

NATIONAL QUALIFICATIONS 2008

HOME ECONOMICS

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

HIGHER

**Notes of guidance for Candidates
 on the
 Technological Project**

Please destroy all previous versions of this document

Introduction

To gain the award for this course you must pass the external course assessment and all the Outcomes for the Units of the course:

- Resource Management
- Consumer Studies

The external assessment consists of a Question Paper and a Technological Project. These notes offer guidance on the **Technological Project**.

Higher – 70 marks are awarded

The time allocated for the Technological Project is 20 hours. You may undertake research and investigation outwith the school/centre but all the work which you record in the Technological Project pro forma issued by SQA must be completed under supervision in your school/centre.

All the work of the Technological Project must be your own.

Your teacher/lecturer may assist you by giving

- advice on sources of information including persons, agencies or establishments which may be helpful
- assistance with planning your time to meet deadlines
- advice on how suitable and practical your ideas are as you proceed through the Technological Project

The following table gives you information about the mark allocation given to the 4 steps involved in the Technological Project.

Step	Total mark allocation for each step	
Step 1	Analysing	22 marks
Step 2	Investigating	15 marks
Step 3	Manufacturing and Testing	21 marks
Step 4	Evaluation	12 marks

Technological Project pro forma

Each year SQA will issue two project briefs – you should choose **one**.

The Technological Project pro forma is issued by SQA and you should use it to record your work. It should be tidy and easy to read. Your work can be hand written, typed, produced on a word processor or reflect a combination of these methods. **Use only the number of pages contained within the Technological Project pro forma.** Extra pages are provided at the back of the pro forma should you need more space to continue any of your responses. Your written work must be clear and concise.

When you have completed the Technological Project your teacher will send it to SQA to be marked.

The following information will guide you through all 4 steps in the Technological Project.

Before you start – read both the Technological Project briefs issued by SQA and choose the one you wish to do.

Write the brief, in full, on page 2 of the Technological Project pro forma.

STEP 1 (Analysing) Total mark allocation – 22 Marks. (Pages 3–8 of pro forma)

STEP 1.1 6 marks available. (Pages 3 – 4 of pro forma)

Identify the key points from the project brief.

- Read the Technological Project brief which you wrote on page 2 of the pro forma.
- Consider which words are important and underline them.
- These are the **key points** of the Technological Project brief.
- You should try to identify **all** the key points.

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 relates back to the Technological Project brief.
- Give accurate explanations.
- Give as much relevant detail as you can – this will gain you more marks.
- Avoid dictionary definitions.

Identify one or two relevant additional key points

- You may be able to think of **one or two** additional key points.
- List and explain each additional key point on pages 3 and 4 of the pro forma.
- Remember to number each key point.

STEP 1.2 10 marks available (Pages 5–6 of pro forma)

Draw up appropriate criteria for a specification

A specification is a set of criteria that your solution must meet to successfully solve the Technological Project brief.

The criteria must be valid and relevant to the Technological Project brief.

Drawing up a specification is an important area of your work. Your specification should allow for a range of possible solutions to be developed

Complete the 4 columns on the page as described below.

Specification Points – these must:

- Be relevant to the Technological Project brief – check back to page 2.
- Link to the key points you listed on pages 3 and 4.
- Avoid using the exact wording given in the key points.
- Be numbered.

You must have a **minimum of 5** specification points.

Explanations of Specification Points – should

- Take account of the needs of the Technological Project brief and the key points.
- Be well explained. You should try to give as much detail as you can – this will gain you more marks.
- Avoid repeating the specification point.

Links to Key Points

- Check your specification points against the key points & additional key points on pages 3 and 4.
- You should find that each specification point is linked to one or more of the key points. & additional key points.

How the specification point can be tested

- Each specification point must be able to be measured/tested in some way on completion of the manufacture of your product eg by checking it with a **named/specified** expert, a costing exercise, etc.

STEP 1.3 6 marks available (pages 7–8 of pro forma)

Devise an overall plan for investigations

As part of your overall plan you have to:

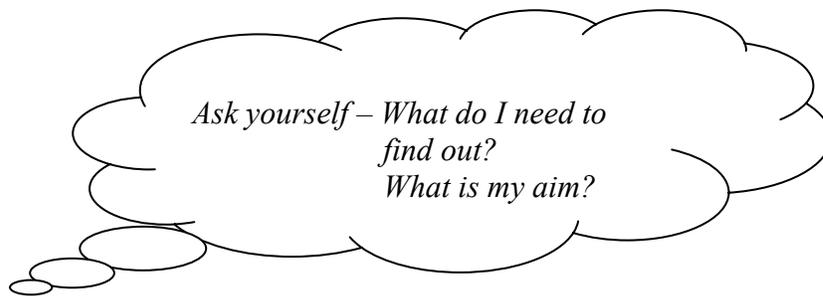
Make a list of investigations

Your investigations should:

- be numbered.
- have a clear purpose or aim.
- link to the key points of the Technological Project brief and your specification points.

For example:

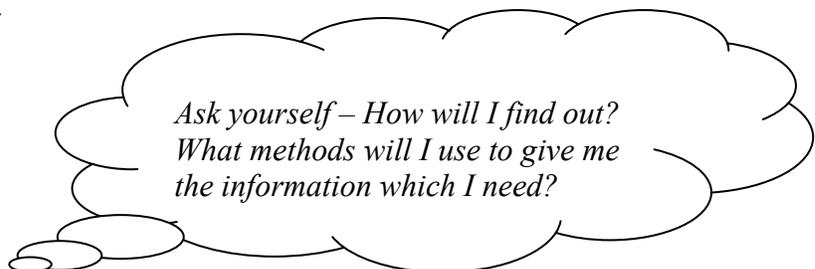
- gaining new knowledge
- increasing present knowledge
- looking at existing products that meet the needs of the brief
- availability and suitability of resources
- costs involved



Identify the techniques to be used in the investigations

You should choose techniques for **each** investigation which:

- are appropriate to the brief and to your specification points.
- are scientifically valid techniques.
- give accurate and valid results.



For example:

- interviews with a named/specified expert
- internet/book research (include sources of data)
- questionnaires (if you intend to use this method then you should issue a minimum of 20 copies in order to gain valid results)

Justify each of the investigations you have listed.

Justification should:

- link to the investigation.
- link to the Project Brief and your specification points.
- be well thought out and clear.

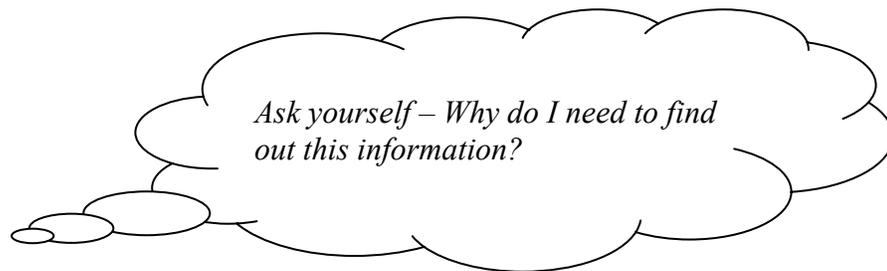
From your investigations on page 7 choose the three which you think are the most important in relation to the needs of the Technological Project brief. List these on page 8 of the pro forma. These are the investigations you will carry out in Step 2.

Depending on the type of techniques you have chosen, a **maximum of 3** investigations should be carried out in the time you have available. You may find you are able to combine 2 or more investigations together using one technique, eg a questionnaire could gather information for a number of investigations and could also save you time.

No more than 3 investigations, depending on their nature, could be realistically carried out in the time available. These investigations should be carried out to ensure that all specification points are investigated. You will be disadvantaged if you do less than 3.

Although you will not gain any marks for this page, it is important your chosen investigations should be:

- relevant to the Technological Project brief.
- able to be completed in the time available.



At this stage you may wish to complete your evaluation of step 1 of the Technological Project. Step 4.2 on page 23 of your pro forma

STEP 2 (Investigating) Total mark allocation – 15 marks (pages 8–12 of the pro forma)

The aim of each investigation should be clearly identified on page 8 of the pro forma so that this can be carried forward to the top of the investigation eg

- *Questionnaire to establish the likes and dislikes of.....*

STEP 2.1 12 marks available (Pages 9–11 of pro forma)

Implement the overall plan for investigations

The investigations which you identified on page 8 should now be carried out.

For each investigation you should:

- Carry out your aim from page 8 of the pro forma (you may wish to rewrite or copy and paste if you are word processing your Technological Project)
- Display your results in a format which is brief, concise and easy to interpret. Your work is recorded on A4 size paper.
- Results are based on facts/evidence discovered during the investigations.
- Draw conclusions from the results of the testing. **Personal opinions must not be offered.**

Each investigation should be recorded **on pages 9–11 of the pro forma.**

NOTE: If you are using computer software to produce your results eg graphs, charts, etc, you must ensure they can be presented on only one side of A4 paper or marks will be deducted.

See Guidance document on conducting investigations and tests – Appendix 1.

STEP 2.2 3 marks available (page 12 of pro forma)

Derive a solution from the investigations

Using the conclusions of your investigations, come up with **one** solution which will meet the needs of the Technological Project brief.

Describe your solution in detail

It is important that your description is clear so that the person marking your work can '**visualise**' your solution. To help you do this you could use **one or more** of the following methods:

- written details such as a list of ingredients and method
- design sketches with fabric samples
- diagrams with sizes
- labelled diagrams
- storyboards

You must **not** produce more than **one** solution (**ie ONE dish or ONE textile item only. A two-piece outfit will NOT be acceptable**) or a significant number of marks from Step 3 and Step 4 will be lost.

At this stage you may wish to complete your evaluation of step 2 of the Technological Project. Step 4.2 on page 24 of your pro forma.

STEP 3 (Manufacturing and Testing) Total mark allocation – 21 marks (pages 13–20 of pro forma)

STEP 3.1 10 marks available (pages 13–16 of pro forma)

Manufacture the chosen solution

Draw up a plan for the manufacture of your solution.

This plan **must** be completed **before** you start manufacture.

The step by step plan must include

- dates and times
- a sequence of work
- all the resources and equipment you will need to make your solution.

You must include exact quantities of the resources you require and details of any equipment you would need to make the solution again in a controlled situation.

Planned Sequence of Work (5 marks) (page 13 of pro forma)

Your detailed step by step sequence of work must describe **clearly** how you **intend** to make effective deployment of your time. You will have to consider:

- start time and finish time
- preparation and manufacturing time
- provide sufficient detail to allow the product to be recreated by another person
- your practical skills
- sensible and logical ordering of stages of your work
- use of equipment which may save you time

Your sequence of work should be in a form that you think is appropriate, eg as a table, chart, or flow chart, etc.

You **must show planned dates and a breakdown of times** of all stages involved in the manufacture of your solution.

Resources (3 marks) and equipment (2 marks) (page 14 of pro forma)

All resources and equipment needed to manufacture your solution must be listed.

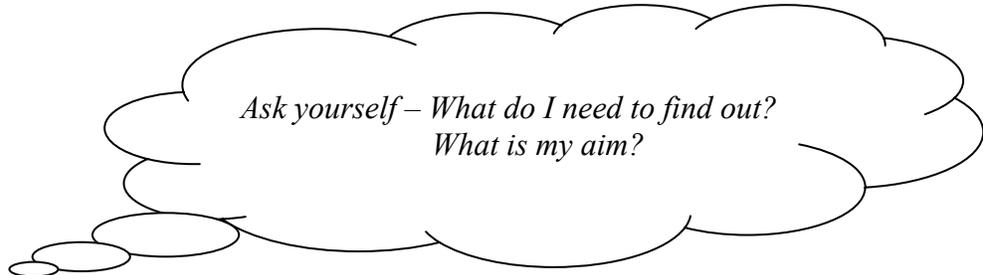
- You must use metric measurements
- Include exact weights for foods used.
- Include details of types and colours of textiles and trimmings.
- This may include – foods, textiles, packaging materials, equipment, and electrical equipment. To gain full marks you must not miss any out.

Before you manufacture your solution you should now complete the preparation for the testing of your proposed solution. You will be required to devise two tests and then produce any materials required to conduct each test before you manufacture the solution. eg interview questions, facilities/graphs/charts to record results. NB See page 15 of your pro forma.

STEP 3.2 3 marks available

Devise two tests for the manufactured solution

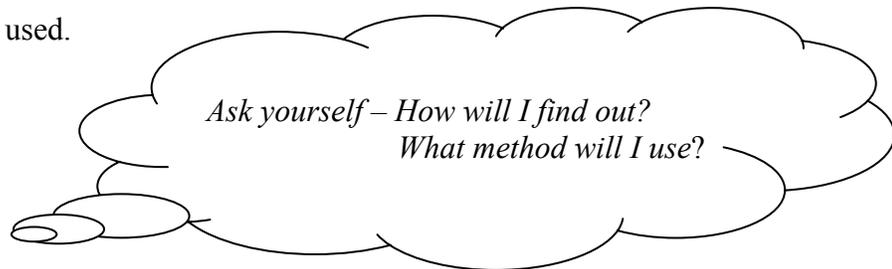
You must decide on two appropriate tests to carry out on your manufactured solution.



Remember your tests should:

- identify the aim of the test to be carried out.
- be a method of checking whether the specification point has been met.

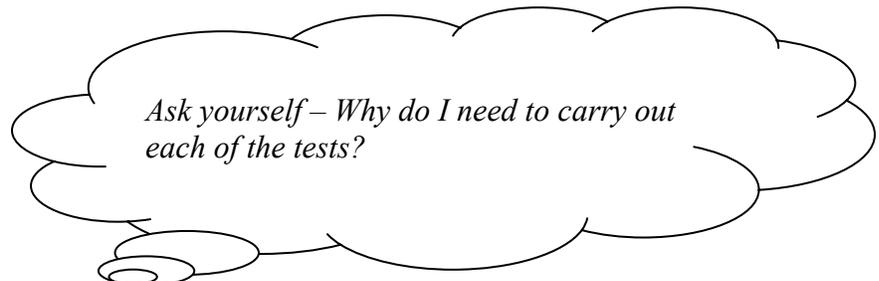
Identify techniques to be used.



- techniques used must be appropriate to the test and have a scientifically valid technique.
- two different testing techniques must be used eg sensory evaluation, observation, interview with an identified expert, and questionnaire to specific target group.

For example:

- interview with a dietician or textile technologist
- sensory evaluation with a minimum of five people from the target group



Justify each of the tests.

Your justification should:

- link to the test
- link to the Technological Project brief and your specification points
- be well thought out and clear

When you have finished these pages, you should start to manufacture your solution, following the sequence of work drawn up on page 13.

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

These notes may be useful to you when completing Step 4 (Evaluation of the Technological Project).

Photographic evidence of your solution must be provided on page 17

Photographs should be taken:

- **during** manufacture, **and**
- **after** manufacture

Both photographs must be fixed onto the correct space on your page.

The electronic version of the pro forma has been designed to allow for the insertion of digital photographs.

Now carry out each of the tests.

STEP 3.3 8 marks available

Implement the tests for the manufactured solution

For each test you should:

- carry out your aim
- display your results in a format which is brief concise and easy to interpret
- the results are based on facts/evidence discovered during the testing
- draw conclusions from the results of the testing. **Personal opinions must not be offered**

Your work must be presented on pages 19 and 20 of the pro forma.

For **each** of your tests you must make sure

- a different technique is used.

NOTE: If you are using computer software to produce your results, eg graphs, charts, etc you must ensure these are presented on pages 19 and 20 of the pro forma only, with the rest of your work.

At this stage you may wish to complete your evaluation of step 3 of the Technological Project. Step 4.2 on page 24 of your pro forma.

STEP 4 (Evaluation) Total mark allocation – 12 marks (pages 21–24 of the pro forma)

STEP 4.1 6 marks available (pages 21–22)

Evaluate the chosen solution

You should now evaluate your solution against **your specification points – using the results of the investigations and testing where appropriate.**

When evaluating, you must refer to your specification points from Step 1.2 on pages 5 and 6 of your pro forma. You should also refer to your test results and conclusions on pages 19 and 20.

You must briefly rewrite the specification points in the appropriate column – this will save you from continually looking back. **(You may wish to rewrite or copy and paste these if you are word processing your Technological Project)**

In your evaluation you should:

- Give an opinion (good or 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 number or page number which you are using as evidence of your evaluative comment.

STEP 4.2 **6 marks available** (pages 23–24 of pro forma)

Evaluate the Technological Project

You now have to evaluate Steps 1–3 of the Technological Project.

2 marks will be available for the evaluation of each step.

- Look at all the main steps of the Technological Project from start to finish.
These steps are listed on page 23 of the Technological Project pro forma and you should work your way through each of them in turn.
- Evaluate their success or otherwise in relation to each of the following three criteria.
 - **time**
 - **resources**
 - **skills and abilities**

It is important that you use these **three** criteria in your evaluation – otherwise you will lose marks. You must also try to give evidence within the evaluation.

- Your evaluation comments must be based on evidence which can be found within your Technological Project pro forma.
- You must **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 – Manufacture the chosen solution.
- Any adaptations/changes to the plan should be evaluated

Use pages 23–24 of the pro forma for your 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. You 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 terms / able to be tested 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		