National Qualifications

Home Economics

Intermediate 2

Technological Project: all contexts

Teacher/lecturer guidance

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Introduction

To gain the award for this Course, candidates must pass all the Unit assessments as well as the external Course assessment. The external Course assessment consists of a Question Paper and a Technological Project.

The Technological Project will enable candidates to demonstrate integration of knowledge and skills across the component Units to realise a solution and demonstrate technological capability.

SQA issues two Technological Project briefs annually (at the end of September) — candidates will choose one. The time allocated for the Technological Project is 20 hours. It will be completed under supervision in your centre. The Technological Project pro forma must be used to record. Candidates should not add pages — they will not be marked.

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 50 marks and is externally assessed. A breakdown of the marks for each of the steps of the Technological Project is as follows:

Step	**Total Marks available for each Step**		**Assessment**
1	Analysing	13	The completed pro forma is submitted to SQA to be marked
2	Investigating	15	
3	Manufacture	16	
4	Evaluation	6	
Total	**50**		

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**. **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. **It is best practice for candidates to word process their work.**

Candidates' work must be their own. Candidates should use the *Notes of Guidance for Candidates on the Technological Project* and read the *Your Coursework* booklet issued by SQA.

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

External Assessment Reports — External Assessment reports give detailed feedback of how the candidates performed in the previous session's Technological Project, and offer advice for improvement.

Photographic evidence of the solution taken during and after manufacture is required to certify that the work is that of the candidate. **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**.

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 in the document *Centre requirements for Internal and External Assessment*, which is posted on SQA's website in the autumn of each year.

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 — notes of guidance for teachers/lecturers preparing for central verification*.

Note on the use of the electronic 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,

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 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

Note: *The project is designed to be completed in 20 hours.*

Step 1: Analysing — total allocation of 13 marks

1.1 Analyse a complex situation (Identification of the key points with explanation) — 5 marks available

The candidate should identify the key points — these are all the main key words of the Technological Project brief.

The number of 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 — 2 marks

Candidates who identify all the key points	2 marks
Candidates who identify half or more, but not all the key points	1 mark
Candidates who identify less than half the key points	0 marks

Basic and accurate explanation of key points – 2 marks

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

All key points have a basic, accurate explanation	2 marks
Half or more of key points have a basic, accurate explanation	1 mark
Less than half of key points have a basic, 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 points.

1.2 Draw up appropriate criteria for a specification — 4 marks available

Allow for a range of solutions — 1 mark

Candidates whose specification allows for a range of solutions will be awarded 1 mark.

No marks will be awarded if a range of solutions is not possible.

Contain more detail than the brief — 1 mark

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 explanation is required.

Where specification points do not consistently contain more detail than the brief, candidates will not be awarded the mark.

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

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

1.3 Devise an overall plan for investigations — 4 marks available

List a range of relevant 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 the full mark allocation being unavailable.

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.

All techniques are appropriate	2 marks
Half or more, but not all techniques are appropriate	1 mark
Less than half of the techniques are appropriate	0 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 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 three** 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 20 in order to gain valid results.

Candidates should complete the above work on pages 5 and 6 of the pro forma.

Step 2: Investigations — total allocation of 15 marks

2.1 Implement the overall plan for investigation — 12 marks available

The mark allocation for this area will be awarded holistically and will be based on candidates' performance in the three 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 7, 8 and 9 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 — pages 7, 8 or 9.

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

Marking criteria

- 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

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 not 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 or 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 show no 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 — please note, a two–piece outfit will not be acceptable.

Note: Candidates who generate more than one solution will be awarded no marks for Steps 3 or 4.

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: Manufacture — total allocation of 16 marks

3. 1 Manufacture the chosen solution — 12 marks available

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

If the plan is written **retrospectively**, candidates will not be able to access the full marks available.

Identify and requisition resources — 3 marks

Candidates who identify and requisition **all** the main resources	3 marks
Candidates who identify and requisition **most** of the main resources	2 marks
Candidates who identify and requisition **some** of the main resources	1 mark

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

Identify and requisition equipment — 3 marks

Candidates who identify and requisition **all** the main equipment	3 marks
Candidates who identify and requisition **most** of the main equipment	2 marks
Candidates who identify and requisition **some** of the main equipment	1 mark

Equipment will depend on the chosen solution and may relate to equipment used in food or fabric activities.

Draw up a sequence of work — 3 marks

Candidates should show logical thinking when drawing up the sequence of work to manufacture the solution, eg:

- activities should be in the correct order to complete the solution
- longer activities started nearer the beginning of the sequence
- dovetailing of activities as appropriate

Sequence of work is highly effective with **all** activities planned in the correct order	3 marks
Sequence of work is highly effective with **most** activities planned in the correct order	2 marks

Sequence of work is highly effective with **some** activities planned in the correct order	1 mark

Deployment of time (time plan) — 3 marks

Candidates should make good use of time.

- activities should be appropriately timed
- resources and equipment are used to make more effective use of time

Highly effective time plan	3 marks
Effective time plan	2 marks
Satisfactory time plan	1 mark

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

Candidates should be encouraged to make notes on page 13 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.

This work is not marked, but may prove useful to candidates when completing Step 4.1 — Evaluation of the overall plan.

Note: 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 one test, then produce any materials required to conduct the 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 should be attached to page 14.

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 work being carried out and completed by the candidate.

Although no marks are awarded for this area, **evidence must be provided** of the candidate's solution.

Note: Page 14 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 one test for the manufactured solution — 1 mark available

Candidates should present one appropriate test with an **appropriate** technique which allows the candidate to collect relevant information — failure to do this will result in no marks being awarded.

3. 3 Implement the test for the manufactured solution — 3 marks available

Marking criteria

- results must be brief, concise and easy to interpret
- results must be derived from the tests and based on facts and evidence
- conclusions must be based on the results obtained

Test results are brief, concise and easy to interpret	1 mark
Test results are not brief, concise or easy to interpret	0 marks

Test results are factual and relevant to the specification	1 mark
Test results are not factual or relevant to the specification	0 marks

Conclusions are based on the results of testing	1 mark
Conclusions are not based on the results of testing	0 marks

Note: Candidates must not offer personal opinions.

Step 4: Evaluation — total allocation of 6 marks

4.1 Evaluate the chosen solution — 6 marks available

Evaluation against the specification points — 3 marks

Candidates must copy and paste the specification points briefly in the appropriate column. Candidates must evaluate the solution against **each** specification point. The results of the testing can be used here. Candidates will be awarded marks for accuracy and detail within the explanation.

Page 17 of the pro forma should be used for the evaluation against the specification.

All specification points are evaluated	3 marks
Half or more, but not all the specification points are evaluated	2 marks
Less than half the specification points are evaluated	1 mark
No specification points are evaluated	0 marks

Evaluation of the overall plan — 3 marks

Candidate will evaluate the overall plan (Steps 1–3 of the Technological Project)

The following criteria should 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 evaluation.

The evaluation, which may include adaptations/modifications, **must be based on evidence** which can be found within the candidate's Technological Project pro forma. Candidates should be encouraged to give reasons for any statements they make in the evaluation.

Page 18 of the pro forma should be used for the evaluation of the overall plan.

Appendix 1

Intermediate 2 Technological Project

Guidance for investigations/ tests

Questionnaire

- minimum of 20 respondents
- minimum of five questions linked to aim/specification to allow relevant data to be collected
- all 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

- The source(s) of information must be identified. The following sources could be used including the internet, literary, shop manager, restaurant/café manager.
- The source of information must be relevant to investigation.
- 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 should be used.
- Information should be displayed using appropriate headings, sub–divisions etc.

Interviews

- The suitability of the person interviewed should be carefully considered. The interviewee and their position in establishment/job title should be clearly identified.
- A minimum of five 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 that 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'

Note: 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 brief 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

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, a 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 product(s)

Intermediate 2 Technological Project

Mark allocation checklist

Step	Mark breakdown	Mark 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	 2 2 1	
1.2	Draw up appropriate criteria for a specification Allows for a range of solutions Contains more detail than the brief Be written in measurable terms	 1 1 2	
1.3	Devise an overall plan for investigation List a range of relevant investigations Identify techniques to be used	 2 2	
	Total marks available for Step 1	13	
2.1	Implement the overall plan for investigations Holistic approach	 12	
2.2	Derive a solution From the investigation generate one solution Brief description of the solution	 2 1	
	Total marks available for Step 2	**15**	

Step	Mark breakdown	Mark allocation	
3.1	Manufacture the chosen solution Requisitions all main resources Requisitions most main resources Requisitions some main resources Requisition all main equipment Requisition most main equipment Requisition some main equipment Highly effective sequence of work Effective sequence of work Satisfactory sequence of work Highly effective deployment of time (time plan) Effective deployment of time (time plan) Satisfactory deployment of time (time plan)	 3 2 1 3 2 1 3 2 1 3 2 1	
3.2	Devise a test for the manufactured solution One test presented	 1	
3.3	Implement the test for the manufactured solution Brief, concise and easy to interpret results Factual and relevant results Brief conclusions based on the results	 1 1 1	
	Total marks available for Step 3	16	
4.1	Evaluate the chosen solution Evaluation of specification points Evaluation of overall plan against set criteria: time/resources/ skills and abilities	 3 3	
	Total marks available for Step 4	6	
	Total marks available	50	