



T Level Technical Qualification in Science

Occupational specialism assessment (OSA)

Food Sciences

Assignment 1 - Distinction

Guide standard exemplification materials

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Food Sciences

Assignment 1

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Introduction

The material within this document relates to the Food Science Occupational Specialism sample assessment. These exemplification materials are designed to give providers and students an indication of what would be expected for the lowest level of attainment required to achieve a pass or distinction grade.

The examiner commentary is provided to detail the judgements examiners will undertake when examining the student work. This is not intended to replace the information within the qualification specification and providers must refer to this for the content.

In assignment 1, the student must design a new product to meet a consumer trend, including rationale for product, ingredients, timings, safety and calculations of cost and nutritional value.

After each live assessment series, authentic student evidence will be published with examiner commentary across the range of achievement.

Task 1: develop a product brief

Develop a product brief that includes:

1.1(a): Rationale for your selection for the new or improved product, including sources of information used to identify current trends, target market and marketing opportunities

1.1(b): The name, description and conditions of the new or improved product concept, including unique selling point, target weight/volume, packaging and storage details

(21 marks total)

1.2(a): How your ingredients and packaging requirements contribute to your selected consumer trend

1.2(b): A brief description of how the product is manufactured, from the intake of raw materials to the final packaged product. The overview should include the basic details of how the product will be made, and what the key process steps are, to include key food safety and quality controls

(12 marks total)

2 hours 10 minutes

Student evidence

1.1(a) & 1.1(b)

My product is a new development, and it is aimed at the vegan market which is growing at a fast rate. According to **Real Business**, published on 2 January 2020, there are now approximately 600,000 vegans currently living in the UK. 25% of the British population drank plant based milk in 2019 which has increased by 19% since 2018. During 2019, 1 in 3 stopped or reduced meat consumption, and in 2018, the UK launched more vegan products than any other nation.

An article from **The Guardian** newspaper in July 2020 stated that the number of trademarks registered for new vegan food and drink products soared to 107 in 2019 from 47 in 2018.

The growth of veganism is also reinforced in the Mintel “the continued rise of veganism” broadcast found on YouTube at [The continued rise of veganism - YouTube](#). This states that since January 2021 500,000 million people have joined the Veganuary challenge.

Statista published data in June 2020 which shows that the vast majority of those following a vegan diet within the UK are those in the 18 to 34 age group ([Adults following vegan diet by gender GB 2019 | Statista](#)).

All of these articles show that veganism is continuing to grow and become more mainstream. It is no longer a case of a true vegan looking for vegan products, but more people are now looking for plant based products as a healthier option.

This is the main reason I have chosen a vegan cupcake as my new product.

An overview of my product is as follows:

- name - Vegan Chocolate Cherry Cupcakes
- aimed at vegans and non-vegans aged 5+
- suitable for – vegans
- pack size - it will be sold in packs of 4 individual cakes, each weighing 54g
- composition - each cake will comprise of a vegan chocolate flavour sponge cake with a cherry jam centre and topped with vegan chocolate frosting and a glacé cherry
- packaging – recyclable brown food grade cardboard boxes with insert tray for 4 cupcakes and window of

polypropylene film with outer recyclable sleeve with product name and details; this will provide adequate protection both in transit and from possible cross contamination

- shelf life – ambient product with best before date of 5 days post-production

1.2(a) & 1.2(b)

Ingredients (for batch of 24)

Vegan cupcakes:

- 350ml unsweetened soya milk ✓
- 1 tbsp apple cider vinegar
- 330g caster sugar
- 100g dairy-free spread ✓
- 300g plain flour
- 1 tsp bicarbonate of soda
- 80g cocoa powder ✓
- ½ tsp instant coffee granules
- ½ tsp salt

Cherry jam:

- 300g of morello cherries ✓
- 200g of granulated sugar
- ½ lemon, juiced ✓

Vegan icing:

- 75g cocoa powder ✓
- 500g icing sugar
- 100g dairy-free spread ✓
- 125ml unsweetened soya milk ✓

Topping:

- ½ glacé cherry per cupcake (12 in total)

Packaging:

- 24 recycled paper cupcake cases
- 6 brown cardboard cake boxes with polypropylene film window
- 6 cardboard tray and insert
- 6 pre-printed cardboard sleeve with nutritional information and full labelling requirements

Equipment:

- 2 x 12 hole cupcake tins lined with recycled paper cupcake cases
- 1 heavy bottom pan
- 1 large mixing bowl
- 6 small bowls
- 2 small plates
- 1 medium bowl
- electric handheld mixer
- oven
- hob
- variety of cutlery including 2 forks, 2 teaspoons, 2 dessert spoons and 1 tablespoon

- spatula
- piping bag and medium size closed star nozzle
- 2 small sharp knives
- thermometer
- a thin, stainless steel skewer
- 2 whisks
- jug
- sieve
- measuring jug
- scales
- cooling racks

I have provided the supplier information to support the vegan claim for the soya milk, cocoa powder and the dairy-free spread, and the packaging information from the packaging supplier is also provided to show that it is from a sustainable source.

Process

Goods receipt and storage:

- supplier, batch number, best before date recorded for all dry goods and held in vegan only dry store at ambient temperature below 21°C:
 - caster sugar
 - granulated sugar
 - flour
 - bicarbonate of soda
 - cocoa powder
 - coffee granules
 - salt
 - icing sugar
 - glacé cherries
 - apple cider vinegar
- supplier, batch number and use by date recorded for all chilled goods and held in vegan only chiller at 3°C:
 - soya milk
 - dairy free spread
 - morello cherries
 - lemon
- packaging – batch number and date of receipt recorded, labelling checked for accuracy, and moved to packaging area for storage in dry area

Preparation:

- PPE – I put on the relevant PPE for the task – mob cap, overall, safety shoes
- cleanliness:
 - I checked all work surfaces were clean by swabbing surface areas with ATP swab and confirming that the area was free from microbiological and product contamination
 - I collected the required cake tins, pan, large mixing bowl, 6 small bowls, 2 small plates, measuring jug, scales, whisks, jug, hand-held electric mixer, spoons, forks, juicer, spatula, sharp knives, thermometer, cooling racks and skewer from the equipment store and took it to the preparation area
 - I checked all equipment for damage and checked the PAT sticker on the handheld mixer to ensure it was recently checked
- I put the oven on at 180°C to preheat
- I then collected all ingredients from the dry store and chiller and the paper cases from the packaging area
- all ingredients were measured and laid out in the work area

Cooking

Jam:

I removed all stones and stalks from the cherries and placed them in the pan, I juiced the ½ lemon into the small bowl ensuring there were no pips remaining in the juice. I added all cherries, lemon juice and 200g of granulated sugar to the pan and placed it on the hob at a high heat to bring to the boil. Once boiling, I checked the temperature was as 105°C, and then reduced the hob to a medium heat and left it to simmer for 15 minutes. I then mashed the cherries down with a fork. I checked the consistency of the jam by taking a small amount on a teaspoon and checking it stuck to the spoon, which it did. I then removed the pan from the heat and emptied the contents into a small bowl which was then left to cool.

Cakes:

I lined both the cupcake tins with the paper cupcake cases, and then whisked 350ml soya milk and 1 tablespoon of cider vinegar together in the jug and placed it to one side. I then placed 330g of caster sugar and 100g dairy free spread in the large bowl and creamed them together with the electric mixer and placed it to one side. I then sifted 300g plain flour, 1 teaspoon of bicarbonate of soda and 80g of cocoa powder into a small bowl and mixed in ½ teaspoon of coffee granules and ½ teaspoon of salt. I then added all the dry ingredients and the soya milk mixture to the large mixing bowl containing the dairy free spread and caster sugar and stirred them together using a figure of 8 motion until the mixture was smooth and lump free, using a whisk. I filled each cupcake case with the batter using a dessert spoon until it was 2/3 full. I then baked the cakes in the centre of the oven for 25 minutes and checked a sample of 4 cakes from each tray with the skewer to ensure they were fully cooked. I removed the cakes from the oven and the trays and placed them on the cooling racks to cool. I checked the cakes to ensure that the colour was an even brown and they were soft and springy to the touch. All of the cakes were contained within the cupcake case and measured 3 cm in diameter.

Frosting

I sifted 500g icing sugar and 75g cocoa powder into a small bowl and added 100g dairy free spread and mixed together with a fork, I then added 125ml of soya milk gradually until the frosting stood in soft peaks.

Assembly

I cut a 1cm hole in the top of each cake to make a small hole approximately halfway down and retained the cut piece. I then placed ½ teaspoon of the cherry jam in each of the cavities and replaced the cut piece in each cake. I placed the prepared frosting in the piping bag and using the closed star nozzle I placed a swirl of frosting on each of the cakes ensuring that the top of the cake was covered and there was consistency in the pattern. Each cake was then topped with ½ glacé cherry placed in the middle of the frosting.

Packing

Each cake box was constructed, and a tray placed in each box. 4 cupcakes were placed in each insert and the insert was placed into the box. The cardboard sleeve was then placed around the box.

Taste Panel

- 1 box was then removed for the taste panel and the remaining 5 boxes were moved to the dry despatch area
- the taste panel measured each cake against the specification to check for colour, texture of the cake and the frosting for taste and aroma and consistency to ensure each cake looked the same and the sizes were consistent and checking the labelling information was correct

Despatch

- having confirmed that the product met the specification requirements, I then released the product from despatch

Task 2: define the product brief objectives

Define the product brief objectives to include:

2.1: An estimation of the timings of each stage from product concept to product launch, explaining how the stages in the process affect the overall timeline

(6 marks)

2.2: A calculation of the cost of ingredients and packaging per consumer unit with reference to your proposed recipe. Outline other costs associated with the production of your product. You must state the source of your ingredients and packaging

(12 marks)

2.3: Use a relevant piece of software to calculate the mandatory nutritional data and list the ingredient data, including the source of the data

(7 marks)

2.4(a): An explanation of how the ingredients, processing and packaging selected contribute to the product's safety and shelf life

2.4(b): Explain how the relevant ingredients and processing steps contribute to the product's nutritional profile

(20 marks total)

2 hours 55 minutes

Student evidence

2.1, 2.2 & 2.3

The estimated timeframe for the development of a product from concept to launch is 18 to 22 weeks.

Product concept:

Timescale 1 February to 21 February. The following was considered:

I looked at various vegan products and considered which product was most feasible whilst considering local facilities, ingredient availability and labour resource. I decided through research that vegan products were definitely a growing market and with the ingredients available I would be able to meet the requirements of the intended market. This item was also cheaper to make and purchase thereby allowing the introduction of vegan products to non-vegans at a lower price. The product is suitable for the vegan market as it completely plant based. However, it should be noted that as it contains soy within the soya milk it is not suitable for those with soya allergies. The final product will have a net weight of 216g, and an individual weight of 54g per portion.

The product price point for the customer is £2.20 per pack. Internal costings include raw materials, packaging, labour and electricity at a total cost of £2.245, leaving a 7% profit margin per pack.

Idea generation

Timescale 21 February to 28 February. The following was considered:

I looked at products already available on the market. Aldi have recently launched Biscoff cupcakes and chocolate cupcakes, which are receiving good reviews from customers, and they are both similar in size and price, but are sold in packs of 2 rather than 4. Tesco have also sold vegan chocolate cupcakes as part of their vegan range but in general the feedback on the product is not good, particularly from non-vegan who have found the product to be tasteless and of a poor texture.

In conversation with commercial and NPD contacts, it was decided that chocolate alone would not work, and I decided to introduce cherry which is traditionally used with chocolate cake to provide moisture without substantially raising the amount of A_w . The addition of jam in the middle would also stop the cake being too dry and would add flavour.

Feasibility check:

Timescale 1 February to 14 March

I checked with my tutor that all of the equipment would be available and gave her a typed list of what I required. I also checked with her that I was able to source the raw materials required and that the materials would be suitable for a vegan product by checking the raw material specification from the supplier. I also checked that I would have sufficient time to order the raw materials and get them in with time to check that I had sufficient quantities; in particular, I focused on the packaging and discussed with the artwork team that the labelling would be printed on the sleeves within the agreed timeframes. I then discussed the storage of the raw materials with my tutor to ensure I could have an area which would maintain the integrity of them so that I could honestly state this was a vegan product. An allergen area was also required to store the soya milk. I also checked the facility availability to ensure my product would not be cross contaminated by someone who was working nearby at the same time, and also that there was no possibility that I would cross contaminate their product with allergenic material whilst using the soya milk. Soya milk needs to be declared as containing allergens on all product labelling, as stated in Food Information for Consumers Regulations 2014, Regulation 1169/2001.

Customer review of the product:

Timescale 14 March to 28 March. I carried out the following actions:

I carried out a taste panel, comprising 8 people ranging in age from 10 to 64, on 18th March. I asked the taste panel to compare 3 cupcakes, Tesco Chocolate Wicked, Aldi Chocolate and the proposed chocolate and cherry cupcake. The chocolate and cherry cupcake scored highly on texture, taste and aroma. The participants aged between 10 and 45 were particularly impressed with the use of sustainable packaging and the removal of all plastic packaging. The full results of the taste panel is attached.

Concept Approval:

Timescale 25 March to 28 April

During this period, I carried out 3 product trials and gained approval from my tutor to make the product within the development kitchen.

I was able to produce costs as listed below, providing a full breakdown of raw material, packaging and labour. Costs proved to be higher than expected, and by producing a batch of 6, I would have to increase the price to £2.57 per pack. My packaging was confirmed by my tutor and the artwork was created. Following this, I completed my finished product specification which I could use to ensure consistency of finished product.

Trial run:

Timescale 29 April to 20 May

I ordered the materials to be delivered from the approved suppliers one day prior to the start of production. This was to ensure the materials were received on time and did not use any unnecessary space prior to start of production. I identified areas within the development kitchen where I could work in a linear fashion from my preparation area through to assembly and packing, working in a clockwise manner from the door at one end round to the door at the other. My raw materials were all held in the mixing area and my packaging was at the other side to reduce the risk of foreign body contamination during the production process. I drew up my process flow diagram and agreed with my tutor that my cooking process was key to both the food safety and quality of the product. Key areas were sieving of dry raw materials to prevent foreign body contamination, temperature control of oven to

ensure product was cooked, temperature of jam to ensure setting process worked, and final quality checks, including the taste panel. As I was working in the kitchen at the same time as another student, I also controlled the soya milk ingredient to ensure I did not cross contaminate the other students product.

Issues that I had from the trial runs were that the cake was not fully cooked as I did not wait long enough for oven to preheat and the frosting was too runny as I added the soya milk too quickly. I was also able to slightly increase the jam, and reduce the cake mix, to increase the yield to 7 packs per batch, thereby reducing the price to £2.20 per pack.

2 samples per batch were sent for microbial testing to check levels of Escherichia coli, Salmonella and Staphylococcus aureus at 2 days and 5 days. All samples were within the limit of <10cfu/g for each pathogen. One sample per batch was used for nutritional analysis, and one sample per batch was used for the taste panel. The artwork for the cardboard sleeve was checked by me, and particular attention was paid to the labelling requirements to ensure accuracy. I carried out a final trial run on 21st May and presented the product and my findings to my customer (tutor) at college.

Review trial of the product:

Timescale 21 May

I delivered a presentation to my customer (tutor) on my trials to explain how I achieved food safety limits and how this linked to my HACCP flow diagram. I showed the customer how I checked the quality of the raw materials through sieving dry ingredients and a visual inspection of the fruit and packaging. I also provided my evidence through my checkweigh monitoring sheet of production yields.

Pre-production:

Timescale 22 May to 29 May

During this time I carried out a production run whilst being observed by the customer (my tutor). This run went as expected and all products were produced safely. I reviewed all the raw material specifications to check that the ingredients met all requirements and sent 2 samples off for microbial analysis and one for nutritional analysis to check shelf life. I checked the packaging again to check that the artwork and labelling was correct, and the packaging met the specification as supplied by the supplier.

Launch product:

Timescale 30 May to 28 June

I set up a stall in the foyer of the college every Friday lunch time during this period and gave potential buyers the opportunity to taste a small piece of the product before buying. I managed to sell a total of 28 packs of the cupcakes, giving a profit of £25.76 which I gave to the college charity (Macmillan). I advertised the sales in advance through the creation of posters, which I placed throughout the college on the noticeboard, and I also advertised in the college paper.

Product costing should include all raw materials and packaging:

Recipe costing

Ingredient	Price Per Kg	Price per batch	Supplier
Plain flour	£2.37	£0.71	ABC dry store
Granulated sugar	£1.40	£0.28	ABC dry store
Caster sugar	£1.41	£0.47	ABC dry store

Soya Milk	£3.00 (per litre)	£1.43	Veganicious
Cider vinegar	£1.60	£0.03	ABC dry store
Dairy free spread	£3.00	£0.60	Veganicious
Coffee granules	£26.60	£0.10	ABC dry store
Salt	£0.47	£0.01	ABC dry store
Morello cherries	£12.50	£3.75	Red diamond produce
Glacé cherries	£9.00	£0.18	ABC dry store
Icing sugar	£1.70	£0.85	ABC dry store
Lemon	£2.00	£0.30	Red diamond produce
Cocoa powder	£12.50	£1.94	Veganicious
Bicarbonate of soda	£5.10	£0.02	ABC dry store

Total cost was £15.42 per batch, and by increasing the yield to provide 7 packs per batch, I was able to retail packs at £2.20 per pack. Labour costs covering preparation, cooking and assembly was £2.25, packaging costs were £2.50 and raw materials totalled £10.67, leaving a total profit of £0.92 per batch.

2.4(a) & 2.4(b)

I was able to identify a suitable shelf life of the product through the reduction of A_w as a result of the baking process and sugar content, and the product was also sent for microbial testing at 2 days and 5 days postproduction.

Ingredients

The ingredients within this recipe were designed to provide an ambient baked product which would have a best before date of 5 days from the date of production. As the product is baked and has a higher sugar content, there is a low level of available water and microbial testing demonstrated that the levels of Escherichia coli, Salmonella and Staphylococcus aureus were all in the range of <10cfu/g at 5 days.

Packaging

My packaging was designed to be sustainable as all of it was recyclable, and the supplier was able to supply information that the polypropylene used in the window of the cake box met the legal migration limits as required in (EC) No 1935/2004. This packaging was designed to protect the product, both in transit and whilst on display.

Nutritional calculations

Using Nutricalc I was able to calculate the following:

Energy kJ	1394kj
Energy kcal	333kcal
Protein	4g
Carbohydrates	79g
of which sugars	44g

Total fat	9.3g
of which saturates	3.3g
Fibre	2.2g
Salt	0.4g

Task 3: food safety and quality management

3.1(a): Produce a flow diagram for your product as outlined in step 4 of the 12 steps of HACCP. This should:

- demonstrate a clear understanding of all steps of the process for subsequent risk assessment
- be presented in a suitable digital format of your choice
- be presented to industry standard

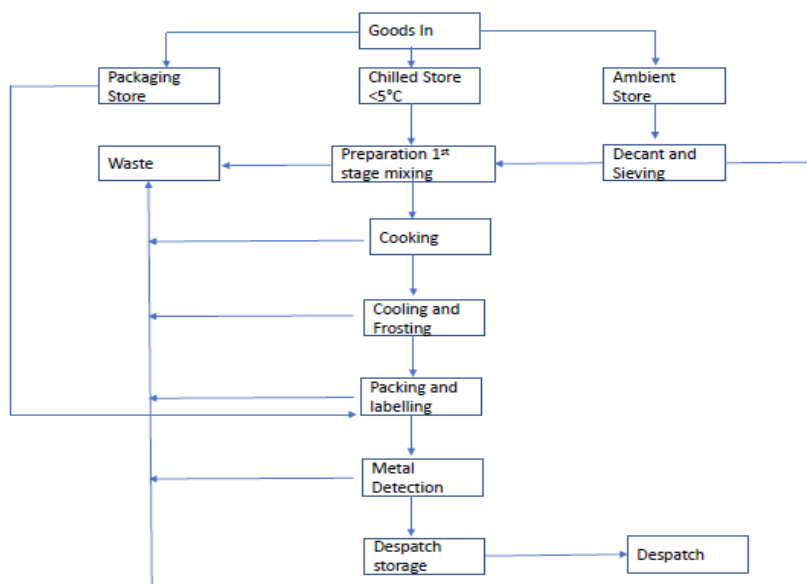
3.1(b): Create a monitoring procedure and associated record to demonstrate how a food safety hazard is under control within the chilled storage area

(21 marks total)
1 hour 15 minutes

Student evidence

3.1(a) & 3.1(b)

I created a HACCP flow diagram as shown below:



I have identified the following hazards and implemented the following controls:

Goods in:

- possible chemical/allergenic/foreign body/microbial contamination
- check cleanliness of van – if dirty, reject
- ensure segregation of allergenic materials – if allergens and non-allergens not segregated, reject
- check to ensure no damaged packaging of goods – reject all damaged packaging

Chilled storage – CCP1 Microbial contamination - chiller should be set at 3°C and critical limit is 5°C. Monitoring record should be in place to ensure temperature is consistently maintained <5°C. Hourly checks are to be carried out and the time and signature of checker is to be placed on monitoring form. The chiller should never be overfilled, and if overfilled, or if the critical limit is breached, the contents should be moved to additional chiller and engineer informed.

Ambient storage – foreign body and microbial contamination. All goods to be stored off floor and away from walls. Product to be used on FI/FO/date order to maintain quality. Regular checks of packaging to ensure no damage by pests.

Packaging storage – stored off floor and away from walls to prevent harbourage areas for pests and damage to packaging through dampness.

Decant and sieving – foreign body contamination and microbial – all dry goods to be decanted into bowls and then sieved. Any dry goods containing stored product insects to be sent straight to waste and the supervisor should be informed. The batch number, ingredient name, time and date to be recorded along with signature of operative on monitoring sheet.

Prep and mixing – allergen – allergenic products used with the introduction of soya milk. Product to be returned immediately to relevant segregated area after use. Foreign body contamination through poor maintenance of tools and equipment. All equipment is to be checked for damage prior to use. Any equipment or tool showing signs of damage is not to be used, supervisor should be informed, and damaged tools/equipment removed immediately from production area.

Frosting – allergen product being used in area – return of soya milk to segregated area after use.

Packing – allergen product risk of contamination.

As this product contains allergens, no non-allergen product should be made in the area at the same time due to risk of cross contamination.

Metal detection – CCP2 - all packs should be check for metal contamination prior to going to despatch. The following test pieces should be used 1.5 ferrous, 2.0 nonferrous, 2.5 stainless steel. Order is pack/ferrous/pack/non-ferrous/pack/stainless steel. Checks carried out hourly and all test pieces must be rejected, if not, the product needs to be put on hold since last check. Monitoring sheet with date, time, batch number of product reject/no reject. Signature of checker and comments.

Here are examples of the 2 monitoring records I created:

CCP 1 – Chiller 1 Temperature						
Date	Time	Area	Temp	Result	Action Taken	Initials
01/01/20	14:00	Goods In	3°C	OK		TC
01/01/20	15:00	Goods In	3°C	OK		TC
01/01/20	16:00	Goods In	3°C	OK		TC
01/01/20	17:00	Goods In	4.5°C	OK		TC
01/01/20	18:00	Goods In	6°C	OK	Moved all stock to Chiller 2 and engineer informed	TC
Supervisor signature: J Smith						
Date 01/01/2020						

CCP2 – Metal Detection					
Date	Time	Batch No	Result	Action Taken	Initials
01/01/20	14:00	2804	OK		TC
01/01/20	15:00	2804	OK		TC
01/01/20	16:00	2804	OK		TC
01/01/20	17:00	2805	OK		TC
01/01/20	18:00	2805	Did not reject test pieces	All of batch 2805 placed on hold supervisor informed and engineer called	TC
Supervisor signature: J Smith					
Date 01/01/2020					

Task 4: product specification and analysis

4.1: Create a product specification that clearly describes:

- food safety attributes and nutritional target values
- quality testing parameters that include sensory or organoleptic characteristics
- requirements for packaging, mandatory labelling, storage and transportation

(16 marks)

1 hour 10 minutes

Student evidence

An example of a product specification sheet is as follows:

Product name	Vegan Chocolate and Cherry Cupcake												
Description	Vegan, dairy free, chocolate sponge with cherry jam centre and chocolate frosting with glacé cherry on top												
Organoleptic	3cm diameter, aroma of cherry and chocolate, sweet, gooey frosting and springy moist cake with dollop of fruity jam												
Shelf life	5 days from date of production												
Microbiological testing limits	Under 10 cfu/g												
Escherichia coli	<10 cfu/g												
Salmonella	<10 cfu/g												
Staphylococcus aureus	<10 cfu/g												
Packaging	Plain polyprop film window on recyclable brown cake box with insert and recyclable cardboard sleeve with labelling information												
Pack size	4 per pack												
Storage and transportation	Cool dry place away from direct sunlight and strong odours, maximum 18°C temperature - do not freeze												
Ingredients	Plain flour, dairy free spread, vegan cocoa powder, sugar, soya milk , cider vinegar, coffee, salt, morello cherry, glacé cherry, icing sugar, lemon, bicarbonate of soda												
Suitable for	Vegans												
Allergens	Soy												
Typical nutritional analysis	<table> <tr> <td>Energy kJ</td> <td>1394kj</td> </tr> <tr> <td>Energy kcal</td> <td>333kcal</td> </tr> <tr> <td>Protein</td> <td>4g</td> </tr> <tr> <td>Carbohydrates</td> <td>79g</td> </tr> <tr> <td>of which sugars</td> <td>44g</td> </tr> <tr> <td>Total Fat</td> <td>9.3g</td> </tr> </table>	Energy kJ	1394kj	Energy kcal	333kcal	Protein	4g	Carbohydrates	79g	of which sugars	44g	Total Fat	9.3g
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	of which saturates 3.3g Fibre 2.2g Salt 0.4g
Issue date: 22/10/2020	Issued by: Tim Brown
Issue no: 1	Signature:

Examiner commentary

The student has developed a strong rationale for the product which is a proven gap in the marketplace with a clearly identified market. The product name is descriptive and identifies the product use and/or content. The packaging materials are specifically named and can be reused (recycled or biodegradable). The storage conditions are stated and there is an initial indication of shelf life.

The student has provided an extensive detailed ingredient list which is clearly linked to product rationale and can be traced back through the supply chain to verify ingredient origins and handling methods.

The student has provided a detailed step by step production process with all stages clearly identified, and containing the required food safety and quality parameters, which can be easily measured and verified to maintain safety and consistency of product throughout.

The student has clearly identified the majority of actions to be taken at each stage of the development process and has provided realistic timelines for each step.

The student has linked the shelf life to the shelf life of the ingredients and has utilised an effective processing method to maintain the safety of the food for its stated shelf life, for example through the use of preservatives, reduction of A_w , pH balance etc.

The packaging is suitable for the product made and will not impact on product shelf life by increasing the risk of spoilage or pathogenic growth.

Nutritional claims made are clearly linked to ingredients or processing methods.

There is a detailed description of the process with the hazards clearly identified, and for the hazards identified there is at least one monitoring procedure detailed with a suitable monitoring sheet attached. Both the process flow and monitoring sheet should be a representation of the product which the student has created for task 1 and 2.

The student has created a product specification for their new product in the format as shown. All food safety and labelling information shows 3 sensory/organoleptic methods for quality purposes.

Overall grade descriptors

The performance outcomes form the basis of the overall grading descriptors for pass and distinction grades.

These grading descriptors have been developed to reflect the appropriate level of demand for students of other level 3 qualifications, the threshold competence requirements of the role and have been validated with employers within the sector to describe achievement appropriate to the role.

Occupational specialism overall grade descriptors:

Grade	Demonstration of attainment
Pass	The evidence is logical but displays minimal knowledge in response to the demands of the brief.
	The student makes some use of relevant knowledge and understanding of how it informs practices of the sector and demonstrates a limited understanding of perspectives or approaches associated with food science and food product development processes.
	The student makes adequate use of facts/theories/approaches/concepts/data and attempts to demonstrate breadth and depth of knowledge and understanding.
	The student is able to identify some information from appropriate sources and makes use of appropriate information/appraise relevancy of information and can combine information to make decisions and recommendations.
	The student makes minimal judgements/takes appropriate action/seek clarification with guidance and is able to make limited progress towards solving non-routine problems in real life situations.
	The student attempts to demonstrate skills and knowledge of the relevant concepts and techniques reflected in a food science and/or food product development role and generally applies this across different contexts.
	The student shows adequate understanding of problems that have not been seen before, using limited knowledge to find solutions to problems and make justification for strategies for solving problems, explaining their reasoning.
Distinction	The evidence is precise, logical and provides a detailed and informative response to the demands of the brief.
	The student makes extensive use of relevant knowledge and has extensive understanding of the practices of the sector and demonstrates an understanding of the different perspectives/approaches associated with food science and food development processes.
	The student makes decisive use of facts/theories/approaches/concepts/data, demonstrating extensive breadth and depth of knowledge and understanding and selects highly appropriate skills/techniques/methods.
	The student is able to comprehensively identify information from a range of suitable sources and makes exceptional use of appropriate information/appraises relevancy of information and can combine information to make coherent decisions.
	The student makes well founded judgements/takes appropriate action/seek clarification and guidance and is able to use that to reflect on real life situations in a food science and/or food development role.
	The student demonstrates extensive knowledge of relevant concepts and techniques reflected in a food science and/or food development role and precisely applies this across a variety of contexts and tackles unstructured problems that have not been seen before, using their knowledge to analyse and find suitable solutions to the problems.

Document information

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Owner: Head of Assessment Design

Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Published final version.		June 2021
v1.1	NCFE rebrand		September 2021