

NATIONAL QUALIFICATIONS 2006

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 on an annual basis. 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 will be externally assessed. A breakdown of the marks for performance in each of the steps of the Technological Project is given in this document.

Candidates will be required to submit their work on the Technological Project pro forma issued by SQA. This pro forma, when completed by candidates, 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. This 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, eg by using bullet points, tables.

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

Candidates must sign the front cover of the pro forma to certify that the work undertaken in the Technological Project is that of the candidate.

Photographic evidence of the solution taken during and after manufacture is required to certify that the work is that of the candidate (Page 16 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 practicability 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 2002)

There is no requirement for the Technological Project to be word processed as there is no mark allocation for presentation.

Copies of the Technological Project pro forma can be downloaded from SQA's website 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

this 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.

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

STEP 1 Total mark allocation - 22 marks

1 : 1 Identification of the key points with explanation

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.

Identify the key points - 3 marks

Candidates who record all the 'core' key points will gain 2 marks.

Candidates who record $\frac{1}{2}$ or more, but not all the 'core' key points, will gain 1 mark.

Candidates who record less than $\frac{1}{2}$ the 'core' key points will gain 0 marks.

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

Basic and accurate explanation of key points - 2 marks

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

If all key points have a basic and accurate explanation, candidates will be awarded 2 marks.

If $\frac{1}{2}$ or more, but not all the key points, have a basic and accurate explanation, candidates will be awarded 1 mark.

If less than $\frac{1}{2}$ the key points have a basic and accurate explanation, candidates will be awarded 0 marks.

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 points.

Total - 6 marks

1 : 2 Draw up appropriate criteria for a specification

Allow for a range of solutions - 1 mark

Candidates whose specification allows for a range of solutions will be awarded 1 mark.
0 marks will be awarded if a range of solutions is not possible.

Contain more detail than the brief - 2 marks

Specification points must be derived from the brief.
When drawing up the criteria for the specification candidates should not just rewrite the key points — greater detail is required.

All specification points contain more detail than the brief - 2 marks.
½ or more, but not all specification points contain more detail than the brief - 1 mark.
less than ½ the specification points contain more detail than the brief - 0 marks.

Be written in measurable terms - 2 marks

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

All specification points are measurable - 2 marks.
½ or more, but not all specification points are measurable - 1 mark.
Less than ½ the specification points are measurable - 0 marks.

Link each specification point to the key points - 2 marks

Candidates must show that each specification point is linked to the key points identified in Step 1 : 1. All key points should be covered.

Specification points are linked to all key points - 2 marks.
Specification points are linked to ½ or more, but not all key points - 1 mark.
Specification points are linked to less than ½ the key points - 0 marks.

Provide 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 ½ or more, but not all specification points - 1 mark.
Basic explanations are provided for less than ½ the specification points - 0 marks.

Provide 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.

Total - 10 marks

Note: Candidates are expected to produce a **minimum of five** specification points.

1 : 3 Devise an overall plan for investigations

Present 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, and
- ◆ 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.

Identify 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.

Justify 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.

Total - 6 marks

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 three depending on their nature, could be realistically carried out in the time available.

Candidates who intend to use a questionnaire as an investigation must issue 20 in order to gain valid results.

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

Step 2 Total mark allocation - 15 marks

2 : 1 Implement the overall plan for investigation

The mark allocation for this area will be awarded holistically and 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 only.

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

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

Implement the overall plan for investigations

Marking criteria

- ◆ Holistic approach - marks must be briefly justified.
- ◆ Results must be brief, concise and easy to interpret.
- ◆ Results must show a 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.

For all investigations candidates have done as they intended	3 marks
½ or more investigations candidates have done as they intended	2 marks
Less than ½ investigations candidates have done as they intended	1 mark
No investigations candidates have done as they intended	0 marks
All investigations contain brief, concise and easy to interpret results	3 marks
½ or more investigations contain brief, concise and easy to interpret results	2 marks
Less than ½ 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
½ or more of the results are based on fact/relevant to option statement	2 marks
Less than ½ of the results are based on fact/relevant to option statement	1 mark
No results are based on fact/relevant to option statement	0 marks
All conclusions are based on the results and show progression	3 marks
½ or more conclusions are based on the results and show progression	2 marks
Less than ½ conclusions are based on the results and show progression	1 mark
No conclusions are based on results and show progression	0 marks

Total - 12 marks

2 : 2 Derive a solution from the investigations

Generate one solution - 2 marks

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

Describe 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 — written details, recipes, sketches, diagrams, labelled diagrams, storyboards — to ensure clarity.

Total - 3 marks

Step 3 Total mark allocation - 22 marks

3 : 1 Manufacture the chosen solution

Candidates must complete the plan **before** starting to manufacture the solution.

Candidates will be penalised if the plan is written **retrospectively**.

Five marks are awarded **holistically** to this area.

The candidate who draws up a sequence of work with occasional lapses in the deployment of time will be awarded 3 marks.

The candidate who draws up a sequence of work which consistently demonstrates effective deployment of time will be awarded 5 marks (ie an additional 2 marks will be available).

Candidates may choose to present their sequence of work in an appropriate form, eg table, chart, written details, 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. Sequence of work must show logical progression.

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

Identify and requisition equipment and resources with occasional lapses in the deployment of equipment and resources - 2 marks.

Candidates who identify and requisition all resources and equipment will gain 2 marks.

Candidates who omit any **obvious** resources and/or equipment will be awarded 1 mark.

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

Consistently justify effective deployment of equipment and resources - 3 marks.

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

Total - 10 marks

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

Candidates should be encouraged to make notes on page 15 as they are carrying out the manufactured process. Notes may be made on how manufacture is proceeding, any problems encountered and any changes/modifications made to the plan.

This work is not marked, but may prove useful to candidates when completing Step 4 : 2 - Review the Technological Project.

Photographic evidence of the candidates' work must be attached to page 16.

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 for this area, **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 (0141-242 2327) immediately.

Please note:

Page 16 of the electronic version 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

Present two tests - 1 mark

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

Identify 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.

Justify the two tests - 1 mark

Justifications should be:

- ◆ well thought out
- ◆ linked to the test

Total - 3 marks

3 : 3 Implement the tests for the manufactured solution

Brief, concise and easy to interpret results from each test - 4 marks

Two marks are allocated to each test.

Results should be derived from the tests and be based on facts and evidence.

Test results should be presented in a format which is:

- ◆ brief
- ◆ concise
- ◆ easy to interpret

Brief conclusions based on results - 4 marks

Two marks are allocated to each test.

Candidates will be marked on their ability to draw meaningful and accurate conclusions from the results of the tests.

Conclusions must be factually correct and based on the evidence provided by the results.

Candidates must not offer personal opinion.

Two different testing techniques - 1 mark

Candidates will gain one mark for **implementing** two different testing techniques.

Total - 9 marks

STEP 4 Total mark allocation - 11 marks

4 : 1 Evaluate the chosen solution

Accurate explanation some of which is detailed against the specification - 2 marks

Candidates must rewrite the specification points briefly in the appropriate column.

Candidates must evaluate the solution against each specification point. Candidates should use the results of the testing where appropriate.

Candidates will be awarded marks for accuracy and detail within explanation.

Provide 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.

Total - 3 marks

4 : 2 **Review the Technological Project**

Candidate will review the Technological Project Steps 1 - 3

The following criteria must be used in the review:

- ◆ time
- ◆ resources
- ◆ skills and abilities

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

The review, which may include adaptations/modifications, **must be based on evidence** which can be found within the candidates' Technological Project pro forma.

Candidates should be encouraged to give reasons for any statements they make in the review.

Candidates should review the Technological Project using **each** of the following eight headings. One mark is awarded for each review area.

- Step 1 : 1 Identification of the key points
- Step 1 : 2 Appropriate criteria for the specification
- Step 1 : 3 Overall plan for investigation
- Step 2 : 1 Implement the overall plan for investigation
- Step 2 : 2 Derive a solution from the investigations
- Step 3 : 1 Manufacture the chosen solution
- Step 3 : 2 Devise tests for the manufactured solution
- Step 3 : 3 Implement the tests for the manufactured solution

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

Total - 8 marks

Technological Project at Higher

Summary Mark Allocation

Total 70 marks available

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 solutions Contain more detail than the brief Be written in measurable terms Link each specification point to the key points Provide basic explanations Provide detailed explanations	1 mark 2 marks 2 marks 2 marks 2 marks 1 mark Total mark allocation - 10
1 : 3	Devise an overall plan for investigation 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		
2 : 1	Implement the overall plan for investigations Holistic approach	Total mark allocation - 12
2 : 2	Derive a solution from the investigations Generate one solution Describe the solution in detail	2 marks 1 mark Total mark allocation - 3
Total mark allocation for Step 2 - 15 marks		
3 : 1	Manufacture the chosen solution Draw up a sequence of work with occasional lapses in the deployment of time Consistently demonstrate effective deployment of time Identify and requisition resources and equipment with occasional lapses in the development of resources Consistently justify effective deployment of resources	3 marks } 5 marks 2 marks 2 marks } 5 marks 3 marks Total mark allocation - 10

Step	Mark Breakdown	Allocation
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 Brief, concise and easy to interpret results from each test Brief conclusions based on the results Two different testing techniques	4 marks 4 marks 1 mark Total mark allocation - 9
Total mark allocation for Step 3 - 22 marks		
4 : 1	Evaluate the chosen solution Accurate explanation some of which is detailed against the specification (to include testing results where appropriate) Provide detailed accurate explanation	2 marks 1 mark Total mark allocation - 3
4 : 2	Review the Technological Project Candidate can review the Technological Project with reference to time/ resources and skills and abilities against: <ul style="list-style-type: none"> ◆ Identification of the key points ◆ Appropriate criteria for the specification ◆ Overall plan for investigations ◆ Implement the overall plan for investigation ◆ Derive a solution from the investigations ◆ Manufacture the chosen solution ◆ Derive tests for the manufactured solution ◆ Implement the tests for the manufactured solution 	1 mark 1 mark 1 mark 1 mark 1 mark 1 mark 1 mark 1 mark Total mark allocation - 8
Total mark allocation for Step 4 - 11 marks		