Technology 7–8 – Food and agricultural practices – sample program of learning

Grow up! – vertical garden adventure

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# Rationale

The NSW Department of Education publishes a range of curriculum support materials, including samples of lesson sequences, scope and sequences, assessment tasks, examinations, student and teacher resource booklets, and curriculum planning and curriculum evaluation templates. The samples are not exhaustive and do not represent the only way to complete or engage in each of these processes. Curriculum design and implementation is a dynamic and contextually specific process. While the mandatory components of syllabus implementation must be met by all schools, it is important that the approach taken by teachers is reflective of their needs and faculty or school processes.

NSW Education Standards Authority (NESA) defines [programming](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/understanding-the-curriculum/programming) as ‘the process of selecting and sequencing learning experiences which enable students to engage with syllabus outcomes and develop subject specific skills and knowledge’ (NESA 2022). A program is developed collaboratively within a faculty. It differs from a unit in important ways, as outlined by NESA on their [Advice on units](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/understanding-the-curriculum/programming/advice-on-units) page. A unit is a contextually-specific plan for the intended teaching and learning for a particular class for a particular period. The organisation of the content in a unit is flexible and it may vary according to the school, the teacher, the class and the learning space. They should be working documents that reflect the thoughtful planning and reflection that takes place during the teaching and learning cycle. There are mandatory components of programming and unit development and this template provides one option for the delivery of these requirements. The NESA and department guidelines that have influenced this template are elaborated upon at the end of the document.

This resource has been developed to assist teachers in NSW Department of Education schools to create learning that is contextualised to their classroom. It can be used as a basis for the teacher’s own program, assessment, or scope and sequence, or be used as an example of how the new curriculum could be implemented. The resource has suggested timeframes that may need to be adjusted by the teacher to meet the needs of their students.

# Overview

**Description**: this program of learning addresses the ‘Food and agricultural practices’ focus area. The lessons and sequences in this program of learning are designed to allow students to develop safe practical skills in horticulture while learning about new and emerging agricultural practices in Australia.

**Duration**: this program of learning is designed to be completed over a period of approximately 10 weeks in 60 minutes lesson sequences, but can be adapted to suit the school context.

**Learning intentions and success criteria**: suggested learning intentions and success criteria are available for lessons provided. The learning intentions are aligned with syllabus outcomes and focus on the concept or skill that students are developing and why this is significant. The success criteria provided are examples of what the students will demonstrate (do, say, make, or compose) to indicate they have fulfilled the learning intention. These success criteria are suggestions aligned to the learning activities in the resource and may need to be altered for different contexts. Learning intentions and success criteria are most effective when they are shared in meaningful ways with the students, referred to throughout the lesson, and form the basis of feedback. Learning intentions and success criteria are most effective when they are contextualised to meet the needs of students in the class. The examples provided in this document are generalised to demonstrate how learning intentions and success criteria could be created.

# Outcomes

A student:

* explains relationahips between sustainability, design and production **TE4-SDP-01**
* describes the practices and processes of designers and producers **TE4-PDP-01**
* communicates and evaluates design ideas and solutions **TE4-DES-01**
* applies processes in the planning, management and production of projects **TE4-PPM-01**
* selects and safely uses tools, materials, technologies and processes **TE4-SAF-01**

**Related Life Skills outcomes**

A student:

* **recognises the technologies used in everyday life TELS-SDP-01**
* **recognises relationships between sustainability, design and production TELS-SDP-02**
* **recognises practices or processes used by designers or produces TELS-PDP-01**
* **communicates and represents design ideas or solutions TELS-DES-01**
* **participates in planning projects TELS-PPM-01**
* **participates in the production of projects TELS-PPM-02**
* **uses and records numbers and measurements when designing and producing TELS-PPM-03**
* **demonstrates safe practices when using tools, materials, technologies or processes TELS-SAF-01**

[Technology 7–8 Syllabus](https://curriculum.nsw.edu.au/learning-areas/tas/technology-7-8-2023/overview) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2023.

**Prior to planning for teaching and learning, please consider the following**:

**Engagement**

* How will I provide authentic, relevant learning opportunities for students to personally connect with lesson content?
* How will I support every student to grow in independence, confidence and self-regulation?
* How will I facilitate every student to have high expectations for themselves?
* How will I identify and provide the support each student needs to sustain their learning efforts?

**Representation**

* What are some different ways I can present content to enable every student to access and understand it?
* How will I identify and address language and/or cultural considerations that may limit access to content for students?
* How will I make lesson content and learning materials more accessible?
* How will I plan learning experiences that are relevant and challenging for the full range of students in the classroom?

**Expression**

* How will I provide multiple ways for students to respond and express what they know?
* What tools and resources can students use to demonstrate their understanding?
* How will I know every student has understood the concepts and language presented in each lesson?
* How will I monitor if every student has achieved the learning outcomes and learning growth?

School leaders and teachers should refer to [Equipment Safety in Schools](https://esis.education.nsw.gov.au/esis/teacher/), [Animals in Schools](https://education.nsw.gov.au/teaching-and-learning/animals-in-schools), and [Chemical Safety in Schools](https://ecmjsp.education.nsw.gov.au/ecmjsp/chemicals/#skipToContent) for current information on safety and safe working practices.

# Lesson sequence and details

## Week 1

Table 1 – Week 1 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome****TE4-SDP-01****Content**Students:* Describe food and agricultural industries in New South Wales.
 | **Learning intention**We are learning to understand what agriculture is and why it is important for providing things like food and clothing so that we can see how it affects our daily lives.**Success criteria****We can:*** clearly define agriculture and identify 3 ways it connects to my daily life.

**Teaching and learning activities**Students engage in whole class or small group discussions about what agriculture is.Students collaborate to define the term ‘agriculture’ and make connections about its importance in their everyday lives. This connecting learning activity highlights student’s exposure to various aspects of the industry. This can support teachers to connect new concepts to prior knowledge later in the unit.**S**tudents use simple image research skills and [Canva](https://www.canva.com/) (or similar) to design a collage showing what agriculture means to them.Teacher demonstrates connections between the different types of agriculture sectors in Australia and the products they produce. Students demonstrate their understanding by applying the modelled and guided examples to a new agricultural product. | Students create a digital word cloud or picture collage that represents different aspects of agriculture.Students successfully break down a meal into basic agricultural products and identify the types of farms or sectors they come from. Teacher uses the activity to make evidence-based instructional decisions about continuing to teach this concept in the following lesson if understanding is not demonstrated successfully or moving on. | **Suggested adjusted activities. This section is also for use in schools when making and recording adjustments made to support all students to achieve in their learning.**Provide a scaffolded glossary with modelled examples for some terms, allowing the use of bilingual dictionaries for new terminology and use visuals where appropriate.Use scaffolds and templates to support students to complete tasks. |  |
| **Outcome****TE4-SDP-01****Content**Students:* Describe food and agricultural industries in New South Wales.
 | **Recap prior learning:** check for understanding about what agriculture is and how it impacts a student’s daily life.* Outline 3 ways agriculture or agricultural products impact their life.
* Name a local shop and one product it sells that comes from a farm. What type of farm does it come from?

**Learning intention*** We are learning to explore different types of farming in Australia and its effect on NSW so that we can understand the importance of local farms and what they produce.

**Success criteria**We can:* identify the top 5 primary industries in my local area
* list the top-producing regions in NSW and key agricultural products grown.

**Teaching and learning activities**Teacher introduces students to NSW agricultural production statistics using the [Regional Output](https://www.dpi.nsw.gov.au/about-us/publications/pdi/2022/regional-output) webpage. Teacher models how to engage with the website graphics to identify major primary industries, products produced and locations.Teacher explicitly demonstrates how to collect data from the online source and present in tables, verbalising each step of the process.Teacher uses strategies to move from explicit modelling to guided instruction and independent application as students demonstrate the skills of data collection and presentation throughout the activity.**S**tudents research images of agricultural products and use data from online sources to create a commodity postcard for the local region, displaying important information about agriculture in their community. | Students collate data about primary industries in their local region and NSW in appropriate tables.Students create a postcard for the Sydney Royal Easter Show illustrating a local agricultural product. The postcard should include the name of the product, associated images and a brief explanation of its impact on the local community and broader region. | **Extension**: download agricultural production statistics as an Excel file and support students with simple sorting and filtering functions to find relevant data.Use Excel software to create graphs representing the data collated. |  |

## Weeks 2 to 3

Table 2 – weeks 2 to 3 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome****TE4-PDP-01****Content**Students:* **Identify the characteristics and properties of food, fibre and agricultural products.**
 | **Learning intention**We are learning to understand the basics of growing plants, especially herbs and how we use them so that we can use this knowledge in cooking and horticulture.**Success criteria****We can:*** identify and list various types of herbs commonly grown in horticulture
* describe the properties of different herb samples and explain their uses in food preparation
* create a scale sketch of a plant, labelling its main structures and identifying the parts of the plant that are consumed.

**Teaching and learning activities**Teacher uses hinge questions to assess student understanding of what horticulture is and what is produced on a horticulture enterprise. Teacher analyses student responses to determine if further teaching on the concept is required prior to moving on to the next activity.Students investigate common herb samples, making observations about appearance, smell and taste. They then link these observations to food preparation.**S**tudents use one of the herb samples to sketch and label a diagram with the basic parts of a plant (see differentiation and adjustments for alternative ideas to ‘sketch and label’).Students annotate the diagram of the plant with the functions of each plant part.Teacher explains how different parts of plants are consumed and that rarely the whole plant is consumed.Teacher checks for understanding strategies and have students list common plants grown in horticulture and identify the part of the plant that is eaten. Teacher provides effective feedback as required. | Students communicate information about a range of herb samples, including local native samples, through in-class observations.Students accurately sketch, label and annotate a diagram of a simple plant.Students accurately identify common horticultural plants and the parts of the plant we eat. | Identification of plant parts and their functions could be presented in a range of ways, including verbally identifying and describing each part, labelling photographs, or adding labels to real-life samples. Students use their preferred mode of communication to show evidence of learning.Students may use software to digitally draw plant diagrams to scale.**Extension:** students draw plant diagrams to scale using direct measurement from the real-life samples and adequate scale conversions. |  |
| **Outcome****TE4-PPM-01****Content**Students:* Describe how food and agricultural products are grown, harvested, manufactured, packaged and distributed**.**
 | **Learning intention**We are learning to understand the design requirements and constraints for creating a simple vertical garden system for urban food production.**Success criteria****We can:*** clearly articulate 3 criteria for success that demonstrates how I know if my design meets the brief.

**Teaching and learning activities**Teacher explains the design process and design brief for this unit, vertical garden. Outline group sizes, expectations, timeframe and demonstrate modelled examples of a finished product.Students make notes about the project and what they need to accomplish, constraints given and the criteria for success to demonstrate their understanding of the project and ask further clarifying questions.Teacher checks for understanding by using strategies such as hinge questions, having students demonstrate clear articulation of criteria for success. If a clear criterion cannot be demonstrated, teachers can use this analysis to discuss the project using different models and questioning strategies. | Students complete a table showing 3 criteria for success that demonstrates if their project meets the brief, and a statement about the impact on the product if it is not met.Students may articulate their understanding of the design brief in a range of ways other than written notes, including verbalising their understanding, using a visual storyboard, or drawing a model of an initial design. | **Extension:** students work collaboratively to build their own design brief based on the design situation. |  |
| **Outcome****TE4-PDP-01****Content**Students:* Describe how food and agricultural products are grown, harvested, manufactured, packaged and distributed**.**
 | **Learning intention**We are learning to explore how crops are grown in Australia and the steps involved – from planting to the product reaching consumers, so that we can understand how our food gets from the farm to our table.**Success criteria****We can:*** identify the sequence of activities on a field-grown lettuce farm
* create a flow chart that maps the supply chain for lettuce.

**Teaching and learning activities**Watch the video [A Day on a lettuce farm in Western Australia (3:33)](https://www.youtube.com/watch?v=GddBstDVXJE), highlighting the processes in the supply chain from paddock to plate.Teacher models how to create a flow chart diagram, including directional arrows and clear annotations.**S**tudents draw a flow chart showing the steps in the supply chain for a simple field-grown horticulture product.Teacher facilitates discussion as a class or in small groups on predicting future direction in the industry using the following questions: * Which steps do you think could be automated?
* How do you imagine this would look?
 | Students will accurately create a simple flow chart showing the steps in the supply chain for the field-grown lettuce enterprise.Students may use simple software to create a digital representation of a supply chain flow chart, adding annotations of what happens at each step in the chain. | Students complete simple sorting activities to place cards with supply chain steps in order from farm to consumer, drawing arrows between each.Ensure closed captions are turned on to support students who are deaf or hard of hearing. |  |
| **TE4-PDP-01****Content**Students:* Describe how food and agricultural products are grown, harvested, manufactured, packaged and distributed**.**
 | **Learning intention**We are learning to understand the requirements for growing basil and the best practices for successful cultivation and harvest so that we can grow healthy basil plants.**Success criteria****We can:*** collate information about optimal conditions for growing basil using secondary sources.

**Teaching and learning activities**Watch the video [Growing The Best Basil - The Definitive Guide (15:28)](https://www.youtube.com/watch?v=eiaog6ctM1Q) outlining the key processes for germinating seeds successfully and growing basil through to harvest.Students collate key information from the video resource into a table.**Alternative:** teacher may choose to use seed packets to collate growing information for the selected plant to be used in the vertical garden project.**Optional numeracy activity:** teacher demonstrates how to convert Fahrenheit into Celsius temperatures. Students convert the measurements from the video into Celsius. | Students have a completed table showing optimal growing conditions for basil seed germination and seedling growth. | **Student autonomy:** students research and select their own plants to grow in their vertical garden prototype based on given criteria for time of year, climate and time to harvest. Basil in this instance may be used as a ‘modelled’ example.Ensure closed captions are turned on to support students who are deaf or hard of hearing. |  |

## Week 4

Table 3 – week 4 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome****TE4-SAF-01****TE4-PPM-01****Content**Students:* Demonstrate safe practices when selecting and using tools, technologies and processes
* **Use equipment, tools, techniques, technologies and processes to develop practical skills.**
 | **Learning intention**We are learning to understand safety protocols and the proper use of personal protective equipment when handling potting mix and horticultural tools so that we can stay safe while performing practical activities.**Success criteria****We can:*** identify potential hazards associated with potting mix and list appropriate safety measures
* demonstrate the correct use of various types of Personal protective equipment (PPE)
* follow teacher instructions to safely sow seeds for germination.

**Teaching and learning activities**Teacher indicates where to find safety warnings on potting mix packaging and explains what they mean, linking directly to use in the lesson.Teacher displays examples of PPE and identify what part of the body they protect, then model how to correctly wear them. As a class, brainstorm a range of everyday and agricultural work scenarios where each item may be important for use. Teacher uses activities to connect learning where students demonstrate how PPE can improve safety on a worksite.Students match the PPE displayed by the teacher with the workshop symbols and their names.**S**tudents engage with the sample scenarios and identify the correct PPE for the activity. Teachers use effective feedback strategies to provide timely feedback for students.**T**eacher models correct and safe use of potting mix to germinate seeds.**Practical learning:** students set up their own pots for germinating seeds. Techers use the strategies to model how to correctly plant seeds in pots for germination, moving to guided and independent practice as students build the skills throughout the activity.Check for understanding with a hinge question for students to work on individually or in pairs. For example, describe a simple scenario in agriculture where PPE might be required and why? | Students identify the correct PPE for the given scenarios, either individually or in pairs.Students follow safety warnings printed on bags of potting mix to select and use the correct PPE.Students follow instructions to set up a tray of seeds for germination. | **Extension:** students create their own workplace scenarios for different types of PPE.Students identify the PPE being used in a short workplace scenario video.Students work in small groups to set up trays of seeds for germination. |  |

## Weeks 5 to 7

Table 4 – weeks 5 to 7 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome****TE4-PPM-01****TE4-SAF-01****Content**Students:* Apply critical and creative thinking to assess ideas for quality food and/or agricultural solutions
* Select food preparation techniques, production skills and/or agricultural practices to make solutions and projects
* **Work collaboratively to test, modify and improve food and/or agricultural products**
* **Use equipment, tools, techniques, technologies and processes to develop practical skills.**
 | **Learning intention**We are learning to design a working model of a vertical garden, considering structure, planters and adjustable mechanisms so that we can create innovative gardening solutions in limited spaces.**Success criteria****We can:*** create a sketch of a vertical garden structure, showing the materials used with consideration to stability, safety and space
* identify various mechanisms for raising and lowering the vertical garden and asses their advantages and disadvantages
* work collaboratively to build a working model of the design sketched for a vertical garden.

**Teaching and learning activities**Use an entry ticket to check for understanding and assess if students recall and understand the design brief for the vertical garden project. Using analysis of student responses, teachers may need to revisit the design brief and models to clarify the project again prior to moving forward.Teacher explains the breakdown of the parts of the project’s design, structure, planter pots, adjustable mechanism, planting grid and watering system (or modified version).Students work collaboratively to research types of planters that can hold the basil seedlings. Make a suitable selection for the design.Students work collaboratively to research adjustable mechanisms to raise and lower the planters either online, or through a selection of video resources and teacher demonstrations. Students make a suitable selection for the design.Teacher either demonstrates the steps on how to sketch and annotate a simple prototype or uses pre-drawn sketches and explains the steps thoroughly as a model for students to refer back to for the next activity.Students sketch the vertical garden structure design, including annotations and sizes their group is considering building.**S**tudents work as a small team to build the prototype of the vertical garden.Teacher models how to transplant seedlings from the germination trays into different types of planters, including talking through each step and reason why certain techniques are used and not others.**S**tudents transplant seedlings into the prototype and maintain the crop through to harvest.**Alternatives:** students may select to use other technologies in the TAS classroom with teacher guidance and support to build prototypes, including, but not limited to, laser cutters and 3D printers. | Students develop an annotated sketch of a suitable design for a vertical garden.Students work collaboratively to build their design according to the sketch, making adjustments where required.Students safely follow instructions to transplant seedlings into their project designs. | Students can work individually or in small groups. |  |

## Week 8

Table 5 – week 8 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome****TE4-SDP-01****Content**Students:* Outline factors affecting the design of food and agricultural practices.
 | **Learning intention**We are learning to understand the role of wholesale markets in the distribution of fresh produce and explore the issues related to transporting food so that we can appreciate the journey our food takes to reach us.**Success criteria****We can:*** calculate the distances between farms, wholesale markets and supermarkets
* discuss issues related to food mileage.

**Teaching and learning activities**Teacher facilitates a class brainstorm identifying horticulture farms in NSW.Teacher demonstrates how to use Google maps to locate one of these farms and models the steps for how to calculate the distance from the closest wholesale market. Teacher uses strategies to move students through guided and independent practices to calculate the distance through all 3 horticulture farms and their closest wholesale markets, completing the table. As students develop the skill to complete calculations, they will move from guided and modelled practice to independently completing the task.**S**tudents use the same skill from the previous activity to calculate the distance between the wholesale markets and their closest supermarket. For students who are yet to master the skill, this is an opportunity for the teacher to move back to modelled or guided practices to support students as required.Students calculate the total food mileage for a product coming from all 3 farms to your local supermarket.Discuss as a class the implications of food mileage on the environment and other concerns their community may have with access to food. | Students can accurately calculate distance between 2 points using digital maps.Students can link the distance food travels to environmental or social issues during a class discussion or other preferred mode of communication. | **Extension:** use Excel to input data and formulas to calculate final distances travelled for horticulture products through to local supermarkets. |  |
| **Outcome****TE4-PDP-01****TE4-DES-01****Content**Students:* Investigate current and emerging technologies used to improve quality in production and distribution
* **Explain social, ethical and legal considerations associated with food and agricultural production**
* **Explore agricultural practices to assess the impact of changing conditions, improve the quality of production and reduce waste.**
 | **Learning intention**We are learning to explore new and emerging technologies in agriculture and how they address sustainability and food production in urban areas so that we can understand modern farming challenges and solutions.**Success criteria**We can:* identify and describe different technologies used in agriculture that address sustainability and food production challenges
* compare urban and rural farming methods.

**Teaching and learning activities**Students brainstorm a list of technologies found on horticulture farms as a class using learning from previous lessons. Teacher draws on previous concepts, recalling technologies seen in video resources and research activities, prior to introducing the newest learning concept.Using the list of technologies developed, discuss the use of technologies on farms to increase production and reduce inputs. Connect these advantages to the need for more food production with population growth and reduced agricultural land.Watch the video [A small farm making big waves from an underground car park in Sydney | ABC News (8:07)](https://www.youtube.com/watch?v=LNg3IOqlCXw) and answer questions as a class, using them for further discussion.Use strategies to compare the new technology from the video to the field-grown lettuce in a previous lesson.Watch the video resources [Farms of the future: the way we grow food is changing ABC Australia (15:01)](https://www.youtube.com/watch?v=IqjquW7Yo_M), or [Virtual tour of CubicFarms’ fresh produce system (8:50)](https://www.youtube.com/watch?v=UpTlIqjNOwQ). Explain that emerging technologies are not yet commercially available or adopted.Discuss how these technologies would be implemented to improve sustainability in horticulture. What is the difference between the ‘new’ technology and the ‘emerging’ one?In project groups, students brainstorm what aspects or ideas from these video resources could be adopted into your project design.**Alternatives:** field trips or incursions to see or use new and emerging technologies in horticulture can be used over watching video resources. | Students name a range of technologies used in agriculture and horticulture and link them to improving environmental sustainability or increased production.Students compare the field-based or rural horticulture enterprise with one in an urban environment using technology in small spaces. | Use scaffolds and models to support students in identifying technologies used in horticulture and their benefits.Ensure closed captions are turned on to support students who are deaf or hard of hearing. |  |

## Weeks 9 to 10

Table 6 – weeks 9 to10 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome****TE4-PPM-01****Content**Students:* Create written texts to document food production processes and/or agricultural practices.
 | **Learning intention**We are learning about the importance of record keeping and types of data that can be collected during the lifecycle of a horticultural project so that we can effectively track and analyse our gardening projects.**Success criteria****We can:*** design a suitable table or other representation method to collate first-hand data collected.

**Teaching and learning activities**Students recall the key parts of a table used for data collection as a class.Students brainstorm the types of data that could be collected in an ongoing basis for this project, that could be used to support the evaluation of the project for success.**S**tudents design a suitable table for the collection of one type of data that can be collected during the project, for example, temperature.**S**tudents collect ongoing first-hand data from their projects throughout the growing period.**Alternatives:** students may use software to develop a table and collect data, such as Excel.Students may use other forms of technology to collect first-hand data, including digital weather stations, weather apps, soil moisture probes and temperature sensors. | Students produce a suitable table with correct headings and units of measurement.Students successfully collect and present first-hand data. | **Extension:** students may build their own data collection tools, such as soil moisture probes and temperature sensors (see Appendix A of teacher resource). |  |
| **Outcome****TE4-SDP-01****TE4-PDP-01****Content**Students:* Compare Aboriginal and Torres Strait Islander Peoples’ management practices with emerging agricultural practices.
 | **Learning intention**We are comparing traditional Aboriginal and Torres Strait Islander land management practices with emerging agricultural techniques so that we can appreciate the value of different farming methods.**Success criteria****We can:*** identify and describe at least 2 traditional land management practices used by Aboriginal and Torres Strait Islander Peoples
* compare traditional and contemporary or emerging agricultural techniques, highlighting similarities and differences with reference to sustainability and the local environment.

**Teaching and learning activities**Students recall land management practices that are or were used by Aboriginal Peoples’ and the impacts on the land of using these. Teacher uses this strategy to assess student prior learning from other subjects and outside learning experiences.Students recall new and emerging technologies in agriculture, connecting learning from previous learning concepts in this unit.Teacher facilitates discussions that make links between Aboriginal and Torres Strait Islander Peoples’ land management and emerging agricultural practices, looking at sustainability and production.Teacher presents the information about comparing Aboriginal and Torres Strait Islander Peoples’ management practices with emerging agricultural practices to the class. Teacher models where key practices and information may be included and highlight these for reference later.Teacher leads class discussions, or other preferred modes of communication, to answer the questions in the student workbooks.Students complete a table of comparisons to identify similarities and differences between Aboriginal and Torres Strait Islander Peoples land management practices, and emerging or new practices used in agriculture.**Alternatives:** use local AECG and/or community groups with Aboriginal knowledge of land management practices, both traditional and contemporary to invite guest speakers or visit local sites and learn about this topic.The website [New South Wales AECG – NSW Aboriginal Education Consultative Group](https://www.aecg.nsw.edu.au/) may be helpful in this process.Apply traditional and contemporary Aboriginal land management practices on the school farm to learn about them firsthand. | Students contribute to classroom discussions, identifying land management strategies and making comparisons between them. |  |  |
| **Outcome****TE4-DES-01****Content**Students:* Use factors affecting design to evaluate the quality of food and/or agricultural solutions.
 | **Learning intention**We are learning to evaluate the quality of harvested crops using market specifications and reflect on the criteria for success of our design project so that we can improve our gardening skills and project outcomes.**Success criteria****We can:*** assess plant products using given market specifications.
* evaluate the success of a design project by comparing the final design with predefined criteria for success, identifying areas for improvement.
* link the design project skills learnt with real-world applications.

**Teaching and learning activities**Use a simple strategy to determine if students can recall how to harvest produce from their plants. Analyse data to determine if students need further support.Teacher demonstrates how to set up and use kitchen scales to weigh correctly. Students use scales to weigh their harvested products and collate information into a table.Teacher explains what market specifications are using examples.**S**tudents use the concept of market specifications to describe what consumers look for when purchasing different examples of fruits and vegetables.**Practical activity:** students rank a range of fruit or vegetable samples based on their understanding of market specifications and consumer preferences.Teacher describes the market specifications for basil according to the ‘market specifications for basil’ table given in the student resource, using a sample as a model to increase understanding.Students use the market specification table for basil to assess your harvested produce as high, medium or low quality.Students assess their final vertical garden project design according to the criteria for success determined earlier in the unit.Students describe changes to the design that could be made after evaluation.Teacher uses strategies to link this design project to a real-world situation where these skills are transferrable. | Students rank a range of fruit and vegetables in order of most desirable to least desirable based on an articulated set of criteria.Students rank their harvested products according to a table or market specifications.Students can identify one real-world scenario where at least one of the skills developed in this project can be used or transferred. | Assess harvested product from a range of designs as peer marking.Evaluate a design from a different group based on your criteria for success, identifying strengths and flaws in the design. |  |

# Overall program evaluation

Collating ongoing evaluations and reflecting on the strengths and areas for development within the program creates opportunities to enhance student outcomes. The following prompts can be used to support your evaluation of the program:

* Did the program assist all students to improve in their learning?
* How could the sequencing of the program be improved?
* What did the student evaluations of the program indicate? How can these be actioned to improve the program?
* The strategies and resources that were most effective for student learning were …
* Teaching strategies and resources that would benefit from review and refinement are …

## Capturing student voice when evaluating a program

Student voice is useful in the evaluation process for programs. The statements below could be useful as a starting point when asking students to provide feedback on their learning experiences. These statements are derived from some of the themes from [What works best 2020 update](https://education.nsw.gov.au/about-us/education-data-and-research/cese/publications/research-reports/what-works-best-2020-update) (CESE 2020b) and could be useful in teacher reflection on how these themes could be incorporated into a teaching program. The statements could also prompt student reflection on their metacognitive processes while learning.

**Please rate how much you agree with these statements:**

* My teacher had confidence that I could achieve and improve in my learning. (CESE 2020b Chapter 1: High expectations)
* I had a clear idea of what I was learning and why. (CESE 2020b Chapter 2: Explicit teaching)
* I used the feedback provided to improve my performance. (CESE 2020b Chapter 3: Effective feedback)
* I understood the feedback on the assessment task. (CESE 2020b Chapter 3: Effective feedback)
* I was able to predict the marks I achieved in the assessment tasks. (CESE 2020b Chapter 5: Assessment)
* The activities in the unit prepared me for the assessment task. (CESE 2020b Chapter 5: Assessment)
* I found the activities in the lessons interesting to me. (CESE 2020b Chapter 7: Wellbeing)
* I made valuable contributions to the class during this unit. (CESE 2020b Chapter 7: Wellbeing)
* I ask questions in class when I don’t understand yet. (CESE 2020b Chapter 7: Wellbeing)

**Optional open-ended prompts:**

* The lessons and/or activities that I most enjoyed were when we … because …
* When the learning was difficult, the strategy I used was …
* If I was giving advice to a student who was starting this unit I would tell them to …
* If I was giving advice to a teacher who was teaching this unit I would tell them to …

# Support and alignment

**Resource evaluation and support**: all curriculum resources are prepared through a rigorous process. Resources are periodically reviewed as part of our ongoing evaluation plan to ensure currency, relevance and effectiveness. For additional support or advice, or to provide feedback, contact the TAS Curriculum team by emailing TAS@det.nsw.edu.au.

**Differentiation:** further advice to support Aboriginal and Torres Strait Islander students, EALD students, students with a disability and/or additional needs and High Potential and gifted students can be found on the [Planning, programming and assessing 7–12](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12) webpage. This includes the [Inclusion and differentiation 7–10 advice](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12/inclusion-and-differentiation-advice-7-10) webpage.

**Assessment**: further advice to support formative assessment is available on the [Planning, programming and assessing 7–12](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12) webpage. This includes the [Classroom assessment advice 7–10](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12/classroom-assessment-advice-7-10-). For summative assessment tasks, the [Assessment task advice 7–10](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12/assessment-task-advice-7-10) webpage is available.

**Explicit teaching:** further advice to support explicit teaching is available on the [Explicit teaching](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching) webpage. This includes the CESE [Explicit teaching – Driving learning and engagement](https://education.nsw.gov.au/about-us/education-data-and-research/cese/publications/research-reports/what-works-best-2020-update/explicit-teaching-driving-learning-and-engagement) webpage.

**Consulted with**: Curriculum and Reform, Inclusive Education and subject matter experts.

**Alignment to system priorities and/or needs**: [School excellence](https://education.nsw.gov.au/policy-library/policies/pd-2016-0468), [Our Plan for NSW Public Education](https://education.nsw.gov.au/about-us/strategies-and-reports/plan-for-nsw-public-education).

**Alignment to the School Excellence Framework**: this resource supports the [School excellence](https://education.nsw.gov.au/policy-library/policies/pd-2016-0468) elements of curriculum (curriculum provision) and effective classroom practice (lesson planning, explicit teaching).

**Alignment to Australian Professional Standards for Teachers**: this resource supports teachers to address [Proficient Teacher Standard Descriptors](https://educationstandards.nsw.edu.au/wps/portal/nesa/teacher-accreditation/meeting-requirements/the-standards/proficient-teacher) [3.2.2, 3.3.2].

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# References

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[Technology 7–8 Syllabus](https://curriculum.nsw.edu.au/learning-areas/tas/technology-7-8-2023/overview) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2023.

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