**NZQA**

**Approved**

Achievement standard: 91083 Version 3

Standard title: Demonstrate understanding of basic concepts used in processing

Level: 1

Credits: 4

Resource title: Presenting processing in preserving

Resource reference: Processing Technologies VP-1.61 v2

Vocational pathway: Services Industries

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| Quality assurance status | These materials have been quality assured by NZQA. NZQA Approved number A-A-02-2015-91083-02-7382 |
| 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: 91083

Standard title: Demonstrate understanding of basic concepts used in processing

Level: 1

Credits: 4

Resource title: Presenting processing in preserving

Resource reference: Processing Technologies VP-1.61 v2

Vocational pathway: Services Industries

Learner instructions

# Introduction

This assessment activity requires you to demonstrate your understanding of basic concepts used in processing to make preserves.

You are going to be assessed on how comprehensively you demonstrate your understanding of basic concepts used in processing to make preserves.

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

Create an individual presentation that demonstrates your understanding of the basic concepts used in processing ingredients to make preserves. The presentation will contain information about the processing operations, testing and safe practices, used to process ingredients to make preserves.

## Investigate

Carry out some initial investigations. Working in pairs or small groups, find out about how food ingredients are processed to make different types of preserves, for example jams, jellies, sauces, etc. For each product, gather information about:

* the processing operations and their differences
* the order in which the operations are carried out, and the reason for this order
* the tests that are applied during the processing, when they are applied, and how they informed the processing to ensure the end product had the required qualities
* the safety procedures followed
* why a processing sequence failed to produce the desired result.

During your investigation:

* compare and contrast the processing and testing of ingredients to make different preserves
* identify the similarities and differences between processing and testing these products
* identify the safety procedures followed when working with them
* gain an understanding of how processing and testing, results in preserves with different textures, densities, colours and flavours.

## Present your findings

Use the results of your investigations to compile your presentation and include the following:

* Describe, identify and explain processing operations, and how these achieve the resulting outcomes in preserves. Ensure that you include at least one processing operation from each of the following categories:
	+ measuring, shaping, or finishing (e.g. weighing, counting, grinding, slicing, moulding)
	+ containment, contamination prevention, or disposal (e.g. hygienic handling of materials, sanitising, working aseptically, safe disposal of biologically active materials)
	+ mixing, extracting, separating, or growing (e.g. liquid mixing, blending, mechanical peeling, sieving, washing, juicing, crushing, culturing by plating)
	+ heating, cooling, or reacting (e.g. liquid heating, heating a solid, maintaining temperature for growth, acidifying, controlling of enzymes).
* Describe the role, and explain the importance of tests in processing operations when making preserves:
	+ testing refers to such things as testing for temperature, colour, size, shape, texture, and whether the product is cooked or set
	+ testing during processing could include temperature, weight, size of yields and accurate weighing.
* Describe safe practices in processing preserves.
* Describe how and explain why processing operations and tests are combined in a processing sequence when preserving.
* Compare and contrast processing operations and tests and their suitability for different materials and/or purposes within preserving.
* Discuss the relationship/s between processing operations, tests, and outcomes required when preserving.

You could include annotated flow diagrams, written discussion, annotated photos or short video clips of the experimenting you did and/or diagrams where appropriate.

# Resource A

## Useful reading

* Murano, P 2002, *Understanding Food Science and Technology,* Brooks Cole, United States.
* Hallam, E 2005, *Understanding Industrial Practices*, Nelson Thornes, United Kingdom.
* Resurreccion, A 1998, *Consumer Sensory Testing for Product Development,* Aspen Publishers, United States.

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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 demonstrate their comprehensive understanding of basic concepts used in processing preserves.

# Conditions

Learners could work independently or in groups to develop their understanding, but they need to create their presentation independently, and will be assessed individually. Decide on the format of the final presentation to ensure learners can demonstrate their understanding of the standard.

# Resource requirements

The assessor/educator will provide learners with opportunities to explore a range of processing operations, testing techniques and appropriate safety procedures in processing.

# Additional information

None.

# Assessment schedule: Processing Technologies 91083 – Presenting processing in preserving

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The learner demonstrates understanding of basic concepts used in processing preserves by:* describing processing operations and identifying the resulting outcomes

For example :The learner describes at least one processing operation from each of the following categories:* + measuring, shaping or finishing e.g. measuring the pectin, ratio of sugar to fruit
	+ containment, contamination prevention, or disposal e.g. sterilising containers, destroying micro-organisms, sealing
	+ mixing, extracting, separating, growing e.g. stirring in pectin, pulping and/or juicing the fruit
	+ heating, cooling or reacting e.g. heating to evaporate water, drying when making paste.

The learner describes how processing operations change for different types of preserves e.g. for jam, fruit and sugar are boiled until setting point is reached, then bottled. Whereas for fruit jelly, the fruit is boiled to extract the liquid, the liquid strained, and then simmered with sugar until setting point is reached, then bottled.* describing the role of tests in processing operations and how processing operations and tests can be combined in a processing sequence

For example the learner describes:* + how weighing and measuring must be accurate to ensure the correct ratio of ingredients to produce the desired product
	+ how a pectin and/or acid test is required to ensure that a gel will form, and the preserve will set
	+ how ingredients can be replaced if too acidic
	+ how the soluble solids are read with a brix scale to determine the finishing point.
* describing safe practices in processing

For example the learner describes:* + routine personal hygiene practices e.g. washing hands, clean clothing, hair tied back, no nail polish or jewellery
	+ food safety practices e.g. fruit and/or vegetable quality, temperatures, storage
	+ how equipment is cleaned and sterilised
	+ kitchen safety e.g. handling sharp knives and hot jars.

*The above expected learner responses are indicative only and relate to just part of what is required.* | The learner demonstrates in-depth understanding of basic concepts used in processing preserves by:* explaining processing operations and how these achieve required outcomes

For example:The learner explains at least one processing operation from each of the following categories:* + measuring, shaping or finishing e.g. measuring the pectin, ratio of sugar to fruit
	+ containment, contamination prevention, or disposal e.g. sterilising containers, destroying micro-organisms, sealing
	+ mixing, extracting, separating, growing e.g. stirring in pectin, pulping and/or juicing the fruit
	+ heating, cooling or reacting e.g. heating to evaporate water, drying when making paste.

The learner explains how processing operations change for different types of preserves e.g. for jam, fruit and sugar are boiled until setting point is reached, then bottled. Whereas for fruit jelly, the fruit is boiled to extract the liquid, the liquid strained, and then simmered with sugar until setting point is reached, then bottled.The learner explains how ingredients (e.g. fruit, sugar and water) must be measured or weighed out in the correct ratios to ensure the jam will set and not develop mould.* explaining the importance of tests in processing operations and why operations and tests are combined in a processing sequence

For example:* + how weighing and measuring must be accurate to ensure the correct ratio of ingredients to produce the desired product
	+ how a pectin and/or acid test is required to ensure that a gel will form, and the preserve will set
	+ how ingredients can be replaced if too acidic
	+ the soluble solids are read with a brix scale to determine the finishing point
	+ how in jam making, the pectin level of the fruit can be tested before processing to see if pectin is required to be added to get a gel or set. A small sample of the fruit is cooked and the juice is strained
	+ how the juice is mixed with methylated spirits, and how a gel is formed if sufficient pectin.
* describing safe practices in processing

For example the learner describes:* + routine personal hygiene practices e.g. washing hands, clean clothing, hair tied back, no nail polish or jewellery
	+ food safety practices e.g. fruit and/or vegetable quality, temperatures, storage
	+ how equipment is cleaned and sterilised
	+ kitchen safety e.g. handling sharp knives and hot jars.

*The above expected learner responses are indicative only and relate to just part of what is required.* | The learner demonstrates comprehensive understanding of basic concepts used in processing preserves by:* comparing and contrasting processing operations and tests, and their suitability for different materials and/or purposes

For example:The learner describes, explains, and compares and contrasts at least one processing operation from each of the following categories:* + measuring, shaping or finishing e.g. measuring the pectin, ratio of sugar to fruit
	+ containment, contamination prevention, or disposal e.g. sterilising containers, destroying micro-organisms, sealing
	+ mixing, extracting, separating, growing e.g. stirring in pectin, pulping and/or juicing the fruit
	+ heating, cooling or reacting e.g. heating to evaporate water, drying when making paste.

The learner discusses how, when making jelly, the amount of water used to boil the fruit will be different from making jam, as the liquid is required to soften the fruit to enable the juice to be strained, and to extract the flavour, colour and pectin. The strained liquid must be boiled with sugar until setting point is reached, and the learner compares how the boiling time required to set fruit will vary according to the liquid and pectin levels.The learner discusses how processing operations change for different types of preserves e.g. for jam, fruit and sugar are boiled until setting point is reached, then bottled. Whereas for fruit jelly, the fruit is boiled to extract the liquid, the liquid strained, and then simmered with sugar until setting point is reached, then bottled.The learner explains how ingredients (e.g. fruit, sugar and water) must be measured or weighed out in the correct ratios to ensure the jam will set and not develop mould.* discussing the relationship/s between processing operations, tests, and outcomes required

For example the learner describes and explains:* + how weighing and measuring must be accurate to ensure the correct ratio of ingredients to produce the desired product
	+ how a pectin and/or acid test is required to ensure that a gel will form, and the preserve will set
	+ how ingredients can be replaced if too acidic
	+ the soluble solids are read with a brix scale to determine the finishing point
	+ how in jam making, the pectin level of the fruit can be tested before processing to see if pectin is required to be added to get a gel or set. A small sample of the fruit is cooked and the juice is strained
	+ how the juice is mixed with methylated spirits, and how a gel is formed if sufficient pectin.

The learner discusses:* + how testing for pectin is more important when making fruit jelly as a set product is needed for cutting and serving with cheese, spreading on bread etc. whereas the fruit pulp in jam adds to its thickness
	+ how fruits rich in pectin and acid produce a better set or gel.
* describing safe practices in processing

For example the learner describes:* + routine personal hygiene practices e.g. washing hands, clean clothing, hair tied back, no nail polish or jewellery
	+ food safety practices e.g. fruit and/or vegetable quality, temperatures, storage
	+ how equipment is cleaned and sterilised
	+ kitchen safety e.g. handling sharp knives and hot jars.

*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.