

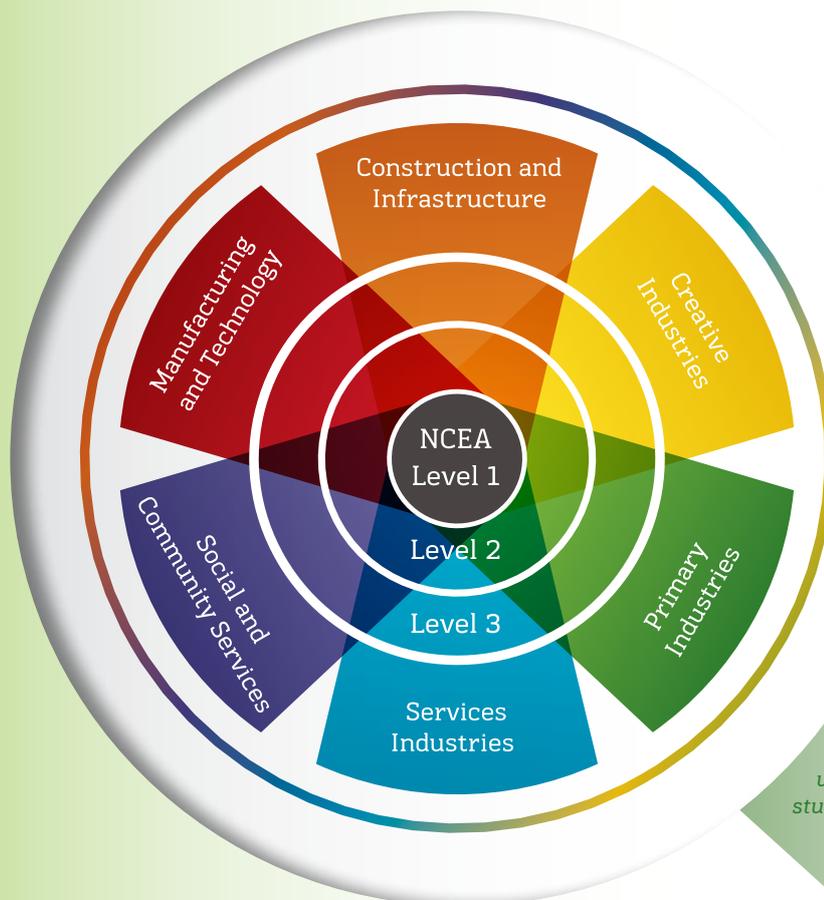
## GUIDANCE DOCUMENT

This document provides guidance to schools, ITOs and tertiary providers who wish to develop programmes using the Vocational Pathways. Contexts of learning are provided as examples to encourage development in the sector.



# Introduction to Agriculture and Farming in New Zealand

*Guidance for developing a contextualised learning programme for the Primary Industries Vocational Pathway*



*Graduate with NCEA Level 2*

*Pathway to Level 2-6 industry skills or pathway to university professional study for industry*

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# Background

## Introduction

This document provides guidance for educators who wish to develop learning programmes using particular Vocational Pathways. It outlines key ideas about Vocational Pathways and delivery approaches that align with a Vocational Pathway philosophy, drawing together secondary and tertiary perspectives on the competencies that are required for NCEA Level 2, and exploring the connections within and across pathways. Programme design is a key feature, which includes examples of practice for organisations to consider when thinking about their own contexts. Finally, considerations related to assessment possibilities are discussed. Questions are posed throughout the book for you to deliberate on and share your thinking with your colleagues.

## Aim of Vocational Pathways

The New Zealand Curriculum<sup>1</sup> outlines a vision for all young people:

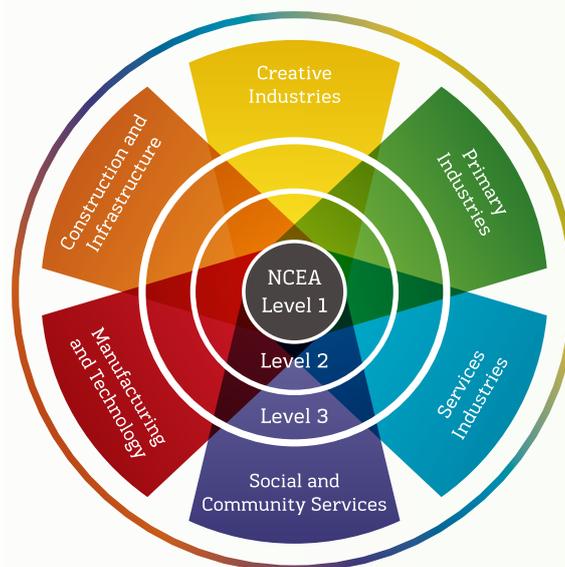
- who will be creative, energetic, and enterprising;
- who will seize the opportunities offered by new knowledge and technologies to secure a sustainable social, cultural, economic, and environmental future for our country;
- who, in their school years, will continue to develop the values, knowledge, and competencies that will enable them to live full and satisfying lives;
- who will be confident, connected, actively involved, and lifelong learners.

To achieve this vision we need to provide all young people with an education that enables them to develop the **foundational** knowledge and skills that employers are seeking.<sup>2</sup> Employers are already reporting difficulty in filling the jobs that are needed to grow their businesses owing to a mismatch between their expectations and the provision of skills and knowledge by potential employees. Furthermore, recent research has shown that employment growth in New Zealand will be stronger for more highly-skilled professions and trades but weaker in low and semi-skilled professions.<sup>3</sup> Achieving NCEA Level 2, with Level 1 literacy and numeracy, provides the **foundation** skills, knowledge and competencies that will enable students to transition successfully to further education, training and employment.

## Vocational Pathways

Vocational Pathways provide students with a framework to consider their options, identify the relevance of their learning and see the links between education and employment, using tools such as the **'profile builder'**. Using the Vocational Pathways ensures that deliberate steps are made towards equipping all students with the skills, knowledge and competencies that will allow them to succeed. The pathways also provide direct linkages between what students are learning at school, in a tertiary setting, or with an ITO provider, and the skills they will need in the future. At present there are five pathways, and a sixth pathway for Creative Industries will be available in 2014.

Figure One: The Vocational Pathways



1. Ministry of Education, 2007, p.8
2. Harrity, 2013
3. Ministry of Business Innovation and Employment, 2012, p.5

## What is a learning programme?

This section aims to clarify the nature of a learning programme within a Vocational Pathway approach. Learning programmes are defined as a set of interconnected courses based on broadly defined outcomes that progress a student towards a particular qualification. A course is generally one component within a programme, described by specifically defined outcomes and includes content and teaching and learning activities, and assessment set within a time-frame. For example, in a school setting a student may follow a programme that consists of an 'academy' course, supported by two additional or optional courses. Alternatively it may be an integrated programme developed across curricula

and delivered by several teachers or tutors. Tertiary providers may also work with schools to provide programmes that the schools by themselves cannot offer. You may want to consider the following questions to review the extent to which your learning programmes align with a Vocational Pathways approach.

- How are programmes for all your students presently thought about for development?
- Who has the role of developing these programmes?
- What curricula are the learning programmes based upon?
- How is the student involved in programme creation?
- To what extent do the learning programmes show a direction through study to employment?

## Key ideas about Vocational Pathways

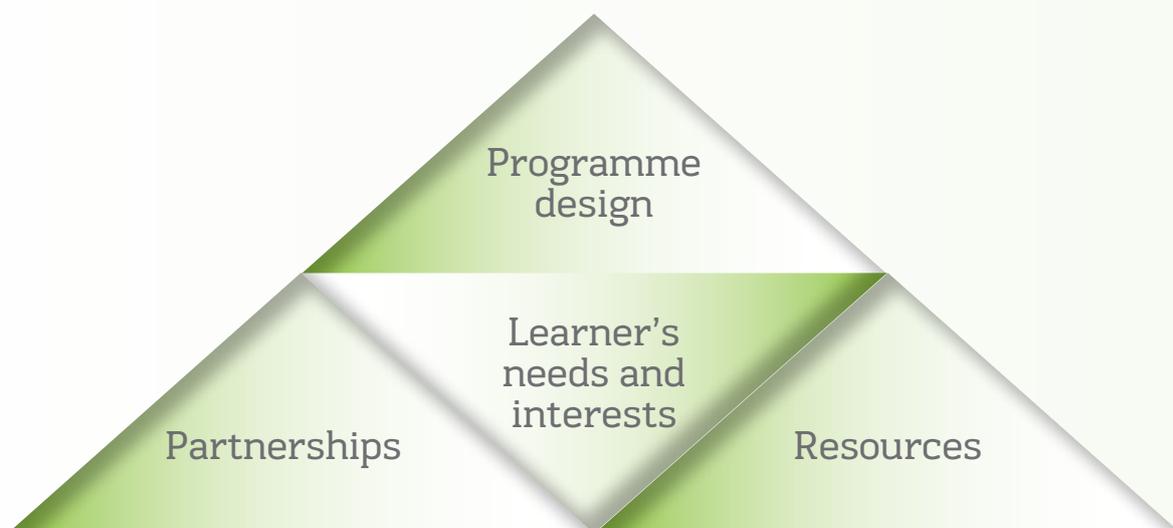
### Student-centred approach

Programmes are designed to be responsive; those that respond to the particular needs and interests of students will provide the basis for increased engagement in learning, leading to higher achievement. When an organisation is independently considering the provision of resources and conditions for innovative programmes such as Vocational Pathways, this can appear difficult to achieve. However, by working alongside other partners who share the same aim for their students, the learning options for students broaden (see Figure Two).

### Principles of a Vocational Pathways Approach

The Principles of the New Zealand Curriculum<sup>4</sup> set out what is important and desirable in a programme of learning. Figure Three highlights four of the principles and illustrates how these align with the Principles of the Vocational Pathway approach.

Figure 2: Collaborative approach to programme design



4. Ministry of Education, 2007

Figure 3: Principles underpinning programme design

NZ Curriculum Principles	Vocational Pathways Principles
<p><b>High expectations</b> The learning programme supports and empowers all students to learn and achieve personal excellence, regardless of their individual circumstances.</p> <p><b>Inclusion</b> The learning programme ensures that all students feel valued and that their learning needs are addressed.</p> <p><b>Coherence</b> The learning programme offers all students a broad education that makes links within and across learning areas, provides for coherent transitions, and opens up pathways to further learning.</p> <p><b>Future focus</b> The learning programme prepares students for the future.</p>	<p><b>Principle 1</b> Programmes of learning and courses are student-centred.</p> <p><b>Principle 2</b> Programmes of learning and courses comprise coherent knowledge and skills.</p> <p><b>Principle 3</b> Programmes of learning are within a coherent learning pathway leading to New Zealand qualifications and employment.</p> <p>Please refer to Appendix One, which provides guidance for educators when planning programmes that respond to the Principles of the New Zealand Curriculum and Vocational Pathways.</p>

## Benefits for learners

Engaged in a programme of learning related to a Vocational Pathway, or across Vocational Pathways, learners could:

### 1. Gain a foundation experience, knowledge and skills in a Vocational Pathway

- Learners are equipped with a foundational knowledge, understanding and realistic expectation of the employment sector requirements.
- A graduate can achieve NCEA Level 2, which includes literacy (10 credits) and numeracy (10 credits) at Level 1 or above including
- 60 Level 2 credits from the *recommended* assessment standards for a particular Vocational Pathways sector, of which 20 Level 2 credits are from *sector-related* standards for the same sector, which can be found in the following [link](#).
- May also be eligible for a [Vocational Pathway Award](#) in Primary Industries, which can be requested from June 2014 and will be automatically available from 2015.
- May also be eligible for NCEA Level 2 course endorsement, where students have performed exceptionally well (14 credits at excellence or merit) in individual courses.
- May also be eligible for NCEA Level 2 certificate endorsement, if a student gains 50 credits at excellence or merit level.

### 2. Be prepared for higher learning

- From February 2014 a Vocational Profile will be accessible on the NZQA website.
- A graduate from a Level 2 "Introduction to Agriculture and Farming in New Zealand" Vocational Pathways programme will have their foundation for higher learning knowledge, skills and valued competencies acknowledged.
- A graduate will achieve NCEA Level 2 through study at Level 7 of The New Zealand Curriculum and in relevant industry knowledge and skills at New Zealand Qualifications Framework Level 2 or higher.
- NCEA Level 2 with one or more VP Awards will allow students to progress either to NZQF Level 4 Apprenticeships and Certificates, or to NZQF Levels 5 to 6 Diplomas, or to NZQF Levels 5 to 7 degree qualifications. The entry point to all three routes is often through Level 3, but direct entry to Level 4 and 5 can occur at the discretion of the educational provider. It is recommended that learners, along with their family and whānau, make well-informed choices using the available educational and careers information and advice.

### 3. Understand and be aware of the pathways from education towards employment

- See what future courses and qualifications are available after completing the current programme of learning.
- Understand how the programme of learning can lead towards future employment.
- Understand how key competencies are being developed in this programme and how they are valued by future employers in the Primary Industries pathway.
- Understand how and why subject knowledge, skills and practices are important in this programme and how they contribute to the world of work across the Primary Industries sector.
- Understand how learning in the Primary Industries pathway can open up discussion of issues that are important to the wider community and industry.

# Getting started

Schools, tertiary organisations and ITOs are at different places on the journey to provide Vocational Pathways for all students. In some instances collaborative relationships between organisations have been forged a long time ago, in an attempt to respond to student needs and interests, whilst in others this is still growing. This section is intended to help you wherever your starting point may be.

## Strengthening and building partnerships

Collaboration and communication between secondary, tertiary and ITOs will enable educators to develop a full understanding of their students' needs, and how best to accommodate them. You may want to use the following questions to initiate conversation and reflection.

- What are our learner needs? What evidence do we have to inform us? How do we use it?
- How will students' progress and needs be monitored and shared?
- Who do we currently have relationships with?
- What possible new partnerships could be formed? Who should do this?
- How would new partnerships create benefits for our students?
- How could partnerships be strengthened?
- How will new initiatives be tracked and monitored?
- How could we alter our business model or share funding to accommodate greater changes?

*Figure Four: Essential components for designing an effective learning programme*

FIRST LEVEL OF PLANNING	
Students	Evidence is used to identify all student needs and interests, and students are engaged in learning.
Current learning programmes	Partners review current programmes and assess to what extent programmes are meeting the needs of the students, including those at risk of disengaging and those currently not achieving.
Community and Industry	Collaboration with the community, possible new partnerships are established, and others strengthened. Resources may be reviewed again.
Resourcing	Partners assess current resourcing and explore possible new options with community input. Educator and other expertise, for example industry, is explored, identified and sourced, this includes the need for particular expertise to support or extend students. The requirements for facilities, equipment, materials and tools are scoped.
SECOND LEVEL OF PLANNING	
Programme design	Programmes created incorporate relevant industry content and the learning areas in the New Zealand Curriculum, and focus on essential skills and key competencies, with progression to further education and employment.
Teaching and learning/ delivery approaches	Educators use evidence of teaching approaches that have a positive impact on their students. A reflective approach is used by all educators and students (see teaching and learning section).
Location of learning	Partners identify and utilise the most appropriate locations for learning.
Connections	Connections with workplace, community and industry are actively maintained.
Assessment approaches	Assessment delivery caters for individual student needs. Quality Assurance processes exist and are monitored.

# Teaching and delivery approaches

Regardless of the location of learning, there is extensive, well-documented evidence about the kinds of teaching approaches that consistently have a positive impact on the achievement of students. The research tells us that students learn best when educators:

- create a supportive learning environment;
- encourage reflective thought and action;
- enhance the relevance of new learning;
- consistently make connections between learning and the world of employment;

- facilitate shared learning;
- make connections to prior learning and experience;
- provide sufficient opportunities to learn;
- inquire into the teaching–learning relationship.<sup>5</sup>

Successful integration of E-learning into programmes of learning also supports and motivates students to achieve.<sup>6</sup> Whilst this list is by no means exhaustive, Figure Five outlines a number of other teaching delivery approaches that could be considered.

*Figure Five: Teaching and delivery approaches*

<b>Contextualised learning</b>	<ul style="list-style-type: none"> <li>• real life and industry-related contexts</li> <li>• cultural contexts</li> <li>• build products where possible, for actual clients.</li> </ul>
<b>Problem solving</b>	<ul style="list-style-type: none"> <li>• use problem-based scenarios</li> <li>• use actual situations in real time</li> <li>• use virtual simulations.</li> </ul>
<b>Skills development</b>	<ul style="list-style-type: none"> <li>• introduce a wide range of foundational skills and competencies</li> <li>• skills are taught and practised regularly in a variety of situations.</li> </ul>
<b>Work-integrated learning experiences</b>	<ul style="list-style-type: none"> <li>• visits to a range of relevant industry sites</li> <li>• meet a range of industry employees across levels of the industry</li> <li>• use available funding mechanisms to support work-integrated learning experiences (e.g. Gateway and STAR)</li> </ul>
<b>Relationship building</b>	<ul style="list-style-type: none"> <li>• affirmation of identity, language and culture</li> <li>• relationships are positive and learning engages students' interests and cultural perspectives</li> <li>• students' achievements, attitudes, personal backgrounds and interests are sought.</li> </ul>
<b>Special education needs</b>	<ul style="list-style-type: none"> <li>• teaching environments are modified to include all students</li> <li>• learning difficulties and/or problematic behaviours lead to appropriate student support.</li> </ul>
<b>Health and Safety</b>	<ul style="list-style-type: none"> <li>• the physical and cultural health and safety of individuals, groups and visitors is well managed.</li> </ul>
<b>Learning and assessment feedback</b>	<ul style="list-style-type: none"> <li>• all formative feedback is regular, on time, in manageable chunks, and next steps are clearly identified</li> <li>• all summative feedback identifies next steps and sets achievable challenges and goals.</li> </ul>
<b>Reflective practice</b>	<ul style="list-style-type: none"> <li>• educators constantly reflect on what is going well and not so well and adjustments are regularly made. Educators encourage students to do the same.</li> </ul>



5. New Zealand Curriculum p.33  
6. Ministry of Education, 2007

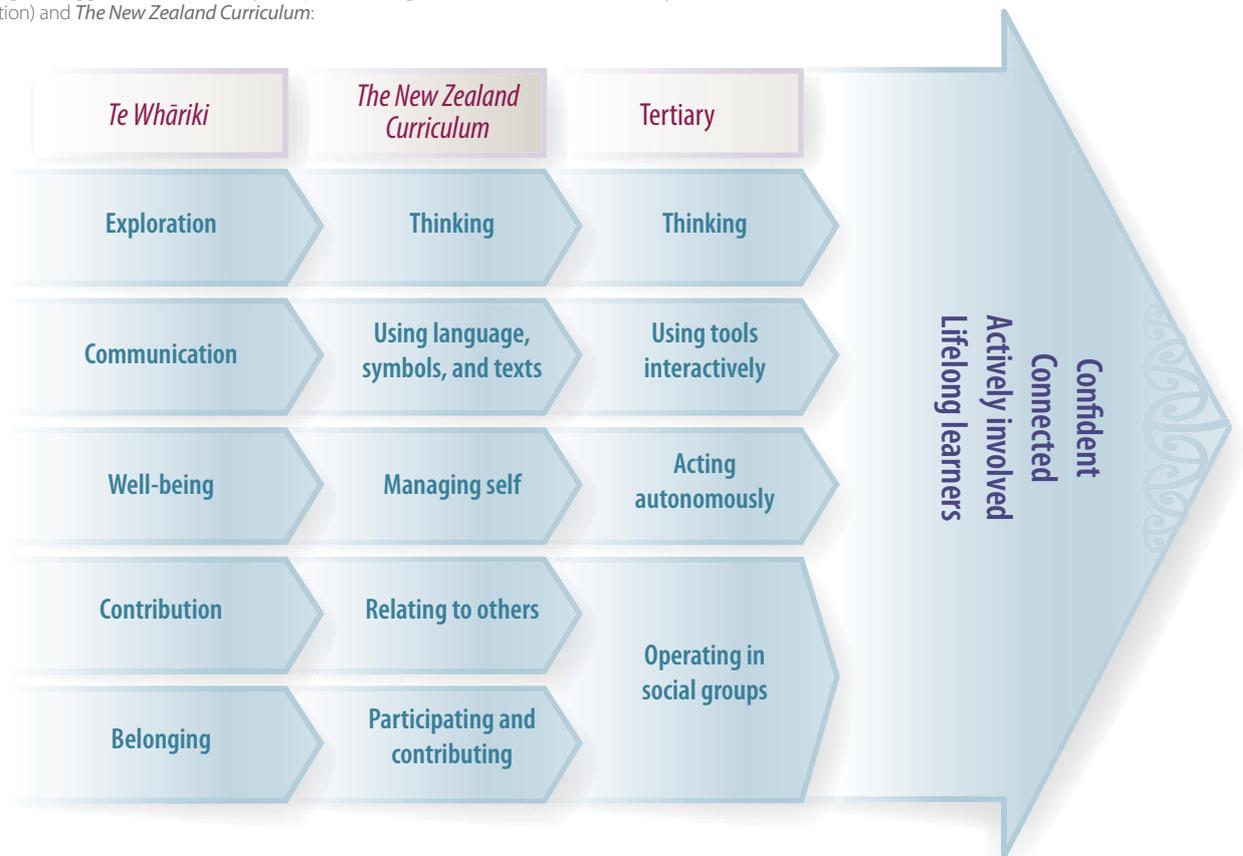
# Key competencies and tertiary competencies

For students to successfully live, learn and work as members of society, the development of competencies needs to be an integral element of any programme design. Figure Six shows the competencies that have been developed for schools and tertiary providers and how these align with each other.<sup>7</sup>

**Career management competencies** have also been identified as a useful tool for educators to take into consideration when planning programmes and responding to the needs and interests of students.

**Figure Six: The key competencies: Cross-sector alignment**

This diagram suggests how the tertiary competencies align with those of *Te Whāriki* (Early Childhood Education) and *The New Zealand Curriculum*:



7. Ministry of Education, 2007, P42

# Key competencies within the Primary Industries Vocational Pathway

Figure Seven: Elements of key competencies that can be experienced, supported and developed, whilst following the Primary Industries Vocational Pathway

Key competencies	Elements that can be experienced...	Students who experience key competencies in contexts...
<b>Managing self</b> <b>Acting autonomously</b>	self motivation time management travel money management gear safety self respect	are reliable, resourceful, resilient, enterprising can get to where they are meant to be, at the right time
<b>Thinking</b>	making sense of information, ideas and experiences developing curiosity making decisions and shaping actions	are able to ask questions can challenge assumptions or perceptions
<b>Using language symbols and texts</b> <b>Using tools interactively</b>	making meaning of codes of communication and of knowledge understanding and using symbolic systems of language – oral/aural/written/visual Using words, number and images Applying of technologies	are able to understand a range of communication codes can choose which code/notation to use at different times
<b>Relating to others</b> <b>Operating in social groups</b>	actively listening recognising different points of view negotiating sharing ideas	are able to work co-operatively as part of a team can share ideas and information
<b>Participating and contributing</b> <b>Operating in social groups</b>	active involvement contributing in a group making connections with others creating opportunities for others	have a sense of belonging and the confidence to participate in new situations can balance rights, roles and responsibilities

# Contexts of learning programmes in Agriculture and Farming in New Zealand

Vocational pathways can provide the opportunity for students to have greater choice of programmes. These programmes should be broad and foundational, located within a relevant employment sector, and not locked into single industries. Partnerships between providers may be required to create more choice. Schools, tertiary organisations and ITOs should aim to provide contexts that are relevant, interesting, challenging and provide for a wide range of abilities.

Some examples of learning contexts have been provided below. This is not an exhaustive list, and is presented to stimulate further thinking and adaptation for contexts that are relevant to your students. Considerations for planning of the teaching and learning approaches related to these contexts have been outlined earlier in this document. Alongside thinking about the examples of contexts for learning, you may wish to use the following questions to check back on your planning.

In your programme of learning and delivery how are you:

- ensuring that the contexts chosen both meet the needs and interests of your students as well as a way of opening up their world?
- building on the Principles of the NZ Curriculum and Vocational Pathways?
- supporting the development of the key competencies?
- incorporating sound teaching and teaching and delivery approaches?
- making connections to other areas of learning and experiences?

**Figure Eight: Examples of contexts for learning**

<p><b>History of agriculture – keeping the balance</b></p>	<ul style="list-style-type: none"> <li>• Brief introduction to history of food hunting/gathering and production versus resource management – generally and internationally.</li> <li>• ‘Keeping the balance’ explores past, present and/or future tensions between conservation/stewardship drivers and profitability/business drivers.</li> <li>• Research the ‘tipping point’ in any historical example. Research a specific location in New Zealand or overseas. Consider displaying relevant factors in a graph.</li> <li>• Describe a contemporary agricultural example. Gather information. Show patterns and trends using statistics. Discuss.</li> <li>• Investigate patterns and trends in food production through history and effects on the land including desertification – eg. consider the views of Allan Savory.</li> <li>• Why does New Zealand employ rotational grazing and does this practice influence factors of desertification?</li> </ul>
<p><b>Advantages and disadvantages for New Zealand agriculture</b></p>	<ul style="list-style-type: none"> <li>• Brief introduction to range of advantages and disadvantages in New Zealand agricultural environment.</li> <li>• Describe advantages. Examples include: resources – water, land type, climate, soils, population. Consider using models to present these as patterns and variables.</li> <li>• Describe disadvantages. Investigate the tyranny of distance – transport, market development, product development, population factors, and business partnerships. Use models to present these as patterns and variables.</li> <li>• Euro-centric food product design and development. Consider advantages and disadvantages.</li> <li>• Describe and discuss the advantages of developing agricultural resources in a specific location in New Zealand for food production. Examples – grasses/grains/ trees/fruit/animals/milk/vegetables/vines/other.</li> <li>• Consider whether there could be any advantages for future agricultural product development, promoted by New Zealand’s distance from markets and its resource advantages.</li> </ul>
<p><b>Role of technological advances in agricultural production over time</b></p>	<p>Introduction to range of historical and contemporary technological advances.</p> <p>Possible areas for investigation include:</p> <ul style="list-style-type: none"> <li>• Technological developments between 1840 and 1940.</li> <li>• Contemporary technological developments made between 1980–2013. For example, the use of drones to gather stock information from the ‘back country.’</li> <li>• Design a new innovative technological product for agriculture. Use either a realistic likely future scenario, or a fictional future scenario for the use of this invention.</li> </ul> <p>Some examples of historical technological innovations are:</p> <p>Refrigeration/electric fencing/milking technologies/milk meter/ infrastructure developments/ computerised soil and moisture management devices and systems/farming business systems/farming as multi-systems management using ICT/ machinery developments – eg. tractors/ various specialised machinery/milking machines/automated gate management systems/computerised herd management systems/ other?</p>

<b>How to avoid snake-oil</b>	<p>Introduction to understanding a hi-tech/ICT future on the farm.</p> <ul style="list-style-type: none"> <li>• Investigate what hi-tech devices, apps and software are available to agriculturalists.</li> <li>• What does this approach mean to you – “Plan, measure, manage and review” – Select a case study farm or agricultural business and consider how you would apply these concepts when using hi-tech products.</li> <li>• What principles would you use to help you make decisions about which hi-tech products to purchase for an agricultural business? Develop criteria in a template to help you evaluate ICT products on the market.</li> </ul>
<b>Social factors and family/whānau in New Zealand agriculture</b>	<p>Introduction to a range of social factors and family/whānau in New Zealand agriculture.</p> <p>Aspects that could be investigated include:</p> <ul style="list-style-type: none"> <li>• Investigate a Māori organisation/Iwi based approach to agriculture and farm ownership through positive examples such as the Miraka dairy company, or the Ahuwhenua competition.</li> <li>• Investigate the concept of whenua (the land) as tāonga (treasure). What does this mean to Māori and Pakeha? Is this still a useful concept today?</li> <li>• Describe European/ pakeha family-based farm ownership between 1840 and 2000 in New Zealand. Discuss whether ‘eldest son to eldest son’ tradition is still relevant today? What recent factors have emerged and how are decisions for future ownership of family farms being made today?</li> <li>• Investigate large business-based agricultural holdings in New Zealand between 1930 and 2013. Is “bigger necessarily better?”</li> <li>• Compare and contrast social tensions and opportunities from different ownership and management models in New Zealand.</li> </ul>
<b>Investigating issues in agriculture</b>	<p>Brief introduction to range of topical issues in agricultural sector.</p> <p>Issues to investigate may include:</p> <ul style="list-style-type: none"> <li>• Is dairying dirty – true or false? Investigate a range of current practices. Who should be responsible to monitor farm effluent management practices – farmers, the Government or the industry?</li> <li>• Genetic modification (GM) of crops and stock. Investigate the history of genetic modification over the centuries in one species or crop type. Investigate recent advances in GM since 1980. In your view, is GM a good or a bad thing?</li> <li>• Palm Kernel Extract is an imported feed for cattle/cows. Describe what PKE is. In your view, is PKE good for stock, or the environment?</li> <li>• Other options to investigate could include Dried Distillers Grains with Solubles (DDSG )</li> <li>• Riparian fencing is unnecessary for quality water management – true or false? Investigate a New Zealand case study and discuss your views on this issue.</li> </ul>
<b>Role of organisations in agricultural decision making</b>	<p>Introduction to roles of organisations in representing and managing issues and negotiating agreements on agricultural issues. Examples to be investigated could include:</p> <ul style="list-style-type: none"> <li>• Iwi and tribal-based organisations, Fonterra, Ministry of Primary Industries, Ministry for the Environment, industry associations; eg. Kiwifruit Dairy board, and of Crown agencies; eg. Landcorp. Investigate the role of one organisation as a case study, sharing these with the class.</li> </ul>
<b>What’s in a rule book?</b>	<p>Introduction to the Resource Management Act – its role, responsibilities, effects on developments.</p> <ul style="list-style-type: none"> <li>• Are there guidelines or boundaries to farming behaviour?</li> <li>• In your view is the RMA really necessary for today’s farming world? Discuss or debate.</li> </ul>
<b>Rural Life – what’s it really like?</b>	<p>Introduction to Country Life – what’s it really like?</p> <ul style="list-style-type: none"> <li>• Is there a social life? Compare and contrast town margins with more isolated rural villages.</li> <li>• Who makes the decisions? Consider the historical and changing roles of women in agriculture and the rural sector.</li> <li>• Discuss the changing roles of women in rural New Zealand by investigating one of the following: New Zealand Country Women’s Institute, Rural Women New Zealand, Māori Women’s Welfare League, a case study of a female farmer.</li> <li>• Agricultural, Pastoral and Industrial shows – are they a thing of the past? Investigate one and discuss their current relevance to rural life and their likely role in the future.</li> <li>• Young farmer of the year/ Young Māori farmer of the year; eg. Mark Coughlan 2012 – discuss similarities and differences between both competitions.</li> <li>• Discuss what sort of a rural lifestyle you think is desirable for the future in New Zealand? OR Discuss what sort of a rural landscape is desirable for the future in New Zealand?</li> </ul>

<b>Agricultural Economics – coping with boom and bust events</b>	<p>Introduction to Boom and Bust cycles. Investigate economic patterns through history and their effect on agricultural income. Investigate the impact of a range of catastrophic events.</p> <p>Select one of the following, investigate and discuss:</p> <ul style="list-style-type: none"> <li>• The Depression of the 1930s</li> <li>• Cyclone</li> <li>• Drought</li> <li>• 1:50 year rainfall</li> <li>• Insect or animal invasion</li> <li>• Bacterial, fungal or viral attack</li> <li>• The recession of 2008–2013</li> <li>• Major changes in currency values.</li> </ul>
<b>Why biology and chemistry really matter</b>	<p>Introduction to understanding plant and animal wellness and health maintenance from a biological and chemical sciences perspective.</p> <ul style="list-style-type: none"> <li>• Insect or specific animal invasion</li> <li>• Bacterial, fungal or viral attack</li> <li>• Stock health and herd development</li> <li>• Grasses, plants, trees, vines.</li> </ul>
<b>Developing new food products for the world from New Zealand agriculture</b>	<p>Introduction to history of the food products New Zealand produces for the world.</p> <ul style="list-style-type: none"> <li>• Consider the role of bio-technology and food technology in the development of new food products for world markets from New Zealand agriculture.</li> <li>• Identify a market in another country and investigate a possible new food product using bio- technology and/or food technology considerations and methods.</li> </ul>
<b>Emerging markets</b>	<p>Introduction to the importance of thinking about future markets:</p> <ul style="list-style-type: none"> <li>• Explore ‘once was British and now is Chinese’</li> <li>• Investigate New Zealand dependence on United Kingdom market until 1970s – what happened and why did this change?</li> <li>• Discuss why “I probably should learn a foreign language if I am involved in the Agricultural industries.”</li> <li>• Investigate and discuss agricultural opportunities in China, India and South America.</li> </ul>
<b>Understanding animal husbandry in New Zealand</b>	<p>Introduction to following:</p> <ul style="list-style-type: none"> <li>• Stock health</li> <li>• Herd development</li> <li>• Artificial Insemination</li> <li>• Tagging and computerised stock management</li> <li>• Genetic improvement – a short history of selection methods and modern experiments – including Dolly the Sheep</li> <li>• Supplementary feed options</li> <li>• Select one area and investigate it. Using a case study as an example, discuss advances, opportunities and risks associated with this area.</li> </ul>
<b>Understanding land use in New Zealand</b>	<p>Introduction to following: Soil/ Water/Grasses/ Rainfall/ Plants/ Trees/Other.</p> <p>Select one area and investigate it. Using a case study as an example, discuss advances, opportunities and risks associated with this area.</p> <ul style="list-style-type: none"> <li>• Water catchment options including conservation and irrigation</li> <li>• Chemistry for soil management and improvement</li> <li>• Managing nitrogen levels to maintain soil balance and increase productivity</li> <li>• Role of fertiliser application and associated methods and risk management</li> <li>• Effluent management methods to enrich pasture and control risk</li> <li>• Rotational stock management to manage land health</li> <li>• Planting to manage water runoff and effluent</li> <li>• Small holdings versus Large holdings – advantages and disadvantages.</li> <li>• Other.</li> </ul>

<b>Agribusiness – managing the farm using ICT business and farm (stock and herd/land and water) management systems</b>	<p>Introduction to agribusiness – key concepts, practices, brief history, scientific and technological advances are integrated within ICT-based farm management systems.</p> <ul style="list-style-type: none"> <li>• Investigate one agribusiness management system on one farm.</li> <li>• Discuss advantages and disadvantages.</li> </ul>
<b>The future effects of “Locavore”</b>	<ul style="list-style-type: none"> <li>• “Locavore” – investigate this recent trend in consumer behaviour in the USA , where consumers agree to only eat and use produce made within 160 kilometres of where they live.</li> <li>• What might this mean for New Zealand product and market development?</li> </ul>

## Excerpts of programme design

The excerpts of learning programmes illustrate how two providers have gone about meeting the needs of their students within the Primary Industries pathway. The intention of these examples is to stimulate discussion about what a programme may look like in your area for all students.

Other examples could incorporate programmes that are designed for students to follow the Primary Industries pathway, in preparation for degree level study and careers such as agricultural science, food marketing management, agribusiness, viticulture and oenology management and environmental management and planning.

### Hauraki Plains College

Hauraki Plains College moved to an 8 line timetable to gain greater flexibility to meet the learning needs of a wider range of students.

**Aim:** To ensure all students are offered equitable opportunities in areas such as Primary Industries

**Context of learning:** The timetable for year 11-13 students is structured in 8 lines, each of one hour periods, so that students can take up to 8 courses instead of 6, although there is flexibility within this for year 13 students who wish to take all NCEA courses. There is a strong Pathways approach, and all students are required to document their learning journey in a “river log.” All year 11 students take English, mathematics, science and health and physical education. A student can take more than one vocationally oriented course. Trades-related courses such as forestry are offered along the timetable lines.

**Qualification:** Students can achieve NCEA and achieve certificates in some trades-related courses. The school is currently working with ITOs to offer a level 3 assessment programme that includes a range of sector-related standards.

**Pathway:** Students generally go on to further education and training or full-time employment.

For more information about Hauraki Plains College please refer to the [Contextualised Learning Examples](#)

### New Zealand Trades Academy (NZTA)

NZTA is a virtual school, linking schools, ITOs and employers to provide pathways into careers in the primary industries. Students do much of their industry-related learning at school, but participate in a schedule of site visits, and in years 12 and 13 spend time each week in site placements.

**Aim:** To provide students with a foundational education that provides them clearer pathways towards employment in the Primary Industries.

**Context of learning:** In year 11, students are in school for four days a week and engaged in site visits for one day. They study New Zealand Curriculum courses such as English, science and mathematics. They undertake learning in a number of modules relating to the National Certificate of Primary Industry. The site visits are designed to introduce them to a wide variety of agricultural, horticultural and forestry businesses and careers. In year 12 students continue with the New Zealand Curriculum courses. They select an industry focus such as agriculture, and begin industry specific studies. Students attend site placements one day a week. The format of study continues in year 13, with students attending site placements for two days a week.

**Qualification:** At year 11 students can gain NCEA Level 1 and can gain 40 credits in the National Certificate of Primary Industry. At year 12 students can gain NCEA Level 2 and can gain 30-40 credits at Level 2 in the National Certificate of Primary Industry. At year 13 students can gain NCEA Level 3 and Level 2 or 3 National Certificate of Primary Industry.

**Pathway:** With the assistance of the ITO, students take up employment, or apprenticeship or they go on to further studies at polytech or university.

For more information about the New Zealand Trades Academy please refer to the [Contextualised Learning Examples](#)

## Design the content and approach for a learning programme.

Consider the following example, which provides a possible framework and some starters for joint planning between secondary, tertiary and ITO providers to develop a learning programme. Partners may need to work together to make sure all the areas below are adequately covered.

Figure Nine: Example of a framework for planning the learning programme

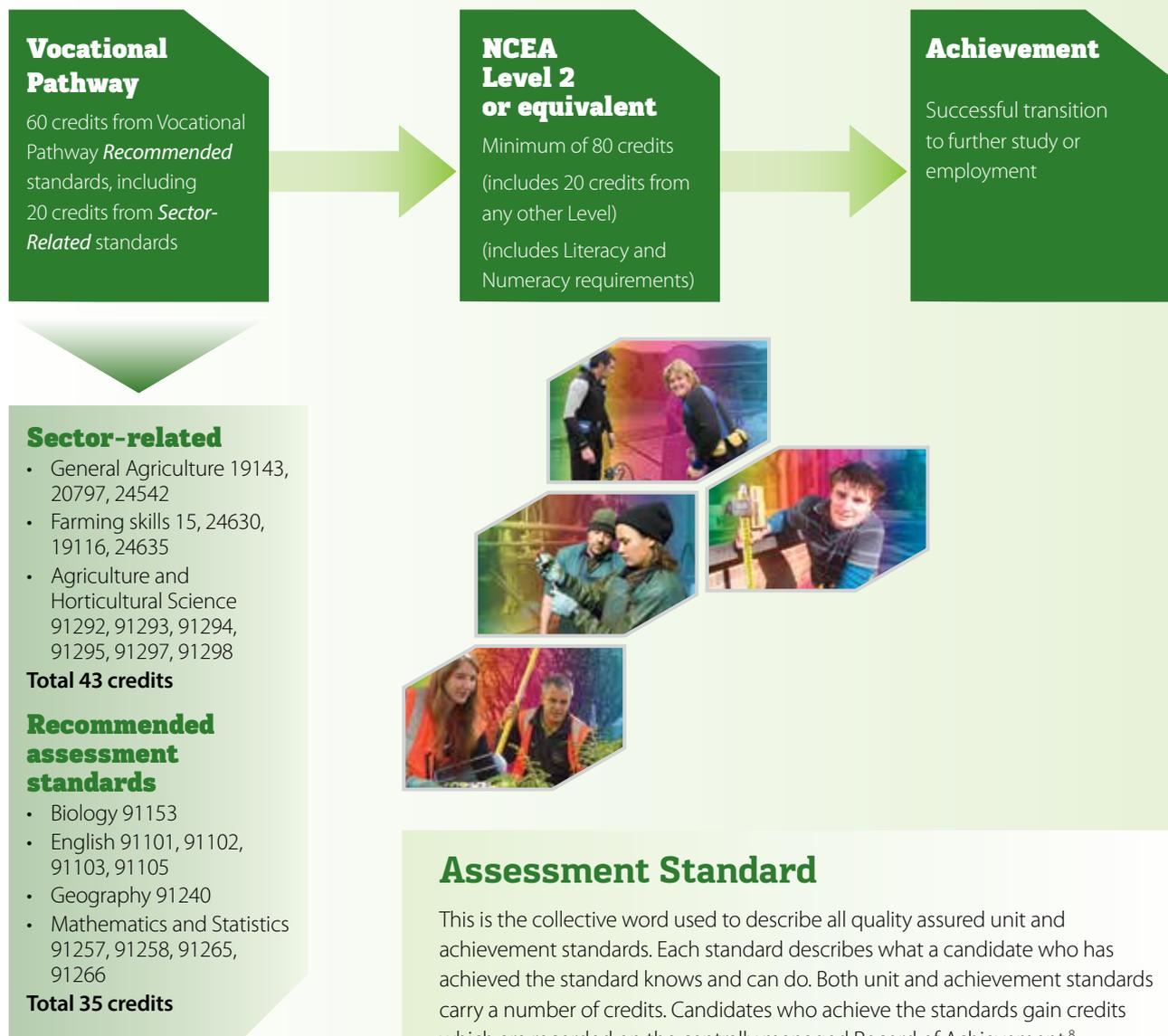
<p><b>Graduate profile</b> Identify attributes of learners exiting from a learning programme.</p>
<p><b>Broad Learning Outcomes</b> Identify knowledge, skills and capabilities valued by the sector.</p>
<p><b>Planning Categories</b> Plan for each of the learning outcomes using these categories:</p>
<p><b>1. Industry specific content</b> Identify the skills, capabilities and knowledge that are valued.</p>
<p><b>2. New Zealand Curriculum content</b> Identify relevant content from the New Zealand Curriculum that supports development of valued knowledge, skills and capabilities.</p>
<p><b>3. Key competencies</b> Consider how the learners will develop the key competencies, core capabilities and soft skills valued in your sector. <i>Refer to pages 8–9 of this document for guidance</i></p>
<p><b>4. Delivery arrangements and resourcing</b> Consider appropriate resourcing to meet the needs for learners. <b>Examples:</b> – <i>Develop shared delivery arrangements between schools and tertiary providers</i> – <i>Identify learner interests and available businesses and arrange work placement opportunities</i></p>
<p><b>5. Assessment</b> Use an appropriate balance of recommended and sector-related achievement and unit standards to enable learners to achieve NCEA Level 2 with a Vocational Pathways Award.</p>
<p><b>Progression</b> Can the learner progress to further qualifications and/or employment from this learning programme?</p>

# Assessment Approaches

There are many possible assessment standards available within and across Vocational Pathways for educators and students to choose from, to complement their learning programme. The range of standards for the Primary Industries Pathway can be found [here](#). Figure Ten provides an example of what an assessment programme *could* look like for one student who is following the Introduction to Agriculture and Farming in NZ programme at NCEA Level 2.

To gain NCEA Level 2 students need 60 credits at level 2, and 20 at any other level, including literacy and numeracy. If a student wants to gain a Vocational Pathway Award they will need 60 credits from the Recommended standards, including 20 Sector related standards, from one Vocational Pathway.

*Figure Ten: An example of an assessment programme for one student*



8. NZQA: <http://www.nzqa.govt.nz/qualifications-standards/standards/>

# Vocational Pathway Award

A Vocational Pathway Award may be gained within the Primary Industries Pathway as a result of achieving in the 'Introduction to Agriculture and Farming in New Zealand' programme.

Figure Eleven: Vocational Pathway Award



## Requirements for NCEA Level 2 are:

80 credits, of which:

- a minimum of 60 credits are at Level 2,
- and the other 20 credits are from Level 1 or another Level; and
- include literacy and numeracy credits at Level 1 or above.

### Literacy requirement

A minimum of 10 credits through either:

- specified achievement standards available through a range of subjects and English for Academic Purposes
- unit standards (minimum of 10 credits) or unit standards – package of three literacy unit standards (minimum of 10 credits – **all** three are required).

### Numeracy requirement

A minimum of 10 credits through either:

- Achievement standards – specified achievement standards available through a range of subjects (minimum of 10 credits) or
- Unit standards – package of three numeracy unit standards (minimum of 10 credits – **all** three are required).

## Additional recognition of achievement available

### Vocational Pathway award

Achieves 60 Level 2 credits from the *Recommended* assessment standards for a Vocational Pathway sector, including 20 credits from the *Sector-related* standards for the same sector.

### Course Endorsement

Students will gain an endorsement for a course, if, in a single {school} academic year, they achieve:

- 14 or more credits at Merit or Excellence and at least 3 of these credits are from externally assessed standards, and 3 credits from internally assessed standards.

*Note: This does not apply to physical education, religious studies and Level 3 visual arts.*

### Certificate Endorsement

If a student gains 50 credits at Excellence, their NCEA will be endorsed with Excellence.

Likewise, if a student gains 50 credits at Merit (or Merit and Excellence), their NCEA will be endorsed with Merit.

# Foundation for further learning

Figure Twelve, taken from the Vocational Pathways [information booklet](#) for the Primary Industries Pathway, shows the types of jobs that are available for young people at the different levels of education

The 'dots' in Figure Twelve show the level (or levels) of qualification usually associated with the role. Sometimes you need a specific qualification to get into a job, but in many areas you can work towards higher qualifications by learning on the job. Check out the job profiles on [www.careers.govt.nz](http://www.careers.govt.nz), or talk to your careers advisor to find out more.

Figure Twelve: Job opportunities in the Primary Industries Pathway

NZQF Level	2	3-4-5	5-6	7	8-10
	NCEA Level 2	Trade Certificate	Diploma	Degree	Postgraduate Degree
Agricultural Technician				•	
Agricultural/Horticultural Consultant				•	
Agricultural/Horticultural Scientist					•
Animal Attendant	•	•			
Aquaculture Farmer	•				
Arborist	•	•			
Beekeeper	•	•			
Biochemist				•	•
Biosecurity Officer			•	•	
Biotechnologist				•	•
Crop Farm Worker					
Crop Farmer	•	•	•		
Dairy Farmer	•		•		
Dairy Products Maker	•	•	•		
Dog Trainer	•		•		
Energy Auditor	•	•	•	•	•
Environmental Engineer				•	
Environmental Scientist				•	•
Farm Worker	•	•			
Farmer/Farm Manager	•	•	•		
Fencer	•	•			
Fishery Officer	•		•		
Fishing Skipper		•			
Food Technologist			•	•	•
Forester		•	•	•	
Forestry and logging worker	•	•			
Forestry Scientist				•	•
Gardener	•				
General Labourer	•	•			
Geologist				•	•
Geophysicist				•	•
Groundsperson	•	•			
Horse Trainer	•	•			
Hunter/Trapper	•	•			
Landscape Architect				•	
Landscape Gardener	•				
Marine Biologist				•	•
Meat Inspector		•			
Meat/Seafood Process Worker	•				

	NZQF Level	2	3-4-5	5-6	7	8-10
		NCEA Level 2	Trade Certificate	Diploma	Degree	Postgraduate Degree
Microbiologist					●	●
Nursery Grower/Worker		●				
Packhouse Worker		●				
Production Manager				●	●	
Pulp and Paper Mill Operator		●	●			
Quarantine Inspector					●	
Ranger		●	●			
Saw Doctor		●	●			
Science Technician				●	●	
Shearer		●	●			
Stock and Station Agent		●	●			
Veterinarian					●	
Veterinary Nurse		●		●		
Winemaker		●	●	●		
Wood Processing Worker		●				
Wool Classer		●	●			





## Review

The purpose of this booklet was to provide you with some guidance to support you to develop learning programmes within and across the Vocational Pathways. As you continue the development of these programmes you may find it helpful to consider the questions that are posed through the booklet, including the ones on the right.

- What are you currently doing that is working well for students?
- How do you identify those students who are not doing so well, and analyse why this may be the case?
- To what extent are your programmes meeting the needs of your priority learners (Pasifika, Māori and students with special educational needs)?
- How do you currently allocate funding for off-site learning?
- How could funding from partner organisations be used differently to support the partnership approach?
- What may need to be done differently?
- How do you know what needs to be done differently?
- What can you do today?
- What can you do in the longer term?
- Who has consent to assess the Assessment Standards?
- Can this consent be developed across tertiary and secondary providers?
- How do you ensure you meet the requirements of the New Zealand Curriculum, and of industry, for 15–19 year olds?

To find out more information on Vocational Pathways, please visit our website <http://youthguarantee.net.nz/vocational-pathways/>

# Appendix

## PRINCIPLES

### Foundation for further learning principles to help guide providers when developing or reviewing contextualised learning programmes for Vocational Pathways.

#### PRINCIPLE 1: Programmes of learning and courses are student-centred.

##### How do educators:

- 1 Explicitly plan for, deliver and assess in response to the prior knowledge and skill, and previous experiences, students bring to the course?
- 2 Use this knowledge to inform teaching decisions about what students need to learn or do next?
- 3 Design the learning environment to be inclusive for all students, including those with moderate education needs?\*
- 4 Explicitly plan approaches to teaching and learning delivery that respects all students' current needs, potential, interests, desires, cultural views including world views, and ethnic/gender perspectives?
- 5 Explicitly plan approaches to teaching and learning and assessment delivery that respect the identity, language and culture of all students, ensuring delivery and assessment is conducted through respectful and caring relationships with every student?
- 6 Explicitly plan approaches to teaching and learning and assessment delivery that include a targeted focus on improving achievement outcomes for Māori and Pasifika students, students with special education needs, and students from low socio-economic backgrounds?
- 7 Explicitly investigate the literacy and language needs, and/or numeracy knowledge and skill needs of all students prior to, or at commencement of, every course, and explicitly provide relevant support, actively managing this through all course delivery and assessment?
- 8 Proactively ensure pastoral or broader social support is planned for and available as required?

#### PRINCIPLE 2: Programmes of learning and courses comprise coherent knowledge and skills.

##### How do educators:

- 1 Use the Vocational Pathway sector descriptors to guide development of programmes and courses that are educationally coherent and robust, and also situated within a broad vocational employment context?
- 2 Plan programmes that provide a coherent body of systematically organised discipline knowledge and skills, practices and competencies which progress within courses and throughout the programme?  
Note: Discipline knowledge would be drawn from relevant sciences, English, technologies, mathematics, design, social sciences, arts, languages etc.
- 3 Plan courses that provide a coherent body of specialist knowledge and skills, practices and competencies from an employment sector that is embedded in a relevant and engaging context?
- 4 Deliver and assess the coherent body of specialist knowledge and skills, practices and competencies from this employment sector's particular field of practice?
- 5 Deliver and assess the coherent body of systematically organised discipline knowledge and skills, practices and competencies at regular intervals in courses throughout the programme?
- 6 Plan partnerships that effectively deliver different types of knowledge in the sites most appropriate for learning different types of knowledge and skills, practices and competencies?
- 7 Plan for and support the development of students' generic competencies, by explicitly embedding opportunities to practice and reflect on these abilities and skills throughout all courses?



\* Note resource: [Universal Design for Learning](#)

### **PRINCIPLE 3: Programmes of learning are within a coherent learning pathway, leading to New Zealand qualifications and employment**

#### **How do educators:**

- 1 Situate course learning within broad life/world contexts, using the Vocational Pathway sector descriptions where possible?
- 2 Plan clear and authentic connections within and between programmes, within and between courses and towards next destinations?
- 3 Situate their programmes within a learning pathway that is transparent to the student, has clear and achievable next steps to study or employment and includes genuine progression links to next qualification steps?
- 4 Present their programmes and qualifications to students, their family and whānau, within current and authentic market opportunities for future employment, study or training?

- 5 Demonstrate that their programmes lead every student enrolled towards worthwhile qualifications from NCEA Level 2 to NZQF Level 4, with options for further progress?
- 6 Demonstrate that the qualifications they offer are recognised across New Zealand?

#### **NOTE**

These Principles have been developed and tested for consistency against the following documents and strategies:

Tertiary Education Strategy 2010–2015, New Zealand Curriculum 2007, Best Evidence Synthesis for Teacher Professional Learning and Development, and Best Evidence Synthesis for School Leadership and Student Outcomes, Ka Hikitia 2013–2017, Pasifika Education Plan 2013–2017, Success for All Strategy vision and work programme for inclusive education, Better Public Service Targets L2 and L4, Ministry of Education Statement of Intent 2011/12–2016/17, New Zealand Qualifications Framework, and emerging Youth Guarantee and foundation education policy.

## References

Harrity, E. (2013). *Vocational Pathways: Using industry partnerships and personalised learning to improve student outcomes*. Retrieved from: [http://www.fulbright.org.nz/wp-content/uploads/2013/08/axford2013\\_harrity.pdf](http://www.fulbright.org.nz/wp-content/uploads/2013/08/axford2013_harrity.pdf)

Ministry of Business Innovation and Employment. (2012). *Medium-Long Term Employment Outlook: Looking Ahead to 2020*. Wellington: MBIE

Ministry of Education. (2007). *The New Zealand Curriculum*. Wellington, New Zealand: Learning Media Ltd.

### Links

#### **Best Evidence Synthesis for School Leadership and Student Outcomes**

[http://www.educationcounts.govt.nz/\\_data/assets/pdf\\_file/0015/60180/BES-Leadership-Web.pdf](http://www.educationcounts.govt.nz/_data/assets/pdf_file/0015/60180/BES-Leadership-Web.pdf)

#### **Best Evidence Synthesis for Teacher Professional Learning and Development**

[http://www.educationcounts.govt.nz/\\_data/assets/pdf\\_file/0017/16901/TPLandDBESentire.pdf](http://www.educationcounts.govt.nz/_data/assets/pdf_file/0017/16901/TPLandDBESentire.pdf)

#### **Better Public Service Target Targets L2 and L4**

<http://www.ssc.govt.nz/better-public-services>

#### **Career Management Competencies**

<http://nzcurriculum.tki.org.nz/Curriculum-resources/Career-education/Career-management-competencies>

#### **Ka Hikitia: Ensuring Success 2013–2017**

[http://www.minedu.govt.nz/theMinistry/PolicyandStrategy/~/\\_media/MinEdu/Files/TheMinistry/KaHikitia/KaHikitiaAcceleratingSuccessEnglish.pdf](http://www.minedu.govt.nz/theMinistry/PolicyandStrategy/~/_media/MinEdu/Files/TheMinistry/KaHikitia/KaHikitiaAcceleratingSuccessEnglish.pdf)

#### **List of Assessment standards for the Primary Industries Pathway**

<http://youthguarantee.net.nz/vocational-pathways/education-providers-/primary-industries/>

#### **Ministry of Education Statement of Intent**

<http://www.minedu.govt.nz/theMinistry/PublicationsAndResources/StatementOfIntent/SOI2013.aspx>

#### **NZQA**

<http://www.nzqa.govt.nz/qualifications-standards/standards/>

#### **NZ Qualifications Framework**

<http://www.nzqa.govt.nz/studying-in-new-zealand/nzqf/>

#### **Pasifika Education Plan 2013–2017**

[http://www.minedu.govt.nz/NZEducation/EducationPolicies/PasifikaEducation/~/\\_media/MinEdu/Files/EducationSectors/PasifikaEducation/PEPfoldup12Feb2013.pdf](http://www.minedu.govt.nz/NZEducation/EducationPolicies/PasifikaEducation/~/_media/MinEdu/Files/EducationSectors/PasifikaEducation/PEPfoldup12Feb2013.pdf)

#### **Primary Industries Vocational Pathway Information booklet**

<http://youthguarantee.net.nz/assets/Uploads/VP-Primary-RD2-final2.pdf>

#### **Science Safety**

<http://seniorsecondary.tki.org.nz/Science/Learning-programme-design/Safety-and-ethical-considerations>

#### **Success for All Strategy**

<http://www.minedu.govt.nz/NZEducation/EducationPolicies/SpecialEducation/OurWorkProgramme/SuccessForAll.aspx>

#### **Technology Safety**

<http://technology.tki.org.nz/Curriculum-support/Safety-and-Technology-Education>

#### **Tertiary Education Strategy 2010–2015**

[http://www.minedu.govt.nz/NZEducation/EducationPolicies/TertiaryEducation/PolicyAndStrategy/~/\\_media/MinEdu/Files/TheMinistry/TertiaryEducationStrategy2010/TES2010to2015.pdf](http://www.minedu.govt.nz/NZEducation/EducationPolicies/TertiaryEducation/PolicyAndStrategy/~/_media/MinEdu/Files/TheMinistry/TertiaryEducationStrategy2010/TES2010to2015.pdf)

#### **Universal Design for Learning**

[http://www.educationcounts.govt.nz/publications/special\\_education/education-that-fits-review-of-international-trends-in-the-education-of-students-with-special-educational-needs/chapter-sixteen-universal-design-for-learning](http://www.educationcounts.govt.nz/publications/special_education/education-that-fits-review-of-international-trends-in-the-education-of-students-with-special-educational-needs/chapter-sixteen-universal-design-for-learning)

#### **Vocational Pathway Award**

<http://youthguarantee.net.nz/assets/assets/VP-Award-Profile-FINAL-Amended-Version-3Sept13.pdf>

#### **Vocational Profile builder**

<http://youthguarantee.net.nz/vocational-pathways/profile-builder/>



# Notes



# Notes



# Vocational Pathways

[www.youthguarantee.net.nz](http://www.youthguarantee.net.nz)