# **AH Level 1 Course Outline 1**

# Guide to aid teacher planning only – designed to be printed or viewed in A3, landscape.

## Purpose

This example Course Outline has been produced to help teachers and schools understand the new NCEA Learning and Assessment matrices and could be used to create a year-long programme of learning. It will give teachers ideas of how the new standards might work to assess the curriculum at a particular level.

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| **Significant Learning** | **Learning activities and assessment opportunities**Assessment for learning happens often throughout the year. Evidence may also be collected for summative assessment. | **Duration** Total of 32 weeks |
| Investigate the relevance of agricultural and horticultural production to people and locationUnderstand mātauranga Māori can link people to place of productionUnderstand that place and purpose of production is influenced by interrelated environmental, social, cultural, and economic reasonsExplore roles and career pathways throughout the primary sector Explore how life processes affect primary production | Purpose and Location To investigate the relevance of agricultural and horticultural production to people and location. * Recognise oranga whānui, general wellbeing, is a way of thinking about our wellbeing and our place in the world.
* Investigate oranga whānui by applying [Te Whare Tapa Whā](https://www.healthnavigator.org.nz/healthy-living/t/te-whare-tapa-wh%C4%81-and-wellbeing/) to themselves, their whānau, hapū and iwi, or their community. Students can present a poster to share with their class using headings – taha tinana, taha hinengaro, taha whānui, and taha wairua.
* Consideration is given to atua and pūrakau: Ranginui, Papatūānuku me ā rāua tamariki (Tānemahuta, Tangaroa, Haumietiketike, Rongomātāne).
* Explore how the roles of ākonga and whānau as consumers match their understanding of oranga whānui and [kai](https://www.healthnavigator.org.nz/healthy-living/h/healthy-eating/) as primary products.

Explore how whakapapa, whanaungatanga, manaakitanga and rangatiratanga are expressed as mātauranga in the kōrero of Ranginui, Papatūānuku, and their children – the atua of key realms, connecting themselves to atua and te taiao. Consider how this mātauranga supports oranga whānui. This lens will then be applied to the purpose and choices made for local agricultural practices of the location, from soil quality and health including microorganisms, nutritional values of pasture/crop, production, and management tools through to marketing.From this starting point, students can understand that primary industries are driven by market demands, user preferences, and the need to feed people. They will explore their personal whakapapa: connections between people and the environment, and the origins of whenua/moana. They can relate these learning areas to the agricultural/horticultural endeavour of the local area, with opportunities to look at local iwi in specific areas, such as historic and current settlement areas, reasons why, and use of land. Consideration of management tools such as [maramataka](https://akojournal.org.nz/2021/01/13/te-maramataka/) and how this is related to growing, for example predator and herbivore behaviour in relationship to planting and the lunar calendar. Students can then link each management practice carried out by primary producers to the production of a product for use. This link to the end product is important and may include links to market. **Opportunity for assessment of AS 1.1 Demonstrate understanding of a life process and how it is managed in a primary production system and AS 1.2 Demonstrate understanding of factors that influence the purpose and location of primary production**To understand that purpose is influenced by interrelated economic, social, cultural, and environmental factors:* explore the realms of Haumietiketike and Rongomātāne by researching the foods and resources that were brought from Hawaiki on one of the waka (for example, Tauira mai Tawhiti, Tainui, Te Arawa) as well as some of the many resources that were found upon arrival in Aotearoa New Zealand. Explore the pūrākau of [Whakaotirangi](https://www.royalsociety.org.nz/150th-anniversary/150-women-in-150-words/whakaotirangi/), who brought the first kūmara seeds to Aotearoa New Zealand from Hawaiki
* students could engage with information provided about a local kāinga, view a documentary to compare the [kūmara garden](https://www.youtube.com/watch?v=t8g9LnN1cyk) and [storage pits](https://www.youtube.com/watch?v=VpaLBBcHo3Q) of iwi in pre-European times with the [modern kūmara garden](https://www.youtube.com/watch?v=AnoOflFRBL8) and modern ways of storage
* explore the [whakapapa](https://teara.govt.nz/en/music/17374/kumara-whakapapa) of the kūmara by engaging with the story of [Whakaotirangi and her Kete of Kūmara](https://instructionalseries.tki.org.nz/Instructional-Series/Connected/Connected-2020-Level-2-Digging-Deeper/Whakaotirangi-and-her-Kete-of-Kumara) and the [associated tikanga and kawa](https://thespinoff.co.nz/atea/06-10-2017/the-story-of-the-kumara-a-superfood-shaped-by-maori/) related to the kūmara.

Investigate and write up a plan for the setup of a kūmara tipu bed using the maramataka – consider the time of the year and phase of the moon.Students will set up a tipu bed to prepare tipu for planting.Life Processes and Management PracticesExplore the life processes and growing environments of the kūmara.Students will understand:* the environmental factors (soil, sea, climate, topography) that affect the location of the production of traditional crops in Aotearoa New Zealand
* perceptions around land use
* economic aspects, such as labour availability
* market demand and technological efficiencies.

Explore roles and career pathways throughout the primary sector: * explore career pathways [in pest management](https://www.careers.govt.nz/jobs-database/construction-and-infrastructure/cleaning-gardening/pest-control-technician/) or [biosecurity](https://www.careers.govt.nz/jobs-database/animal-care-and-conservation/conservation/biosecurity-officer/)
* consider [employment](https://www.careers.govt.nz/jobs-database/farming-fishing-forestry-and-mining/agriculture-horticulture/agriculturalhorticultural-consultant/) or job opportunities in different industries locally and how they contribute to regions in Aotearoa New Zealand as a whole
* explore job opportunities and training programme in the field of [environmental science](https://www.careers.govt.nz/jobs-database/animal-care-and-conservation/conservation/environmental-scientist/) and follow an [environmental scientist for a day.](https://www.youtube.com/watch?v=GbLmxsjWuYg&t=8s)

Explore different approaches to farming the land and the sea, comparing traditional examples with modern examples by applying horticulture industry information to an [Aotearoa New Zealand map](http://librointernational.blogspot.com/2018/10/putting-food-on-map-globally-and-locally.html) and a regional map – traditional and [contemporary](https://teara.govt.nz/en/arable-farming/page-3).Investigate environmental factors (soil, sea, climate, topography) that affect the location of the production of traditional crops in Aotearoa New Zealand:* in groups, students test/monitor local soil salinity, soil temperatures, water health, water temperatures
* students examine trends and see if there are any relationships with horticultural production in the community.
 | 10 weeks  |
| Explore how life processes affect primary production Explore how and why primary production management practices are done as they areUse investigative approaches within agricultural and horticultural contextsUtilise discipline specific language and graphics used in agricultural and horticultural contextsExplore the interrelationship between primary production and soil properties  | Understand the life processes of organisms grown for primary production: * analyse why new crops such as potatoes and maize became more popular, and introduce the new learnings of managing life processes in the horticultural production of new crops, for example, kiwifruit

Explore tūhonongā and how relationships influence life processes: * visit a local Māori-owned horticulture enterprise or use online interviews or videos of a field visit to observe the harvest and listen to guest speakers talk about tūhonongā in relation to [kiwifruit.](https://nzkgi.org.nz/wp-content/uploads/2016/12/2017-kiwifruit-book-22-10.compressed-1.pdf) This activity could also explain how manaakitanga influences the choice of management practices.

Explore how management practices of life processes affect product outcomes, and to explore how and why primary production management practices are done as they are:* investigate and map the development of the kiwifruit Industry, for example, Zespri, rules and regulations that impact growing and management practices, markets, exports
* try an [activity](https://www.saps.org.uk/teaching-resources/resources/1221/sugar-starch-or-cellulose-what-carbohydrates-do-plants-make/) to [test the sugar levels](https://www.saps.org.uk/secondary/teaching-resources/1221-sugar-starch-or-cellulose-what-carbohydrates-do-plants-make) or to investigate [vitamin C levels](https://www.sciencelearn.org.nz/resources/2144-kiwifruit-has-better-vitamin-c-than-a-pill) in some gold kiwifruit and other fruits.

Explore why local whānau and landowners have [invested in the Kiwifruit industry](https://www.tpk.govt.nz/en/mo-te-puni-kokiri/our-stories-and-media/the-origins-of-the-maori-kiwifruit-industry).Explore the kiwifruit growing cycle and represent this in whatever form/format students prefer**Opportunity for assessment of AS 1.3 Demonstrate understanding of how soil properties are managed in a primary production system**Identify key practices that can be used to [manage growing environments](https://nzkgi.org.nz/wp-content/uploads/2016/12/2017-kiwifruit-book-22-10.compressed-1.pdf) of kiwifruit.Appreciate the ways life processes and growing environments affect end products of primary production: * engage in soil analysis within the local area, consider the specific aspects of local soils and how this connects to choices of production systems
* explore the concept of soil as a living thing with micro and macroorganisms within an interrelated environment.
* carry out investigations into the components of soil, patterns and classification of soils and field work that compares and contrasts soil types to consider biological, physical and chemical properties of different soil types. How can this knowledge be used to nurture soil and increase productivity?
* explore the specific implications of management practices from the production of these crops for the environment (air, water, soil/land, living organisms)
* examine key practices that can be used to manage growing environments – vine training, pruning, pollination, shelter, pest, and disease control.

Consider how management of life processes changes over time, and examine how producers use management practices to modify products to meet the needs of society:* critically analyse the consequences of the impacts of producing these crops, for people (social implications), other living things (ecological implications), the economy or the physical environment
* students can pick a local/relevant ‘horticultural production issue’ and organise the class into groups to construct ‘arguments’ around their given viewpoint/perspective.

Explore the specific impacts of management practices from the production of these crops on the environment (air, water, soil/land, living organisms).**Opportunity for assessment of AS 1.1 - Demonstrate understanding of a life process and how it is managed in a primary production system** | 10 weeks |
| Recognise the importance of environmental, social, cultural, and economic sustainability for production systems | Sustainability Considerations Examine the significance of wai Māori to whānau, hapū, iwi and the community through the mātauranga of Tangaroa and other relevant atua, and recognise how mātauranga drives stakeholder views in tiakitanga decision-making as it applies to water management:* critically analyse the consequences of forestry, horticulture and increased population on freshwater while [monitoring water health](https://www.sciencelearn.org.nz/resources/2879-waikato-regional-council). Investigate indigenous indicators of health of a waterway. Refer to the [mauriometer](https://www.sciencelearn.org.nz/videos/399-the-rena-disaster) to [measure cultural and environmental health](https://fitforabetterworld.org.nz/our-approach)
* explore the [mussel](https://www.sciencelearn.org.nz/resources/733-life-of-a-green-lipped-mussel) and [seaweed](https://www.nioz.nl/en/research/expertise/seaweed-centre/media-background/north-sea-seaweed-species/seaweed-life-cycle) growing cycles. Explore [mussel farming](https://www.sciencelearn.org.nz/resources/513-farming-green-lipped-mussels-introduction) as a [production system.](https://www.sciencelearn.org.nz/image_maps/17-how-mussels-are-farmed-in-new-zealand)

Recognise different stakeholder views and external influences on the decisions made in production systems:* examine key practices that can be used to manage [growing environments](https://www.cawthron.org.nz/our-news/matauranga-maori-mussel-research/).
* explore the specific impacts of management practices from the production of mussel spat and seaweed [on the environment](https://www.waikato.ac.nz/news-opinion/media/2020/using-cabbage-tree-to-grow-kaimoana-science-through-a-matauranga-maori-lens) (air, [sea](https://www.sciencelearn.org.nz/videos/1769-seaweed-sampling) and fresh waters, soil/land, living organisms).

Consider the impacts of management practices on environmental, social, and economic sustainability factors: * critically analyse the consequences of the [implications](http://www.environmentguide.org.nz/activities/aquaculture/environmental-effects/shellfish/) of producing mussel spat and seaweed, for people (social implications), other living things (ecological implications), the economy or the [physical environment.](https://www.youtube.com/watch?v=X-FtWjOh-JI) For example, the mussel spat/seaweed farm may block traditional fishing grounds. This activity could be in the form of a mock debate or submission to a regional council, or a collection of community voices gathered by tauira captured as audio or video files.

**Opportunity for assessment of AS - 1.4 Demonstrate understanding of sustainability considerations that influence primary production management practices**  | 10 weeks  |
| Utilise different perspectives that influence primary productionRecognise the importance of environmental, social, cultural, and economic sustainability for production systems  | It is time to awhi the learning and profile success within the realm of Agricultural and Horticultural Science learning. This activity calls for students to construct arguments around their given viewpoint or perspective in relation to an issue. Encourage evidence-driven discussions help ākonga to recognise the importance of tiakitanga for production systems. Classes can complete a showcase body of learning and profile their engagement with whānau and involve local issues using skills gained throughout the year.In collaborative work they share their findings and learning with each other, whānau and community. Collaboration will help ākonga to make connections between stakeholder views and kaitiakitanga. Activities could include:* exhibition(s)
* videos of student work
* student-lead seminars.

Time can be devoted to creating audio-visual presentations for social media, school websites, or national platforms. This provides opportunities to discuss tiakitanga and management practices around environmental, social, and economic issues in Aotearoa New Zealand, such as irrigation in Canterbury. | 2 weeks |