**NZQA**

**Approved**

Achievement standard: 91082 Version 3

Standard title: Implement basic procedures to process a specified product

**Level:** 1

**Credits:** 4

**Resource title:** From flax fibre to paper

Resource reference: Processing Technologies VP-1.60 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-02-2015-91082-02-7378 |
| 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: 91082

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Vocational pathway: Primary Industries

Learner instructions

# Introduction

This assessment activity requires you to implement basic procedures to process the plant fibres of harakeke to make paper to meet specifications.

You are going to be assessed on how efficiently you implement basic procedures to process harakeke fibres to make paper to meet 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.

There has been a drive to strengthen the role of flax (harakeke) in land management systems for environmental reasons. Mass plantings also provide commercial returns by supplying to niche markets for processing into such things as pulp/paper/packaging, flax gel, flaxseed oil, bio composites, textiles.

# Preparing (you will not be assessed on these preparations)

## Step 1: A step-by-step guide

If your assessor/educator has provided a step-by-step guide, read it carefully and ask questions about requirements if you need to. If you have not been given a step-by-step guide, write your own guide for processing paper and check it with your assessor/educator.

Your guide must include these processing operations:

* one or more of measuring, shaping or finishing
* one or more of contamination prevention or disposal
* one or more of mixing, extracting, separating or growing
* one or more of heating, cooling or reacting.

Make sure you know how to apply these processing operations in a way that complies with health and safety practices within your work place.

## Step 2: Getting ready

Select your materials/ingredients and practise the processing operations you will use until you can apply them efficiently and confidently. Make sure you are familiar with the testing required to ensure your final product meets your specifications.

Decide how you will keep evidence of what you did, how it worked, and how you addressed any problems. For example, this might include making notes on your step-by-step guide to show the results of the tests you carried out and taking photographs to show the process you followed.

# Task

## Make your paper

Make your paper to meet specifications, by following your step-by-step guide.

Your assessor/educator will need to see evidence of:

* how accurately you follow your step-by-step guide and meet specifications
* the tests you carry out to make sure your product meets your specifications
* how independently you work as you carry out your processing operations and tests
* how well you make use of time, effort and materials/ingredients.

# Resource A

## Sample specifications

The paper:

* has a useable writing/art surface
* has minimal contaminants
* is flat
* is within the acceptable colour range
* is 400gms/m2 (+/- 50gm)

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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 efficiently implement basic procedures (processes and tests) to produce paper from flax fibres that meets a prescribed set of specifications. Alternatively, learners could negotiate a variation of product and specifications.

# Conditions

Ensure that learners are allowed time to experiment with and manipulate the processes to produce a quality final product.

This is an individual assessment activity but learners may be paired up to allow easier documentation of the procedures used. For example, a learner could get a partner to capture, on their phone or iPad, some evidence demonstrating the ‘separating’ process.

It is expected that the assessor/educator will modify Resource A.

Assessors/educators are required to assess the ways in which the processing operations and tests are implemented as well as the quality of the outcome.

# Resource requirements

You will need to provide:

* access to a room with the necessary equipment to meet specifications (for example a suitable container for the pulp mixture: either a blender or a mortar and pestle; a screen to form the paper sheet on; an iron)
* materials such as flax fibres and liquid starch that are needed to meet specifications
* specifications and a step-by-step guide – or examples that learners can refer to when creating their own specifications
* access to a camera or video recorder (so that learners can take and annotate photographs or videos to use as evidence).

The following websites and book may be useful:

Making flax paper <http://alibrown.co.nz/blog/making-flax-paper>

Davis, M (1982). *Making paper in New Zealand.* Native Forest Action Council (N.Z.)

Pakohe quality papers <http://www.pakohe.co.nz/about.html>

Disposing of flax <http://www.flaxworks.co.nz/index.php?option=com_content&task=view&id=16&Itemid=33>

<http://www.alibrown.co.nz/gathering-flax.html>

# Additional information

While it is not a requirement of this standard to have learners harvest the harakeke, the following resources may be useful for understanding some Māori protocols associated with harvesting:

<http://www.paharakeke.co.nz/about/harakeke-folklore-rituals/>

<http://www.alibrown.co.nz/gathering-flax.html>

<http://collections.tepapa.govt.nz/theme.aspx?irn=3623>

Prendergrast, Mick (2008). *Te Mahi Kete: Māori Flaxcraft for Beginners*. Penguin

The work environment must provide the equipment and materials that learners need in order to work safely to process their paper.

The materials and the processing operations followed must provide sufficient scope for the learners to implement basic processing operations to make a product that meets specifications (or to make another negotiated product). These specifications should be short statements that describe the finished product. They should not describe a particular skill or efficiency.

## Other possible contexts for this vocational pathway:

* making compost.

# Assessment schedule: Processing Technologies 91082 – From flax fibre to paper

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The learner implements basic procedures to process a specified product by:* following a set of processing operations to make paper that meets specifications

The learner uses one or more processing operations from each of the following four categories:* + measuring, shaping or finishingThe learner weighs the flax fibres; measures the starch powder and/or caustic soda that is to be added
	+ contamination prevention or disposalThe learner strains the fibres in a cheesecloth bag and rinses until the water is almost clear, flax scraps are disposed of in a culturally responsive manner
	+ mixing, extracting, separating or growingThe learner pulps the mixture with a blender
	+ heating, cooling, reactingThe learner boils then simmers the flax fibres to remove the impurities.
* undertaking a range of appropriate tests to ensure that the paper meets specifications

For example, the learner:* + measures/weighs the paper to check for thickness and uniformity – adds more fibre but may not count or weigh the amount of fibre accurately
	+ uses the colour chart to check paper whiteness
	+ writes on the paper to check resistance to ink penetration
	+ tests for flatness and adds an unmeasured quantity of water which improves the consistency
	+ the learner makes the paper to meet the specifications. However it is not entirely free of contaminants and the colour is not quite in the range.
* applying processing operations that comply with relevant health and safety practices

For example, the learner:* + uses appropriate tools to prepare the fibre
	+ follows hygienic practices and cultural protocols when handling the plant materials
	+ follows workshop instructions for the safe use of machines
	+ avoids hazards identified in the health and safety plan.

*The above expected learner responses’ are indicative only and relate to just part of what is required.* | The learner skilfully implements basic procedures to process a specified product by:* showing independence and accuracy when following a set of processing operations to make paper that meets specifications

For example, the learner independently and accurately applies one or more processing operations from each of the following four categories:* + measuring, shaping or finishing The learner weighs the flax fibres with high quality electronic scales; measures the starch powder and/or caustic soda that is to be added
	+ contamination prevention or disposal

The learner strains the fibres in a cheesecloth bag and rinses until the water runs clear, flax scraps are disposed of in a culturally responsive manner* + mixing, extracting, separating or growing

The learner pulps the mixture with a blender* + heating, cooling or reacting

The learner boils (for a precise amount of time) then simmers the flax fibres to remove the impurities.* independently and accurately undertaking a range of appropriate tests to demonstrate that the paper meets specifications

For example, the learner:* + measures/weighs the paper to check for thickness and uniformity – adds more fibre and ensures the recipe is adjusted accordingly
	+ uses the colour chart to check paper whiteness
	+ writes on the paper to check resistance to ink penetration – and adjusts the recipe accordingly
	+ tests for flatness and adds water which improves the consistency
	+ the paper meets specifications (it is usable, has minimal contaminants and the colour is in the range).
* applying processing operations that comply with relevant health and safety practicesFor example, the learner:
	+ uses appropriate tools to prepare the fibre
	+ follows hygienic practices and cultural protocols when handling the plant materials
	+ follows workshop instructions for the safe use of the machinery
	+ avoids hazards identified in the health and safety plan.

*The above expected learner responses are indicative only and relate to just part of what is required.* | The learner efficiently implements basic procedures to process a specified product by:* showing independence and accuracy when executing processing operations to make paper that meets specifications, in a manner that economises time, effort and materials

For example, the learner independently and accurately uses one or more processing operations from each of the following four categories:* + measuring, shaping or finishing The learner weighs the flax fibres at several stages so they are only harvesting the quantity required; measures the starch powder and/or caustic soda carefully so there is no wastage
	+ contamination prevention or disposal

The learner strains the fibres in a cheesecloth bag and rinses until the water runs clear, flax scraps are disposed of in a culturally responsive manner* + mixing, extracting, separating or growing

The learner pulps the mixture with a blender* + heating, cooling or reacting

The learner boils (for a precise amount of time) then simmers the flax fibres to remove the impurities – during this process equipment is gathered and set up for the next stage* + the learner ensures time and effort is utilised wisely by making additional sheets while earlier ones are still in process; keeps work space tidy and organised so that equipment is always available.
* independently and accurately carrying out a range of appropriate tests to demonstrate that the paper meets specifications, in a manner that economises times, effort and materials

For example, with minimal support, the learner:* + measures/weighs a sample of the paper to check for thickness and uniformity - adds more fibre and ensures the recipe is adjusted accordingly
	+ uses the colour chart to check paper whiteness for a sample – adjusts the recipe accordingly
	+ writes on the paper to check resistance to ink penetration – no adjustments are needed as they thoroughly researched their recipe
	+ tests for flatness at an early stage and adds water to ensure ongoing consistency
	+ the learner’s responses to tests show a sound understanding of the specifications and therefore reduce the need for further testing in order to get the final product correct
	+ the paper meets specifications (it is usable, has minimal contaminants and the colour is in the range).
* applying processing operations that comply with relevant health and safety practicesFor example, the learner:
	+ uses appropriate tools to prepare the fibre
	+ follows hygienic practices and cultural protocols when handling the plant materials
	+ follows workshop instructions for the safe use of the machinery
	+ avoids hazards identified in the health and safety plan.

*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.