2011 Lifestyle and Consumer Technology

Higher Technological Project

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 celebration gift.

Brief 1
Key points
1. develop
2. (a) food (or) textile
3. item
4. suitable
5. (for a) celebration
6. gift.

Brief 2
Develop a food or textile item to be included in a retailer's range for children.

Brief 2
Key points
1. develop
2. (a) food (or) textile
3. item
4. (to be) included
5. (in a) retailer's range
6. (for) children.

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 – celebration gift
Additional Key Points

7. Facilities/resources available
8. Aesthetic appeal
9. Time available for manufacture
10. Skills/abilities
11. Hygiene
12. Safety
13. Likes/dislikes
14. Appeal to target group
15. Allergies
16. Money available/budget of target group
17. Quality/standard required for sale
18. Gender of target group
19. Age range of target group
20. Suitability for bulk production
21. Season of year/occasion
22. Current trends/fashion
23. Transportable
24. Packaging
25. Healthy eating/CDA

Brief 2 – range for children
Additional Key Points

7. Facilities/resources available
8. Aesthetic appeal
9. Time available for manufacture
10. Skills/abilities
11. Hygiene
12. Safety
13. Likes/dislikes
14. Appeal to target group
15. Allergies
16. Money available/budget of target group
17. Quality/standard required for sale
18. Gender of target group
19. Age range of target group
20. Suitability for bulk production
21. Season of year
22. Current trends/fashion
23. Healthy eating/Scottish dietary targets/current dietary advice
24. 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 – Celebration gift		
Item must:		**Measured by:**
1	• be edible/be a fabric product/solution	Interview with food/textile technologist Component checklist/recipe analysis
2	• be suitable as a gift/for recipient	Questionnaire/interview to target group Interview with food/textile technologist/ retailer Internet/literary search
3	• be suitable for a celebration	Interview with food/textile technologist/ retailer/target group Internet/literary search
4	• take account of likes/dislikes of target group/recipient	Questionnaire to target group Sensory testing with target group/food/textile technologist
5	• be new/different to other products/be original	Survey of retail outlets/gift shops Literary/Internet search Interview with retailer/food/textile technologist
6	• be a single item/product	Interview with food/textile technologist/ retailer
7	• be comparable in cost to other similar items	Costing exercise & price check/comparison Interview with food/textile technologist/ retailer
8	• be cost effective to produce/be good value for money	Costing exercise & interview with food/textile technologist/retailer Costing exercise & interview/questionnaire target group
9	• be within the budget of the target group	Costing exercise & questionnaire to target group Costing exercise & interview with food/textile technologist/retailer
10	• be of an acceptable/satisfactory standard	Interview with food/textile technologist/ Environmental Health Officer Sensory testing with food/textile technologist /target group/retailer Quality checklist & interview with food/textile technologist/retailer
11	• be aesthetically pleasing to target group/recipient	Questionnaire to target group Interview with food/textile technologist Sensory testing with target group/food/textile technologist
12	• take account of current trends/current dietary advice/fashion	Interview retailer/target group/food/textile technologist Questionnaire with target group
13	• be suitable for the season/time of year	Interview with retailer/food/textile technologist Questionnaire to target group Literary/Internet search
14	• be made using the facilities/resources/ time available/to the candidate	Interview with food technologist Checklist of facilities/component checklist Timed trial of prototype & interview with food technologist
15	• be within the capabilities/skills of the candidate	Trial of prototype Interview with food technologist Skills analysis

Step 1.2 Specification (continued)		
Brief 1 – Celebration gift		
Item must:		**Measured by:**
16	• be made using the facilities/resources/ time available/to the manufacturer	Timed trial of prototype & interview with food technologist/school cafeteria supervisor Interview with food technologist/school cafeteria supervisor/retailer/restaurant manager
17	• be within the capabilities/skills of the manufacturer	Trial of prototype Interview with food technologist/retailer/ restaurant manager Skills analysis & interview
18	• be prepared under hygienic/safe conditions/be safe to eat/use	Interview with food technologist food/textile technologist Quality checklist & interview with food/textile technologist/Environmental Health Officer/ retailer
19	• take account of allergies	Interview with food/textile technologist/ dietician
20	• be easy to prepare/cook/reheat/portion/ serve	Interview with food technologist/retailer Skills analysis & check with food technologist/ restaurant manager
21	• be suitable to be made in advance	Interview with food/textile technologist/ retailer
22	• have an appropriate shelf life	Interview with food/textile technologist/ Environmental Health Officer/retailer/chef
23	• be suitable for mass production	Interview with food/textile technologist/ retailer
24	• be able to be laundered/be easy to care for	Interview with textile technologist/retailer User/wearer trials of prototype
25	• be easy to transport	Interview with food/textile technologist/ chef/target group/retailer
26	• take account of religious/moral/ethnic beliefs	Interview with food technologist/school cafeteria supervisor/restaurant manager/ dietician

Note:

- A 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

Step 1.2 Specification		
Brief 2 – Range for children		
Item must:		**Measured by:**
1	• be edible/be a fabric solution/product	Interview with food/textile technologist Component checklist/Recipe analysis
2	• be suitable for the retailer's range	Interview retailer Internet/literary search
3	• be suitable for children	Interview with food/textile technologist/ health professional/Environmental Health Officer/Trading Standards Officer/parent/ carer
4	• be nutritionally suitable for target group/children	Nutritional analysis and check with food technologist/dietician/health professional Interview with food technologist/dietician/ health professional
5	• be healthy/take account of current dietary targets	Interview with food technologist/dietician/ health professional
6	• be different to other products/be original	Interview with food/textile technologist/ retailer
7	• be a single item/product	Questionnaire/interview food/textile technologist Interview with retailer
8	• be cost effective to produce/be good value for money	Costing exercise & interview with food/ textile technologist/retailer Costing exercise & interview/questionnaire target group/parents/carers
9	• be within the budget of the target group	Costing exercise & questionnaire to target group/parents/carers Costing exercise & interview with food/ textile technologist/retailer
10	• be comparable in cost to other items	Costing exercise & price check/comparison Costing exercise & interview with food/ textile technologist/retailer
11	• be within the budget of the target group	Costing exercise & questionnaire to target group/parents/carers Costing exercise & interview with food/ textile technologist/retailer
12	• be aesthetically pleasing to target group/children	Questionnaire to target group/parents/ carers Interview with food/textile technologist/ retailer Sensory testing with target group/parents/ carers/food/textile technologist
13	• take account of likes/dislikes of target group/children	Questionnaire to target group Interview with food/textile technologist/ Health Well Being or sports coordinator/ target group Sensory testing with target group
14	• be safe for target group	Questionnaire/interview to target group/ parents/carers/Environmental Health Officer/ Trading Standards Officer Interview with food/textile technologist/ retailer

Step 1.2 Specification (continued)		
Brief 2 – Range for children		
Item must:		**Measured by:**
15	• take account of current trends/fashion	Interview/questionnaire with target group/ parents/carers/food/textile technologist/ retailer
16	• be suitable for the season/time of year	Interview with retailer/food/textile technologist Questionnaire to target group/parents/carers Literary/Internet search
17	• be made using the facilities/resources available to the candidate	Interview with food/fabric technologist Checklist of facilities/component checklist
18	• be made using time available to candidate	Timed trial of prototype & interview with food/textile technologist Interview with food/textile technologist
19	• be within the skills/capabilities of the candidate	Trial of prototype Time plan/checklist Interview with food/textile technologist Skills checklist confirmed by an expert
20	• be made using the facilities/resources available to the manufacturer	Interview with food/fabric technologist Checklist of facilities/component checklist Interview with retailer/manufacturer
21	• be made using time available to manufacturer	Timed trial of prototype & interview with manufacturer/food/textile technologist Interview with food/textile technologist
22	• be within the capabilities of the manufacturer	Trial of prototype Time plan/checklist Interview with food/textile technologist/ manufacturer Skills checklist & interview
23	• be suitable to be made in advance	Interview with food/textile technologist/chef
24	• have an appropriate shelf life	Interview with food/textile technologist/ Environmental Health Officer/retailer/chef
25	• be suitable for bulk production	Interview with food/textile technologist/ retailer/chef
26	• be able to be laundered/be easy to care for	Interview with textile technologist/retailer User/wearer trials of prototype
27	• take account of religious/moral/ethical beliefs	Interview/questionnaire with target group/ parents/carers/food/textile technologist/ retailer
28	• be a suitable standard for sale	Interview retailer/food/textile technologist/ target group

Note:

- A 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

1 : 3 Devise an overall plan for investigations – 6 marks available

Candidate presents a list of investigations (minimum five) 2 marks

Candidates who provide a list of possible investigations which focus clearly on

- the core key points of the project brief
- the candidates 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 being deducted.

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**.

Candidates justifies the need for the investigations 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 – Celebration gift		
Investigation – to establish/find out/investigate		**Technique**
1	• Range of ingredients/components/textiles	Interview with food/textile technologist/ chef/retailer Literary/Internet search Survey of food/fabric retail outlets
2	• Potential gifts using ingredients/ components/textiles	Literary/Internet/recipe search Interview with food/textile technologist/chef/ retailer in gift shop/target group/potential tourists
3	• Types of celebration/celebration gifts	Interview with a food/textile technologist/ target group/tourist/retailer Literary/Internet search
4	• Current range of potential food/textile celebration gift items	Survey of retail outlets Interview with food/textile technologist/ retailers/target group Questionnaire to target group
5	• Suitability for target group	Interview with food/textile technologist/target group
6	• Nutritionally suitable for target group	Interview with food technologist/dietician/ health professional Literary/Internet search
7	• Healthy/current dietary advice	Interview with food technologist/dietician/ health professional
8	• Ideas for potential solutions	Survey of gift shops Literary/Internet/recipe/pattern search Interview with food/textile technologist/ retailer in gift shop/target group Trial of prototype Sensory testing with target group
9	• Aesthetic appeal of potential solutions	Sensory testing with target group Interview/questionnaire to food/textile technologist/retailer in gift shop/target group
10	• Likes and dislikes of target group/ potential recipient	Interview/questionnaire with target group/ retailer
11	• Current trends/fashion	Interview/questionnaire to food/textile technologist/retailer in gift shop Survey of retail outlets Literary/Internet search
12	• Price range of similar food/textile products in a gift shop/on the market	Interview with target group/food/textile technologist/retailer in gift shop Survey of current product range
13	• Cost of potential ingredients/solutions/ textiles	Costing exercise Internet/literary search
14	• Budget/amount prepared to pay by target group	Interview/questionnaire with target group/ food/textile technologist/chef/retailer in gift shop
15	• Care requirements of materials/ resources used	Interview with food/textile technologist/ Trials of prototype(s)
16	• Safety in use	Interview with Environmental Health Officer/ Trading Standard Officer food/textile technologist/chef/retailer in gift shop Literary/Internet search

Step 1.3 (continued)		
Brief 1 – Celebration gift		
Investigation – to establish/find out/investigate		**Technique**
17	• Facilities/resources available to the candidate	Interview with food/textile technologist Resource/equipment checklist
18	• Skills necessary for manufacturing the potential solution by the candidate	Interview with food/textile technologist Skills audit & check with food/textile technologist Recipe search/search of fabric construction books
19	• Time available for manufacturing of the potential solution by the candidate	Interview with food technologist Timed trial of prototype & check with food technologist
20	• Facilities/resources available to the manufacturer	Interview with food/textile technologist/ manufacturer Resource/equipment checklist
21	• Skills necessary for manufacturing the potential solution by the manufacturer	Interview with food/textile technologist/ manufacturer Skills audit & check with food/textile technologist/manufacturer Recipe search/search of fabric construction books
22	• Time available for manufacturing of the potential solution by the manufacturer	Interview with food technologist/ manufacturer Timed trial of prototype & check with manufacturer/food technologist
23	• Quality requirements of potential solutions	Interview with food technologist/restaurant or cafe manager/chef Manufacture prototype(s) & trial Sensory testing/questionnaire/interview with target group food/textile technologist/chef/ retailer in gift shop
24	• Shelf life of potential solutions	Interview with food/textile technologist/chef/ retailer in gift shop
25	• Appropriate portion/product size prep/ cook/portion	Interview with food technologist/dietician Literary/Internet/recipe search
26	• Suitability for bulk production	Interview with food/textile technologist/chef
27	• Influencing factors on final product	Interview with food/textile technologist/chef/ retailer in gift shop Interview/questionnaire to target group

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
- Retailer outlet must be relevant to investigation and be specified

Step 1.3		
Brief 2 – Range for children		
Investigation – to establish/find out/investigate		**Technique**
1	• Potential range of ingredients/textiles/ components for children	Interview with food/fabric technologist. Literary/Internet search Questionnaire to target group/parents/ carers
2	• Potential range of food/textile items for children	Literary/Internet/recipe search Interview with food/fabric technologist/target group/parent/carer
3	• Current range of food/textile items for sale for children	Interview with a food/textile technologist/ target group/parents/carers Literary/Internet search
4	• Suitability for target group/children	Interview with food/textile technologist/target group/parents/carers
5	• Ideas for potential solutions/potential solutions on the market	Literary/Internet/recipe search Interview with food/fabric technologist Trial of prototype Sensory testing with target group/parents/ carers
6	• Aesthetic appeal of potential solutions	Sensory testing with target group/parents/ carers Interview food/textile technologist/target group/parents/carers
7	• Likes and dislikes of target group/ parents/carers	Interview/questionnaire with children/parent/ carers/target group
8	• Current trends/fashion	Interview/questionnaire to food/textile technologist/target group Survey of retail outlets used by target group Literary/Internet search
9	• Price range of similar food/textile items	Interview with target group/parents/carers/ food/fabric technologist Survey of current product range
10	• Cost of potential ingredients/ components/solutions	Costing exercise Literary/Internet search
11	• Budget of target group/amount target group is prepared to pay	Interview/questionnaire with target group/ parents/carers/retailers
12	• Care requirements of materials/ resources used	Interview with food/textile technologist Trials of prototype(s)
13	• Safety in use/to eat (take account of allergies)	Interview with Environmental Health Officer/ Trading Standard Officer/food/textile technologist Literary/Internet search
14	• Facilities/resources available to the candidate	Interview with food/textile technologist Resource/equipment checklist
15	• Skills necessary for manufacturing of the potential solution/by the candidate	Interview with food/textile technologist Skills audit & check with food/textile technologist
16	• Time available for manufacturing of the potential solution by the candidate	Interview with food/fabric technologist Timed trial of prototype & check with food/ textile technologist
17	• Facilities/resources available to the manufacturer	Interview with food/textile technologist/ manufacturer Resource/equipment checklist

Step 1.3 (continued)		
Brief 2 – Range for children		
Investigation – to establish/find out/investigate		**Technique**
18	• Skills necessary for manufacturing of the potential solution/by the manufacturer	Interview with food/textile technologist/ manufacturer Skills audit & check with food/textile technologist/manufacturer
19	• Time available for manufacturing of the potential solution by the manufacturer	Interview with food technologist/ manufacturer Timed trial of prototype & check with manufacturer/food technologist
20	• Hygiene/safety requirements for food/ textile production	Interview with food/fabric technologist/ retailer/Environmental Health Officer/ Trading Standards Dept
21	• Quality requirements of potential solutions	Interview with food/fabric technologist/ retailer Manufacture prototype(s) & trial Sensory testing/questionnaire/interview with target group/parents/carers
22	• Shelf life of potential solutions	Interview with food technologist/ Environmental Health Officer/retailer
23	• Appropriate portion size	Interview with food technologist/ manufacturer/retailer/target group/parents/ carers Literary/Internet/recipe search
24	• Moral, ethical and religious beliefs	Interview with food technologist/ manufacturer/retailer/target group/parents/ carers/appropriate teacher Literary/Internet/recipe search
25	• Suitability for bulk production	Interview with food/textile technologist/ manufacturer
26	• Influencing factors on final product	Interview with food/fabric technologist/target group/parents/carers/manufacturers

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.
- Retailer outlet must be relevant to investigation and be specified /A retailer may be a school canteen.

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/easy to interpret results	3 marks
½ or more investigations contain brief/concise/easy to interpret results	2 marks
Less than ½ investigations contain brief/concise/easy to interpret results	1 mark
No investigations contain brief/concise/easy to interpret results	0 marks

All results are based on fact/valid evidence/relevant to design brief	3 marks
½ or more of the results are based on fact/valid evidence/relevant to design brief	2 marks
Less than ½ of the results are based on fact/valid evidence/relevant to design brief	1 mark
No results are based on fact/valid evidence/relevant to design brief	0 marks

All conclusions are based on the results of investigations and/or show progression	3 marks
½ or more conclusions are based on the results of investigations and/or show progression	2 marks
Less than ½ conclusions are based on the results of investigations and/or show progression	1 mark
No conclusions are based on results of investigations 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
Be based on the results and conclusions reached in the investigations	1 mark
Describe the solution in detail	1 mark

The solution should be described in detail so it is able to be **visualised.**

Various methods may be used eg – written details, recipes, sketches, diagrams, labelled diagrams, storyboards – to ensure clarity.

Brief 1: Celebration gift
Possible solutions

Any food or textile item suitable for a celebration gift.

Brief 2: Range for children
Possible solutions

Any food or textile item suitable for a retailer's range for children.

NB Stop marking if more than one solution is given and refer Technological Project to the PA

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.

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

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 and allow the solution to be manufactured.

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.

Note: all resources and equipment required for manufacture must be listed and take into account

- metric weights
- exact weights of foods used
- exact types and colours of textiles and trimmings including sizes/ dimensions.

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**

Two different techniques should be identified.

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. Candidates are expected to identify the target group which are used during testing.

Briefs 1 & 2

Test	Technique	Justification
1. Examination by a specified expert eg food/textile technologist/ health professional/ retailer	Interview/questionnaire with specified expert Sensory testing with specified expert which is backed up by interview questions	• 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 with target group/parents/carers 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 food/textile technologist/ retailer/health professional/ target group/parent/carer	• 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/ food technologist	• To check/assess nutritional suitability for target group
5. Time trial of product/ solution	Time trial & check with specified expert	• To check if product/solution can be made in time available

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 done as they intended from page 15	0 marks

Both tests contain brief/concise/easy to interpret results.	2 marks
One test contains brief/concise/easy to interpret results.	1 mark
No test contains brief/concise/easy to interpret results.	0 marks

All results of tests are based on fact/valid evidence/relevant to specification points/design brief.	2 marks
One result of tests is based on fact/valid evidence/relevant to specification points/design brief.	1 mark
No results of tests are based on fact/valid evidence/relevant to specification points/design brief.	0 marks

Conclusions for two tests are based on the results of tests and/or show progression	2 marks
Conclusions for one test are based on the results of tests and/or show progression	1 mark
No conclusions for the tests are based on results of tests 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 evaluation 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 **all or 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 evaluation against specification **1 mark**

If further detail is provided within the evaluations 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 and two tests 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 relevant/valid questions linked to aim/specification to allow relevant data to be collected.
- Questions 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 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

Total 70 marks available

Step	Mark Breakdown	Allocation
1 . 1	**Identification of the key points with explanation**	
	Identify the key points	**2 marks**
	Additional key points	**1 mark**
	Key points plus basic and accurate explanation	**2 marks**
	Key points plus detailed and accurate explanation	**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**

[END OF MARKING INSTRUCTIONS]