

Agricultural Technology Years 7–10 Life Skills unit: Vegetable production enterprise

<p>Unit title: Vegetable production enterprise</p> <p>Description: This unit involves the planting, growing and harvesting of vegetables and the marketing of vegetable products. Students use a variety of plants, materials and tools in the plant production process. A variety of growing environments may be used such as pots, hydroponics and/or garden plots. Safe and responsible use of materials, tools and techniques by students is essential in the Agriculture Technology course. Teachers should consider this when delivering this unit of work. <i>Learning activities address selected 'learn about' and 'learn to' statements within the Life Skills content of the syllabus and may be prioritised and selected to suit the needs of students. The unit provides a range of ways in which students may engage in learning activities and students should participate at a level appropriate to their abilities and interests.</i></p>	
<p>Life Skills Outcomes</p> <p>A student:</p> <p>LS.1 experiences a range of plant and animal production enterprises</p> <p>LS.2 investigates some environmental factors that affect plant and animal production</p> <p>LS.4 explores how agricultural production contributes to our daily lives</p> <p>LS.5 participates in the production process of an agricultural enterprise</p> <p>LS.6 participates in marketing an agricultural product</p> <p>LS.10 uses information and communication technologies to collect, organise and present information related to an agricultural enterprise</p> <p>LS.12 selects appropriate equipment, materials and tools to meet the requirements of an agricultural enterprise</p> <p>LS.13 demonstrates safe practice in the use of equipment, materials and tools</p> <p>LS.14 maintains and cares for equipment, materials and tools.</p>	<p>Resources</p> <p>Books</p> <ul style="list-style-type: none"> • Bannerman, S., Thornthwaite, S. and Gant, L. (2001) <i>Enterprising Agriculture</i>. Sydney: Macmillan Education Australia • Brown, L, Hindmarsh, R and McGregor, R. (1998) <i>Dynamic Agriculture</i> Book 1, Sydney: McGraw-Hill • Brown, L, Hindmarsh, R and McGregor, R. (1999) <i>Dynamic Agriculture</i> Book 2, Sydney: McGraw-Hill • Francis, R., Hanlon, M. and Ramsay, B. (1990) <i>Agriculture and You</i>. Melbourne: Nelson Australia • Sutherland, J.A. (1980) <i>Introduction to Agriculture</i>. New York: McGraw Hill • <i>Workboot</i> series books and resources Cloverdale. W.A. Kondinin Group • Yates (2002) <i>Yates Garden Guide</i>. HarperCollins Publishers (Australia) <p>Tools such as garden spade, rake, hoe, hose, sprinkler, hand tools</p> <p>Materials/Equipment such as pots, garden bed, soil, potting mix, seeds, seedlings, water, fertiliser, gloves, face masks, pest control products</p>
<p>Links</p> <p>A student:</p> <p>Commerce</p> <p>LS.2 recognises ways in which people obtain goods and services in the local community</p> <p>LS.8 purchases goods and services</p> <p>English</p> <p>ENLS-1A listens and responds in familiar contexts</p> <p>ENLS-5A recognises and uses visual texts, media and multimedia for a variety of purposes, audiences and contexts</p> <p>ENLS-6A reads and responds to a range of written texts in familiar contexts</p> <p>ENLS-8A writes short texts for everyday purposes.</p>	<p>A student:</p> <p>Information and Software Technology</p> <p>LS.5.3 uses a variety of techniques to present information and software technology solutions</p> <p>Mathematics</p> <p>MALS-25MG estimates and measures in everyday contexts</p> <p>Science</p> <p>SCLS-17LW recognises features of living and non-living things</p> <p>SCLS-17LW recognises features of living and non-living things</p> <p>SCLS-20LW explores the interactions of living things with each other and the environment</p> <p>Visual Arts</p> <p>LS.6 makes a variety of artworks that reflect experiences, responses or a point of view.</p>
<p>For students working towards Life Skills outcomes in regular classes, teachers may wish to link the activities in this unit with the Stage 5 unit 'Vegetable Production Enterprise' in <i>Agricultural Technology Years 7–10: Advice on Programming and Assessment</i> (pp 23–30).</p>	

Focus: Vegetable products				
Outcomes: LS.4, LS.10				
Students learn about	Students learn to	Integrated learning experiences, instruction and assessment	Evidence of learning <i>(words in italics refer to Life Skills outcomes)</i>	Feedback
<ul style="list-style-type: none"> agricultural products and their uses organising and presenting data collected 	<ul style="list-style-type: none"> identify the different types of products that are derived from animals or plants print and display information for an identified purpose 	<p>Teacher</p> <ul style="list-style-type: none"> provides samples of vegetables in their unprocessed and processed states demonstrates how fresh vegetables can be prepared/processed in the context of making a meal, using safe and hygienic practices assists students in recording their involvement at each step of the production process in a folio/workbook. <p>Students</p> <ul style="list-style-type: none"> experience vegetables in their unprocessed and processed states. This may include: <ul style="list-style-type: none"> distinguishing between unprocessed and processed vegetables by viewing, feeling, smelling and/or tasting using safe and hygienic practices identifying the parts of vegetables that are suitable for eating preparing/processing vegetables in the context of making a meal using safe and hygienic practices, eg prepare salad ingredients for a BBQ, use vegetable peeler and knife to prepare carrots for eating establish and maintain a folio/workbook of their involvement at each step of the production process. Items in the folio/workbook may include: <ul style="list-style-type: none"> photographs and/or other images of their participation at various steps in the production process descriptions of their activities at each step personal observations data and information relevant to the process personalised step-by-step plan for the process evaluation of the production process. 	<p>Experiencing vegetables in their unprocessed and processed states may involve <i>exploring how agricultural production contributes to our daily lives.</i></p> <p>Recording their involvement in the production process in a folio/workbook may involve <i>using information and communication technologies to collect, organise and present information related to an agricultural enterprise.</i></p>	<p>Oral, visual and/or tangible feedback and prompting by the teacher to guide and affirm students’:</p> <ul style="list-style-type: none"> identification of the relationship between raw and processed vegetables in the context of making a meal recording of their involvement in the production process in an appropriate format.

Focus: Planning and preparation				
Outcomes: LS.1, LS.2, LS.5, LS.6, LS.12				
Students learn about	Students learn to	Integrated learning experiences, instruction and assessment	Evidence of learning (words in italics refer to Life Skills outcomes)	Feedback
<ul style="list-style-type: none"> reasons for plant production systems selecting plants in context of project environmental factors that affect plant production different production systems available 	<ul style="list-style-type: none"> identify the purpose of the plant production enterprise select appropriate plant species and strain/varieties for the production system identify significant environmental factors that affect plant production determine the production system to be utilised in the light of available resources 	<p>Teacher</p> <ul style="list-style-type: none"> assists students to determine the nature, location, time frame and planning steps of the production process arranges site studies to retail outlets to explore and determine products that may be marketed, eg carrots and/or lettuce to be grown in garden plots and/or tomatoes to be grown hydroponically for use in the school canteen assists students to prepare the location for growing vegetables and gather necessary tools, materials and equipment. <p>Students</p> <ul style="list-style-type: none"> determine the nature of the enterprise. This may include: <ul style="list-style-type: none"> visiting retail outlets to explore and determine vegetables that may be grown and marketed surveying and determining a potential market for specific vegetable products in the school community selecting the vegetable product that will be marketed selecting the particular variety of vegetables best suited to the identified market determine and prepare the location/s for the growing of vegetables. This may involve students considering: <ul style="list-style-type: none"> environmental factors necessary for germination and growth of plants, eg access to sunlight and rainfall, protection from wind available resources accessibility 	<p>Recognising the purpose, time frame and steps to produce and market the vegetable product may indicate <i>participating in the production process of an agricultural enterprise</i> and/or <i>participating in marketing an agricultural product</i>.</p> <p>Selection of an appropriate location for plant germination and growth may indicate <i>investigating environmental factors that affect plant and animal production</i>.</p>	<p>Oral, visual and/or tangible feedback and prompting by the teacher to guide and affirm students’:</p> <ul style="list-style-type: none"> identification of the nature of the enterprise and the vegetable product that will be produced selection of an appropriate location for the enterprise.

continued

Focus: Planning and preparation (cont)				
Outcomes: LS.1, LS.2, LS.5, LS.6, LS.12				
Students learn about	Students learn to	Integrated learning experiences, instruction and assessment	Evidence of learning <i>(words in italics refer to Life Skills outcomes)</i>	Feedback
<ul style="list-style-type: none"> the nature and purpose of a range of tools, equipment and materials establishing supply and demand requirements growing a range of suitable crop plants using a variety of production systems 	<ul style="list-style-type: none"> select tools and equipment in relation to an agricultural project select materials in relation to an agricultural project calculate requirements to meet the demand participate in a group project to grow a range of suitable crop plants from seed 	<p>Students</p> <ul style="list-style-type: none"> determine and gather/purchase the tools, materials and equipment needed for the production process. This may include: <ul style="list-style-type: none"> growth media, pots, fertiliser appropriate numbers of packets of seeds/punnets of seedlings the necessary tools, materials and equipment determine the steps to produce and market the vegetable product in an appropriate timeframe. This may involve: <ul style="list-style-type: none"> including a personalised step-by-step plan of the production process in their folio/workbook following through each step of the plan, recognising the activities at each step. 	<p>Determination and selection of items may indicate <i>selecting appropriate tools, equipment and materials to meet the requirements of an agricultural enterprise and/or participating in the production process of an agricultural enterprise.</i></p> <p>Determination of the planning steps may indicate <i>experiencing a range of plant and animal production enterprises and/or participating in marketing an agricultural product.</i></p>	<p>Oral, visual and/or tangible feedback and prompting by the teacher to guide and affirm students’:</p> <ul style="list-style-type: none"> selection of appropriate tools, materials and equipment identification of steps involved in growing, harvesting and marketing vegetable products.

Focus: Safe use of equipment, materials and tools				
Outcomes: LS.13, LS. 14				
Students learn about	Students learn to	Integrated learning experiences, instruction and assessment	Evidence of learning <i>(words in italics refer to Life Skills outcomes)</i>	Feedback
<ul style="list-style-type: none"> the application of Occupational Health and Safety practices maintenance routines for care of equipment, materials and tools 	<ul style="list-style-type: none"> use a mask and gloves when handling potting mix, fertilisers, pesticides and herbicides use materials, tool and equipment safely in the context of projects carry and transfer tools, materials and equipment safely undertake regular maintenance store materials, tools and equipment appropriately regularly clean materials, tools and equipment after use keep work environments clear and clean 	<p>Teacher</p> <ul style="list-style-type: none"> explicitly teaches, demonstrates and supervises the safe use and handling of tools, potting mix, agricultural chemicals, and the use of personal protective equipment in the context of the project explicitly teaches routines to maintain and care for tools, materials and equipment. <p>Students</p> <ul style="list-style-type: none"> use tools and personal protective equipment safely in the context of the production process. This may involve: <ul style="list-style-type: none"> putting on safety equipment, eg gloves and face masks when using potting mix and/or agricultural chemicals recognising rules for the safe use of tools and equipment carrying and using materials, tools and equipment appropriately, safely, under supervision and in accordance with instructions, eg mixing nutrient solutions in the correct ratios for a hydroponic system apply routines to appropriately maintain and care for materials, tools and equipment during the production process. This may include: <ul style="list-style-type: none"> returning equipment, materials and tools to their storage space after use carrying out routines for the cleaning of materials, tools and equipment after use tidying the work environment reporting unsafe equipment and/or dangerous situations. 	<p>Appropriate and safe use of tools and personal protective equipment may involve <i>demonstrating safe practices in the use of equipment, materials and tools.</i></p> <p>Appropriate routines to maintain and care for items may indicate <i>maintaining and caring for equipment, materials and tools.</i></p>	<p>Oral, visual and/or tangible feedback and prompting by the teacher to guide and affirm students’:</p> <ul style="list-style-type: none"> demonstration of the safe use of tools and personal protective equipment demonstration of routines for the care and maintenance of equipment, materials and tools.

Focus: Planting and caring for vegetable plants				
Outcomes: LS.5, LS.10, LS.13				
Students learn about	Students learn to	Integrated learning experiences, instruction and assessment	Evidence of learning (words in italics refer to Life Skills outcomes)	Feedback
<ul style="list-style-type: none"> requirements for seed germination conditions for effective growth and production processes for transplanting plants the application of Occupational Health and Safety practices using measuring devices to collect data organising and presenting data collection 	<ul style="list-style-type: none"> plant seeds or seedlings using appropriate techniques maintain vegetable plants transplant seedlings when necessary using appropriate techniques use a mask and gloves when handling potting mix, fertilisers, pesticides and herbicides measure an aspect of a plant or animal production system in relation to yield or growth print and display information for an identified purpose 	<p>Teacher</p> <ul style="list-style-type: none"> reviews the step-by-step plan for the production process and assigns tasks to class members demonstrates, assists and supervises planting of seedlings/seeds demonstrates, assists and supervises tending of plants. <p>Students</p> <ul style="list-style-type: none"> engage in the planting and care of plants by following the step-by-step plan. This may involve: <ul style="list-style-type: none"> planting seeds in pots or garden beds transplanting seedlings tending plants, eg watering, weeding, fertilising plants and controlling for pests using safe practices observe and record in their folio/workbook features of the plants at regular intervals, eg number, size, colour, growth rate, and yield. This may involve: <ul style="list-style-type: none"> observing and/or photographing plants measuring and/or describing features of plants tabulating and/or graphing plant development. 	<p>Planting and tending of vegetable seeds and seedlings may involve <i>participating in the production process of an agricultural enterprise</i> and/or <i>demonstrating safe practices in the use of equipment, materials and tools.</i></p> <p>Observation and record keeping may involve <i>using information and communication technologies to collect, organise and present information related to an agricultural enterprise.</i></p>	<p>Oral, visual and/or tangible feedback and prompting by the teacher to guide and affirm students’:</p> <ul style="list-style-type: none"> demonstration of safe work practices and techniques in planting and caring for plants recording of the growth of the vegetable seedlings in an appropriate format.

Focus: Harvest, process and store vegetable produce				
Outcome: LS.5				
Students learn about	Students learn to	Integrated learning experiences, instruction and assessment	Evidence of learning (words in italics refer to Life Skills outcomes)	Feedback
<ul style="list-style-type: none"> harvesting methods for particular plant species techniques used to control ripening and preservation post-harvesting 	<ul style="list-style-type: none"> harvest crop using appropriate techniques use strategies to control ripening processes and preserve crop post-harvest 	<p>Teacher</p> <ul style="list-style-type: none"> demonstrates, assists and supervises the harvesting, storage and processing of vegetable produce. <p>Students</p> <ul style="list-style-type: none"> harvest vegetables appropriately store and/or process vegetables appropriately. This may involve: <ul style="list-style-type: none"> storing vegetables to control the ripening process and preserve quality, eg in the fridge or in a dark cupboard processing vegetables for finished product, eg washing, sorting dividing vegetables into bundles or placing in bags, according to weight, size or number preparing, packaging and labelling products. 	<p>Use of harvesting techniques may indicate <i>participating in the production process of an agricultural enterprise.</i></p> <p>Storage and processing of produce may indicate <i>participating in the production process of an agricultural enterprise.</i></p>	<p>Oral, visual and/or tangible feedback and prompting by the teacher to guide and affirm students’:</p> <ul style="list-style-type: none"> demonstration of appropriate and safe techniques for harvesting vegetables demonstration of appropriate techniques for processing and storing vegetables.

Focus: Marketing vegetable products				
Outcomes: LS.6				
Students learn about	Students learn to	Integrated learning experiences, instruction and assessment	Evidence of learning <i>(words in italics refer to Life Skills outcomes)</i>	Feedback
<ul style="list-style-type: none"> marketing strategies to meet supply, demand and consumer preferences 	<ul style="list-style-type: none"> market product in the context of the purpose of the project 	<p>Teacher</p> <ul style="list-style-type: none"> provides examples of marketing brochures and opportunities for site studies to assist students to determine ways to market vegetable products in the school community assists students to develop an order form, take orders and distribute the vegetable products. <p>Students</p> <ul style="list-style-type: none"> produce, display and distribute promotional material to potential customers in the school community. This may involve: <ul style="list-style-type: none"> visiting local retail outlets or markets to explore promotional material, product presentation and pricing selecting appropriate advertising material creating posters from magazine cuttings, brochures, seed packets and photographs taken during the enterprise creating video/audio/multimedia advertisements arranging tastings of vegetable products take orders for vegetable products in the school community. This may involve: <ul style="list-style-type: none"> developing an appropriate order form distributing order forms recording orders distribute products to customers in the school community. This may involve: <ul style="list-style-type: none"> collecting payments recording payments. 	<p>Production of advertising material may indicate <i>participating in marketing an agricultural product.</i></p> <p>Collection of orders may indicate <i>participating in marketing an agricultural product.</i></p> <p>Distribution of products may indicate <i>participating in marketing an agricultural product.</i></p>	<p>Oral, visual and/or tangible feedback and prompting by the teacher to guide and affirm students’:</p> <ul style="list-style-type: none"> selection and use of information, images and techniques to create effective marketing materials design of an order form and demonstration of skills in taking orders for vegetable products demonstration of skills in distributing vegetable products to customers.

Focus: Evaluating the vegetable production process				
Outcomes: LS.5, LS.10				
Students learn about	Students learn to	Integrated learning experiences, instruction and assessment	Evidence of learning <i>(words in italics refer to Life Skills outcomes)</i>	Feedback
<ul style="list-style-type: none"> techniques for reviewing project processes in relation to yield and quality organising and presenting data collected 	<ul style="list-style-type: none"> review the project in terms of yield and quality print and display information for an identified purpose 	<p>Teacher</p> <ul style="list-style-type: none"> facilitates students sharing their experiences of the enterprise with others. <p>Students</p> <ul style="list-style-type: none"> evaluate the vegetable production enterprise in terms of quality and yield. This may involve: <ul style="list-style-type: none"> completing a teacher-designed questionnaire on their involvement to be included in the folio/workbook including photographs in their folio/workbook of their participation in various steps of the process recording, in the folio/workbook, the reactions of customers to the product making suggestions in their folio/workbook about how the production process could be improved or replicated responding to questioning such as, ‘What were the advantages and disadvantages of the garden site we chose?’ ‘How were we able to control for pests?’ ‘What could be changed to improve the quality and yield?’ share their experiences of the production process with others. This may involve: <ul style="list-style-type: none"> displaying the folio/workbook in a prominent place in the school developing a multimedia presentation. 	<p>Participation in the evaluation of the enterprise may indicate <i>participating in the production process of an agricultural enterprise and/or using information and communication technologies to collect, organise and present information related to an agricultural enterprise.</i></p> <p>Sharing their experiences of the production process with others may involve <i>using information and communication technologies to collect, organise and present information related to an agricultural enterprise.</i></p>	<p>Oral, visual and/or tangible feedback and prompts by the teacher to guide and affirm students’:</p> <ul style="list-style-type: none"> evaluation of the success of the enterprise communication of their participation in the production process with others in an appropriate format.