**NZQA**

**Approved**

Achievement standard: 91056 Version 3

Standard title: Implement a multi-unit manufacturing process

Level: 1

Credits: 4

Resource title: Mussel power

Resource reference: Generic Technology VP-1.13 v2

Vocational pathway: Primary Industries

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| Quality assurance status | These materials have been quality assured by NZQA. NZQA Approved number A-A-02-2015-91056-02-7375 |
| 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

Achievement standard: 91056

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Learner instructions

# Introduction

This assessment activity requires you to implement a multi-unit manufacturing process for half-shell mussel nibbles.

You are going to be assessed on how you implement an effective multi-unit manufacturing process for half-shell mussel nibbles. You will use feedback from quality control to review and modify the process, where necessary, to improve the proportion of mussel nibbles meeting specifications.

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

You are to manufacture a predetermined number of half-shell mussel nibbles. Ensure that you understand the specifications for the mussel nibbles. You may determine your own specifications or they may be provided by your assessor/educator. If determining your own specifications, check with your assessor/educator that they are sufficient to allow you to achieve the standard.

Identify a manufacturing system, for example one-off, batch, or continuous, that would enable your specifications to be met. You will be designing a manufacturing process that communicates the resources, techniques, and quality control procedures you will be using.

You need to identify:

* the labour force available to you (which could be you and/or others)
* the skills of people in your labour force
* the equipment, materials, and floor space available to you
* the ingredients needed to produce the half-shell mussel nibbles
* the most efficient use of available materials (for preparation, cooking, and presentation)
* the most efficient step-by-step process for preparing the half-shell mussel nibbles
* quality control procedures, for example mussel quality, taste conformity, presentation, organoleptic testing. You need to identify how these procedures will be carried out and how the process will allow for responses to feedback and identifying faults
* any food safety issues, for example HACCP (hazard analysis and critical control points) and any cleaning/hygiene practices
* any laws or legal issues.

Decide on:

* the manufacturing process
* the resources needed to implement the process (including ingredients, space, equipment, and workforce) and when you will need them.

A flow diagram might help your planning.

Implement your manufacturing process to produce multiple half-shell mussel nibbles. You need to show evidence of:

* the techniques followed (and information about how they reflected accepted codes and practices, including safety and legal requirements) and resources used for different stages in the manufacturing process
* quality control procedures and their results, to ensure only mussel nibbles that met specifications were accepted
* feedback from quality control being used to review the manufacturing process and, if required, to modify the process to produce an improvement in the proportion of mussel nibbles meeting specifications.

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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 identify and implement an effective multi-unit process for manufacturing half-shell mussel nibbles to meet specifications, using feedback and modification to improve the acceptability of the end product.

Learners will be assessed on the effectiveness of their manufacturing process in terms of the proportion of units produced that meet specifications.

# Conditions

Learners need to complete all of their practical work in the presence of their assessor/educator to enable judgements about the techniques implemented as well as the quality of the outcome.

While learners need to determine the implementation process, they may use other people to help carry out the process.

# Resource requirements

Assessors/educators must either provide or check that learners have specifications (this might include a recipe) that are suitable as a starting point.

Learners will also require access to:

* a space that allows for the manufacturing process to be carried out
* materials, for example mussels and other ingredients that would allow different recipes to be used in the manufacturing process
* tools and equipment the learner and/or their workforce needs in order to work safely to manufacture the mussel nibbles
* HACCP (hazard analysis and critical control points) material.

The following websites may be useful:

<http://www.foodsafety.govt.nz/>

<http://www.foodsafety.govt.nz/elibrary/industry/code-practice-seafood/index.htm>

<http://en.wikipedia.org/wiki/Hazard_analysis_and_critical_control_points>

# Additional information

Learners need to be familiar with:

* different types of manufacturing systems and processes, so that they can select and adapt an appropriate manufacturing process
* safe practices in manufacturing processes, for example acceptable hygiene, safe machining, and appropriate safety gear
* legal requirements for manufacturing products using mussels
* quality control strategies that enable the product to be constructed accurately and meet specifications
* HACCP analysis
* organoleptic testing (sensory – taste, smell, texture).

# Assessment schedule: Generic Technology 91056 – Mussel power

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The learner implements a multi-unit manufacturing process by:* identifying a manufacturing process suitable for multi-unit manufacture of half-shell mussel nibbles

For example:The learner identifies possible manufacturing systems and explains why a batch process is most appropriate. The learner creates a flow diagram of the manufacturing process.* implementing the manufacturing process by using selected resources and carrying out techniques in keeping with accepted practices, including food safety and legal requirements

For example:The learner uses the flow diagram of the manufacturing process to prepare multiple half-shell mussel nibbles. The process is photographed and annotations describe tasks carried out.Evidence includes:* + a recipe and specifications, with details (e.g. of taste tests and presentation requirements)
	+ application of accepted food safety considerations (e.g. best practice for storage of live mussels) with photographs and annotations
	+ a HACCP analysis (e.g. controlling contamination of mussels during chilling)
	+ how the mussel nibbles were manufactured to accepted food safety codes related to seafood.

Some manufacturing faults are not identified at an earlier stage, so some finished mussel nibbles do not meet specifications and therefore are rejected (e.g. several beards are not removed at the required stage).*The above expected learner responses are indicative only and relate to just part of what is required.* | The learner implements a refined multi-unit manufacturing process by:* identifying a manufacturing process suitable for multi-unit manufacture of half-shell mussel nibbles

For example:The learner identifies possible manufacturing systems and explains why a batch process is most appropriate. The learner creates a flow diagram of the manufacturing process.* implementing the manufacturing process by using selected resources and carrying out techniques in keeping with accepted practices, including food safety and legal requirements
* implementing quality control procedures suitable for the manufacturing process and ensuring that only those units that met the specifications have been accepted

For example:The learner uses the flow diagram of the manufacturing process to prepare multiple half-shell mussel nibbles. Photographs and explanations provide evidence of the process, tasks undertaken, and quality control checks (including results) during the manufacturing process, as identified in the flow diagram.Quality control includes:* + checking the mussels are de-bearded
	+ removing any opened shells that may be contaminated (according to the food safety code)
	+ checking the recipe is followed accurately to guarantee conformity of taste (e.g. same ingredients continually used, taste-testing the final product)
	+ checking the half-shell is unbroken and the mussel colour is uniform
	+ checking the final presentation.

Mussel nibbles that do not meet specifications and quality control checks are identified and either rectified or rejected.*The above expected learner responses are indicative only and relate to just part of what is required.* | The learner implements an effective multi-unit manufacturing process by:* identifying a manufacturing process suitable for multi-unit manufacture of half-shell mussel nibbles

For example:The learner identifies possible manufacturing systems and explains why a batch process is most appropriate. The learner creates a flow diagram of the manufacturing process.* implementing the manufacturing process by using selected resources and carrying out techniques in keeping with accepted practices, including food safety and legal requirements
* implementing quality control procedures suitable for the manufacturing process and ensuring that only those units that met the specifications have been accepted
* using feedback from quality control to review and modify the manufacturing process, where necessary, leading to an improvement in the proportion of units meeting the specifications

For example:The learner uses the flow diagram of the manufacturing process to prepare multiple half-shell mussel nibbles. Photographs and explanations provide evidence of the process, tasks undertaken, and quality control checks (including results) during the manufacturing process, as identified in the flow diagram.Evidence shows the learner used feedback from quality control to inform the manufacturing process; where specifications were not being met, they improved the process to produce more half-shell mussel nibbles that were acceptable*.* For example:* + the learner discovers it is difficult for workers to position the half-shell mussel nibbles to the required packaging specifications. They produce a photograph that displays the correct packaging as an example, which results in a greater proportion meeting requirements
	+ the results of organoleptic testing of the topping reveal that a change to a cheaper ingredient is not acceptable to consumers. The process reverts to the original ingredient.
	+ the learner observes that the topping is being applied inconsistently, resulting in the taste being altered. They change the measuring spoon to reduce the chance of over- or under-topping the mussel nibbles and altering the taste. This strategy results in an increased number meeting taste specifications.

Specific evidence of the learner’s response to quality control feedback includes:* + ‘before and after’ photos, including annotations, of half-shell mussel nibbles, to show how modifications have led to more acceptable results
	+ when a half-shell mussel nibble meets the specifications without any change to the process, a photograph is provided with annotations describing the quality control checks.

*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.