

APPLIED



WJEC Level 3 Applied Diploma in
**FOOD SCIENCE AND
NUTRITION**

REGULATED BY OFQUAL
DESIGNATED BY QUALIFICATIONS WALES

**SAMPLE ASSESSMENT
MATERIALS - INTERNAL**

Teaching from 2015
For award from 2017

Version 2 - December 2023





WJEC LEVEL 3 DIPLOMA IN FOOD SCIENCE AND NUTRITION

SAMPLE INTERNAL ASSESSMENT

UNIT 3: EXPERIMENTING TO SOLVE FOOD PRODUCTION ISSUES

For certification from 2017

SUMMARY OF AMENDMENTS

Version	Description	Page number
2	Mark Record Sheet updated	15

The Nothing New Dairy

LEARNER ASSIGNMENT BRIEF

As part of its business practice of continuous improvement, The Nothing New Dairy is assessing customer satisfaction. They have set up a blog for customers and each month they formally review the comments made.

There is a team of staff in the development kitchen constantly reviewing the manufacturing processes used and developing new products. Last year, they introduced a new flavour 'Lemon Meringue'.

A member of the development team attends the monthly review meetings. They are given details of complaints and compliments, and they are sent any relevant comments from a blog. They are expected to investigate the issues highlighted and present details of any planned changes at the meeting.

The comments from the blog have highlighted the following problems:

- Lack of flavour
- Ice crystals
- Gritty texture
- Sour flavour



Tasks

1. Identify the issues that need to be addressed.
2. Investigate food production problems associated with comments above.
3. Carry out experimental work to investigate the problems.
4. Process the data from your experiments and justify your findings.
5. Present practical options to the management in a suitable format.

SUMMARY

Task Number	Evidence	Assessment Criteria	Controls
1,2 and 3	Plan for each experiment; observation record; photographs; data recorded	<p>AC2.1 Set success criteria for scientific investigations</p> <p>AC2.2 Obtain outcome from scientific investigations</p> <p>AC2.3 Record outcomes of investigative work</p> <p>AC3.1 Analyse food production situations</p>	<p>Time 8 hours</p> <p>Resources Details of issues, tools, equipment and commodities for experiments; access to class notes</p> <p>Supervision You will be supervised throughout</p> <p>Collaboration Individual task</p> <p>Feedback You cannot be given feedback on the work you produce until it has been marked</p>
4 and 5	Observation record; presentation materials	<p>AC1.1 Explain how food properties can be changed</p> <p>AC1.2 Explain variables that affect physical properties of food</p> <p>AC2.4 Process data</p> <p>AC2.5 Review suitability of investigative methods</p> <p>AC3.2 Propose practical options to food production problems</p> <p>AC3.3 Scientifically justify proposed options</p>	<p>Time 4 hours</p> <p>Resources data from experiments; access to ICT software to produce presentation materials; access to class notes</p> <p>Supervision You will be supervised throughout</p> <p>Collaboration Individual task</p> <p>Feedback You cannot be given feedback on the work you produce until it has been marked</p>

Appendix A

The Nothing New Dairy



Joey66

Flavours – what flavours?

Really disappointed with the new Lemon Meringue flavour. Not sure I could call it a flavour, bit tasteless.



Katiesmum

Flavours – what flavours?

Another new flavour, but lets get the ones they have better quality. This isn't my favourite brand. Too icy with ice crystals. Would prefer something more creamy.



Joey66

Flavours - what flavours?

I know, sometimes it can be icy, but the vanilla is dreamy, creamy. Is it just when they have fruit flavours they are not so good?



Allycreampie

Flavours- what flavours?

I am sure I have found that with all flavours.



Sundaedreamer

Flavours - what flavours?

Never noticed. The ice cream takes me back to nurse school on a hot day. Now you mention it, you do sometimes get it more icy than creamy.



Jastreep22

Flavours - what flavours?

I had the chocolate and vanilla and it tasted like there was sand in it and made my lips , tongue and throat all tingly. It burned a little and tasted sour. Not impressed with Nothing New. About time they found something new.



Allycreampie

Flavours - what flavours?

I agree with Jastreep22, the ice cream I had was gritty. Joe66 is also right, the new Lemon Meringue could have just been more lemony.



Joey 66

Flavours - what flavours?

Just got back from Spain where they have fab lemons! They know how to make a tasty Lemon ice cream.



Jastreep22

Flavours- what flavours?

Oh, I didn't realise Lemon Meringue was just lemon! I thought it was really nice but I don't like strong flavours particularly.



Sundaedreamer

Flavours - what flavours?

Still my favourite ice-cream, don't know what all the fuss is about.

Appendix B– standard recipes

There are three categories of ingredients in any ice cream mix

Dairy: Milk, cream, and non-fat milk solids make up the dairy portion of ice cream

Sweeteners: Sugar, Splenda® is used to sweeten the mix

Additives: Stabilizers and emulsifiers are added to give the ice cream the desired body and mouth feel

Plus air:

Ice cream contains an equal volume of mix and air, or an over-run of 100%. Premium ice cream, however, has an over-run of only 80% to give it a richer, more-creamy mouth feel.

Standard % used at the Dairy

<u>Ingredients</u>	<u>%</u>
Whole milk	70.3
Skimmed Milk Powder (SMP)	1
Double cream (48% fat)	15
Sugar/glucose syrup	13
Emulsifier/stabiliser	0.7
Flavouring*	0.01 (*Depending on flavour intensity)

This is an example of one the recipes used for the batch of Lemon ice cream that would have been on sale when the Blogs were received

Lemon Meringue – 1 litre batch

1 vanilla pod
250 ml whole milk
175 g caster sugar
750 ml double cream
10 egg yolks
3 tsp lemon juice

1 lemon grated zest

Meringue pieces

Method

1. Split the vanilla pod in half lengthways and remove the seeds. Place the milk, vanilla seeds and pod, caster sugar and the cream in a pan and bring to the boil.
2. In a separate bowl whisk the egg yolks. When the cream mixture has boiled pour the mixture slowly on to the eggs whisking all the time. Return to the pan and mix quickly until the mixture has thickened. Pass through a sieve.
3. Place the mixture into an ice cream machine and churn until the ice cream is nearly set..
4. Add the fruit zest and continue to churn add the meringue pieces.
5. Once frozen, remove the ice cream from the machine into a plastic container and place in the freezer until ready to use.

Laboratory Reports March 12-16th 2012

Batches produced:

3 litres Lemon Meringue Ice cream

3 litres low fat rum and raisin

3 litres chocolate orange

3 litres mint choc chip

3 litres Chocolate and vanilla

Equipment: all checked daily no issues detected

Time allowance for production: power cut on 13th that lasted 2 hours

Early closure on 16th due to staffing sickness levels.

LEVEL 3 FOOD SCIENCE AND NUTRITION

OBSERVATION RECORD

Unit 3: Experimenting to solve food production problems

Learner`s Name		
Context AC2.2 Obtain outcome from scientific investigations AC2.3 Record outcomes of investigative work Learners conducted scientific investigations into food production problems		
Description of performance Validity of outcomes Reliability of outcomes Accuracy of records		
Assessment commentary		
Assessor	Signature	Date

LEVEL 3 FOOD SCIENCE AND NUTRITION

OBSERVATION RECORD

Unit 3: Experimenting to solve food production problems

Learner Name		
<p>Context</p> <p>AC1.1 Explain how food properties can be changed</p> <p>AC1.2 Explain variables that affect physical properties of food</p> <p>AC2.4 Process data</p> <p>AC2.5 Review suitability of investigative methods</p> <p>AC3.2 Propose practical options to food production problems</p> <p>AC3.3 Scientifically justify proposed options</p> <p>Learners orally presented the outcomes of their experiments, proposing options available to management</p>		
<p>Description of performance</p> <p>Food properties</p> <p>Changes to food properties</p> <p>Variables affecting food properties</p> <p>Process data</p> <p>Investigative methods</p> <p>Practical option</p> <p>Justification</p>		
Assessment commentary		
Assessor	Signature	Date

ASSESSOR INFORMATION

WJEC Approach to Assessment

All WJEC Level 3 Qualifications in Food Science and Nutrition units are internally assessed and externally moderated. The following principles apply to the assessment of each unit:

- All units are assessed through summative controlled assessment. Details controls for this unit are provided in this model assignment.
- All assessment criteria must be met under controlled conditions, as specified in this model assignment, for the unit learning outcomes to be achieved.
- Performance bands for mark band 1, 2 or 3 can only apply once a candidate has achieved all assessment criteria. Evidence must clearly show how the candidate has met the standard for the higher grades.

WJEC Level 3 Qualifications in Food Science and Nutrition have adopted the principles of controlled assessment as set out in the Joint Council for Qualifications document 'GCSE, GCE, ELC, Functional Skills, Principal Learning in the Diploma and Project Qualifications – Instructions for conducting coursework'. This document can be accessed through the JCQ website (www.jcq.org.uk). Each centre must ensure that internal assessment is conducted in accordance with these controls.

There are three stages of assessment that will be controlled:

- Task setting
- Task taking
- Task marking.

Task setting

WJEC have produced this model assignment for the assessment of this unit. Centres are, however, allowed to modify the assignment, as outlined in the 'Accepted changes to assignments' section of this model assignment. This will allow centres to tailor the assessment to local needs. This model assignment has been written to ensure the following controls are in place:

- Each unit is assessed through one assignment.
- Each assignment must have a brief that sets out an applied purpose. An applied purpose is a reason for completing the tasks that would benefit a business or scientific investigation. Further details are in the rationale in Section 1.2 of the specification.
- The assignment can specify a number of tasks but tasks must be coherent ie show how the assessment requirements all contribute to the achievement of the applied purpose of the assignment.
- The assignment must provide each candidate with the opportunity to address all assessment criteria and all performance band requirements.
- The assignment must indicate the acceptable forms of evidence.
- Where a centre has adapted the model assignment, there must be evidence of quality assuring its fitness for purpose. Sample documentation for this activity is provided with each model assignment.

How the learner assignment brief meets these controls

This is a single assignment that addresses all assessment criteria for this unit. There is a clear applied purpose: to analyse issues related to ice cream production and propose a solution, based on scientific evidence. Although the context for the task is fictitious, it has been developed through discussions with representatives of a real organisation to ensure the requirements are realistic. The tasks are all coherently related to the applied purpose. The Summary table makes clear the evidence requirements.

Task taking

There are five areas of task taking that are controlled: time, resources, supervision, collaboration and resubmission.

Time

'Time' has limited control. There are **12** hours available for assessment of this unit. The learner assignment brief suggests how this time can be allocated.

Resources

'Resources' has limited control. The assignment makes clear the type of resources that learners must have access to. For task 1, learners must be presented with series of complaints or issues related to food production. There must also be appropriate resources for learners to carry out scientific investigations. These will be determined in their plans and success criteria. Where evidence for task 1 is submitted, but the plans and/or success criteria are inappropriate, the assessor can amend the plan, once that task is marked. Learners may access ICT software to develop their outputs for tasks 2.

Learners can

access class notes throughout all tasks. This can include any outcomes of formative assessment, unless the context for the formative assessment is similar to the context for this summative assessment.

Supervision

'Supervision' has medium control. Learners must be supervised by an assessor whilst completing all tasks. Centres must have in place systems to ensure learners cannot access evidence they have been developing outside of supervised activities.

Authentication

Supervision is in place to ensure the authenticity of evidence produced for summative assessment. Assessors are not expected to provide input or guidance to learners during the controlled assessment time. This includes providing formative feedback on the evidence being produced. Assessors can provide guidance on the requirements of the task and remind learners of the performance bands and how they can be interpreted. Assessors must intervene where there is a health and safety hazard observed.

Candidates can review and redraft evidence independently within the time controls for the assessment. Candidates cannot redraft based on feedback from an assessor.

Learners must sign the declaration in this model assignment to confirm that all evidence submitted for moderation is their own work and that any sources used have been acknowledged.

Assessors must sign the declaration in this model assignment to confirm that evidence submitted for moderation was completed under the controlled conditions set out in the model assignments.

Collaboration

'Collaboration' refers to group work and has limited control. For this model assignment group work is forbidden

Task marking

All marking of evidence must be made against the performance band statements given in each unit specification. Evidence marked must comply with the controlled requirements set out in this model assignment.

Written evidence must be annotated to show how it relates to the assessment criteria and performance band requirements.

Performance evidence for tasks 1 and 2 must be made on the observation records provided in this model assignment. Observation records will include a description of candidate performance as well as a summative statement on the quality of that performance. Where performance is observed by someone other than an assessor, the 'witness' must complete a witness statement. Assessors will need to authenticate the statement either through scrutiny of supporting evidence and/or questioning of the learner and/or witness. If the statement is authenticated, it can be allowed to contribute to the evidence for assessment. Evidence of authentication will also need to be included.

Marking should only be undertaken by a designated assessor. An assessor should have appropriate expertise in the subject and level for a specified unit.

The assessor is responsible for ensuring that:

- Assessment is conducted under specified controlled conditions
- They are clear of the requirements of the learning outcomes, assessment criteria and performance band statements prior to commencing controlled assessment
- Evidence presented for assessment is authentic
- Assessment decisions are accurately recorded
- Evidence is appropriately annotated
- Observation records contain sufficient detail for objective corroboration of decisions
- Judgements are only made against the performance band statements

ACCEPTED CHANGES TO THIS MODEL ASSIGNMENT

Assignment Brief (Task setting)

Type of evidence

For task 1, there can be no changes to evidence requirements, unless task is separate as indicated below. The evidence requirements stated in this model assignment must still be submitted. Any format is acceptable for the evidence. For task 2, learners can alternatively present their evidence in the form of a report in any format. Observation records should either be those presented with this model assignment, or devised by the centre. Any documentation must ensure that observation records include a description of candidate performance as well as a summative statement on the quality of that performance. Where performance is observed by someone other than an assessor, the 'witness' must complete a witness statement. Assessors will need to authenticate the statement either through scrutiny of supporting evidence and/or questioning of the learner and/or witness. If the statement is authenticated, it can be allowed to contribute to the evidence for assessment. Evidence of authentication will also need to be included. A standard pro-forma should be developed and used for all learners. Learners should receive a copy of the pro-forma in advance. Learners must have supporting evidence used in any presentations or practical work.

Tasks

Task 1 can be separated into two tasks, separating the planning from the experimentation. The planning stage will assess AC 2.1 and AC 3.1. The investigation stage will assess AC 2.2 and AC2.3. There can be no changes to task 2, except for references to the specific context of the assignment brief. AC 1.1, AC 1.2 and AC 1.3 can be assessed in either task 1 or task 2.

Purpose

No changes allowed

Context

The context must be realistic and credible but can be fictitious. The context can reference any type of food. Issues related to food production must relate to two variables: appearance, aroma, flavour and texture. Problems must be 'found' by the learner i.e. the problems cannot be stated, learners must be able to analyse information to determine the nature of the problem.

How Assessment is Managed (Task taking)

Time

The time suggested for each task is realistic for the time required for completion. There can be no changes to the total time available for controlled assessment, as set out in this model assignment. Centres can, however, amend the suggested time available for each task.

Resources

Learners must have access to an assessment grid. Details of essential resources are provided in the Summary table of the Learner Assignment Brief and the Task taking: resource section of this Assessor Guidance. There should be no changes to these.

Collaboration

Group work is not allowed for this unit.

Supervision

No changes are allowed.

Feedback

No changes are allowed.



LEVEL 3 QUALIFICATIONS IN FOOD SCIENCE AND NUTRITION MARK RECORD SHEET

UNIT 3: EXPERIMENTING TO SOLVE FOOD PRODUCTION PROBLEMS

Centre name:

Centre Number:

Learner's Name:

I confirm that the evidence submitted for assessment has been produced by me without any assistance beyond that allowed.
I have clearly referenced any sources and any Artificial Intelligence tools used in the work. I understand that false declaration is a form of malpractice.

Signature:

Date:

Assessor's Name:

I confirm that the candidate's work was conducted under the conditions laid out by the specification. I have authenticated the candidate's work and am satisfied that to the best of my knowledge the work produced is solely that of the candidate. Signed candidate declarations for the entire cohort will be kept on file.

The candidate has clearly referenced any sources and any Artificial Intelligence tools used in the work. I understand that false declaration is a form of malpractice.

The overall grade awarded for this unit is _____

Signature:

Date:

Lead Assessor's Name:

I confirm that the evidence submitted by this learner for summative assessment has been quality assured and the grade awarded is confirmed as accurate.

Signature:

Date:

Assessment criteria	Performance bands			Mark Awarded
	Mark Band 1	Mark Band 2	Mark Band 3	
AC1.1 Explain how food properties can be changed	A range of relevant foods properties are considered. Explanations have limited reasoning and accuracy. 1	A range of relevant foods properties are considered. Explanations are mainly reasoned and accurate. 2	A range of relevant foods properties are considered. Explanations are well- reasoned and accurate. 3	
Assessor's comments				
AC1.2 Explain variables that affect physical properties of food	A range of variables are considered that are mainly appropriate. Explanations are mainly accurate with some limited reasoning. 1	A range of appropriate variables are considered. Explanations are mainly reasoned and accurate. 2	A range of appropriate variables are considered. Explanations are well- reasoned and accurate. 3	
Assessor's comments				

Assessment criteria	Performance bands			Mark Awarded
	Mark Band 1	Mark Band 2	Mark Band 3	
AC2.1 Set success criteria for scientific investigations	A range of success criteria are set which are clear and relevant. 1	A range of success criteria are set, some of which are clear and relevant. 2	A range of success criteria are set which are clear and relevant. Success criteria are SMART. 3	
Assessor's comments				
AC2.2 Obtain outcomes from scientific investigations	A range of outcomes are obtained from scientific investigations. Some valid and reliable outcomes are obtained. 1	A range of valid and reliable outcomes are obtained from scientific investigations. 2	Required outcomes are obtained from scientific investigations which are valid and reliable. 3	
Assessor's comments				

Assessment criteria	Performance bands			Mark Awarded
	Mark Band 1	Mark Band 2	Mark Band 3	
AC2.3 Record outcomes of investigative work	Outcomes of investigative work are recorded using documentation that is mainly fit for purpose. Recording is mainly accurate. 1	Outcomes of investigative work are recorded using documentation that is fit for purpose. Recordings are accurate with some minor omissions 2	Outcomes of investigative work are accurately recorded using documentation that is fit for purpose. 3	
Assessor's comments				
AC2.4 Process data	Most collected data is analysed and reviewed. There may be some omissions. Conclusions presented may have some inaccuracies. 1	Collected data is analysed and evaluated. There may be some omissions. Conclusions are presented that are mainly valid and reliable. There may be some inaccuracies. 2	Collected data is analysed and evaluated. Valid and reliable conclusions are presented. 3	
Assessor's comments				

Assessment criteria	Performance bands			Mark Awarded
	Mark Band 1	Mark Band 2	Mark Band 3	
AC2.5 Review suitability of investigative methods	Investigative methods are reviewed and straightforward conclusions are presented. There is limited evidence presented in support of conclusions. 1	Investigative methods are reviewed and some reasoned conclusions presented. There is use of some evidence to support conclusions. 2	Investigative methods are reviewed and clear and well-reasoned conclusions presented. There is use of evidence to support conclusions. 3	
Assessor's comments				
AC3.1 Analyse food production situations	Analyses information relating to a food production situation. Shows some understanding of key issues to validly identify a problem. 1	Analyses information relating to a food production situation. Key issues are identified and problems inferred. 2	Analyses information relating to a food production situation. Categorises issues to clearly identify problems. 3	
Assessor's comments				

Assessment criteria	Performance bands			Mark Awarded
	Mark Band 1	Mark Band 2	Mark Band 3	
AC3.2 Propose practical options to solve food production problems	A range of options are proposed. Some are practical. There is some consideration of most options presented. Some use of appropriate technical language, with some minor errors. 1	A range of practical options are proposed. Use of technical language is mainly appropriate. There may be minor errors in use, but these will not detract from clarity of meaning. 2	A range of considered, practical options are proposed. Use of technical language is consistently appropriate. 3	
Assessor's comments				
AC3.3 Scientifically justify proposed options	Executed practical work addresses some of the issues and is carried out mainly effectively and efficiently. Clear but basic conclusions are drawn. Justification shows evidence of drawing on some prior learning. 1	Executed practical work addresses most of the issues and is carried out effectively and efficiently. Clear, fairly detailed conclusions are drawn. Justification is mainly reasoned, drawing on some evidence and prior learning. 2	Executed practical work addresses all of the issues and is carried out extremely effectively and efficiently. All conclusions are detailed and good use is made of technical language. Justification is well-reasoned and drawn from scientific investigation and prior learning. 3	
Assessor's comments				