2009 Lifestyle and Consumer Technology
Home Economics

Higher Technological Projects

Finalised Marking Instructions

STEP 1 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.

Identify the key points – 3 marks

Candidates who record all the 'core' key points	2 marks
Candidates who record ½ or more, but not all the 'core' key points	1 mark
Candidates who record less than ½ 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**.

Basic and accurate explanation of key points – 2 marks

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

If all key points have a basic and accurate explanation	2 marks
If ½ or more but not all of the key points have a basic and accurate explanation	1 mark
If less than ½ the key points have a basic and accurate explanation	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 or additional points.

Brief 1

Develop a food or textile item suitable for a childs party

Brief 1

Key points

1. develop
2. (a) food (or) textile
3. item
4. suitable (for a)
5. child
6. party

Brief 2

Develop a food or textile item to be sold at school sports event.

Brief 2

Key points

1. develop
2. (a) food (or) textile
3. item
4. (to be) sold
5. (at a) school
6. sports event.

Example of basic accurate explanation of key points

Develop
- create or devise ideas for a new product

Example of further accurate detail in explanation of key points

Develop
- create or devise ideas for a new product
- make a product which is original or different to what is available at present

Brief 1 – Children's Party
Additional Key Points

7. Facilities/resources available
8. Aesthetic appeal
9. Time available for manufacture
10. Skills/abilities
11. Hygiene/safety
12. Likes/dislikes
13. Appeal to target group
14. Allergies
15. Cost
16. Quality/standard required for sale
17. Gender of target group
18. Age range of target group
19. Suitability for bulk production

Brief 2 – School Sports Event
Additional Key Points

7. Facilities/resources available
8. Aesthetic appeal
9. Time available for manufacture
10. Skills/abilities
11. Hygiene/safety
12. Likes/dislikes
13. Appeal to target group
14. Allergies
15. Cost
16. Quality/standard required for sale
17. Gender of target group
18. Age range of target group
19. Suitability for bulk production

19 Time of year/season

20 Hungry for Success/Schools (Health Promotion & Nutrition) Scotland Act 2007

21 Nutritional needs of target group

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 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 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 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.

Step 1.2 – Specification

Brief 1 – Child's Party		
Item must:		**Measured by:**
1	• be edible/be a fabric item	Interview with food/textile technologist Component checklist/Recipe analysis
2	• be suitable for children/take account of age group of children	Questionnaire/interview to parents Interview with food/textile technologist/ appropriate teacher
3	• be suitable for a party	Interview with food/textile technologist/ appropriate teacher/children's party planner
4	• be of an acceptable/satisfactory standard	Interview with food/textile technologist/ children's party planner/appropriate teacher/ EHO/parent Sensory testing with children/parent/children's party planner/food technologist/appropriate teacher Quality checklist
5	• be different to other products/be original	Survey of retail outlets/literary/Internet search Interview with retailer/children's party planner/ parent/food/textile technologist/appropriate teacher
6	• be aesthetically pleasing to children	Questionnaire to children Interview with food/textile technologist/ children's party planner/parent/appropriate teacher Sensory testing with target group/food/textile technologist/children's party planner/appropriate teacher
7	• take account of likes/dislikes of children	Survey/interview/questionnaire to children Interview with food/textile technologist/ children's party planner/parent/appropriate teacher Sensory testing with children/parent/food/textile technologist/children's party planner
8	• take account of current trends	Interview/questionnaire with target group/ parents/food/textile technologist/appropriate teacher/children's party planner
9	• be made using the facilities/resources/ time available to the candidate	Interview with food/textile technologist Checklist of facilities/component checklist Time trial of prototype to be measured
10	• be within the capabilities of the candidate to produce	Interview with food/textile technologist Skills analysis Trial of prototype Quality checklist
11	• be prepared under hygienic/safe conditions	Interview with EHO/food/textile technologist/ Trading Standards Officer Literary/Internet search & quality checklist
12	• be safe in use/to eat	Interview with EHO/food/textile technologist/ Trading Standards Officer Literary/Internet search & quality checklist
13	• have an appropriate shelf life/durability	Interview with EHO/food/textile technologist/ appropriate teacher/children's party planner User/wearer trials
14	• be suitable for bulk production	Interview with food/textile technologist/ children's party planner

Step 1.2 (continued)

Brief 2 – Child's Party		
Item must:		**Measured by:**
15	• be cost effective/inexpensive to produce	Costing exercise & interview with food/textile technologist/children's party planner
16	• be within the budget of the parent/ children's party planner	Costing exercise & interview with food/textile technologist/children's party planner/parent Costing exercise & interview/questionnaire to children's party planner/parent
17	• be comparable in cost to other similar items	Costing exercise & interview with food/textile technologist/appropriate teacher/children's party planner/parent

Step 1.2 – Specification

Brief 2 – Schools Sports Event		
Item must:		**Measured by:**
1	• be edible/be a fabric item	Interview with food/textile technologist Component checklist/Recipe analysis
2	• be suitable for a sporting event	Interview with food/textile technologist/ appropriate teacher/sports coordinator
3	• be suitable for a school sporting event	Interview with food/textile technologist/ appropriate teacher/sports coordinator/Trading Standards Officer
4	• be nutritionally suitable for target group	Nutritional analysis and check with food technologist/dietician/health professional
5	• be healthy/take account of current dietary targets/Hungry for Success/Schools (Health Promotion and Nutrition) Scotland Act 2007	Interview with food technologist/dietician/health professional
6	• be of an acceptable/satisfactory standard for sale	Interview with food/textile technologist/ appropriate teacher/EHO/Trading Standards Officer Sensory testing with target group Quality checklist
7	• be different to other products for sale at the sports event/be original	Interview with food/textile technologist/sports coordinator
8	• be aesthetically pleasing to target group	Questionnaire to target group Interview with food/textile technologist/sports coordinator Sensory testing with target group/food/textile technologist/sports coordinator
9	• take account of likes/dislikes of target group	Questionnaire to target group Interview with food/textile technologist/sports coordinator/target group Sensory testing with target group
10	• be suitable for target group	Questionnaire/interview to target group Interview with food/textile technologist/sports coordinator
11	• take account of current trends	Interview/questionnaire with target group/food/ textile technologist/sports coordinator
12	• be made using the facilities/resources/ time available to the candidate	Interview with food/textile technologist Checklist of facilities/component checklist Time trial of prototype
13	• be within the capabilities of the candidate to produce	Interview with food/textile technologist Skills analysis Trial of prototype Quality checklist
14	• be prepared under hygienic/safe conditions	Interview with EHO/food/textile technologist/ Trading Standards Officer Literary/Internet search & quality checklist
15	• be safe in use/to eat	Interview with EHO/food/textile technologist/ Trading Standards Officer Literary/Internet search & quality checklist
16	• be suitable to be made in advance	Interview with food/textile technologist/EHO/ Trading Standards Officer/sports coordinator

Step 1.2 (continued)

Brief 2 – School Sports Event		
Item must:		**Measured by:**
17	• have an appropriate shelf life/durability	Interview with EHO/food/textile technologist/ sports coordinator Trading Standards Officer User/wearer trials
18	• be suitable for bulk production	Interview with food/textile technologist
19	• be cost effective/inexpensive to produce	Costing exercise & interview with food/textile technologist/sports coordinator
20	• be within the budget of the target group	Costing exercise & interview with food/textile technologist/sports coordinator Costing exercise & interview/questionnaire to target group
21	• be comparable in cost to other similar products.	Costing exercise & interview with food/textile technologist/sports coordinator

Note:

- Food/textile technologist could include a person working in food/textile product development or a Home Economics teacher.

NB

- **Specification Points** – **It must be checked that the specification points are different**
  – **A candidate may use different wording to state the same thing**
- **Measured by** – **The candidate must specify the term 'expert' if used**

Method of measuring must be able to check/assess whether the specification point has been met.

Basic explanation of specification point

- be colourful/attractive/appealing to target group
- so the target group will like them

Detailed explanation of specification point

- be colourful/attractive/appealing to target group
- to encourage the target group or consumer to try the product again

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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 not being awarded.

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 1.3

Brief 1 – Child's Party		
Investigation		**Technique**
1	Types of children's parties	Interview with a food/textile technologist/ children's party planner/parents Literary/Internet search
2	Current range of children's party products	Survey of retail outlets Interview with children's party planner/food/ textile technologist/parent
3	Suitability for children	Interview with food/textile technologist/ children's party planner/parent
4	Ideas for potential solutions	Survey of retail outlets Literary/Internet/recipe/pattern search Trial of prototype(s) Sensory testing/interview with children/children's party planner/appropriate teacher/parent
5	Aesthetic appeal of potential solutions	Sensory testing with children Interview food/textile technologist/children's party planner/parent
6	Likes and dislikes of children	Interview/questionnaire with children/parent/ children's party planner Sensory test with target Group
7	Current trends	Interview/questionnaire to children/parent/ children's party planner/food/textile technologist Survey of retail outlets Literary/Internet search
8	Facilities/resources/time available to the candidate	Interview with food/textile technologist/ children's party planner Resources/equipment checklist Time trial of prototype(s)
9	Skills necessary for manufacturing the product	Interview with food/textile technologist Skills audit Literary search of fabric construction books/ recipe search
10	Hygiene/safety requirements for production	Interview with EHO/food/textile technologist/ Trading Standards Officer/children's party planner Literary/Internet search
11	Quality requirements of potential solutions	Interview/sensory testing with food/textile technologist/children's party planner Trial of prototype(s)
12	Shelf life/durability of potential solutions	Interview with food/textile technologist/Trading Standards Officer/EHO/Children's party planner Literary/Internet search
13	Suitability for bulk production	Interview with food/textile technologist/ children's party planner
14	Price range of similar products	Interview with food/textile technologist/ children's party planner/retailer/parent Survey of retail products
15	Cost of potential components/solutions	Costing exercise
19	Budget of parent/party planner/amount parent/ party planner is prepared to pay	Interview/questionnaire to parent/party planner
20	Care requirements of materials/resources used	Interview with food/textile technologist/ children's party planner Trials of prototype(s)

Step 1.3 (continued)

Brief 1 – Child's Party		
Investigation		**Technique**
21	Influencing factors on final product	Interview with food/textile technologist/child/parent/ children's party planner
22	Safety in use	Interview with EHO/Trading Standard Officer/food/ textile technologist/children's party planner Literary/Internet search

Step 1.3

Brief 2 – School Sports Event		
Investigation		**Technique**
1	Types of school sports events	Interview with food/textile technologist/ appropriate teacher/school sports coordinator Literary/Internet search
2	Current range of products on sale at sports events	Interview with food/fabric technologist/ appropriate teacher/school sports coordinator Survey of retail outlets/sports events Literary/Internet search
3	Suitability for target group	Interview with food/textile technologist/ appropriate teacher/sports coordinator Interview/questionnaire to target group
4	Ideas for potential solutions	Survey of retail outlets/sports events Literary/Internet/recipe/pattern search Sensory testing/interview with target group/ appropriate teacher/food/textile technologist/ sports coordinator Trial of prototype(s)
5	Aesthetic appeal of potential solutions	Sensory testing with target group/appropriate teacher/food/textile technologist/sports coordinator
6	Likes and dislikes of target group	Interview/questionnaire to target group/food/ textile technologist/appropriate teacher/sports coordinator
7	Current trends	Interview/questionnaire to target group Survey of retail outlets/sports events Literary/Internet search Interview appropriate teacher/sports coordinator/ food/textile technologist
8	Facilities/resources/time available to the candidate	Interview with food/textile technologist Resources/equipment checklist Time trial of prototype(s)
9	Skills necessary for manufacturing the product	Interview with food/textile technologist Skills audit Literary search of fabric construction books/ recipe search
10	Hygiene/safety requirements for production	Interview with EHO/food/textile technologist/ Trading Standards Officer/sports coordinator Literary/Internet search
11	Quality requirements of potential solutions	Interview with food/textile technologist/ appropriate teacher Trial of prototype(s) Sensory testing with target group
12	Shelf life/durability of potential solutions	Interview with food/textile technologist/Trading Standards Officer/EHO Literary/Internet search
13	Suitability for bulk production	Interview with food/textile technologist
14	Price range of similar products	Interview with food/textile technologist/sports coordinator Survey of retail outlets/sports events
15	Cost of potential components/solutions	Costing exercise
16	Budget of school	Interview with food/textile technologist/sports coordinator

Step 1.3 (continued)

Brief 2 – School Sports Event		
Investigation		**Technique**
17	Budget of target group/amount target group is prepared to pay	Interview/questionnaire to target group/sports coordinator/food/textile technologist
18	Care requirements of materials/resources used	Interview with food/textile technologist Trials of prototype(s)
19	Influencing factors on final product	Interview with food/textile technologist/sports coordinator/target group
20	Safety in use	Interview with EHO/Trading Standards Officer/ food/textile technologist/sports coordinator Literary/Internet search

Note:

- The candidate **must** specify the term 'expert' if used
- A food/textile technologist could include a person working in food/textile product development or a Home Economics teacher.

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 proforma 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 proforma.

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

- 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
½ or more investigations candidates have fulfilled the aims on page 8 of the pro forma	2 marks
Less than ½ investigations candidates have fulfilled the aims on page 8 of the pro forma	1 mark
In no investigations candidates fulfilled the aims on page 8 of the pro forma	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 design brief	2 marks
Less than ½ 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
½ or more conclusions are based on the results and/or show progression	2 marks
Less than ½ 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) **NB it is extremely important that Centres strictly adhere 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.

Brief 1: Child's party **Possible solutions**	**Brief 2: School sports event** **Possible solutions**
Any food or textile item suitable for a child's party	Any food or textile item suitable for sale at a school sports event.

NB Stop marking if more than one solution is given

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.

If the plan is written **retrospectively**, candidates will be awarded no marks.

Candidates who draw 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, 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 requisitions 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 15 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.

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

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 Romana Howells, Qualifications Officer (0845 213 5480) immediately.

Please note:

Page 16 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**

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.

Briefs 1 & 2

Test	**Technique**	**Justification**
1. Examination by a specified expert eg manufacturer/ retailer/textile technologist	Interview/questionnaire Sensory testing with target group	• To check aesthetic qualities • To check if item is marketable • To check cost effectiveness/ profitability of item
2. Examination by target group	Interview/questionnaire/ discussion Sensory testing Observational checklist Wearer/user trial by target group	• To find out if item is acceptable/appropriate to target group • To establish marketability
3. Costing exercise	Costing exercise confirmed by interview with an expert, eg textile technologist	• To establish whether item is cost effective to produce • To establish a selling price for the finished item
4. Nutritional analysis	Nutritional analysis and check interview with specified expert eg dietician	• Check/assess nutritional suitability for target group

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 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 test – candidates have not done as they intended from page 15	0 marks

Both tests contain brief, concise and easy to interpret results	2 marks
One test contains brief concise and easy to interpret results	1 mark
No test contains 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 result 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 the investigations, manufacture and/or testing where appropriate.

Candidates who evaluate five specification points	5 marks
Candidates who evaluate four specification points	4 marks
Candidates who evaluate three specification points	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 should be 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.
- Minimum 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 should be used.
- Information should be displayed using appropriate headings, sub-divisions etc.

Interviews

- Carefully consider the suitability of the person interviewed. Must clearly identify interviewee and their position in establishment/job title.
- Minimum 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/sub-divisions 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 provide 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 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.

Technological Project Higher Summary Mark Allocation

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

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 and easy to interpret Relevant and valid reasons Conclusions	 **2 marks** **2 marks** **2 marks** **2 marks** **Total mark allocation 8**
Total mark allocation for Step 3 21 marks		
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 mark** **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		

Total 70 marks available

[END OF MARKING INSTRUCTIONS]