Again most candidates were able to score well. Digestion tended to be more successful than absorption naming enzymes and their specific action. To improve, candidates should avoid including irrelevant information, such as describing digestion in the mouth even though they already stated that there was no digestion taking place in the mouth.
- (ii) Candidates needed to include information about deamination in order to gain full marks. Several candidates only mentioned growth, repair and maintenance of body tissue.

Question 4

This was a question which had to be chosen very carefully. If a candidate was not sure of the classification of vegetables then it was very easy to lose a lot of marks. Also the final part of this question proved to be challenging to many candidates and this, linked sometimes to a poor part (a), meant that some candidates did not achieve a good result.

- (a) Candidates either knew this information and scored high marks or did not and, therefore, scored very little. There were few average answers to this question.
- (b) This was the most successful part of this question. Candidates were able to list the nutrients in vegetables giving their functions and deficiency diseases. This was another area where candidates had to take note of the mark allocation in order to include sufficient nutrients.



- (c) Some candidates repeated the nutritional content from part (b). Marks could be gained by mentioning the importance of colour, flavour and texture, addition of bulk to the diet, the high water content of vegetables, the large variety available, their use as a snack food, they can be cooked and preserved in a variety of ways, they are inexpensive, low in energy value etc.

Section B

Question 5

- (a) Many candidates were able to answer this part successfully. They were able to name a range of nutrients and describe their functions. It is important to note that at A level it is expected that candidates will describe proteins as HBV or LBV and be able to name the proteins.
- (b)(i) Factors which candidates could discuss include the thickness of the muscle fibres, the length of the fibres, the amount of connective tissue, the age of the animal, methods of cooking and treatment of the animal before slaughter. To improve, candidates needed to explain the significance of these points e.g. one must explain that older animals have long thick muscle tissue which has more connective tissue – collagen etc.
- (ii) Candidates often mixed up information for parts (ii) and (iii). This part was to deal with ways of tenderising meat *before* cooking whilst part (iii), tenderisation *during* cooking. Part (ii) required discussion of hanging/ageing/conditioning, naming enzymes, use of acid marinade, pounding, cutting etc.
- (iii) This part needs the candidates to discuss, in depth, moist methods of cooking mentioning temperatures, the conversion of insoluble collagen to soluble gelatine etc. Unfortunately, many described the use of enzymes, marinades etc. again.
- (c) Candidates needed to look at the mark allocation in detail in order to include lots of points. Lack of detail is where candidates lost marks. Reading the question carefully is crucial for scoring well. This part asked for reasons for changes taking place, so when mentioning colour changing from red to brown candidates needed to give a reason such as myoglobin changing to hemichrome. Other points included smell being produced - volatile aromatic substances are released, texture becomes firmer as protein coagulates etc. Again, at this standard it is important candidates give clear, detailed reasons if they are to score at the highest level.

Question 6

- (a)(i) This was the most successful of the parts in this question. Most candidates were able to list and discuss sufficient points to be found on food labels. Where scores were low, it was mainly due to not including insufficient information rather than incorrect information.
- (ii) Candidates tended to concentrate on food colourings and flavourings and, therefore, limited the marks they could score. This part had more marks available so it was important to choose this question carefully.
- (iii) Candidates need to mention sufficient points to score well in this part. Many did not mention anything other than additives which reduced their opportunity to score. Others did mention the high quantities of fat, sugar and salt without the relevant diseases these can cause. However, at this level it is expected that candidates will talk about saturated/unsaturated fat/trans fatty acids rather than just fat. In the same way, many candidates mentioned the 'umbrella' term carbohydrates instead of starches/sugars. It is very important to be specific when discussing the effects on health.
- (b) Again, candidates should have included more points in this part. They mentioned hygiene and protection and tried to expand upon these without actually making any new statement. They could have explained about the importance of being easier to stack and transport, the importance of advertising on packaging, attracting consumers, giving information, being tamperproof etc.

Question 7

This was the least successful question on the examination paper. Again, candidates must read the whole question, taking note of the mark allocation and deciding if they are able to answer in detail. Candidates answered part **(a)** but then did not realise that they had to explain the scientific principles behind the various methods of preservation and not the method of making jam in part **(b)**.

- (a)** Very few candidates included enough reasons for preserving food to score full marks. They also did *not* need to explain these reasons (which many did), again wasting time including irrelevant information which would not score any marks. The most frequent answers were to prevent decay and to keep food for longer. Other answers could have been to cope with a glut of seasonal foods, to preserve when food is cheaper, to prevent waste, to add variety to the diet, for easier transport, to store for later use, to have foods from other countries, to make new products, to import, export etc.
- (b)(i)** As with all of part **(b)**, scientific principles were lacking. In this part the candidates should have included details about the freezing of water, the temperatures of freezing, the inactivity of micro-organisms, the importance of the size of ice crystals etc.
- (ii)** Most candidates described the making of jam. In fact, what was required was explanation of the need for a strong sugar solution, % of sugar required, the removal of water from cells by osmosis, boiling to sterilise, the potting and sealing of the jam, destruction and prevention of growth of micro-organisms etc.
- (iii)** Candidates knew that this involved the removal of moisture – one of the conditions for bacterial growth – and described food being laid out in the sun. To attain higher marks it was necessary to mention other methods of drying – tunnel drying, spray drying, roller drying as well as blanching to destroy enzymes, retain colour etc.
- (iv)** Only a few candidates mentioned gamma rays. Answers could have included killing the microbes and insects, food sensitive to heat, inhibits microbial growth due to rays, etc.
- (c)** This part of the question was misunderstood by almost everyone. Candidates tended to discuss the unhygienic nature of shops, poor distribution of local foodstuffs etc. Answers should have included little choice in developing countries, local staple food with little variation, depends on climate and type of land, may not be suitable for rearing animals or growing certain crops, no money for expensive agricultural developments, failure of harvest, cyclones, pests, poor people cannot afford to buy luxury foods, government may give food aid etc.

Question 8

- (a)** Candidates were able to give reasons for cooking food, but to score higher marks they needed to explain their points e.g. to destroy micro-organisms to make food safe to eat, to tenderise meat and make it more digestible, to improve smell as the volatile substances are released etc.
- (b)** The answers to this part were too often disappointing. Some scripts did not mention the methods of heat transference and descriptions were often muddled. Answers should have mentioned the methods – convection, conduction and radiation – and then described each, giving examples of relevant methods of cooking. Microwave cooking could be included in radiation.
- (c)** Candidates included steaming and using microwaves, but needed to make more points to score better marks. Again it is important to be more specific i.e. when steaming, one burner for several tiers so several foods cooked at once using less fuel. Other points which could be included were use of pressure cooker, use all of oven shelves, using residual heat, flat heavy pan base, using fan oven so can use same food on all shelves, boil only enough water for needs, lid on pans, avoid overcooking, cut food into small pieces etc.

FOOD STUDIES

Paper 9336/02

Practical

General comments

The quality of the written answers was generally good. Scripts were set out clearly and candidates seemed to have had sufficient time to complete all sections of the paper. Occasionally pages were assembled in the wrong order; each carbonised sheet has a page number printed on it, so it should not be a problem to put them in order. It is the responsibility of each candidate to ensure that their own pages are in order before the scripts are handed in. Since most pages were stapled together, it was not an easy task to re-order them.

Teachers who undertake the marking of the Practical Test are reminded that the mark scheme published by CIE must be followed accurately. Reference must be made to the list of dishes planned on page 1 of the Preparation Sheets. If a dish lacks skill, the maximum mark available for that dish must be reduced. If a skill is repeated in other dishes, the maximum marks must be reduced on the second and any subsequent occasions. The marks left over cannot be transferred to other dishes. Consequently, the total mark for Results will be less than the maximum possible mark.

Before the Practical Test, the examiner must prepare an Individual Mark Sheet for each candidate. The maximum mark available for each dish, together with the mark awarded, must be clearly indicated on the Individual Mark Sheet. Some candidates chose dishes that were not appropriate or were not sufficiently skilful for an Advanced Level Practical Test. Apple crumble, muffins and fried rice are examples of such dishes. If a candidate does choose a simple dish, the maximum mark possible for that dish must be reduced. It is clearly stated in the Confidential Instructions that marks for each dish should be awarded according to the degree of skill demonstrated. Teachers who are undertaking the examining of practical work must always follow this guidance. It is rare for any dish to be worth full marks, and is certainly unlikely that all dishes prepared by a candidate will be worthy of full marks, so examiners should not use the maximum mark without careful consideration. It is possible that none of the candidates in a Centre will have their dishes marked out of the maximum possible mark. Teachers must use their discretion and their professional judgement to ensure that the maximum mark for each candidate fairly reflects the complexity, or otherwise, of the dish.

Detailed comments must be written to justify each mark awarded. It is not sufficient to use single words to describe results, e.g. 'satisfactory' or 'good'. Reference should be made to the colour, flavour and texture of dishes and perhaps to consistency, if appropriate. Occasionally, examiners made one statement to cover all dishes. For example, 'Everything this candidate produced was excellent in every way'. This is inappropriate because it does not consider the merits, or otherwise, of individual dishes. Sometimes the mark awarded seemed to be too high when comments suggested that there were many negative points to be taken into account when deciding on a mark for the dish. If a dish is inedible because it is undercooked or overcooked, it should be given zero.

Any dish planned but not served must also be given zero and those marks cannot be transferred to other dishes. Any dish prepared but which is not on the original plan made under examination conditions cannot be awarded a mark.

All the work carried out in the Preparation Session is marked externally, as stated in the Instructions to Centres, but occasionally local examiners have made comments on choice and have marked the Order of Work and the written answers.

It was important that examiners gave as much information as possible on each candidate's Method of Work in order to justify the mark awarded. Candidates who demonstrate few skills cannot score high method marks. In some Centres, every candidate was given an exceptionally high method mark. It is difficult to imagine that every candidate was able to work to such a high standard throughout the Practical Test.

Time plans were generally very good and gave clear instructions on methods, cooking times and temperatures and, in most cases, the method of serving. Better plans gave details on garnishes and decorations. Most candidates listed an appropriate amount of work to be carried out in the half-hour preparation time before the start of the Practical Test. Candidates should be reminded that they must not include any processes that are part of the preparation of dishes. Occasionally, examiners remarked that a candidate had planned inappropriate work for Preparation Time. Many time plans were much too detailed, giving precise information for every stage of preparation. This is not necessary and takes up too much time during the Preparation Session. It results in a plan that is not useful during the Practical Test, because the candidate finds it too complicated to follow. Some time plans were not realistic; methods were not broken down into stages and the whole method was written out as in a recipe. Again, this would not be useful in a Practical Test because it would not indicate any work done while a dish was cooking. Sometimes there was insufficient time for cooling a dish before decorating, or a dish to be served cold was the final dish to be prepared. Many candidates listed too much work for the last half-hour of the test. This allowed no time for 'over-running' during the first two hours of the test and may have resulted in some dishes not being properly cooked or served. Some candidates were unable to 'dovetail' their dishes and listed all stages of each dish, one after the other. It was expected that all plans would note that washing up would be done at least twice during the test and then a time for washing up would be included at the end of the test.

Some candidates did not use actual times in their order of work; they broke down the available time into blocks of 20 minutes, 15 minutes or whatever was appropriate for the processes being carried out. Although the times, when added together, gave a total of the two hours and thirty minutes allowed for the Practical Test, the value of such an order of work during the Practical Test is doubtful. Candidates need to be able to compare the time on their plan with the actual time on the clock in the room in order to judge whether they are working ahead of time or behind time. The examiner also needs to be able to make such judgements when checking a candidate's time plan against the clock so appropriate comments can be made on the Individual Mark Sheet.

The section of written work requiring candidates to give practical reasons for their choice of dishes was answered very well by many candidates. Sometimes comments were made about the type of meal for which the dish would be suitable, or perhaps suitable accompaniments for the dish. These are not practical reasons for choice. It was expected that candidates might mention that the ingredients for a dish were easily available or that the cost was not high. Sometimes it was noted that seasonal produce or garden produce would be used or that a dish could be cooked and served in the same dish, thus saving washing up time. Other points could have been that a dish was to be served cold and did not require the use of an oven, or that the use of labour-saving equipment was demonstrated. There were numerous possible practical reasons why particular dishes could be included in a Practical Test and every point made by a candidate was carefully considered. It was not appropriate to discuss possible variation or to mention that a dish could be made in advance and frozen for future use.

Candidates were asked to comment on the nutritional value of the dish chosen in part **(b)** of the question. Many answers, however, related to all the dishes chosen. There were many excellent accounts but sadly there were also a number of vague responses. Precise information is required at Advanced Level. It is expected that candidates will note, for example, that egg contains fat, which is a source of energy, or that HBV protein, which is important for growth, is obtained from milk. Nutrients must be linked to ingredients and to functions. It is not enough to state that the dish contains iron or that particular vitamins and minerals are found in a dish. Several candidates attempted to calculate the nutritional value or the number of kilocalories in the dish chosen in part **(b)**. None of the questions required this information. This serves to reinforce the need for candidates to read questions carefully before giving their responses.

Comments on specific questions

Question 1

This question was a popular choice and those candidates who selected it usually chose an appropriate range of dishes to show the use of different raising agents. Yeast, self-raising flour, baking powder and bicarbonate of soda were used to illustrate the role of carbon dioxide in lightening mixtures; the use of steam was generally shown in a choux pastry dish and the lightening property of air was demonstrated in whisked methods of cake-making and in puff pastry. Obviously, many dishes were chosen to illustrate the use of raising agents and most of them included appropriate Advanced Level skills. A few candidates incorrectly identified egg as a raising agent. Although it was not asked for in the question, it was helpful if candidates noted the raising agent they were illustrating in each of their chosen dishes. Not only was it helpful to the

examiner, it served to remind candidates that each dish should show how different gases or different methods of incorporating air can bring about the lightening of mixtures.

The written part of the question was well addressed. Candidates were usually able to name air, steam and carbon dioxide as the gases responsible for raising mixtures. Credit was given for identifying different ways of producing and introducing those gases and for explaining the underlying principle that gases expand on heating. Most candidates were able to state the conditions required for the fermentation of yeast. There were several possible rules for using raising agents; full marks were scored by those who explained each of the rules stated. Many candidates, for example, stated that mixtures containing chemical raising agents must be baked immediately after preparation because the gas will start to escape. The need for the accurate measurement of raising agents was acknowledged to be essential if the expected results are to be achieved. Fresh eggs were known to be important in whisked mixtures because they hold the greatest volume of air and dry ingredients must be sieved before use to ensure that the flour and powdered raising agents are evenly mixed.

The use of yeast was generally well known. Most candidates noted that high temperatures stop fermentation and that low temperatures mean that the process will be slower. A warm temperature was correctly recommended for rising and proving and a hot oven for baking to ensure that the yeast will rise well before baking and will be killed by the heat of the oven.

Question 2

This test was the choice of many candidates. Although most of them were able to plan and prepare dishes which showed the use of a range of different fats and oils, there were a number of instances of candidates repeating skills by, for example, including more than one dish made by the creaming method. As in the previous question, candidates were not asked to identify the use of fat or oil being illustrated in each dish, but it was helpful if they did so. There were good examples of dishes involving the creaming and rubbing-in methods, of puff pastry-making, frying and the preparation of mayonnaise. Some dishes showed the use of butter for colour and flavour and for making icing. Many candidates chose to prepare a cheesecake, which used melted butter to combine with biscuit crumbs. The mixture sets on cooling and forms a solid base. There were many good examples of dishes to illustrate the use of fats and oils, although some dishes lacked the skill expected at Advanced Level.

The majority of candidates were able to identify the types of fats and oils available locally and were able to give sound advice on their storage. It was usually noted that fats and oils can become rancid when exposed to oxygen, so solid fats must be tightly covered and bottles of oil sealed. Rancidity was known to give an unpleasant aroma and flavour. It was encouraging to note that a large number of candidates were able to gain full marks for this part of the question.

Question 3

This question was the least popular choice, although it was still chosen by a number of candidates. Although the dishes chosen were usually good examples of methods of thickening or setting, there were occasional examples of repetition. Some candidates chose more than one dish thickened by starch – usually using different products, such as flour and cornflour – but the principle is gelatinisation in each case. As expected, there were dishes demonstrating gelatinisation, as outlined above, coagulation of egg either for thickening or setting, the use of gelatine for setting, and dishes which included emulsification, usually involving the preparation of mayonnaise. Many baked dishes were included to show how gluten sets the shape of a mixture because, being a protein, it coagulates when heated.

The written part of the answer gave candidates the opportunity to explain three methods of thickening and setting. There were many excellent answers, demonstrating a sound understanding of the principles involved. A few candidates chose to discuss the use of pectin for setting jam and gave creditable explanations. As usual, all valid information was credited.

There were many suggestions for varying the texture of dishes. The effects of dry and moist methods of cooking were noted and named examples given to illustrate the points made. Ingredients such as nuts, fruit and vegetables, both raw and cooked, were suggested, as were wholegrain cereals, wholemeal flour and brown rice. A number of candidates correctly mentioned that a smooth texture would be achieved by blending ingredients, for example in soup, and that freezing would create another texture. Answers were varied, but most showed a sound understanding of the methods used to create variations in the texture of dishes.

There were many excellent choices of skilful dishes which included herbs or spices. Some candidates, however, used herbs merely as garnishes or failed to name the herbs or spices used in the dish. Both sweet and savoury dishes were produced. Sometimes, however, candidates repeated a skill previously demonstrated, or chose a dish which showed limited skill. An apple and cinnamon crumble would be acceptable at Ordinary Level but lacks the degree of skill expected at Advanced Level. Part **(b)** of the question specifically stipulated that the dish must be skilful. Marks were sometimes lost because the dish chosen was too simple.

Candidates should be encouraged to consider each question carefully and to look for key words to help them with their choice of dishes. Part **(a)** requires candidates to choose dishes to illustrate the statements made to introduce the questions as well as to include a range of skills. In part **(b)**, the emphasis is on the demonstration of skill; dishes appropriate at Ordinary Level are seldom demanding enough at Advanced Level.

FOOD STUDIES

Paper 9336/03
Unsupervised Work

General comments

The individual studies were well presented and were both interesting and informative. The majority of candidates had obviously invested a lot of time and effort undertaking their investigation and producing their report. Some of the topics chosen did not lend themselves to investigative work; others were too wide-ranging because clearly defined parameters had not been set. However, most of the topics had clearly defined titles set within realistic frameworks. The poorest studies had titles that did not reflect either the investigation or the conclusion. Candidates should be reminded that the title of the investigation must be an accurate reflection of its content.

It was most helpful when the framework set out in the syllabus was followed. This clearly identifies each section of the investigation in a logical order and gives useful information on the criteria used to award marks. It is available to all Centres and should be used for guidance. It is advisable for all candidates to have their own copy of the marking framework for reference. It would be a valuable reference document and would provide a checklist at all stages of the investigation. Some candidates appeared to ignore whole processes so the marks available for that part of the investigation were lost.

Choice/Reasons for Choice

In most cases, the topic chosen was relevant to the syllabus, although parameters were not always clearly defined. The title must indicate the limitations of the study. This can be illustrated by considering two titles, both of which were presented. "Do Pre-school Children have Enough Calcium and Vitamin D in their Diet?" and "An Investigation into the Amount of Calcium and Vitamin D in the Diet of Pre-school children at _____ Nursery". Some studies did not lend themselves to a range of investigative procedures. A few candidates chose to investigate the importance of iron for teenage girls. There is a vast amount of information already available on this topic and the title did not suggest that a new approach would be taken. Candidate should be aware that their choice of topic and the methods of investigation undertaken have a direct influence on the marks available to them. Candidates should be encouraged to choose a topic that will allow them to demonstrate their ability to collect data in a variety of ways. Reasons for their choice of topic for investigation must always be given; marks are allocated for this aspect of the study. Most candidates gave at least one reason, although better candidates gave several. Many candidates, however, gave no indication of why a particular topic had been chosen. Appropriate reasons for choice could be that a subject is of special interest or that the participants of the study are fellow candidates and will be easy to contact. Occasionally candidates seemed to confuse their reasons for choice with the aims and objectives of the investigation.

Planning

The aims and objectives of the study must be clearly set out. The main aim is always to investigate the problem set out in the title; the objectives are practical tasks that can help to achieve the overall aim. There should be several objectives since they are the benchmarks against which the success of the investigation is judged. Sometimes objectives were set out in such a way that they could not be translated into tasks. Candidates frequently stated that one of their objectives would be to educate members of a community on a particular topic. It would be impossible to quantify the success of such an objective. Many candidates listed their proposed activities and suggested dates when they would be carried out; often actual dates were added later. This was an interesting approach, since it shows the importance of thorough planning and an appreciation of the amount of time that needs to be allocated to certain procedures. Some candidates produced a diary of activities. Although this shows how the investigation progressed, it does not constitute a plan. A plan of activities with suggested dates should be included in the planning section and a diary of actual procedures and dates in the evaluation section. Candidates can then make comparisons and account for any differences. Some candidates, when evaluating their investigation, highlighted areas which took less or more time than expected. It allowed contingencies to be discussed, making for an interesting

investigation. Candidates often commented that data analysis was a long, tedious process; sometimes the time estimated for this was too short.

Each method of data collection should be considered in detail. Candidates should justify each method chosen. When questionnaires are used, candidates should indicate how respondents are selected and, if interviews are to be conducted, it is important that the reason for selecting particular individuals is given. This section should be used by candidates to demonstrate that their planning is logical and that methods of data collection have been used which best suit their needs. In most studies the methods of data collection were well justified.

Theoretical Research

This was often the weakest section of the study. Often it was too long because it contained every available piece of information on a topic. While the Internet is a valuable resource, any information gathered in this way should be incorporated into the report written by the candidate in his or her own words. Some candidates gave information from each source in turn without going on to write a summary in their own words. Candidates should use this section of the investigation to demonstrate their ability to select appropriate information and to tailor it to their own study. Information in books and on the Internet is rarely exactly what is required. It is usually obvious when text has been directly taken from books because the writing style is different from that in the rest of the investigation. If possible a variety of sources of information should be used and these should be acknowledged in the bibliography. Web addresses should also be listed. All quotations, charts and diagrams should be acknowledged. It is important to remember that the work must be of Advanced Level standard. Sometimes the bibliography lists books which lack depth of information, so are normally used at lower levels of study.

Although there is no recommended length for this section of the investigation, it should be remembered that all investigative work is based on material which is already in the public domain. This section has an allocation of ten marks so very long theoretical reports, sometimes in excess of twenty pages, are unnecessary. Eight sides is probably the maximum length. The research report should set the scene for whatever is to follow.

Investigative Methods

The most successful studies used a wide range of methods to collect data. Many candidates used five or six different methods. Suggestions are included in the syllabus and the Assessment Scheme indicates the range of marks available according to the number of methods chosen. Those who chose only one or two methods limited the marks which could be scored in this section. Some candidates visited factories; others observed, carried out interviews and conducted questionnaires. Many candidates collected information from markets and shops and several set up tasting panels to assess the popularity of their cooked dishes. Photographs were particularly useful because they made the study unique; they added interest and enhanced the overall attractiveness of the presentation. Photographs were not always given titles and sometimes there were several pages of photographs without any explanation of their relevance. It was expected that for each investigation candidates would state how, where, when and with whom the investigations were carried out. Most candidates correctly included a blank copy of the questionnaire used but few included a list of questions used in their interviews. Copies of letters sent and received were usually included. It was frequently stated in the planning section that interviews would be conducted or observations carried out but in several studies there was no evidence that those procedures had taken place.

Candidates often interviewed busy professionals to gather information that is widely available in textbooks. Doctors should not be asked to list the causes of obesity, for example. Candidates should be reminded that only questions that result in data should be asked. This data can then be collated. Information on family income or on anything which has no overall bearing on the topic being investigated should not be sought. Sometimes there was a questionnaire item on family income when the respondents were young children. Adults may feel that it is inappropriate to ask about income so they may be less cooperative.

This is an important section to which many marks are allocated. High marks can only be achieved by those candidates who can demonstrate a detailed knowledge of each of the methods of investigation used. Those who merely name the methods they plan to use can gain few marks.

Collation of Data Collected

This section is as important as the previous section, since each of the methods of data collection must be taken in turn and the information presented. Candidates usually presented data well, demonstrating their skill at computer graphics as well as their ability to present data without the use of a computer. The best studies showed many different methods of presenting data. The range included line graphs, bar charts, pie charts, comparison charts, prose and photographs. It was rather concerning that some studies included photographs of hospital patients. There was no indication that consent had been sought; at such times an individual's privacy must be respected. It is neither expected nor recommended that candidates have direct access to hospital patients. Spreadsheets were used where appropriate. Most of the data was well presented, although titles and keys were often omitted from charts. Data should always be presented separately from summaries and conclusions. Occasionally a collection of recipes was included for no obvious reason. Cooking dishes for evaluation and comparison is, however, a useful method of collecting data. Many candidates presented their information in a wide range of different ways. It is sometimes better for the reader to have information presented in a consistent way.

The value of prose was often overlooked. It would be perfectly acceptable to state that a quarter of the respondents were 15 years old and three-quarters were 16 years old. This is more logical than producing a pie chart with two differently shaded areas.

Analysis/Conclusions/Recommendations

This section was sometimes omitted or dealt with very briefly. It is essential that candidates present an accurate summary of the evidence based on the data collected. It was expected that evidence would be interpreted and conclusions drawn. It is inappropriate to state that 'the data shows that...' without giving supporting evidence. The conclusions drawn should lead candidates towards making recommendations for further action. These recommendations could be for implementation by individuals, families, organisations or governments. They may or may not be practical but they should demonstrate the candidate's ability to develop solutions based on the evidence of his or her study. Weaker candidates listed recommendations that had only very tenuous links to the investigation. An example of this could be that a candidate who is investigating the amount of fat in a packed lunch goes on to list ways of reducing fat in the diet. This information is in the public domain; new ideas are expected, even though they may not always be practical.

Evaluations

Evaluations were often too brief. Some candidates made no reference to their original aims and objectives, so were not able to state whether or not any of the objectives had been satisfied. The success or lack of success of each of the methods of investigation should be assessed, since this would be valuable information for future investigations. Suggestions could be made for improving weak areas. Candidates sometimes included in their list of weakness that respondents did not return questionnaires or did not take the questions seriously. Others noted that because the study was on a small scale it could not be used to make generalisations about the rest of the population. The original time plan could be considered and a more realistic timescale recommended. Sometimes candidates described problems they encountered and how they had dealt with them. Most candidates were able to express some personal benefits of the study. Some said that they had gained confidence; others became more proficient at using a variety of computer software. Several stated that they had enjoyed meeting people from other backgrounds. All of these benefits were important. It is important to note that there were many excellent accounts of individual candidate's assessments of their success.

Presentation

The general appeal of the work was good. Candidates are to be congratulated on the presentation of their work. Many showed considerable imagination in their cover design. A list of contents, acknowledgements and a bibliography were usually included. However, pages were not always numbered. Occasionally there was more than one size of print or more than one font style. Care should be taken to ensure that there is uniformity throughout. Occasionally, candidates acknowledged the assistance of family and friends who helped with typing or illustrations. It should be remembered that the Investigation is part of the Advanced Level Assessment in Food Studies. It should be the work of the candidate and no one else.

Sometimes candidates mentioned the expense involved in printing their work. Although printed work looks professional, there is no reason why the investigation should not be written in the candidate's own handwriting, as the marks are awarded for content.

