



National Qualifications

Home Economics

Higher

Technological Project: all contexts

Candidate guidance

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Introduction

To gain the award for this Course you 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.

SQA issues two Technological Project briefs annually — you will choose one. The time allocated for the Technological Project is 20 hours, and it will be completed under supervision in your centre. The Technological Project pro forma must be used to record your work. Do not add any additional pages as they will not be marked. The below table gives a breakdown of marks for the Technological Project. (Appendix 2 gives more detail about each step of the Project.)

Technological Project – mark allocation			
Step	Stage	Marks	Assessment
1	Analysing	22	Your completed pro forma is submitted to SQA to be marked
2	Investigating	15	
3	Manufacture	21	
4	Evaluation	12	
Total		70	

The following information will guide you through the four steps of the Technological Project.

Before you start — read both of the Technological Project briefs issued by SQA and choose the ONE you want to do. Insert the brief on page 2 of the Technological Project pro forma.

Step 1: Analysing

Step 1.1 Analyse a complex situation, issue or problem (6 marks)

- ◆ Identify the key points from the project brief
- ◆ Explain the relevance of the key points to the situation, issue or problem given in the project brief

Key point—number each point (3 marks)

Explanation (3 marks)

Identify the key points from the project brief:

- ◆ read the Technological Project brief
- ◆ consider the words that are important and underline them
- ◆ these are the **key points** of the Technological Project brief
- ◆ you should try to identify **all** the key points
- ◆ you may like to put two or more of the words together to make one key point
- ◆ **number** the key points
- ◆ Consider whether there are **one or two additional key points**. List and explain each additional key point (remember to number them).

Explain the relevance of the key points to the situation, issue or problem given in the project brief:

- ◆ explain **each** of the key points
- ◆ make sure each explanation **links to the needs of the brief**
- ◆ give accurate explanations
- ◆ give as much detail as you can
- ◆ avoid giving dictionary definitions of the key points
- ◆ if a key point has more than one word, the explanation must take account of all the words included

Step 1.2 Draw up an appropriate criteria for a specification (10 marks)

Specification point (number each point) (3 marks)	How it can be measured/ tested (2 marks)	Links to key point number (2 marks)	Explanation of specification point (3 marks)
<ul style="list-style-type: none"> ◆ A specification is a set of criteria that your solution must meet ◆ These criteria must be relevant to the Technological Project brief ◆ Your specification should allow for a range of solutions to be developed ◆ Your specification points should link to the key points you listed on page 3 and 4. Do not, however just rewrite your key points – more detail is needed ◆ Number each specification point ◆ You must have a minimum of five specification points. 	<ul style="list-style-type: none"> ◆ A measure is a method of proving if a specification point has been met ◆ You could prove if the specification point has been met in a variety of ways, eg costing exercise, checking with an expert ◆ If your measure involves an 'expert', you must specify who the expert is eg interview a food technology teacher/ dietician 	<ul style="list-style-type: none"> ◆ Check your specification points against the key points and additional key points ◆ You should find that each specification point is linked to one or more of the key points and additional key points 	<ul style="list-style-type: none"> ◆ Explanations must take into account the needs of the brief and the key points ◆ Give as much detail as you can ◆ Avoid repeating the specification point

Step 1.3 Devise an overall plan for investigations (6 marks)

Investigation required (number each) (2 marks)	Technique to be used (2 marks)	Justification for the investigation (2 marks)
<ul style="list-style-type: none">◆ As part of your overall plan, you have to make a list of investigations which you could carry out◆ Your investigations should be relevant to the brief◆ Your investigations should link to your core key and additional key points and well as the specification points	<ul style="list-style-type: none">◆ You must identify the technique to be used in each investigation◆ The technique must be appropriate to the brief and specification points◆ You should choose scientifically valid techniques that give accurate and valid results◆ Make reference to the target group◆ If your investigation involves interviewing an expert, you must specify the expert, eg dietician	<ul style="list-style-type: none">◆ The justification for each investigation should link to the investigation and, the brief and your specification points

Step 1.3 Devise an overall plan for the investigations—continued (4 marks)

Given the time available, choose from the proposed list of investigations those that you think are the most important in relation to the needs of the project brief.

Investigation number	Aim and technique for the investigation to be carried out
1	<ul style="list-style-type: none">◆ From your list of investigations, choose the three you think are the most important to help you meet the needs of the Technological Project brief.◆ You must plan and carry out three investigations. (You will be disadvantaged if you do more or less than three.) You may find that you are able to combine two or more investigations together using one technique, eg a questionnaire for a number of investigations could save you time◆ Your investigations should be relevant to the project brief◆ Your investigations should provide you with the data you need to ensure that all your specification points are met
2	
3	

At this stage you may want to complete your evaluation of step 1 of the Technological Project, use page 24 on the pro forma to do this.

Step 2: Investigating

Step 2.1 Implement the overall plan for the investigations (12 marks)

The three investigations should now be carried out, Carry them out in the same order as stated on page 8.

For each investigation, you should:

- ◆ state the aim of the investigation
- ◆ record the results of the investigation
- ◆ draw conclusions from the results

Record your investigations on pages 9, 10 and 11 of the Technological Project pro forma.

Aim

- ◆ carry out your aim from page 6 of the pro forma (make sure for each investigation that you carry out the aim is the same as specified on page 6)

Results

- ◆ You should record the raw data you collect during your investigation. Do not summarise your results.
- ◆ Display your results in a format which is brief, concise and easy to interpret, eg all tables/charts must include a key.
- ◆ You must ensure that all results etc can be presented on one side of A4 paper.
- ◆ Results must be based on facts/evidence discovered during the investigation.

Conclusion

- ◆ Do not give your personal opinion. All conclusions must be drawn from the results of the investigation.
- ◆ Conclusions should show justification based on the information found in the investigation.
- ◆ Conclusions should demonstrate progression towards the solution.

Appendix 1 has further guidance on carrying out investigations.

Step 2.2 Derive a solution form the investigations (3 marks)

Chosen solution (2 marks)

Using the conclusions of your investigations devise **one** solution which will meet the needs of the Technological Project brief.

You must not produce more than one solution, ie ONE dish or ONE textile item only.

If you produce more than one solution, you will not be able to gain a significant number of marks in Step 3 and Step 4.

- ◆ Your solution must be based on the results of your investigations. You should not decide what your solution will be before you have completed the investigations.
- ◆ Your solution must be relevant to the Technological Project brief.

Describe the chosen solution in detail (1 mark)

It is important that your description is clear so that the person marking your work can fully understand your solution.

To help you to do this, you could use one or more of the following methods:

- ◆ written details
- ◆ design sketches
- ◆ labelled diagrams

At this stage you may want to complete your evaluation of step 2 of the Technological Project, use page 24 on the pro forma to do this.

Step 3: Manufacturing

Step 3.1 Manufacture and test the chosen solution (10 marks)

Planned sequence of work (5 marks)

Deployment of time

- ◆ your plan should show a breakdown of time
- ◆ the time allocated to each task should be realistic
- ◆ you must include the day and date of manufacture

Step-by-step sequence of work

- ◆ your sequence should describe clearly how you intend to use the time you have for manufacture
- ◆ your order of work should be logical

Identify and requisition all the resources and equipment required to manufacture the solution

Resources and required (3 marks)	Justification for their use (2 marks)
<ul style="list-style-type: none"> ◆ identify all if the resources/ equipment you need to manufacture your solution ◆ measurements/quantities of foods and fabrics must be exact ◆ fabric resources must include size (length and width) ◆ you should include types and colours of textiles and trimmings ◆ specialised fabric equipment eg scissors, needles must be specified ◆ for food solutions, weighing and measuring equipment must be identified if they are required ◆ you must specify any cutlery you require ◆ use metric weights and measurements 	<p>all the resources and equipment needed to manufacture your solution must be justified:</p> <ul style="list-style-type: none"> ◆ they could be justified linked to results of investigations ◆ indicate their use in the production of the solution ◆ aesthetic appeal

Before you manufacture your solution, you should now complete the preparation for testing your proposed solution. You must devise two tests and then produce any materials required, eg interview questions, graphs/ charts to record results.

Step 3.2 Devise two tests for the manufactured solution (3 marks)

Test to be carried out Number each test (1 mark)	Technique to be used (1 mark)	Justification of the test (1 mark)
<p>Each test should:</p> <ul style="list-style-type: none">◆ be a method of checking if the specification has been met◆ have a clear aim◆ see Appendix 1	<p>You must identify the technique you are going to use to carry out the test.</p> <p>The technique must:</p> <ul style="list-style-type: none">◆ be appropriate to the test and use scientifically valid techniques◆ allow you to collect information◆ specify any 'expert' or target group used◆ two different techniques must be used	<p>Your justification should:</p> <ul style="list-style-type: none">◆ link to the test◆ link to the Technological Project brief and your specification points◆ be well thought out and provide reasoning

This page is for the candidate's own use

It may be used to make notes during manufacture or record any modifications made to the plan

Page 16 is for your own use and will not be marked. It should be used to make notes whilst you are manufacturing your solution as this will help you during your evaluation in Step 4. You should consider:

- ◆ how the stages of manufacture are progressing
- ◆ the resources/equipment you are using
- ◆ any changes/modifications you may wish to make to the plan

Authenticated photographic evidence of manufacture

Photographic evidence of your solution must be provided on page 17.

Two photographs should be included:

- ◆ one during manufacture
- ◆ one after manufacture

Step 3.3 Implement the tests for the manufactured solution (8 marks)

Test

For each test you should:

- ◆ record the results
- ◆ draw conclusions from the results
- ◆ make sure a different technique is used

Results

- ◆ you should record the raw data you collect during your test, do not summarise your results
- ◆ display your results in a format which is brief, concise and easy to interpret, eg all tables/charts must include a key
- ◆ ensure that all results can be presented on one side of A4 paper
- ◆ results must be based on facts/evidence discovered during the investigation

Conclusion

- ◆ all conclusions must be drawn from the results of the test, do not offer your personal opinion

There is further guidance on conducting tests in Appendix 1.

At this stage you may want to complete your evaluation of step 3 of the Technological Project. Use page 24 on the pro forma to do this.

Step 4: Evaluating

Step 4.1 Evaluate the chosen solution(6 marks)

Evaluate the chosen solution against the specification. (6 marks)
Use the results of either from investigations, manufacture and/or testing where appropriate.

Specification point
(please number each point)

Evaluation

- | | |
|--|--|
| <ul style="list-style-type: none">◆ you should now evaluate your solution against your specification points — using the results of the investigations and testing where appropriate◆ copy and paste your specification points from page 4 into this column | <ul style="list-style-type: none">◆ for each specification point, give a judgement (good, bad, successful or unsuccessful) based on facts from your Technological Project and then explain the consequences for the final solution◆ when using the results of investigations or testing in your evaluation, you should identify the investigation, test or page number that you are using as evidence of your evaluative comment◆ if you find that you have not investigated/tested a specific area of nutritional analysis/costing which you have included in your specification points, you may conduct this at this stage◆ you must be able to base your evaluation on evidence that can be found in the Technological Project |
|--|--|

Step 4.1 (continued) Evaluate the overall plan (6 marks)

Evaluate Steps 1 – 3 using the following criteria:

- ◆ time
- ◆ resources
- ◆ skills and abilities

(2 marks are available for each step)

It is important that you evaluate each of these criteria under the correct heading.

Your evaluation comments must be based on evidence that can be found in your Technological Project pro forma.

Any adaptations or changes to your plan should be evaluated.

Do not state any personal opinions in your evaluation.

Use any notes you made on page 16 to assist you with your evaluation of Step 3.

Appendix 1

Guidance for investigations/ tests

Questionnaire

- ◆ minimum of 20 respondents
- ◆ minimum of 5–8 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 sources that could be used include the internet, literary, shop manager, restaurant/café manager.
- ◆ 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 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'

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 about the 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)

Appendix 2

Mark allocation checklist

Step	Mark breakdown	Mark allocation	
1.1	Identification of the key points with explanation Identify the key points Additional key points Key points plus basic and accurate explanation Key points plus detailed and accurate explanation	2 1 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/ able to be tested Link each specification point to key points Provide basic explanations Provide detailed explanations	1 2 2 2 2 1	
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 2 2	
Total marks available for Step 1		22	
2.1	Implement the overall plan for investigations Aims fulfilled Brief, concise, easy to interpret Relevant and valid results Conclusions	3 3 3 3	
2.2	Derive one solution form the investigations Generate one solution based on evidence Relevant to brief Describe the solution in detail	1 1 1	
Total marks available for Step 2		15	

Step	Mark breakdown	Mark 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	
		3	
		2	
3.2	Devise two tests for the manufactured solution Present two tests Identify techniques to be used Justify the two tests	1	
		1	
		1	
3.3	Implement the tests for the manufactured solution Aims fulfilled Brief, concise, easy to interpret Relevant and valid results Conclusions	2	
		2	
		2	
		2	
Total marks available for Step 3		21	
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 and accurate explanation	5	
		1	
4.2	Evaluate the Technological Project 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	
		2	
		2	
Total marks available for Step 4		12	
Total marks available		70	