Food & Nutrition subject report

2022 cohort

February 2023

Queensland Government
QCAA
Queensland Curriculum & Assessment Authority

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For all Queensland schools

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Introduction

Throughout 2022, schools and the QCAA worked together to further consolidate the new Queensland Certificate of Education (QCE) system. The familiar challenges of flood disruption and pandemic restrictions were managed, and the system continued to mature regardless.

We have now accumulated three years of assessment information, and our growing experience of the new system is helping us to deliver more authentic learning experiences for students. An independent evaluation will commence in 2023 so that we can better understand how well the system is achieving its goals and, as required, make strategic improvements. The subject reports are a good example of what is available for the evaluators to use in their research.

This report analyses the summative assessment cycle for the past year — from endorsing internal assessment instruments to confirming internal assessment marks, and marking external assessment. It also gives readers information about:

- how schools have applied syllabus objectives in the design and marking of internal assessments
- how syllabus objectives have been applied in the marking of external assessments
- patterns of student achievement.

The report promotes continuous improvement by:

- identifying effective practices in the design and marking of valid, accessible and reliable assessments
- recommending where and how to enhance the design and marking of valid, accessible and reliable assessment instruments
- providing examples, including those that demonstrate best practice.

Schools are encouraged to reflect on the effective practices identified for each assessment, consider the recommendations to strengthen assessment design and explore the authentic student work samples provided.

Audience and use

This report should be read by school leaders, subject leaders and teachers to:

- inform teaching and learning and assessment preparation
- assist in assessment design practice
- assist in making assessment decisions
- help prepare students for external assessment.

The report is publicly available to promote transparency and accountability. Students, parents, community members and other education stakeholders can use it to learn about the assessment practices and outcomes for General subjects (including alternative sequences (AS) and Senior External Examination (SEE) subjects, where relevant) and General (Extension) subjects.

Report preparation

The report includes analyses of data and other information from endorsement, confirmation and external assessment processes. It also includes advice from the chief confirmer, chief endorser and chief marker, developed in consultation with and support from QCAA subject matter experts.

Subject data summary

Subject completion

The following data includes students who completed the General subject.

Note: All data is correct as at 31 January 2023. Where percentages are provided, these are rounded to two decimal places and, therefore, may not add up to 100%.

Number of schools that offered the subject: 92.

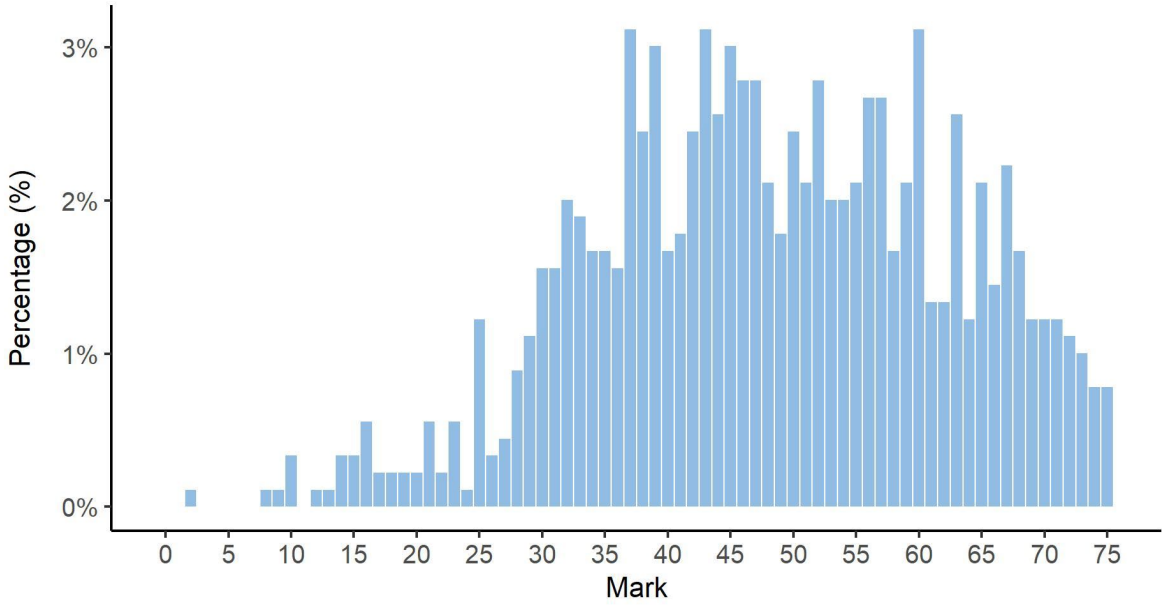
Completion of units	Unit 1	Unit 2	Units 3 and 4
Number of students completed	1239	1080	887

Units 1 and 2 results

Number of students	Satisfactory	Unsatisfactory
Unit 1	996	243
Unit 2	922	158

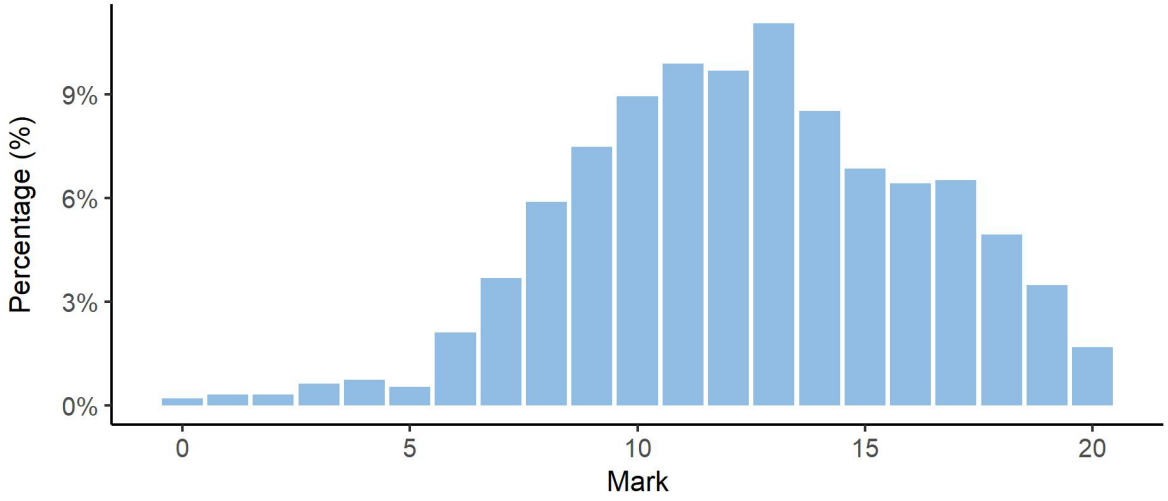
Units 3 and 4 internal assessment (IA) results

Total marks for IA

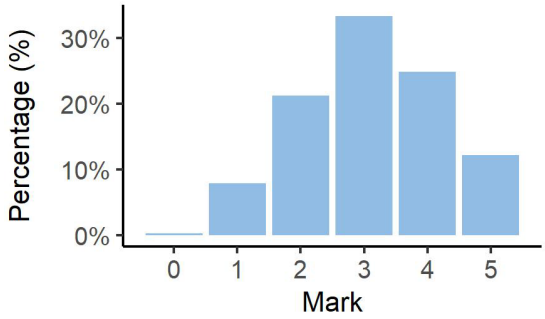


IA1 marks

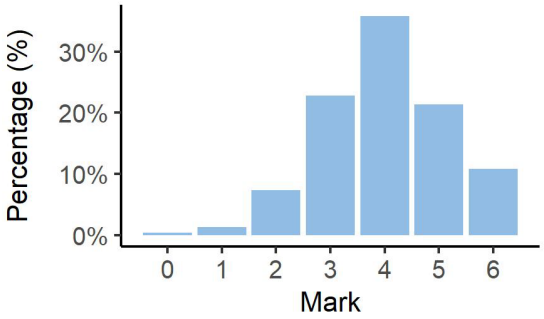
IA1 total



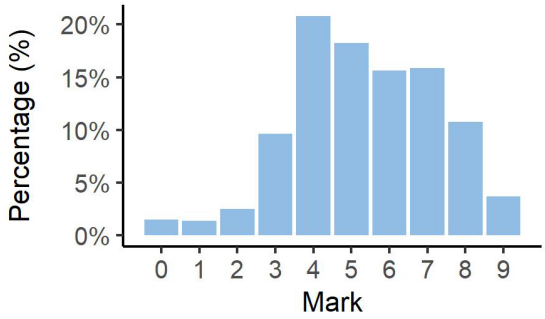
IA1 Criterion: Recognising and explaining



IA1 Criterion: Analysing and determining

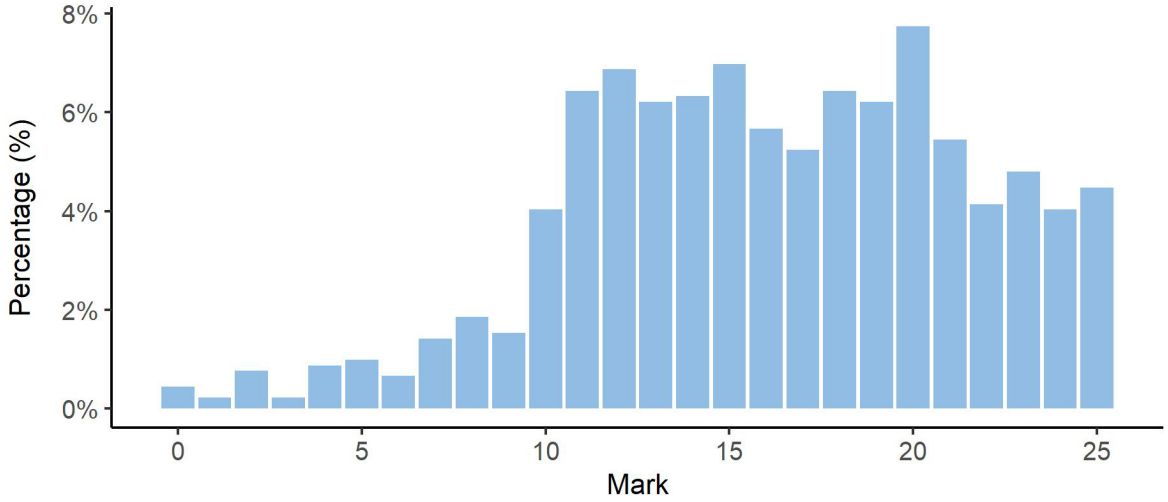


IA1 Criterion: Synthesising and evaluating

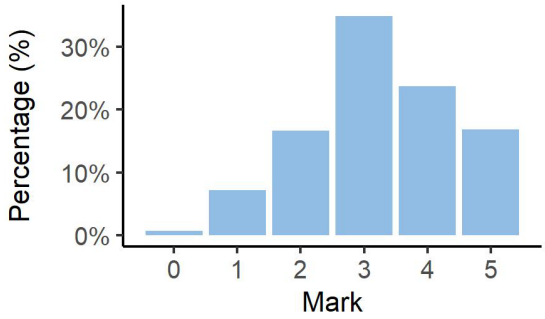


IA2 marks

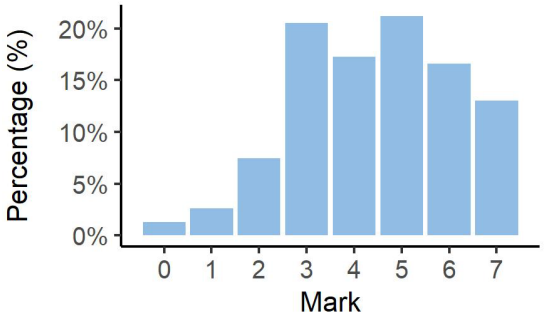
IA2 total



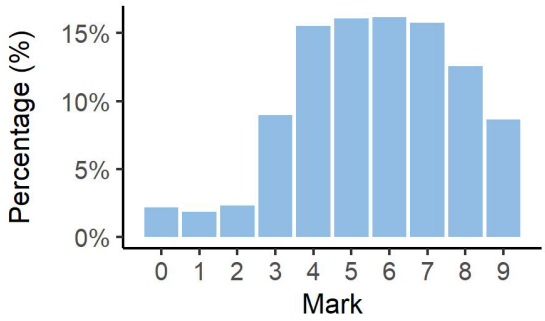
IA2 Criterion: Recognising and explaining



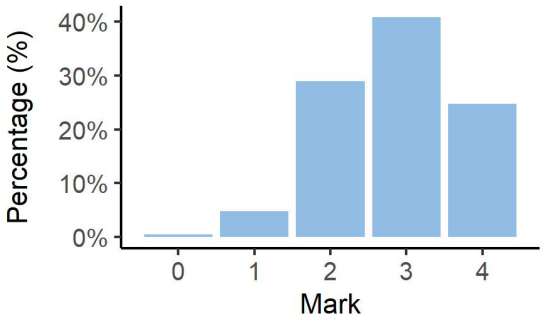
IA2 Criterion: Analysing and determining



IA2 Criterion: Synthesising, generating and evaluating

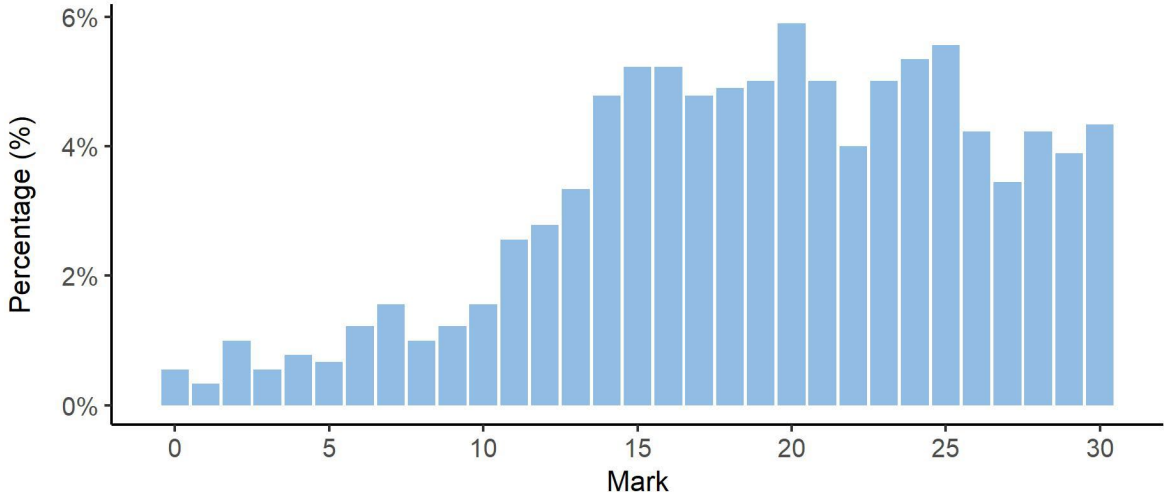


IA2 Criterion: Communication

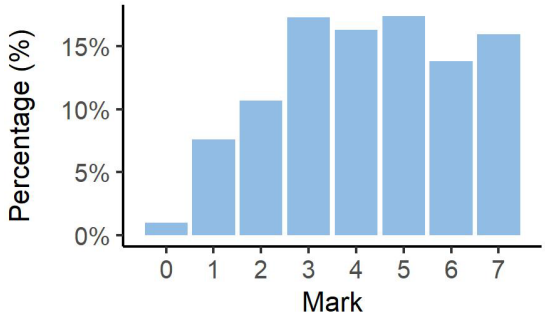


IA3 marks

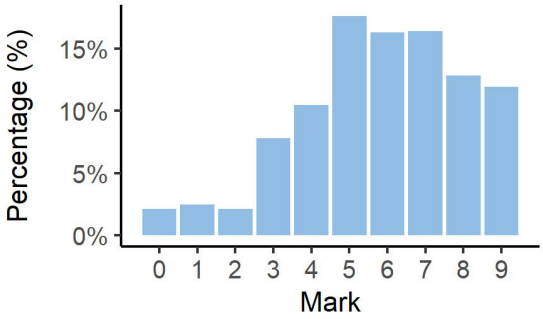
IA3 total



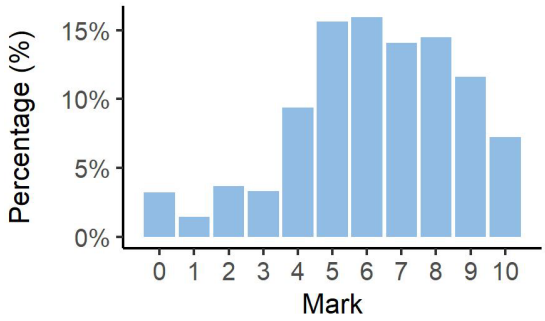
IA3 Criterion: Recognising and explaining



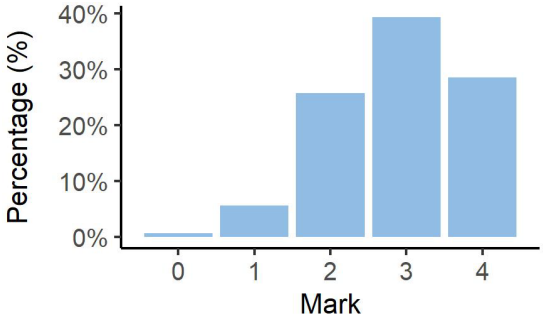
IA3 Criterion: Analysing and determining



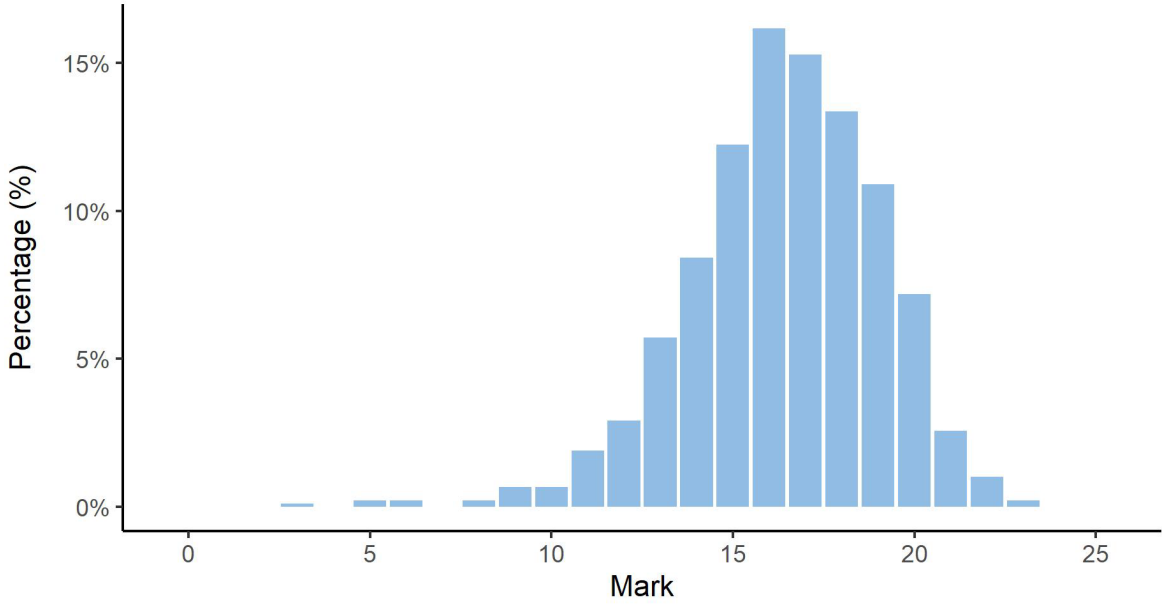
IA3 Criterion: Synthesising, generating and evaluating



IA3 Criterion: Communicating

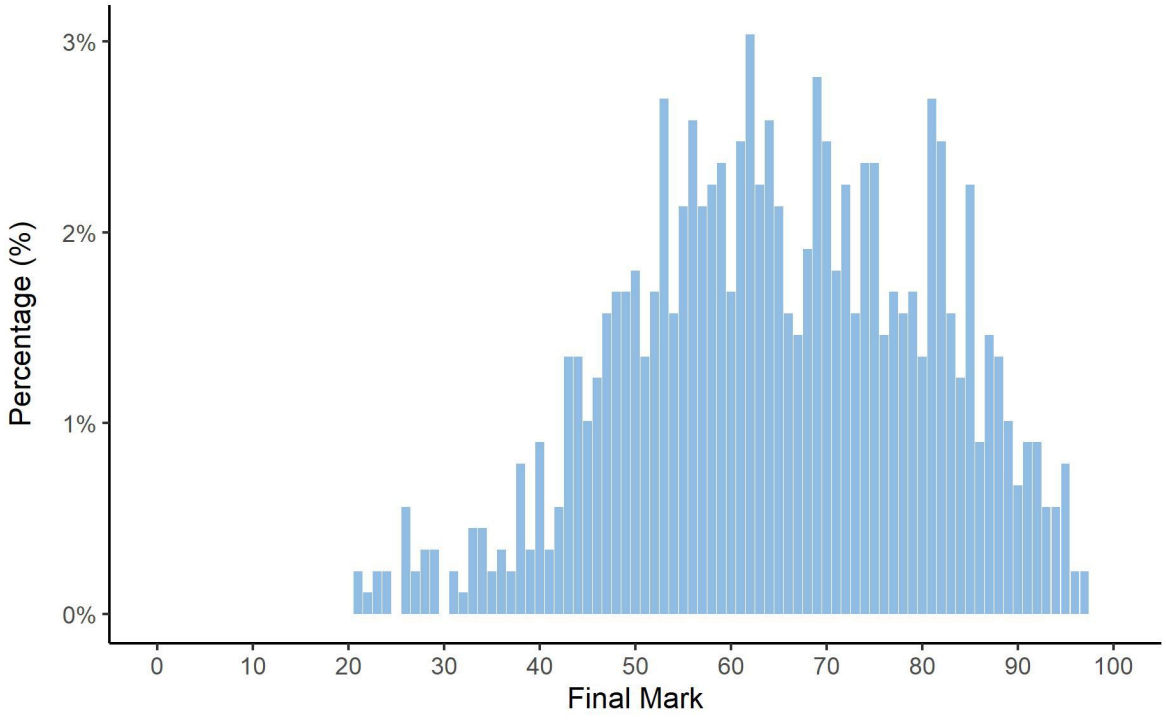


External assessment (EA) marks



Final subject results

Final marks for IA and EA



Grade boundaries

The grade boundaries are determined using a process to compare results on a numeric scale to the reporting standards.

Standard	A	B	C	D	E
Marks achieved	100–84	83–66	65–46	45–19	18–0

Distribution of standards

The number of students who achieved each standard across the state is as follows.

Standard	A	B	C	D	E
Number of students	116	312	362	97	0

Internal assessment

The following information and advice relate to the assessment design and assessment decisions for each IA in Units 3 and 4. These instruments have undergone quality assurance processes informed by the attributes of quality assessment (validity, accessibility and reliability).

Endorsement

Endorsement is the quality assurance process based on the attributes of validity and accessibility. These attributes are categorised further as priorities for assessment, and each priority can be further broken down into assessment practices.

Data presented in the Assessment design section identifies the reasons why IA instruments were not endorsed at Application 1, by the priority for assessments. An IA may have been identified more than once for a priority for assessment, e.g. it may have demonstrated a misalignment to both the subject matter and the assessment objective/s.

Refer to *QCE and QCIA policy and procedures handbook v4.0*, Section 9.5.

Percentage of instruments endorsed in Application 1

Number of instruments submitted	IA1	IA2	IA3
Total number of instruments	89	89	88
Percentage endorsed in Application 1	35%	29%	68%

Confirmation

Confirmation is the quality assurance process based on the attribute of reliability. The QCAA uses provisional criterion marks determined by teachers to identify the samples of student responses that schools are required to submit for confirmation.

Confirmation samples are representative of the school's decisions about the quality of student work in relation to the instrument-specific marking guide (ISMG), and are used to make decisions about the cohort's results.

Refer to *QCE and QCIA policy and procedures handbook v4.0*, Section 9.6.

The following table includes the percentage agreement between the provisional marks and confirmed marks by assessment instrument. The Assessment decisions section of this report for each assessment instrument identifies the agreement trends between provisional and confirmed marks by criterion.

Number of samples reviewed and percentage agreement

IA	Number of schools	Number of samples requested	Number of additional samples requested	Percentage agreement with provisional marks
1	89	489	88	59.55%
2	89	496	52	51.69%
3	89	497	100	42.7%

Internal assessment 1 (IA1)

Examination (20%)

The examination assesses the application of a range of cognitions to provided items — questions, scenarios and problems.

Student responses must be completed independently, under supervised conditions, and in a set timeframe.

Assessment design

Validity

Validity in assessment design considers the extent to which an assessment item accurately measures what it is intended to measure and that the evidence of student learning collected from an assessment can be legitimately used for the purpose specified in the syllabus.

Reasons for non-endorsement by priority of assessment

Validity priority	Number of times priority was identified in decisions*
Alignment	11
Authentication	0
Authenticity	16
Item construction	24
Scope and scale	25

*Each priority might contain up to four assessment practices.

Total number of submissions: 89.

Effective practices

Validity priorities were effectively demonstrated in assessment instruments that:

- enabled authentication of student responses by including unseen stimulus and a range of questions from across the subject matter for an examination, e.g. including unseen questions or problems (Syllabus section 4.1.1).

Practices to strengthen

It is recommended that assessment instruments:

- include questions and stimulus that clearly align with the subject matter for Unit 3 and the topic of either carbohydrate or fat. Nutrition consumer markets such as vegan, lactose intolerant, or experiencing heart disease or type 2 diabetes are Unit 4 subject matter
- include stimulus that is of appropriate scope and scale and constructed so the most appropriate formulation, processing technique or components are not instantly obvious. Instruments should avoid over-scaffolding that leads students to a predetermined response, e.g. clear and discerning sensory profiling data and/or formulation components

- include well-constructed nutritional, processing and sensory profiling data that allows students to demonstrate analysis and synthesis of information and data, e.g. a range of nutritional, functional and sensory data and information for each formulation
- include questions that provide students with the opportunity to cover each of the assessable objectives across the instrument and include a range of cognitions, e.g. by providing the opportunity for students to demonstrate the Analysing and determining criterion and the Synthesising and evaluating criterion in both the short response and extended response sections of the instrument, and include cognitions such as analyse, identify, justify, evaluate and synthesise
- are developed to include a range of authentic questions that assess multiple aspects of the subject matter and are sufficiently different from the QCAA sample assessment instrument, e.g. a question about the effects of temperature and manipulation on the chemical and functional properties of fat in a context other than biscuits, such as frying and roasting.

Accessibility

Accessibility in assessment design ensures that no student or group of students is disadvantaged in their capacity to access an assessment.

Reasons for non-endorsement by priority of assessment

Accessibility priority	Number of times priority was identified in decisions*
Bias avoidance	1
Language	10
Layout	0
Transparency	9

*Each priority might contain up to four assessment practices.

Total number of submissions: 89.

Effective practices

Accessibility priorities were effectively demonstrated in assessment instruments that:

- structured the task clearly and provided succinct and clear stimulus layout adhering to the syllabus specifications, including images and sensory profiling data (Syllabus section 4.7.1). Stimulus was of an appropriate length, and contained visually clear images and graphs, to allow student engagement within the timing of the examination.

Practices to strengthen

It is recommended that assessment instruments:

- use the language from the syllabus when referring to product formulations. Schools should use terms such as ‘formulation’, ‘components’ and ‘procedure’ in preference to ‘recipe’, ‘ingredients’ and ‘method’
- are clearly and transparently constructed so that short and extended response items include clear instructions, cognitions and scaffolding to inform students how to answer the question (e.g. ‘explain’, ‘analyse’), and dot-point scaffolding of the problem-solving process for the extended response question.

Assessment decisions

Reliability

Reliability is a judgment about the measurements of assessment. It refers to the extent to which the results of assessments are consistent, replicable and free from error.

Agreement trends between provisional and confirmed marks

Criterion number	Criterion name	Percentage agreement with provisional	Percentage less than provisional	Percentage greater than provisional	Percentage both less and greater than provisional
1	Recognising and explaining	86.52%	11.24%	1.12%	1.12%
2	Analysing and determining	83.15%	14.61%	2.25%	0%
3	Synthesising and evaluating	62.92%	31.46%	5.62%	0%

Effective practices

Accuracy and consistency of the application of the ISMG for this IA was most effective when:

- in the Recognising and explaining criterion, at the higher performance levels
  - responses demonstrated discerning explanations in multiple questions across the assessment instrument. This assisted students to achieve the highest mark range in Assessment objectives 1 and 2
- in the Analysing and determining criterion, at the higher performance levels
  - responses analysed relevant problems, information, and data related to the different contexts of carbohydrate or fat to identify essential characteristics and constraints, e.g. stakeholder needs
  - responses astutely determined solution requirements, and developed self-determined criteria that not only assessed the quality, functionality and reliability, but also included relevant impacts and implications for the food problem.

Samples of effective practices

The following excerpts demonstrate:

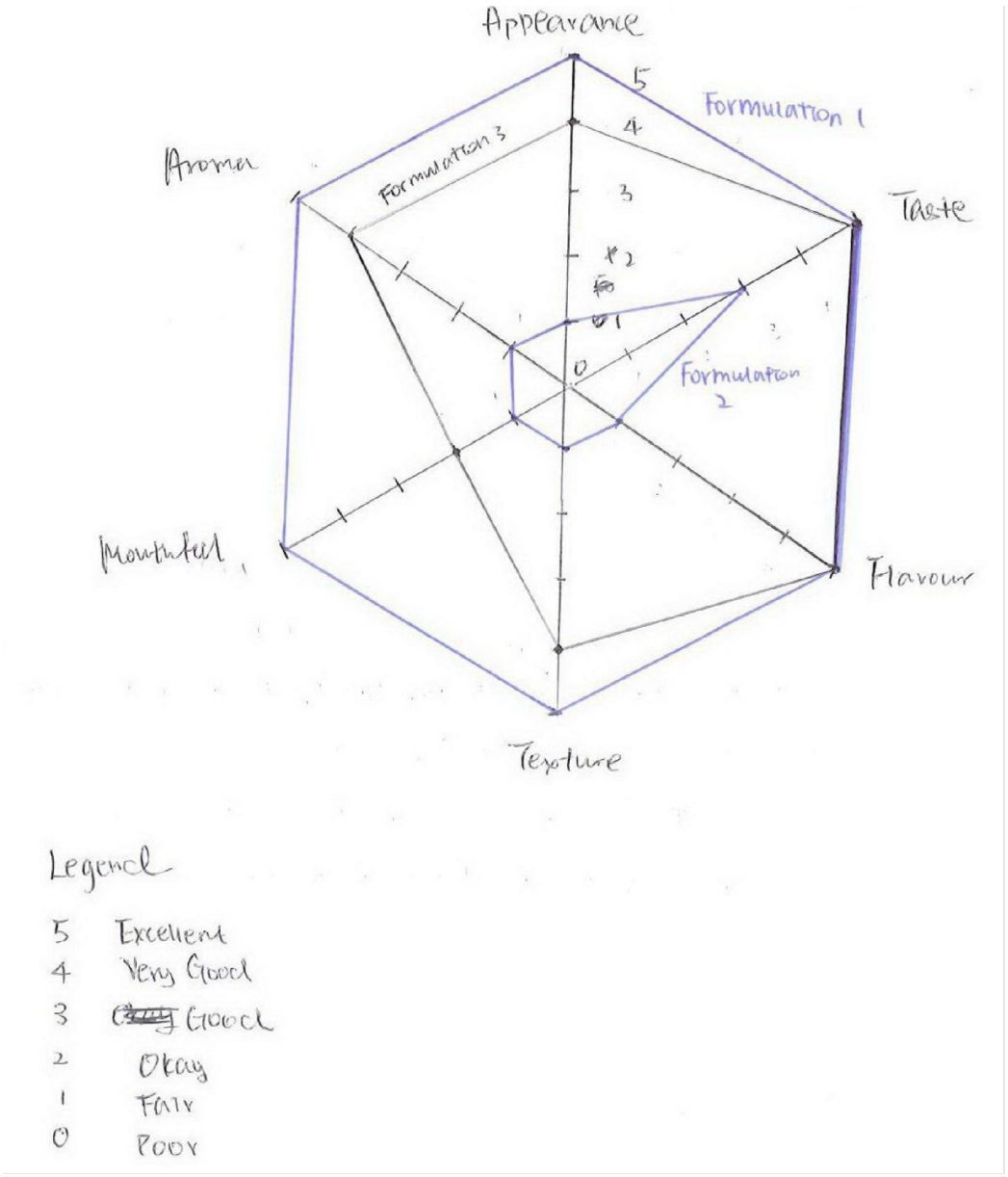
- insightful analysis of information and data related to the properties of fat and the process of frying (Excerpt 1)
- coherent and logical synthesis of data and information to graphically represent sensory profiling data, with data represented accurately using relevant sensory descriptors (Excerpt 2)
- critical evaluation of prototypes using sensory profiling data (Excerpt 3)

Note: The characteristics identified may not be the only time the characteristics have occurred throughout a response.

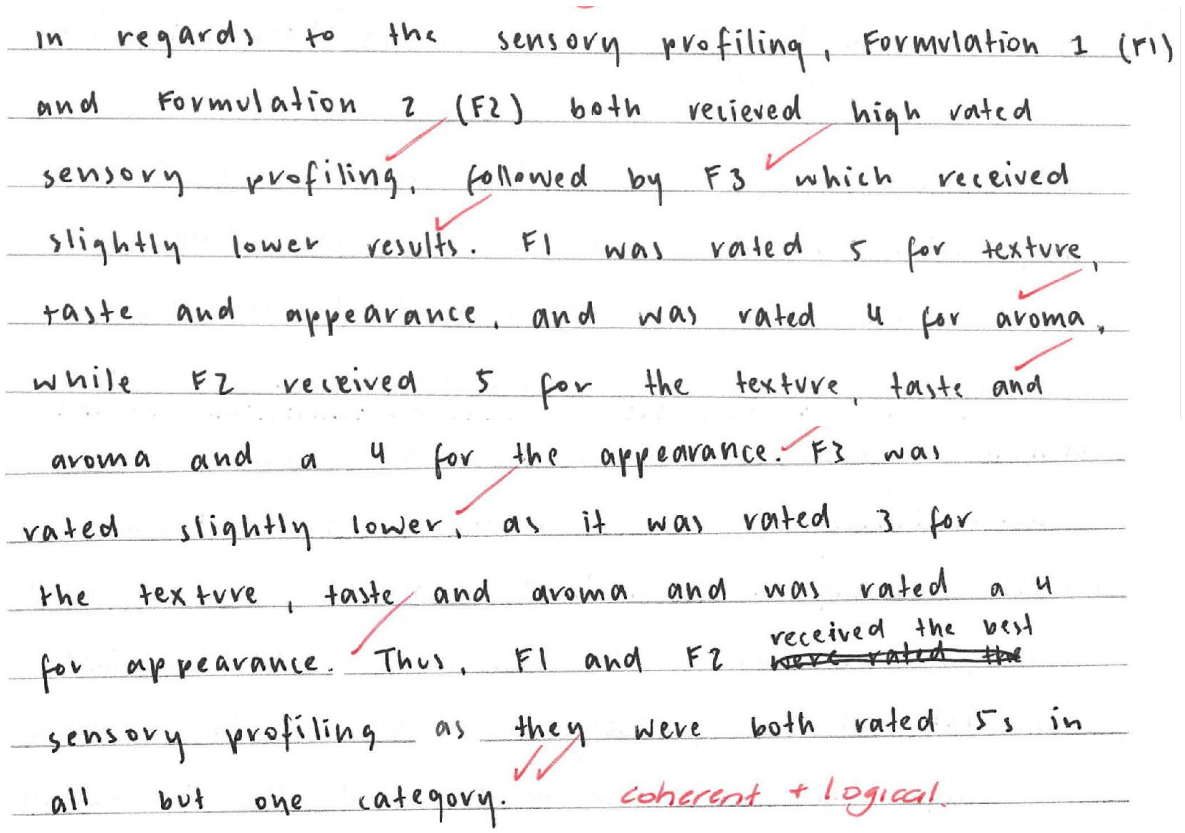
Excerpt 1

The best oil for deep-frying the chips, according to Figure 2, is safflower oil. It would give the chips a consistent, golden brown colour. Consistency is key for a business because they have to maintain quality of food for all customers. It provides an unobtrusive taste, which means in won't impact the flavour of the sweet potato chips. Safflower oil provides the ideal crisp exterior and fluffy interior of a chip. It has little odour, so won't affect the chips. Safflower oil also has a smoke point of 232°C, so it can reach optimal frying temperature of 180°C. If oil is used repeatedly, oxidation and hydrolysis will occur. When exposed to oxygen for too long, the fat will develop a foul taste and smell, becoming rancid. Hydrolysis is when the water content from food products react with the hot oil and release fatty acids and glycerol. According to Figure 3, just leaving oil out over time also increases its fatty acid content. High fatty acid content in oils darkens the oil, reducing the quality of both the fat and food. To prevent the deterioration of fats and lower quality food, 'Golden Spuds' should regularly replace their deep-frying oil.

Excerpt 2


Appearance
5
4
3
2
1
0
Formulation 1
Formulation 3
Formulation 2
Aroma
Taste
Flavour
Texture
Mouthfeel
Legend
5 Excellent
4 Very Good
3 Good
2 Okay
1 Fair
0 Poor

Excerpt 3



Practices to strengthen

To further ensure accuracy and consistency of the application of the ISMG for this IA, it is recommended that:

- for the Recognising and explaining criterion at the 4–5 performance level
  - the response demonstrates evidence acknowledging that the explore phase of the problem-solving process requires developing an understanding through recognition, description, and analysis of a problem to identify its characteristics and constraints. The response demonstrates an account of the characteristics of the problem that displays intellectual perception when distinguishing between characteristics and the constraints, rather than providing statements about information in relation to the carbohydrate- or fat-based food problem
- for the Analysing and determining criterion at the 5–6 performance level
  - the response demonstrates evidence that displays an understanding of the relationships that exist in complex situations to distinguish the problem's characteristics and constraints, develop the solution requirements and determine the criteria. This evidence should have a direct bearing on interpreting the impacts and implications and the quality, functionality and reliability indicators for the carbohydrate- or fat-based problem
- for the Synthesising and evaluating criterion at the 8–9 performance level
  - the response uses the solution criteria, and relevant analysis of information and valid data, to make justified recommendations for development and refinement of ideas throughout the problem-solving process. Refinements should also be suitable and relevant in relation to the data from experiments. Recommendations for enhancements should be justified by data, both in the short and extended response questions where stimulus is provided

- the response demonstrates the critical evaluation of all prototypes from the stimulus (rather than just the chosen prototype), which is needed to support marks in the higher range for this performance level.

Additional advice

- Use the glossary of terms to understand the language of the syllabus.
- Unseen stimulus provides opportunities for students to give unique responses.

Internal assessment 2 (IA2)

Project — folio (25%)

This assessment focuses on a problem-solving process that requires the application of a range of cognitive, technical and creative skills, and theoretical understandings. Students document the iterative process undertaken to develop a solution to a food-related problem. The response is a coherent work that may include written paragraphs and annotations, diagrams, sketches, drawings, photographs, tables, spreadsheets and a prototype.

This assessment occurs over an extended and defined period of time. Students may use class time and their own time to develop a response.

Assessment design

Validity

Validity in assessment design considers the extent to which an assessment item accurately measures what it is intended to measure and that the evidence of student learning collected from an assessment can be legitimately used for the purpose specified in the syllabus.

Reasons for non-endorsement by priority of assessment

Validity priority	Number of times priority was identified in decisions*
Alignment	19
Authentication	2
Authenticity	23
Item construction	14
Scope and scale	26

*Each priority might contain up to four assessment practices.

Total number of submissions: 89.

Effective practices

Validity priorities were effectively demonstrated in assessment instruments that:

- provided an opportunity for students to engage with the subject matter — either carbohydrate- or fat-based subject matter using stimulus that gives students the opportunity to apply the problem-solving process
- included problems that were sufficiently different from the QCAA sample assessment instrument to avoid authentication issues, and that incorporated strategies for authentication of student work, such as those outlined in QCAA guidelines, e.g. drafting and teacher feedback.

Practices to strengthen

It is recommended that assessment instruments:

- provide an original and open-ended problem so students are able to develop a unique and authentic response. A task that prescribes the use of a specific component or one type of formulation should not be used, as it leads students to a predetermined solution and does not allow them to produce an authentic response relevant to their cohort. (Syllabus section 1.2.4)
- include stimulus of appropriate scope and scale that is concise and relevant to the problem, such as contextual information, stakeholder needs, company ethos and product lines. Students should be given the opportunity to research background information. (Syllabus section 4.7.2)
- ensure that the task context and stimulus both align to Unit 3 subject matter of either carbohydrate or fat. Nutrition consumer markets such as vegan, lactose intolerant, or experiencing heart disease or type 2 diabetes are Unit 4 subject matter.

Accessibility

Accessibility in assessment design ensures that no student or group of students is disadvantaged in their capacity to access an assessment.

Reasons for non-endorsement by priority of assessment

Accessibility priority	Number of times priority was identified in decisions*
Bias avoidance	0
Language	0
Layout	1
Transparency	2

*Each priority might contain up to four assessment practices.

Total number of submissions: 89.

Effective practices

Accessibility priorities were effectively demonstrated in assessment instruments that:

- used the specifications of the syllabus and provided unbiased questions with clear language, and instructions with cues that aligned to the assessable objectives and the ISMG, such as explain, analyse and justify.

Practices to strengthen

It is recommended that assessment instruments:

- be structured so that the task includes the assessable evidence in the task description in order to provide explicit cues to students about what they must do, e.g. ‘To complete this task you must …’ followed by the contextualised assessment objectives for Unit 3.

Assessment decisions

Reliability

Reliability is a judgment about the measurements of assessment. It refers to the extent to which the results of assessments are consistent, replicable and free from error.

Agreement trends between provisional and confirmed marks

Criterion number	Criterion name	Percentage agreement with provisional	Percentage less than provisional	Percentage greater than provisional	Percentage both less and greater than provisional
1	Recognising and explaining	79.78%	20.22%	0%	0%
2	Analysing and determining	74.16%	24.72%	1.12%	0%
3	Synthesising, generating and evaluating	57.3%	40.45%	2.25%	0%
4	Communicating	87.64%	12.36%	0%	0%

Effective practices

Accuracy and consistency of the application of the ISMG for this IA was most effective when:

- in the Recognising and explaining criterion
  - high-level responses did not rely on a predetermined structure and provided a unique response
  - high-level responses demonstrated evidence of recognition and explanation of facts and principles related to the problem and the food formulation process, which was the focus of the project
- in the Communicating criterion, at the higher performance levels
  - student responses adhered to folio conventions, such as
    - use of language for a technical audience, e.g. accurate terminology was used throughout the folio
    - discerning decision-making about and fluent use of visual features, e.g. data was graphed clearly to communicate experimental data effectively.

Samples of effective practices

The following excerpts demonstrate:

- insightful analysis of prototype components and processing in relation to a carbohydrate-based food (Excerpt 1)
- generation of valid sensory profiling data and fluent use of visual and written features to communicate a solution (Excerpt 2)
- purposeful generation of a solution and discerning refinement of ideas and the generated solution (Excerpts 4 and 5).

Note: The characteristics identified may not be the only time the characteristics have occurred throughout a response.

Excerpt 1

Formulation Two – Carrot Cake Truffles

FOOD COMPONENETS

- ¾ cup canola oil — Polyunsaturated fat (healthy)
- 2/3 cup white sugar
- ½ cup brown sugar — Two types of sugar, very high sugar content; May not be considered fresh or healthy
- 3 large eggs
- 2 tsp pure vanilla extract — Flavour enhancer, high quality
- 1 tsp baking soda
- ½ tsp baking soda — Leavening agents
- 1 tsp salt
- 2 tsp ground cinnamon
- ½ tsp nutmeg — Spices improve flavour and aroma, salt enhances flavour
- 1 ½ cups all-purpose flour — Main carbohydrate component
- 2 medium carrots, finely grated — Carrot component not as obvious, may be more appealing for younger consumers, local Kalfresh produce
- 250g cream cheese — High fat content
- 300g white chocolate — high sugar content – not healthy
- Granola for sprinkling — Wholemeal topping for crunchy texture, contrasts soft truffle

Redacted image of Carrot Cake Truffles

PROCEDURE

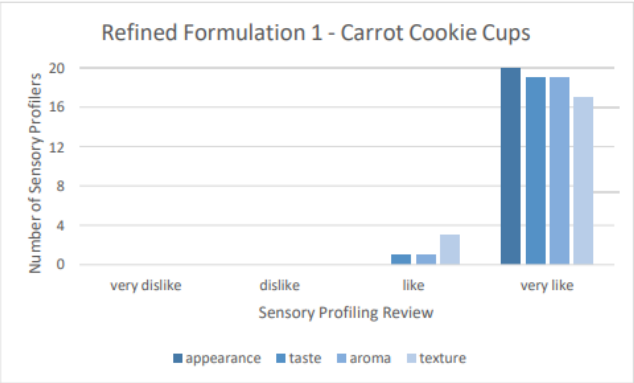
Prevent product from sticking to the pan when baking

1. Preheat oven to 180°C. Grease a square baking pan and set aside.
2. In a large bowl, add the oil, both sugars, eggs and vanilla. With an electric mixer on medium speed, mix until blended. — Adds air and lightness to mixture, aeration
3. Add the baking soda, baking powder, salt, cinnamon and nutmeg. Stir to combine.
4. Add the flour and mix well to incorporate. — Leavening agents to assist in rising the truffle
5. Fold in the grated carrots. — Folding incorporates air, prevents overmixing which can create a tough texture when baked; ensure that carrots retain its grated texture
6. Pour the batter into your greased 8 x 8 pan and bake for 30-32 minutes or until an inserted toothpick comes out clean.
7. Cool on a wire rack for 15 minutes. — Dextrinization, caramelisation and gelatinisation of the batter
8. Line a large cookie sheet with baking paper and set aside.
9. Add the softened cream cheese to a medium bowl. — Large chunks would be difficult to shape and not give a smooth texture; Cream cheese adds flavour and acts as a binding agent for the truffles to maintain their shape
10. Using 2 forks, break the cake up into fine crumbs. Add the carrot cake crumbs to the cream cheese. Mix well to combine.
11. Shape the mixture into 1 inch balls and place on the lined cookie sheet. Chill for 20 minutes. — Creates individual portions
12. Add the white chocolate to a double boiler pan under medium heat. Stir occasionally until completely melted and smooth. Transfer to a small mixing bowl for easier dipping. — Time consuming process; difficult to maintain consistency in size and shape; Allows cream cheese to set, firm in shape. Cold surface will allow for white chocolate coating to harden quickly
13. Place each carrot cake truffle into the melted white chocolate and coat evenly. You might find it easier to insert a toothpick into each ball and roll it around the chocolate to coat. — Time consuming
14. Transfer each truffle back to the lined cookie sheet and immediately sprinkle with granola before the chocolate hardens
15. Chill for 20 minutes to allow the chocolate to completely harden. — Granola for contrasting texture and appearance

Amy. (2020, February 8). Easy Carrot Cake Truffles Recipe. Retrieved from mom spark: https://momspark.net/carrot-cake-truffle-recipe/

Excerpt 2

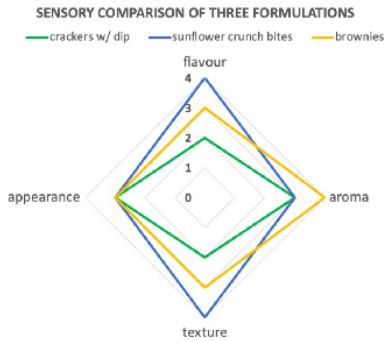
3.2 Data from sensory profiling



The refined trial saw a significant improvement from the initial trial. All the profilers rated appearance as 'very like', which was a 11.11% increase from the initial. Interestingly, 95% rated the taste 'very like', while for texture it was 85%. The feedback for textured had increased by 41.67%, and the taste it was an astonishing 90%. The cookie was described as "crisp on the edges" with a soft centre. This suggests that the refinements made to the texture and taste were very well received, as it made a significantly large improvements to the feedback of the formulation. The 'very like' ratings for aroma had increased too by 5.56%, making up 95% of the profilers.

Excerpt 3

The Proposed Solution



Based on data gathered from develop ideas and generate solutions, the sunflower crunch bites have been selected as the proposed solution. This formulation was identified as the most feasible solution after analysing all three prototypes against the solution requirements and sensory criteria, also taking stakeholder requirements into consideration. The sunflower crunch bites contain a range of nutrients and are especially rich in protein and healthy fats as well as essential vitamins and minerals. Out of the three formulations, the product contains the lowest percentage of saturated fat in regard to the total fat content, and therefore, accommodates a range of consumer demands. Not only do the sunflower crunch bites have the longest shelf life of the three formulations and are therefore most suited for commercial sale, they are also dairy and gluten free, vegetarian, and free of artificial colour and flavours, and as such are the most diet inclusive product. This will expand Arnott's consumer market, especially since the company's current gluten and dairy free range is limited, thereby increasing profit. Feedback from profilers suggests that the sunflower crunch bites are the most acceptable formulation in sensory properties (refer to radar graph). Both the crackers with avocado pesto dip, and brownies require several refinements to bring them up to a marketable standard and consequently, are less feasible solutions. The following refinements have been suggested by sensory profilers and will be applied in the generation of the proposed solution:

- Dried fruit will be incorporated into the mixture to increase the flavour, texture, and nutritional value of the snack
- To improve the sensory appeal of the product, the cook time will be reduced to prevent the edges from burning and a chocolate drizzle will be added to the top of the bites
- Pure maple syrup will be used as a vegan substitute for honey, thereby expanding the consumer market of the product. The chocolate drizzle must also be complete with a vegan substitute

A refined nutrition information panel was generated in alignment with the refinements:

NUTRITION INFORMATION

Servings per package: 3
Serving size: 20 g

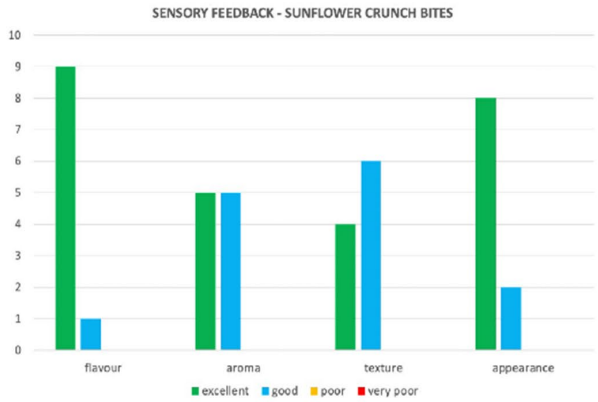
	Average Quantity per Serving	Average Quantity per 100 g
Energy	483 kJ	2410 kJ
Protein	3 g	15.2 g
Fat, total	9.9 g	49.5 g
- saturated	2.1 g	10.5 g
Carbohydrate	3.1 g	15.5 g
- sugars	2.8 g	13.8 g
Sodium	3 mg	14 mg

Excerpt 4

Generate the Proposed Solution

Food experimentation – Sensory Profiling of sunflower crunch bites (trial 2)

Data from sensory profiling



Images

Redacted image Sunflower Crunch Bites

Conclusions:

After collecting and analysing data from sensory profilers, several refinements were established and adjustments to the product were made accordingly. In the first trial of the sunflower crunch bites, it was noted that parts of the snack were slightly burnt as a result of overcooking. The cook time was therefore reduced by several minutes, producing a golden-brown coloured product with a more pleasant aroma and flavour. To improve the nutritional value and texture of the product, a combination of dried fruit was incorporated into the mixture. The chewy fruit contrasts the crunch, making for a more palatable product. Shredded coconut pieces were also added, which, according to profilers, significantly improved the flavour and texture (refer to graph). As predicted, the chocolate drizzle added a subtle, but necessary element of sweetness that the first trial lacked, however, it was noted that the amount of chocolate could be cut back in further trails as the sweetness from the maple syrup was also more prominent. Overall, these refinements were well received by profilers, indicating an improvement to the market appeal of the product. ✓

Practices to strengthen

To further ensure accuracy and consistency of the application of the ISMG for this IA, it is recommended that:

- in the Retrieving and comprehending criterion
  - only nutrition consumer markets from the syllabus (consumers experiencing diet-related conditions or chronic disease, such as obesity, heart disease, type 2 diabetes or diet-related cancer) may be stated in the assessment instrument
- in the Analysing and determining criterion
  - student analysis of data should be related to the specific nutrient that is the focus of the project, e.g. the carbohydrate- or fat-based problem and stakeholder requirements
  - analysis of information and data should be used to develop solution criteria. This analysis also further supports the synthesis of information and data, and the purposeful generation of a solution
  - when using tables in folios to analyse information and data, the purpose of the table is indicated in the folio, either before or after the table. The analysis of the tables should be supported by a paragraph synthesising the insights gained through the analysis and how this information relates to a proposed solution
- in the Synthesising, generating and evaluating criterion
  - during the process of developing ideas and choosing the solution, the student should also demonstrate synthesis of data and information, product and possible prototype research into new understanding. For the highest mark range (coherent and logical synthesis), this must be well-structured and clear in the student folio and clearly linked to the prototypes selected for both experimentation and solution
  - responses explicitly synthesise information and data from research to support purposeful generation of a solution. Therefore, responses demonstrate clear connection between the exploration of the problem, the chosen prototypes and the solution. A final proposed prototype solution should be generated to achieve the highest mark range for Assessment objective 6. Student responses without generation of a solution may only be awarded marks from the 2–3 range
  - to gain the highest mark range for assessment of critical evaluation, the response must reference data when evaluating prototypes and the solution and make a judgment. Making statements about data is not critical evaluation unless judgment is made.

Additional advice

- A best-fit approach should be used where a student response has characteristics from more than one performance level on the ISMG for a criterion. Where a performance level has a two-mark range, decide if the best fit is the higher or lower mark of the range.
- Students should not be provided with a generic template, as this inhibits the open-ended nature of the problem-solving process and the academic integrity of the project folio assessment instrument. Students should be guided to use the assessable objectives and the problem-solving process to explore the problem and generate solutions.

Internal assessment 3 (IA3)

Project — folio (30%)

This assessment focuses on a problem-solving process that requires the application of a range of cognitive, technical and creative skills and theoretical understandings. Students document the iterative process undertaken to develop a solution to a food and nutrition problem. The response is a coherent work that may include written paragraphs and annotations, diagrams, sketches, drawings, photographs, tables, spreadsheets and a prototype. This assessment occurs over an extended and defined period of time.

Students may use class time and their own time to develop a response.

Assessment design

Validity

Validity in assessment design considers the extent to which an assessment item accurately measures what it is intended to measure and that the evidence of student learning collected from an assessment can be legitimately used for the purpose specified in the syllabus.

Reasons for non-endorsement by priority of assessment

Validity priority	Number of times priority was identified in decisions*
Alignment	9
Authentication	0
Authenticity	8
Item construction	9
Scope and scale	11

*Each priority might contain up to four assessment practices.

Total number of submissions: 88.

Effective practices

Validity priorities were effectively demonstrated in assessment instruments that:

- provided a relevant context and clear framework that allowed students to identify an appropriate problem, develop a unique and authentic response and demonstrate the assessable objectives, e.g. the context provided a number of nutrition consumer markets and an open-ended problem, rather than one nutrition consumer market with a requirement to develop a specific formulation.

Practices to strengthen

It is recommended that assessment instruments:

- include stimulus that
  - provides concise context

  - avoids including all nutrition consumer markets
  - uses only the nutrition consumer markets contained in Unit 4 subject matter
- allow students to research background information themselves.

Accessibility

Accessibility in assessment design ensures that no student or group of students is disadvantaged in their capacity to access an assessment.

Reasons for non-endorsement by priority of assessment

Accessibility priority	Number of times priority was identified in decisions*
Bias avoidance	0
Language	0
Layout	0
Transparency	3

* Each priority might contain up to four assessment practices.

Total number of submissions: 88.

Effective practices

Accessibility priorities were effectively demonstrated in assessment instruments that:

- included clearly presented tasks and stimulus with cues that informed students what they had to do to complete the assessment task
- used the language of the syllabus throughout the task, e.g. ‘formulate’ or ‘reformulate’, and ‘generate’, and ‘diet-related conditions’.

Practices to strengthen

There were no significant issues identified for improvement.

Assessment decisions

Reliability

Reliability is a judgment about the measurements of assessment. It refers to the extent to which the results of assessments are consistent, replicable and free from error.

Agreement trends between provisional and confirmed marks

Criterion number	Criterion name	Percentage agreement with provisional	Percentage less than provisional	Percentage greater than provisional	Percentage both less and greater than provisional
1	Recognising and explaining	69.66%	29.21%	1.12%	0%
2	Analysing and determining	62.92%	34.83%	1.12%	1.12%
3	Synthesising, generating and evaluating	49.44%	29.21%	7.87%	13.48%
4	Communicating	82.02%	13.48%	4.49%	0%

Effective practices

Accuracy and consistency of the application of the ISMG for this IA was most effective when:

- in the Recognising and explaining criterion
  - high-level responses did not rely on a predetermined structure and provided a unique response
  - high-level responses demonstrated evidence of recognition and explanation of facts and principles related to the specific nutrition consumer market and the food formulation process, which was the focus of the project
- in the Analysing and determining criterion
  - high-level responses exhibited a unique response, rather than using a set or generic experimentation or solution. This was possible when the information and data in the stimulus had enough scope to allow students to develop a distinctive and insightful response
- in the Communicating criterion
  - student responses adhered to folio conventions, such as
    - use of language for a technical audience, e.g. accurate terminology was used throughout the folio
    - discerning decision-making about and fluent use of visual features, e.g. data was graphed clearly to communicate experimental data effectively.

Samples of effective practices

The following excerpts demonstrate:

- insightful analysis of data related to a specific nutrition consumer market — vegan (Excerpt 1)
- synthesis at the 9–10 performance level (Excerpt 2)
- support for the purposeful generation of a solution (Excerpt 2)
- recognition of facts and principles related to the food formulation process and a specific nutrition consumer market — obesity (Excerpt 3).

Note: The characteristics identified may not be the only time the characteristics have occurred throughout a response.

Excerpt 1

1.2.2 Processing Techniques

The processing techniques utilised when cooking with carbohydrates consist of the application of heat and cold, dehydration, the addition of additives and physical manipulation (Better Health Vic, 2022).

Application of heat: Thermal processing is one of the most common processing techniques used when preserving food products as it can kill bacteria and reduce enzyme growth (Better Health Vic, 2022). Heating is also used to melt solids, forming liquids, such as margarine or solid oils so that they can be combine into other products (Better Health Vic, 2022). Starches are heated and expand causing the swelling and a change in texture (Better Health Vic, 2022). This occurs in this task in relation to the baking of the prototypes when a cake or cupcake is placed in oven it is heated and carbohydrates are allowed to expand, absorbing the moister.

Physical manipulation: a process in which mechanical power causes a change in the texture of a food product (Better Health Vic, 2022). When a carbohydrate such as flour is manipulated, it causes the strands to be lengthen and change shape forming a dough like texture (Better Health Vic, 2022). In this task physical manipulation will be used to combine all ingredients together before baking the food product.

Discerning explanation of food science ideas

1.3 Analysis of Possible Substitutes for Milk, Butter and Egg and Products currently on the market

1.3.1 Analysis of Possible substitutes needed for Packet Mix baked foods

PRODUCT REPLACEMENTS		DAIRY MILK	SOY MILK	ALMOND MILK	PEA PROTEIN MILK
NUTRITIONAL ANALYSIS (PER 100G)	Energy (kj)	250	180	63	138
	Protein (g)	3.3	2.6	0.4	3.3
	Fat, Total (g)	3.2	1.5	1	2.0
	Fat, Saturated (g)	1.9	0.2	0.1	0.3
	Sugar (g)	4.8	3.7	0.8	≤0.1

The table above shows that dairy milk contains more energy, fat and sugar then all other plant based alternatives analysed with almost 100kj more and 1.7g more fat. The diary milk contains the same amount of protein as the pea based milk whilst the soy milk contains 0.7g less and the almond milk contains almost 3g less. Therefore, the best plant based alternative to dairy milk in pea protein milk as it contains no sugar, with high protein and little saturated fats.

Insightful analysis of data

PRODUCT REPLACEMENTS		DAIRY BUTTER	NUTLEX	NATURAL OIL	OLIVE OIL SPREAD
NUTRITIONAL ANALYSIS (PER 100G)	Energy (kj)	2240	2400	3390	2410
	Protein (g)	≤1	0	≤0.1	≤1
	Fat, Total (g)	60	65	91.4	65
	Fat, Saturated (g)	26.5	16.9	6.1	16.8
	Sugar (g)	≤1	0	≤0.1	≤1

This table shows that dairy butter generally contains similar nutritional level to other vegan alternatives. The Nutlex and Olive oil spread contain similar nutritional values with 2400kJ per 100g with 65g of total fat and approximately 17g of saturated fat. Comparatively the dairy butter have 26g of saturated fats with the natural oil having only 6.1g but significantly more energy. Therefore, the best plant-based alternatives are the Nutlex and olive oil spread as they are most similar to diary butter and contain the least energy, in accordance with the health conscious consumers priorities.

Insightful analysis of data

PRODUCT REPLACEMENTS		EGGS	FLAX MEAL EGG	CHIA SEED EGG	EGG REPLACEMENT
NUTRITIONAL ANALYSIS (PER 100G)	Energy (kj)	559	2580	1780	1465
	Protein (g)	12.2	18.3	14	≤1
	Fat, Total (g)	9.9	42.2	30.7	≤1
	Fat, Saturated (g)	3.3	3.7	3.3	≤1
	Sugar (g)	0.3	1.6	≤1	≤1

For vegan consumers egg replacement can be difficult to find in shopping centres, therefore flax meal and chia seed eggs are easily available for consumers. Nutritionally, compared to the egg, the egg replacement contains the lowest energy with 1465kJ whilst the flax meal egg has the highest with 5 times the amount of the egg. The chia seed egg sits in the middle with only 300kJ more than the egg replacement. Eggs

Excerpt 2

2.1. Synthesis of food and nutrition information and data to develop ideas for alternative solutions

[redacted] aims to produce snack foods that are convenient and portable while also being made from natural ingredients that are minimally processed and provide nutritional value ([redacted] 2022). Consumers experiencing obesity are a growing market across all demographics (AIHW, 2019). A need for a new formulation for consumers experiencing obesity was identified in relation to a gap in current market offerings with muesli bars being generally energy dense. This investigation therefore aimed to develop a muesli bar that targets the consumers experiencing obesity, who requires a snack product that is minimally energy dense. This product must conform to [redacted] values of being wholesome and minimally processed, while also offering a better nutritional profile for the consumer with obesity than competitor products and/or those available in the current [redacted] line.

After analysis of stakeholders, the constraints of the product were identified as follows:

Firstly, the bar aimed to minimise energy density in comparison to the current [redacted] range and competitors' products. This meant formulating a bar that had less than <1500kJ/100g. Minimising fat was seen as a key element of achieving this aim. In particular, saturated and trans-fat were avoided as excess ingestion of these fats compound the risk of cardiovascular disease for consumers experiencing obesity (Ozen et al, 2022). Minimising sugar content was also seen as important to keeping energy density low and achieving less that 15g/100g was benchmarked for this goal. Although some added sugar was seen as necessary for binding, the overall quantity of sugar was considered a priority. Therefore the solution sought to find a sweet ingredient that offered superior binding capacity relative to its weight. Also, in line with the [redacted] brand, an emphasis on natural ingredients with minimal processing was sought. Although rice malt syrup is produced by substantive processing including, hydrolysis and filtration, it was considered to offer superior binding properties by weight while providing a pleasing aroma and colour profile and therefore trialled (Ofoedu et al, 2020). Honey was also trialled as an alternative as it was understood to similarly provide excellent binding properties while also offering a pleasant taste and colour profile. It has the additional advantage of offering less processing compared to other sugars under investigation and a lower GI score. Apple sauce was used in all trials to provide additional sweetness while retaining moisture to aid in the binding effect.

Secondly, the bar aimed to provide a satisfying snack food. Therefore carbohydrates that were low GI such as oats and buckwheat were sought as they take a longer time to break down giving a better sense of satiation over a longer time. To support this, a portion of non-soluble dietary fibre was added to provide bulk without calories. Inulin powder and psyllium husk were selected as readily available, plant-based ingredients. Wheat bran was also used to further the amount of non-soluble fibre while contributing to the flavour and texture profile of the bar. Oats were seen to contain high levels of protein, compared to other grains which also adds a satiating effect beneficial to consumers experiencing obesity.

Thirdly, the bar needed to have an ideal sensory profile in relation to flavour texture appearance and aroma. Pepita and chia seeds provided a textural element while also being a high fibre source which supported the filling nature of the bar. Cinnamon was identified as potentially offering a pleasing complement to sweet flavour without any calories. It has also been identified as playing a role in appetite suppression (Butler, 2017). Sodium was identified as increasing the already elevated risk of cardiovascular disease for consumers experiencing obesity and therefore limited in order to achieve the aim of <35mg/100g.

Finally, in keeping with [redacted] objectives the bar needed to be wholesome in appearance, with ingredients that were sourced within Australia and minimally processed. The quality of the product needed to align with the current [redacted] range. All ingredients were therefore chosen to be available in Australia, and many currently in use within [redacted] product range. Retaining the visibility in the bar of whole ingredients, such as seeds and oats, contributed to the wholesome appearance. Consideration when choosing the sugar component was given to the capacity to brown and therefore give a toasted appearance, in order to enhance the visual and textural appeal of the product.

Redacted image of company name

Excerpt 3

Health Recommendations

In aim of reducing cholesterol...

- Health professionals recommend the total fat intake of an adult to be between 25-35% of the calories consumed per day, assuming that that adult is following the average 2000 calories daily diet (Cleveland Clinic, 2019). Dietary guidelines do not recommend consuming more than 10% of daily calories from saturated fat. Furthermore, they suggest that consumers should ideally receive no more than 7% of calories from saturated fat (Harvard, 2018). Given these recommendations, the proposed solution should have total fat content of between 25-35% with at most 10% of daily saturated fat content. ✓
- Health authorities recommend that Australian adults should consume 2,000mg or less of salt per day (Health Direct, 2021). Assuming the average adult consumes 4 meals a day; breakfast, lunch, dinner and snack, each meal should contain no more than 500mg of salt. ✓
- It is recommended that adults should reduce their sugar intake to less than 10% of their total daily energy intake. This equates to around 50 grams of sugar per day. Professional suggest that reducing sugar intake to less than 5% of total energy intake (25g) has improved health benefits (Health Direct, 2021). Assuming that the average adult consumes 4 meals per day, it is recommended that a meal should have between 6.25 and 12.5g of sugar. ✓

Sensory Properties

- For the proposed product to be successful it must have likeable sensory properties. Sensory profiling ratings for this investigation will range from 5; extremely like, 4; like, 3; ok, 2; dislike, and 1; extremely dislike. Thus, for the product to be considered successful, it should receive an average score of at least 4/5. Accurate & Discriminating ✓

Practices to strengthen

To further ensure accuracy and consistency of the application of the ISMG for this IA, it is recommended that:

- for the Recognising and comprehending criterion
  - only nutrition consumer markets from the syllabus (consumers experiencing diet-related conditions or chronic disease, such as obesity, heart disease, type 2 diabetes or diet-related cancer) may be stated in the assessment instrument
- for the Analysing criterion
  - analysis of data related to the specific nutrition consumer market should be the focus of the project, e.g. the components and processes specifically related to the nutrition consumer market and stakeholder requirements
- for the Synthesising, generating and evaluating criterion
  - during the process of developing ideas and choosing the solution for generation, the student should also demonstrate synthesis of data and information, product/s and possible prototype research into new understanding. For the highest mark range (coherent and logical synthesis), this must be well-structured and clear in the student folio and clearly linked to the prototypes selected for both experimentation and solution
  - responses explicitly synthesise information and data from research to support the purposeful generation of a solution. The response will then demonstrate clear connections between the exploration of the problem, the chosen prototypes, and the solution. A proposed solution must be generated. If prototypes are generated through experimentation when developing ideas, but not as the proposed solution, partial generation is indicated.
  - to gain the highest mark range for the Synthesising, generating and evaluating criterion, data is referenced when prototypes are evaluated, a solution is generated and a judgment

is made. A critical evaluation requires a judgment about prototypes and the solution. Making statements about data is not a critical evaluation unless a judgment is made.

Additional advice

- Scaffolding should only be provided on the task sheet in the form of the food and nutrition problem-solving model and the task specifications. Students must work through the process individually and not in groups.
- Responses must be unique and use the food and nutrition problem-solving process. Students should not be directed to a set solution.
- Responses must follow the conventions of a folio and the specifications of the syllabus for the IA3 assessment task. This includes the number of pages: when using an A3 format, this should be 10–12 pages, and if using A4, it should be 20–24.

External assessment

Examination (25%)

External assessment (EA) is developed and marked by the QCAA. The external assessment for a subject is common to all schools and administered under the same conditions, at the same time, on the same day.

Assessment design

The assessment instrument was designed using the specifications, conditions and assessment objectives described in the summative external assessment section of the syllabus. The examination consisted of one paper:

- Paper 1, Section 1 consisted of short response questions (25 marks)
- Paper 1, Section 2 consisted of an extended response question (41 marks).

The examination assessed subject matter from Unit 4. Questions were derived from the context of Topic 1: Formulation and reformulation for nutrition consumer markets and Topic 2: Food development process.

The assessment required students to:

- respond to a number of short response questions
- respond to one extended response question.

The stimulus required students to engage with various stimulus items, which included a range of graphs and other data.

Assessment decisions

Assessment decisions are made by markers by matching student responses to the external assessment marking guide (EAMG). The external assessment papers and the EAMG are published in the year after they are administered.

Effective practices

Overall, students responded well to:

- Question 2, identifying allergens in food formulations
- Question 3, analysing data from nutrition information panels of four prototypes for infants to determine and categorise them as high in fat, sugar and salt, and low in fibre
- Question 5, identifying the needs of the elderly nutrition consumer market and determining solution requirements to meet those needs.

For short response questions that asked for a definition of a syllabus term, responses that used the syllabus glossary definition were awarded full marks.

Student responses that used stimulus data to support decisions provided the best justifications.

Samples of effective practices

Short response

The following excerpts are from Question 1b. This question required students to explain how and why a formulation would be reformulated.

Effective student responses identified the:

- alteration of component ratios and formulation procedures
- purpose of reformulation as being to meet the needs of the nutrition consumer market.

These excerpts have been included:

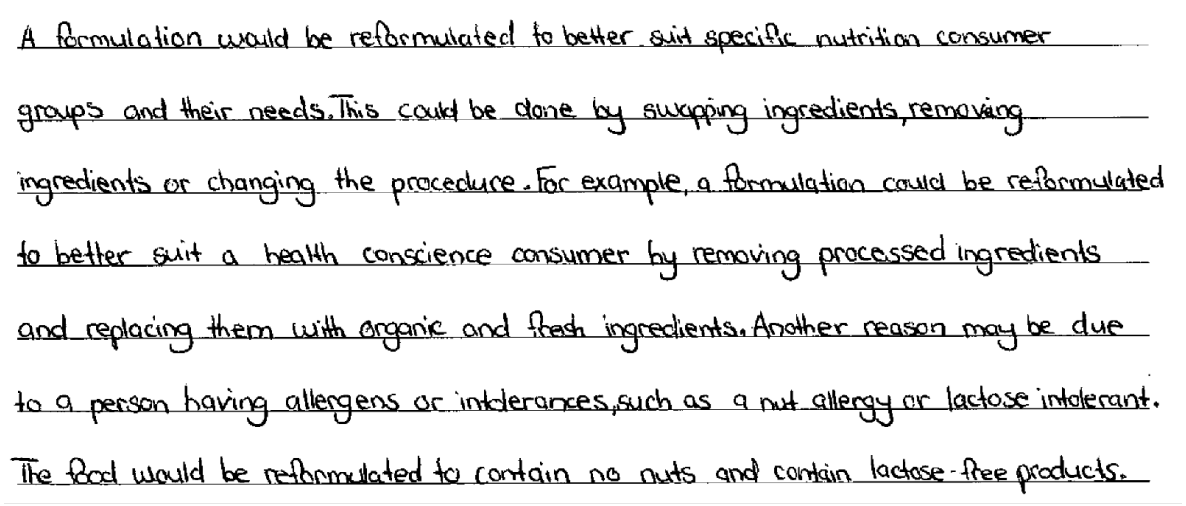
- to demonstrate the accurate determination of the purpose of reformulating a formulation, including of the need to alter food components and processes to meet the particular needs of a nutrition consumer market
- to provide two different examples of accurate explanations of how and why a formulation is reformulated.

Note: The characteristics identified may not be the only time the characteristics have occurred throughout a response.

Excerpt 1

A formulation is reformulated by changing its current production procedures, substituting specific ingredients, or reducing, ~~&~~ increasing or adding an ingredient to the current prototype. A formulation is reformulated to better ~~better~~ suit the needs of a nutrition consumer market, improve its sensory properties, such as its appearance, taste, aroma and texture, along with adapting the product to better suit the current food trends and patterns and to improve its nutritional status.

Excerpt 2


A formulation would be reformulated to better suit specific nutrition consumer groups and their needs. This could be done by swapping ingredients, removing ingredients or changing the procedure. For example, a formulation could be reformulated to better suit a health conscience consumer by removing processed ingredients and replacing them with organic and fresh ingredients. Another reason may be due to a person having allergens or intolerances, such as a nut allergy or lactose intolerant. The food would be reformulated to contain no nuts and contain lactose-free products.

The following excerpts are from Question 3. This question required students to analyse nutrition information panels, determine prototype categories, select and justify the best prototype for an infant, and provide justified reformulations for one of the alternative prototypes.

Effective student responses:

- accurately categorised prototypes based on analysis of the nutrition information panels
- determined the best prototype to feed an infant and justified this with data from the nutrition information panels
- explained two alterations to another prototype and justified how the altered prototype better met the needs of the infant nutrition consumer market.

These excerpts have been included:

- to demonstrate the accurate categorisation of prototypes, justification of the best prototype for the infant nutrition consumer market and justification of reformulations to meet the needs of the infant nutrition consumer market
- to show an accurate categorisation of prototypes (Excerpt 1)
- to show an example of a justification for the best prototype for the infant nutrition consumer market (Excerpt 2). The response includes a statement of the nutrition requirements for infancy, such as calcium and protein, and uses data from the nutrition information panels when justifying the chosen prototype
- to provide an example of a response that suggests two appropriate changes to the selected prototype and justifies each change with relevant nutritional data (Excerpt 3).

Excerpt 1

High in fat: Mild curried meatballs

High in sugar: Mini zucchini frittatas

High in salt: Bacon and egg muffins

Low in fibre: Tuna patties

Excerpt 2

The bacon and egg muffins would be the best option to feed an infant. The dish has the highest calcium content (113 mg per 100g), this is important for the infants teeth formation and growth. It has the lowest sugar content (0.8g per 100g), this is important for the overall health of the infant. (See page 12 for continued response)

Question 36 continued) The bacon and egg muffins also have the highest protein content (12.8g per 100g), this is important for the growth of the infant, as well as the growth of muscles and energy.

Excerpt 3

A prototype that could be reformulated to better suit the infant NCM is the mini zucchini frittatas. This prototype is low in both protein (6.3g) and calcium (92mg). Protein is an essential nutrient for growing and building muscle in infants, so by adding an additional source of protein (to the egg included) like bacon or ham, this prototype would better suit infants. Additionally, calcium is essential for growth and strong bones, and thus it is suggested that a rich source of calcium is added, such as milk.

Extended response

The following excerpts are from Question 5. This question required students to:

- analyse the problem to determine the solution requirements, including the stakeholders (the elderly nutrition consumer market and the food company), and explain their needs
- synthesise and evaluate how prototypes meet the needs of the elderly nutrition consumer market, how the prototypes reflect consumer trends, and their performance in sensory profiling
- evaluate prototypes to make a decision, refine ideas, and make justified recommendations for enhancement.

Effective student responses:

- identified the needs of the food company and the elderly nutrition consumer market
- provided an accurate determination of solution requirements to meet these needs, including consumer trends
- provided a critical evaluation of
  - the appropriateness of each prototype for the elderly nutrition consumer market
  - each prototype's alignment to the consumer trends
  - the sensory properties of each prototype, using data
- identified a solution and provided detailed justification of the identified solution
- made effective recommendations for enhancement that were justified with detailed and accurate data from the stimulus.

These excerpts have been included:

- to demonstrate accurate identification of the needs of both the food company and the elderly nutrition consumer market (Excerpt 1)
- to demonstrate critical evaluation of the appropriateness of each prototype in meeting the needs of the elderly nutrition consumer market (Excerpts 1 and 2)
- to exhibit the accurate determination of solution requirements (Excerpt 2).

Excerpt 1

The food company's needs include the consumer trends of good texture with high fibre, nutritionally dense foods ~~such as~~ to support lower activity and having variety in foods. Also, the food company's needs include complementing the existing range of products and that the final product is chosen from the trialled prototypes.

The needs of Elderly consumers include having increased fibre to ensure fullness and digestion issues, reduce energy due to the loss of appetite, ^reduce serving size ~~reduce to~~, low levels of saturated fats, low sodium ~~and~~, low sugar, and ^prototypes must contain acceptable sensory feedback. All of these needs ^of the NCM and food company will be used as criteria.

Excerpt 2

The stakeholders involved include the company itself (A food company), the elderly consumers within the aged care facility, FSHNZ (Food Standards Australia and New Zealand), and the sensory profilers. The sensory profilers consist of 50 residents from the aged care facility. Some of the current dinner options for the aged care residents include bolognaise with spinach, fish and chips, caesar salad, lamb casserole with vegetable, etc. Current food trends for elderly consumers include the texture, as it is vital to create interest, variety and fibre, however still be easy for eating, chewing, swallowing and digestion issues. Nutritionally dense foods are important to meet the requirements of elderly consumers, as well as having a variety in the choice of meals being offered to elderly consumers.

P1, the curried cauliflower and chicken soup contains the highest fibre content out of the three prototypes, with 1.2g per 100g and the lowest sodium content with 188mg ~~per serve~~ per 100g. These two nutritional aspects of the dish ~~is~~ are important for the nutrition consumer market of the elderly, due to a decrease in appetite, therefore it is important for them to be obtaining as much nutrition as they can from the meals they are having. P1 also has the lowest saturated fat content (0.7g per 100g) and sugar content (1.9g per 100g). These two aspects are important for the overall health of the consumers due to their age increasing risks of health problems such as heart disease.

Practices to strengthen

It is recommended that when preparing students for external assessment, teachers consider:

- providing opportunities for students to practise identifying the requirements of the response, where students highlight important aspects of the question to ensure the whole question is answered, especially the inclusion of data with justifications
- emphasising that when justifying responses, use of different datasets (e.g. sensory profiling data and nutritional data) will give a more comprehensive and detailed response
- ensuring extensive exposure to the syllabus prescribed subject matter, making specific reference to the terminology, areas of study, cognitive requirements, and specified examples

- emphasising the importance of adhering to the front-page instructions, especially regarding crossing out unwanted responses and directing the marker to the new response, which should be clearly labelled
- providing opportunities for students to practise writing the definitions listed in the syllabus glossary.

Additional advice

- Support students to develop positive practices when responding to short and extended response questions that involve the breakdown of the question, identification of and alignment to the relevant syllabus prescribed subject matter and associated terminology, acknowledgment of the question cognition/s and separate or connected elements within the question, planning, and the completion of a logical and sequential response. Students should be encouraged to proofread the response and check that all elements of the question are reflected, if they have time.