**NZQA**

**Approved**

Achievement standard: 91357 Version 3

Standard title: Undertake effective development to make and trial a prototype

Level: 2

Credits: 6

Resource title: A pie for every occasion

Resource reference: Generic Technology VP-2.4 v2

Vocational pathway: Manufacturing and Technology

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| Quality assurance status | These materials have been quality assured by NZQA. NZQA Approved number A-A-02-2015-91357-02-8256 |
| Authenticity of evidence | Assessors/educators must manage authenticity for any assessment from a public source, because learners may have access to the assessment schedule or exemplar material.Using this assessment resource without modification may mean that learners’ work is not authentic. Assessors/ educators may need to change figures, measurements or data sources or set a different context or topic to be investigated or a different text to read or perform. |

Vocational Pathway Assessment Resource

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Learner instructions

# Introduction

This assessment activity requires you to undertake effective development to make and trial a prototype for a ready baked frozen product that is suitable for export.

You are going to be assessed on how you undertake effective development to make and trial a ready baked frozen product and justify your decision making.

The following instructions provide you with a way to structure your work so you can demonstrate what you have learnt and achieve success in this standard.

Assessor/educator note: It is expected that the assessor/educator will read the learner instructions and modify them if necessary to suit their learners.

# Task

The brief, which must include a conceptual statement and specifications, needs to be provided, or you could develop these and confirm them with the assessor/educator.

Familiarise yourself with the brief that has been agreed on with your assessor/educator for a ready baked frozen product, that will be manufactured for the export market using locally sourced ingredients.

Undertake effective development to make and trial a ready baked frozen product.

## Materials and/or Components

Research and evaluate materials (ingredients) and/or components that could be suitable to use in making your ready baked frozen product. For example, consider the recipe’s physical and functional properties (how the product is to be produced, equipment and ingredients needed, presentation of the product and cooking instructions), the product’s potential global customers and the specifications of the brief.

## Practical techniques and processes

Trial techniques and processes that you could apply to your selected ingredients to determine their suitability for use in making the ready baked frozen product.

Using stakeholder feedback, evaluate and determine the most appropriate techniques and processes to use with the selected ingredients and/or components, and the most appropriate tools and equipment for the ready baked frozen product for its intended environment (export market). For example, effective recipe development should result in a process for preparing a ready baked frozen product suitable for export.

## Making and trialling the prototype

Using the materials (ingredients) and/or components, tools and equipment you have selected, apply practical techniques and processes to make the ready baked frozen product.

Combine the evidence gathered from ongoing testing (i.e. organoleptic testing) and stakeholder feedback and draw conclusions to make informed decisions (i.e. synthesise) in making and trialling the ready baked frozen product.

Trial the ready baked frozen product in its intended social environment (who will be interacting with the outcome), and physical environment (where the outcome will be situated). That is, undertake prototyping to gain evidence of ingredient quality, taste conformity, cooking instructions and presentation to establish its fitness for purpose (i.e. making a ready baked frozen product using only locally sourced products).

Justify any decisions you make to accept and/or modify the ready baked frozen product. Your justification should reflect feedback from a range of stakeholders of the ready baked frozen product.

Have a range of potential customers trial the new ready baked frozen product.

## Evidence

Submit to your assessor/educator:

* the brief that you used
* the completed ready baked frozen product
* the final recipe and planned manufacturing process
* evidence of all trials, tests, evaluations and decisions
* justification that the ready baked frozen product is fit for purpose or that it should be modified.

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Assessor/Educator guidelines

# Introduction

The following guidelines are supplied to enable assessors/educators to carry out valid and consistent assessment using this internal assessment resource.

As with all assessment resources, education providers will need to follow their own quality control processes. Assessors/educators must manage authenticity for any assessment from a public source, because learners may have access to the assessment schedule or exemplar material. Using this assessment resource without modification may mean that learners' work is not authentic. The assessor/educator may need to change figures, measurements or data sources or set a different context or topic. Assessors/educators need to consider the local context in which learning is taking place and its relevance for learners.

Assessors/educators need to be very familiar with the outcome being assessed by the achievement standard. The achievement criteria and the explanatory notes contain information, definitions, and requirements that are crucial when interpreting the standard and assessing learners against it.

# Context/setting

This activity requires learners to undertake effective development to make and trial a justified prototype that addresses an assessor/educator-approved brief.

The prototype is for a ready baked frozen product that is made using locally sourced ingredients for the export market.

# Conditions

This activity is an individual assessment.

The brief, which must include a conceptual statement and specifications, needs to be provided, or these could be developed by the learner and confirmed by the assessor/educator.

# Resource requirements

Assessors/educators must either provide a brief and specifications that are suitable as a starting point, or develop them with learners.

Learners require:

* ingredients, equipment and materials for developing and testing ready baked frozen products
* internet and library access
* access to suppliers, experts and stakeholders.

# Additional information

None

## Other possible contexts for this vocational pathway

Other possible contexts are undertaking development to make and trial a prototype for the manufacture and export of other food products such as dairy (i.e. cheese, frozen yoghurt), baby food, gourmet foods.

# Assessment schedule: Generic Technology 91357 – A pie for every occasion

|  |  |  |
| --- | --- | --- |
| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The learner undertakes effective development to make and trial a prototype by:* evaluating materials and/or components to determine their suitability for use in making a ready baked frozen product
* trialling practical techniques and processes to determine their suitability for use in making a ready baked frozen product
* selecting appropriate materials and/or components, tools and equipment; and applying practical techniques and processes to make a ready baked frozen product

For example:The learner used recipes and research to evaluate possible ingredients and processes for the ready baked frozen product. The learner chose a range of different ingredients and processes and conducted trials to manufacture ready baked pies that can be frozen for the export market. It was decided during the recipe development that a pastry based fruit pie sourced from local ingredients would be the best choice. The learner trialled and tested different types of pastries with different fats and flours to gain stakeholder feedback. The pastry and filling recipes were confirmed using organoleptic testing. The learner selected the use of a food processor to mix the pastry, as this pastry was lighter in texture and quicker to make. This was then frozen to test if it kept its form and taste after defrosting and baking.* using results from testing and stakeholder feedback to inform the making and trialling of the ready baked frozen product

For example:A representative from a food manufacturing company taste tested the ready baked frozen pies and as a result of the feedback the learner precooked the pastry base before adding the fruit in the next trial to ensure the best result when freezing.* undertaking prototyping to gain specific evidence of the ready baked frozen product’s fitness for purpose in its intended physical and social environment

For example:The ready baked pies were frozen then baked again for a focus group of learners, who used sensory analysis (organoleptic testing) to test the pies and give feedback. To ensure product quality and taste conformity, the planned manufacturing process (i.e. food safety, ingredient quantity, presentation) was closely followed.* explaining any decisions to accept and/or modify the ready baked frozen product

For example:It was decided to make ready baked frozen pies from entirely locally sourced ingredients, as this would make the pie cost effective and ensure that it met export requirements for a New Zealand manufactured product.*The above expected learner responses are indicative only and relate to just part of what is required.* | The learner undertakes effective development to make and trial a refined prototype by:* evaluating materials and/or components to determine their suitability for use in a ready baked frozen product
* evaluating practical techniques and processes to determine their suitability for use in making a ready baked frozen product
* selecting appropriate materials and/or components, tools and equipment; and applying practical techniques and processes to make a ready baked frozen product

For example:The learner used recipes and research to evaluate possible ingredients and processes for the ready baked frozen product. The learner chose a range of different ingredients and processes and conducted trials to manufacture ready baked pies that can be frozen for the export market. It was decided during the recipe development that a pastry based fruit pie sourced from local ingredients would be the best choice. The learner trialled and tested different types of pastries with different fats and flours to gain stakeholder feedback. The pastry and filling recipes were confirmed using organoleptic testing. The learner compared manufacturing processes such as making the pastry by hand or by using a food processor and as a result selected the use of a food processor to mix the pastry, as this pastry was lighter in texture and quicker to make. The learner also decided to freeze the pastry trials to test which best retained its form and taste after defrosting and baking.* using evidence from ongoing testing and stakeholder feedback to inform the making and trialling of the ready baked frozen product

For example:The learner tried several methods of combining the fat and flour when making the pastry. The learner tested the resulting pastries by asking a range of potential customers to rate the texture of the different pastries. The learner decided to combine the fat and flour by using the pulse function on the food processor to achieve a lighter texture. This combined with information from a visiting food manufacturing representative to precook the pastry base before freezing, ensured product quality was retained.• undertaking prototyping to gain specific evidence of the ready baked frozen product’s fitness for purpose in its intended physical and social environmentFor example:The ready baked pies were frozen then baked again for a focus group of learners, who used sensory analysis (organoleptic testing) to test the pies and give feedback. To ensure product quality and taste conformity, the planned manufacturing process (i.e. food safety, ingredient quantity, presentation) was closely followed.• explaining any decisions to accept and/or modify the ready baked frozen productFor example:It was decided to make ready baked frozen pies from entirely locally sourced ingredients, as this would make the pie cost effective and ensure that it met export requirements for a New Zealand manufactured product.*The above expected learner responses are indicative only and relate to just part of what is required.* | The learner undertakes effective development to make and trial a justified prototype by:* evaluating materials and/or components to determine their suitability for use in making a ready baked frozen product
* evaluating practical techniques and processes to determine their suitability for use in making a ready baked frozen product
* selecting appropriate materials and/or components, tools and equipment; and applying practical techniques and processes to make a ready baked frozen product

For example:The learner used recipes and research to evaluate possible ingredients and processes for the ready baked frozen product. The learner chose a range of different ingredients and processes and conducted trials to manufacture ready baked pies that can be frozen for the export market. It was decided during the recipe development that a pastry based fruit pie sourced from local ingredients would be the best choice. The learner trialled and tested different types of pastries with different fats and flours to gain stakeholder feedback. The pastry and filling recipes were confirmed using organoleptic testing. The learner compared manufacturing processes such as making the pastry by hand or by using a food processor and as a result selected the use of a food processor to mix the pastry, as this pastry was lighter in texture and quicker to make. The learner also decided to freeze the pastry trials to test which best retained its form and taste after defrosting and baking.* synthesising evidence from ongoing testing and stakeholder feedback to inform the making and trialling of the ready baked frozen product

For example:The learner tried several methods of combining the fat and flour when making the pastry. The learner tested the resulting pastries by asking a range of potential customers to rate the texture of the different pastries. The learner decided to combine the fat and flour by using the pulse function on the food processor to achieve a lighter texture. This combined with information from a visiting food manufacturing representative, to precook the pastry base before freezing ensured product quality was retained.The learner also visited the local baker to observe practical techniques, such as blind baking the pastry bases to seal them and placing the fruit into the pie when it was cold. The learner applied this knowledge and made the ready baked frozen pies again. This resulted in a crisp pastry base that retained its quality after freezing and reheating which is important in an export product.* undertaking prototyping to gain specific evidence of the ready baked frozen product’s fitness for purpose in its intended physical and social environment

For example:The ready baked pies were frozen then baked again for a focus group of learners, who used sensory analysis (organoleptic testing) to test the pies and give feedback. To ensure product quality and taste conformity, the planned manufacturing process (i.e. food safety, ingredient quantity, presentation) was closely followed.* justifying any decisions to accept and/or modify the ready baked frozen product

For example:The decision to make the ready baked frozen pies from entirely locally sourced ingredients was made due to an abundance of available summer fruits. This decision was confirmed by the representative from the food manufacturing company who agreed that using locally sourced ingredients would make the ready baked frozen pies cost effective and meet export requirements for a quality New Zealand manufactured product.*The above expected learner responses are indicative only and relate to just part of what is required.* |

Final grades will be decided using professional judgement based on an examination of the evidence provided against the criteria in the Achievement Standard. Judgements should be holistic, rather than based on a checklist approach.