

NATIONAL QUALIFICATIONS 2008

HOME ECONOMICS

**All Contexts: Health and Food Technology
 Fashion and Textile Technology
 Lifestyle and Consumer Technology**

HIGHER

**Notes of guidance for Teachers and Lecturers
 on the
 Technological Project**

Please destroy all previous versions of this document

Introduction

To gain the course award, candidates will have to achieve all the Outcomes of the following two Units:

- Resource Management
- Consumer Studies

as well as the external course assessment. This consists of a Question Paper and a Technological Project.

The following notes offer teachers/lecturers guidance on the Technological Project.

The Technological Project will enable candidates to demonstrate integration of knowledge and skills across the component Units in order to realise a solution and demonstrate technological capability. The Technological Project will be carried out within the Centre. Two Technological Project briefs will be issued by SQA every year. One of these should be selected by the candidate and completed within approximately 20 hours. **Time to complete the Technological Project may be taken from the additional 40 hours allocated to the course and from time available within the component Units. A number of outcomes in the component Units will be achieved when candidates undertake the Technological Project, thus reducing the demands and time required for internal Unit assessment.**

Assessment

The Technological Project is worth 70 marks and is externally assessed. A breakdown of the marks for performance in each of the steps of the Technological Project is given in this document.

Candidates must submit their work on the Technological Project pro forma issued by SQA.

The completed pro forma will provide all the evidence required for submission to SQA. The work should be legible and clearly presented.

The amount of space allowed in the pro forma and the relevant mark allocation should guide candidates as to the length and weighting of each stage. **Candidates must use only the number of pages within the pro forma.** Pages 25 and 26 are provided at the back of the pro forma and these should be used if candidates require additional recording space. **Additional pages must not be added.** Candidates should therefore be encouraged to present their work in a format that is clear and concise, for example by using bullet points or tables.

Candidates' work must be their own. Candidates should use the *Notes of Guidance for Candidates on the Technological Project* for the current year.

Candidates must sign the flyleaf for the Technological Project to certify that the work undertaken in the Technological Project is their own.

Principal Assessor Reports – each year the PA reports can be downloaded from the SQA website (www.sqa.org.uk). These reports give detailed feedback on candidate performance in the previous session's Technological Project and the contents can be taken on board for the following session.

Photographic evidence of the solution taken during and after manufacture is required to certify that the work is that of the candidate. (Page 17 of the pro forma)

Teachers/lecturers may offer guidance by giving

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

The date for submission of the completed Technological Project pro forma will be issued by SQA.

Where the Technological Project is being used to subsume the outcomes of the component Units of the course, teachers and lecturers should make reference to the document “*The Technological Project and Unit assessment: Guidance document for teachers and lecturers*” (SQA June 2008)

There is no requirement for the Technological Project to be word processed as there is no mark allocation for presentation. However, it is recommended that candidates word process the Technological Project if possible.

Copies of the Technological Project pro forma can be downloaded from the SQA web site at www.sqa.org.uk

Note on the use of the electronic pro forma

If candidates are using the electronic version of the pro forma, care is required when inserting text.

The text boxes have been protected to ensure that pages cannot be moved as a result of typing in excessive text. However if a candidate:

- inserts excessive text into the text box provided, or
- inserts additional text at a later time into the text boxes provided

then the text at the bottom of the text box may disappear, ie the text has been pushed below the bottom of the text box and so does not appear as visible or printable text. This ‘additional’ text would be best placed in the space provided at the back of the pro forma (pages 25 and 26).

Guidance to Teachers/Lecturers on the breakdown of marks

The time allocated for the completion of the Technological Project will be dependent on:

- the course plan adopted by the Centre
- the needs of the candidate

NB Approximately 20 hours would be a reasonable time allocation (as stated on Page 2)

STEP 1 (Analysing) Total mark allocation – 22 marks

1.1 Identification of the key points with explanation – 6 marks available

The candidate should identify the ‘core’ key points – these are all the main key words of the Technological Project brief.

The number of ‘core’ key points which can be identified will depend on the wording of the Technological Project brief.

Candidates should number each key point identified.

Candidate identifies the key points – 3 marks

Candidates who record all the ‘core’ key points	2 marks
Candidates who record half or more, but not all the ‘core’ key points	1 mark
Candidates who record less than half the ‘core’ key points	0 marks

Candidates who provide an additional key point, other than those identified as ‘core’ will be awarded an additional 1 mark.

Candidate provides basic and accurate explanation of key points and additional key points – 2 marks

Marks are determined by the number of key points and additional key points which have basic and accurate explanation.

If all key points have a basic and accurate explanation	2 marks
If half or more, but not all the key points have a basic and accurate explanation	1 mark
If less than half the key points have a basic and accurate explanation	0 marks

Candidate provides detailed and accurate explanation – 1 mark

Candidates who provide further accurate detail within the explanations will be awarded an additional mark. Extra detail means one additional point of explanation is provided for any one of the key or additional key points.

1.2 Draw up appropriate criteria for a specification – 10 marks available

Candidate's specification allows for a range of possible solutions – 1 mark

Specification allows for a range of possible solutions which are relevant to the brief	1 mark
If a range of solutions is not possible	0 marks

Candidate provides five specification points, each containing more detail than the brief - 2 marks

Note: Candidates are expected to produce a **minimum of five** specification points. However due to constraints of the time allocated for the Technological Project the candidates should not identify more than seven specification points as this would involve the candidate in unnecessary work.

Specification points must be **valid** (derived from the brief) to gain marks in this section. When drawing up the criteria for the specification candidates should not just rewrite the key points – greater detail is required.

Five valid specification points contain more detail than the brief	2 marks
Three or four valid specification points contain more detail than the brief	1 mark
Less than three valid specification points contain more detail than the brief	0 marks

Candidate has written all specification points in measurable/able to be tested terms – 2 marks

Candidates must indicate how each specification point should be able to be measured/tested by a valid method.

All specification points are measurable/tested	2 marks
Half or more, but not all specification points are measurable/tested	1 mark
Less than half the specification points are measurable/tested	0 marks

Candidate has linked each specification point to the key points and additional key point(s) – 2 marks

Candidates must show that each specification point is linked to the key points and additional key points identified in Step 1.1. All key points should be covered.

Specification points are linked to all key points and additional key points	2 marks
Specification points are linked to half or more, but not all key points and additional key points	1 mark
Specification points are linked to less than half the key points and additional key points	0 marks

Candidate provides basic explanations – 2 marks

Basic explanations of the specification points, relevant to the project brief, should be provided by the candidate.

Basic explanations are provided for all specification points	2 marks
Basic explanations are provided for half or more, but not all specification points	1 mark
Basic explanations are provided for less than half the specification points	0 marks

Candidate provides detailed explanation –1 mark

If further detail, relevant to the project brief, is provided within the explanation then an additional mark will be awarded. Extra detail means one additional point of explanation is provided for any one of the specification points.

1.3 Devise an overall plan for investigations – 6 marks available

Candidate presents a list of investigations – 2 marks

Candidates who provide a list of possible investigations which focus clearly on:

- the key points of the project brief
- the specification points
- have a clear aim/purpose

will be awarded 2 marks

Candidates who provide a list of investigations which do not focus clearly on the key points and the specification will be awarded 1 mark.

Obvious omissions from the list of investigations will result in marks being deducted.

Candidate identifies techniques to be used – 2 marks

All techniques must be appropriate for the investigations and so allow the candidate the possibility of collecting relevant data/information.

Where techniques are not consistently appropriate, candidates will be awarded 1 mark.

Candidate justifies the need for the investigation – 2 marks

All justifications must be:

- well thought out
- linked to the investigation

Lack of clarity within the justification will result in candidates being unable to gain the full mark allocation available.

From the proposed list of investigations drawn up in 1.3 above, candidates should form a prioritised list of those investigations which they propose to undertake.

No marks are awarded at this stage but candidates are expected to focus on those investigations most relevant to the needs of the project brief. A number of investigations may be combined by using one technique.

No more than 3 investigations depending on their nature could be realistically carried out in the time available. The three investigations identified should ensure that all specification points are investigated. Candidates will be disadvantaged if they do less than 3 as they will not have collected sufficient data to create a valid solution.

Candidates who intend to use a questionnaire as an investigation, must issue a minimum of 20 in order to gain valid results. If, however, too many questionnaires are distributed, collecting the data may become problematic for candidates.

Candidates should complete this work on pages 9–11 of the pro forma.

STEP 2 (Investigating) Total mark allocation – 15 marks

2.1 Implement the overall plan for investigation – 12 marks available

The mark allocation for this area will be based on candidates' performance in a series of investigations.

Candidates will be assessed on the results and conclusions from each investigation – see the marking criteria breakdown listed on the next page.

Teachers/lecturers must ensure candidates present the results and conclusions of each investigation on pages 9–11 of the pro-forma only.

Candidates using computer software to produce results, eg bar charts or graphs must ensure that these are presented only on the pages allocated for this work, ie pages 9–11 of the pro-forma.

Candidates who present the results and conclusions of each investigation on more than one A4 sheet of paper will be penalised.

See Appendix 1 for guidance on carrying out investigations/tests.

Implement the overall plan for investigations

Marking criteria

- Results must be brief, concise and easy to interpret
- Results must show a clear link to the aim/purpose of the investigation.
- Results must be derived from the investigations and based on facts and evidence
- Conclusions must be based on the results obtained

All investigations candidates have fulfilled the aims on page 8 of the pro forma	3 marks
Half or more investigations candidates have fulfilled the aims on page 8 of the pro forma	2 marks
Less than half investigations candidates have fulfilled the aims on Page 8 of the pro forma	1 mark
In no investigations candidates have fulfilled the aims on page 8 of the pro forma	0 marks

All investigations contain brief, concise and easy to interpret results	3 marks
Half for more investigations contain brief, concise and easy to interpret results	2 marks
Less than half investigations contain brief concise and easy to interpret results	1 mark
No investigations contain brief, concise and easy to interpret results	0 marks

All results are based on fact/relevant to option statement	3 marks
Half or more of the results are based on fact/relevant to design brief	2 marks
Less than half of the results are based on fact/relevant to design brief	1 mark
No results are based on fact/relevant to design brief	0 marks

All conclusions are based on the results and/or show progression	3 marks
Half or more conclusions are based on the results and/or show progression	2 marks
Less than half conclusions are based on the results and/or show progression	1 mark
No conclusions are based on results and/or does not show progression	0 marks

2.2 Derive a solution from the investigations – 3 marks available

Generate one solution – 2 marks (ie ONE dish or ONE textile item only. A two-piece outfit will NOT be acceptable) NB it is extremely important that Centres adhere strictly to this rule. No marks will be allocated for STEP 3 or STEP 4 if candidates generate more than one solution

Candidates derive **one solution** which must be:

Relevant to the needs of the project brief	1 mark
Based on the results and conclusions reached in the investigations	1 mark

Candidate describes the solution in detail – 1 mark

The solution should be described in detail so it is able to be **visualised**.

Various methods may be used eg – written details, recipes, sketches, diagrams, labelled diagrams, storyboards – to ensure clarity.

STEP 3 (Manufacturing and Testing) Total mark allocation – 21 marks

3.1 Manufacture the chosen solution – 10 marks available

Candidate completes the planned sequence of work – 5 marks

Candidates must complete the plan **before** starting to manufacture the solution.
Candidates will be penalised if the plan is written **retrospectively**.

Candidates who draws up a sequence of work which consistently demonstrates effective deployment of time	5 marks
Candidates who draw up a sequence of work with minor lapses in the deployment of time	4 marks
Candidates who draw up a sequence of work with occasional lapses in the deployment of time	3 marks
Candidates who draw up a sequence of work with regular lapses in the deployment of time	2 marks
Candidates who draw up a sequence of work with frequent lapses in the deployment of time	1 mark
Candidate who submits a retrospective sequence of work	0 marks

Candidates may choose to present their sequence of work in an appropriate form eg table, chart, written details or flow chart. An indication of dates, times and details of the proposed work to be undertaken must demonstrate effective use of time by the candidate.

The sequence of work must show logical progression.

Candidates' work must be completed on page 13 of the pro forma.

Candidate identifies and requisition all equipment and resources – 3 marks

Candidates who identify and requisition all resources and equipment	3 marks
Candidates who identify and requisition most resources and equipment	2 marks
Candidates who omit any obvious resources and/or equipment	1 mark

Resources will depend on the chosen solution and may relate to food, textiles, packaging materials, equipment.

Candidate consistently justifies effective deployment of equipment and resources – 2 marks

Justification should relate to all the identified equipment and resources to gain full marks.

After completing the **plan** for manufacture, candidates should start to manufacture the solution.

Candidates should be encouraged to make notes on page 16 of the pro forma as they are carrying out the manufacturing process. Notes may be made on how manufacture is proceeding, any problems encountered and any changes/modifications made to the plan.

NB Before candidates manufacture their solution they should be encouraged to complete the preparation for the testing of their proposed solution (Step 3.2). Candidates are required to devise two tests, then produce any materials required to conduct each test before manufacturing the solution. For example, interview questions, facilities/ graphs/charts to record results. See page 15 of the pro forma.

Photographic evidence of the candidates' work must be attached to page 17 of the pro forma.

Two photographs are required:

- one should provide evidence of the solution **during manufacture**.
- the other should provide evidence of the **completed solution**.

Although the quality of the photographs is not important, they **must** give an indication of the type of work being carried out and completed by the candidate.

Although no marks are awarded here, **photographic evidence must be provided** of the candidates' solution.

If photographic evidence is not provided, no further marking of the Technological Project will be carried out as no evidence has been provided on which to base the marking of the next stages of work.

If problems occur with photographic evidence, then the teacher/lecturer should contact Graeme Findlay, Qualifications Manager (0845 213 5492) or Lesley Clark, Qualifications Officer (0845 213 5490) immediately.

Please note:

Page 17 of the electronic version of the pro forma has been set up to allow the electronic insertion of digital photographs.

Such photographs **should not** be cut and then pasted into the spaces provided. Photographs should be inserted in the spaces provided by using the '*insert picture from file*' facility in Microsoft Word.

3.2 Devise two tests for the manufactured solution – 3 marks available

Candidate presents two tests – 1 mark

Candidates should present **two** appropriate tests – failure to do this will result in no marks being awarded.

Candidate identifies techniques to be used – 1 mark

Two different techniques should be identified.

Techniques must be **appropriate** to the tests, allowing candidates to collect relevant data/information.

Candidate justifies the two tests – 1 mark

Justifications should be

- Clear and well thought out
- Linked to the test.

NB Candidates are expected to include any literary titles/authors, web addresses and the title of any person/expert interviewed.

3.3 Implement the tests for the manufactured solution – 8 marks available (Revised)

Implement the overall plan for investigations

Marking criteria

- Results must be brief, concise and easy to interpret
- Results must show a link to the aim/purpose of the test
- Results must be derived from the tests and based on facts and evidence
- Conclusions must be based on the results obtained

For both tests– candidates have done as they intended from page 15	2 marks
For 1 test –candidates have done as they intended from page 15	1 mark
No tests –candidates have done as they intended from page 15	0 marks

Both tests contains brief, concise and easy to interpret results	2 marks
One test contains brief concise and easy to interpret results	1 mark
No tests contain brief, concise and easy to interpret results	0 marks

All results of tests are based on fact/relevant to specification points/design brief	2 marks
One results of tests is based on fact/relevant to specification points/design brief	1 mark
No results of tests are based on fact/relevant to specification points/design brief	0 marks

Conclusions for two tests are based on the results and/or show progression	2 marks
Conclusions for one test are based on the results and/or show progression	1 mark
No conclusions for the tests are based on results and/or show no progression	0 marks

STEP 4 Total mark allocation – 12 marks

4.1 Evaluate the chosen solution – 6 marks available

Candidate provides accurate explanation some of which is detailed against the specification – 5 marks

Candidates must rewrite (or copy and paste) the specification points in the appropriate column. Candidates must evaluate the solution against each specification point. Candidates should use the results of investigations, manufacture and/or testing where appropriate.

Candidates who evaluate all or five specification points	5 marks
Candidates who evaluate four specification points	4 marks
Candidates who evaluate three specification points will be awarded	3 marks
Candidates who evaluate two specification points	2 marks
Candidates who evaluate one specification point	1 mark

Candidate provides detailed accurate explanation (specification) – 1 mark

If further detail is provided within the explanations then an additional mark will be awarded. Extra detail means that one additional point of evaluation is provided for **any one** of the specification points.

4.2 Evaluate the Technological Project – 6 marks available

Candidates evaluate the Technological Project: Step 1 Analysing, Step 2 Investigating, and Step 3 Manufacturing and Testing

All of the following criteria must be used in the evaluation

- time
- resources
- skills and abilities

Marks will not be awarded to candidates who do not use these criteria in their evaluation.

The evaluation, which may include adaptations/modifications, **must be based on evidence** which can be found within the candidates' Technological Project pro forma, eg from investigations, manufacture and/or testing.

In the evaluation the candidates should give an opinion based on facts from their Technological Project and then explain the consequences for the final solution.

Candidates should provide **two** points of evaluation for **each** step of the Technological Project.

One mark is awarded for each point of evaluation. A minimum of one mark must come from each Step evaluated.

Step 1	Analysing	2 marks
Step 2	Investigating	2 marks
Step 3	Manufacturing and Testing	2 marks

Pages 23 to 24 of the pro forma should be used for the evaluation

Appendix 1

Higher Technological project

Guidance on Carrying out Investigations/Tests

Three investigations must be carried out.

The aim, which should be linked to the candidates' specification, should be rewritten or cut and pasted from page 8 of the pro forma onto the top of the investigation page.

Questionnaire

- Minimum of 20 respondents
- Min 5/8 questions linked to aim/specification to allow relevant data to be collected
- Question and all possible answers must be displayed
- All responses must be displayed including nil responses
- Given constraints of space, it is not necessary to display results as pie charts/graphs
- Table format for displaying results of questionnaires can be space saving

Survey

- Must identify the source(s) of information
- Source of information must be relevant to investigation
- The following sources could be used including the internet, literary, shop, restaurant/café as a source of information. The source of information should be identified
- The place selected should be related to the quality and quantity of the data available rather than the number of sources however more than one source is advised
- Information should be displayed using appropriate headings, sub-divisions etc

Interviews

- Carefully consider the suitability of the person interviewed. Candidates must clearly identify the interviewee and their position in establishment/job title
- Min 5/8 relevant questions linked to aim/specification to allow relevant data to be collected
- Open-ended questions should be used to allow more data to be collected from the interviewee
- Questions should be carefully formatted to extract useful facts and avoid one word responses such as Yes/No. All questions and responses must be displayed

Internet/literary search

- All sources must be clearly identified
- Should be related to the quality/quantity/relevance of the data available rather than the number of sources
- Graphics may be included where relevant
- Data collected should be organised using appropriate headings/subdivisions etc
- Information should not be lifted 'en bloc' from websites. It is appropriate to summarise key points which are relevant to the aim/specification

Costing

- Breakdown cost of all ingredients/components must be included
- Details of quantities and unit costs must be included
- Sources should be included where appropriate
- Comparative costing should measure 'like for like'

NB Costing only proves cost of items/components. On its own it does not prove low/high cost, value for money, acceptability of price to target group.

Nutritional analysis

- Sources must be shown
- All nutrients relevant to the aim should be shown
- Nutritional analysis of all ingredients must be included. (A 'total' for a dish is not acceptable)
- Sufficient data must be accessed in order to draw relevant conclusions
- When used as a test the suitability of the results should be assessed by a suitable expert, eg community dietician, food technologist, etc

Fabric analysis

- There is no need to repeat fabric tests where information is already easily available in textbooks/websites
- Fabrics used for testing must be clearly identified ie construction/fibre composition
- Only fabrics being considered for potential solution should be tested/sampled/investigated towards final solution
- Details of method of testing must be given

Sensory Testing

- All potential solutions must be clearly described
- Breakdown of results must be shown. Summary of results is not acceptable
- Key must be provided
- It is appropriate to ask questions to elicit potential improvements/modifications
- It is suggested for Sensory testing that a minimum of five people are used to assess the products

**Appendix 2
Technological Project Higher**

Summary Mark Allocation – Total 70 marks available

Step 1 Analysing		
Step	Mark Breakdown	Allocation
1.1	Identification of the key points with explanation Identify the key points Key points plus basic and accurate explanation Key points plus detailed and accurate explanation Additional key points	2 marks 2 marks 1 mark 1 mark Total mark allocation 6
1.2	Draw up appropriate criteria for a specification Allow for a range of possible solutions Contain more detail than the brief Be written in measurable/able to be tested terms Link each specification point to the key points Provide basic explanations Provide detailed explanations	1 mark 2 marks 2 marks 2 mark 2 marks 1 marks Total mark allocation 10
1.3	Devise an overall plan for investigations Present a list of investigations Identify techniques to be used Justify the need for the investigations	2 marks 2 marks 2 marks Total mark allocation 6
Total mark allocation for Step 1 – 22 marks		
Step 2 Investigating		
2.1	Implement the overall plan for investigations Aims fulfilled Brief, concise, easy to interpret Relevant and valid results Conclusions	3 marks 3 marks 3 marks 3 marks 12 mark allocation
2.2	Derive one solution from the investigations Generate one solution based on evidence Relevant to brief Describe the solution in detail	1 mark 1 mark 1 mark Total mark allocation 3
Total mark allocation for Step 2 – 15 marks		

Step 3 Manufacturing and Testing		
Step	Mark Breakdown	Allocation
3.1	Manufacture the chosen solution Step by step sequence of work showing effective deployment of time Requisition of resources Justification of resources /equipment	5 marks 3 marks 2 marks Total mark allocation 10
3.2	Devise two tests for the manufactured solution Present two tests Identify techniques to be used Justify the two tests	1 mark 1 mark 1 mark Total mark allocation 3
3.3	Implement the tests for manufactured solution Aims fulfilled Brief, concise, easy to interpret Relevant and valid results Conclusions	2 marks 2 marks 2 marks 2 marks Total mark allocation 8
Total mark allocation for Step 3 – 21 marks		
Step 4 Evaluating		
4.1	Evaluate the chosen solution Accurate explanation some of which is detailed against each specification point (to include results of investigations and/or tests where appropriate) Valid evaluations Provide detailed accurate explanation	5 marks 1 marks Total mark allocation 6
4.2	Evaluate the Technological Project Candidate can evaluate Steps 1–3 of the Technological Project with detailed reference to the following criteria: Time Resources Skills /abilities Step 1 Analysing Step 2 Investigating Step 3 Manufacturing and Testing	2 marks 2 marks 2 marks Total mark allocation 6
Total mark allocation for Step 4 – 12 marks		