Taste & Learn™

CSIRO's vegetable education program for Australian primary schools

General information for teachers and schools

Hort Innovation

USE OF TASTE & LEARN™ MATERIALS

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Contents

1 Introduction

Taste & Learn™ is an evidence-based 5-week classroom-based teacher-led program for Australian primary schools. It has been developed by CSIRO by a multidisciplinary team of sensory scientists and educators. The program aims to increase students' familiarity with, enjoyment of and willingness to consume vegetables. It is aligned to The Australian Curriculum.

The Taste & Learn™ program covers taste and taste development, knowledge of vegetables and their taste properties, cultural diversity in eating vegetables, vegetable growing and processing and the role that vegetables play in a healthy and varied diet. Experiential learning and vegetable tastings are a critical part of the program and the students experience tastings of a wide range of different vegetables.

The Taste & Learn™ program is a cross-curricular program consisting of three units of work of five lessons each. Different units are available for Foundation to Year 2, Years 3 and 4, and Years 5 and 6. Full lesson plans and interactive whiteboard support are included for each unit. The Taste & Learn™ program is most closely aligned to the Australian Curriculum Learning Areas of Science, English, Mathematics, Physical Health and Education, as well as a range of general capabilities (including intercultural understanding) and cross-curricular priorities.

This training manual provides information relevant to teaching and implementing the program. It supplements the digital training module and contains detailed information on:

- The objectives and structure of the program (chapter 2).
- Lesson plans for each unit (chapter 3).
- Theory and background information to teach the program (chapter 4).
- Practical information to implement the hands-on aspects of the program, including shopping lists and safety in implementing the vegetable tastings (chapter 5 and 6).
- Curriculum alignment for each of the units (chapter 7).

2 Background and objectives

2.1   Background of the Taste & Learn™ program

Healthy eating is critical to children's health and wellbeing. Schools have an important role in supporting healthy eating amongst students, and is increasingly recognised in Australian schools through adoption of a whole-of-school approach.

Taste & Learn™ is a curriculum-aligned program aimed at increasing the enjoyment of vegetables and a variety of foods. Food preferences develop during childhood and strongly influence our eating habits later in life. Therefore, learning to like vegetables and other healthy foods in childhood contributes to establishing lifelong healthy eating habits.

Taste & Learn™ uses a novel education approach focusing on enjoyment and fun, de-emphasising health benefits. The program is inspired by similar successful programs already implemented in several European countries but is unique for the Australian context.

By teaching this program, schools create a positive environment in which to taste and learn about vegetables. Taste & Learn™ is built on a strong scientific framework based on insights on the development of food and vegetable acceptance in children and the benefits of sensory education.

Taste & Learn™ has been developed by scientists and educators, with extensive testing in schools, and has a sound evidence base[1]. After positive student and teacher evaluation, the program was tested in a large trial with 25 schools across two states – New South Wales and South Australia. The program effectively predisposed students towards increased vegetable consumption. It increased knowledge about vegetables, ability to verbalise sensations when eating vegetables, vegetable acceptance and intention to eat a variety of foods and vegetables. Furthermore, students were more willing to try vegetables when offered and the number of new vegetables they consumed also increased. Teachers also evaluated the program and its materials positively, felt the program aligned well to the curriculum, indicated they would use the program and were positive to re-use the program and recommend it to other teachers. The vegetable tastings allowed for deep learning and students were very highly engaged.

2.2   Objectives of the Taste & Learn™ program

Through undertaking curriculum aligned activities, the overall objective of the Taste & Learn™ program is for students to:

• Increase their knowledge, awareness and familiarity with vegetables and vegetable products.
• Increase their knowledge about the senses.
• Increase their understanding of how food and vegetable preferences differ between individuals and how they can change.
• Increase their ability to describe their experiences of eating vegetables.
• Increase their acceptance, enjoyment and willingness to try vegetables.

All objectives are covered in each of the units, and the recurring themes increase in content complexity throughout the units. They are designed to align to curriculum objectives in each year level.

Vegetables are tasted in each of the lessons in a fun and enjoyable way, built around specific lesson objectives and science investigations. For example, in unit 1 students learn about basic tastes, then taste vegetables representing the specific basic tastes. A wide range of vegetable varieties are presented across each age-level with more focus on uncommon vegetables from unit 2 onwards. The program encourages students to try vegetables, teaching them that liking develops as a result of repeated eating (exposure). Health or nutrition messages (e.g. vegetables are good for you) are avoided as this can negatively impact on children's acceptance of vegetables. In the last lesson of each unit, students create and consume a simple vegetable dish together, highlighting and promoting the social and pleasurable aspects of sharing meals with vegetables.

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[1] For scientific publications of the Taste & Learn TM program see https://research.csiro.au/taste-and-learn

3 Structure and lesson plans for each unit

- The Taste & Learn™ program is a cross-curricular program.
- Three units are available: Foundation-Year 2, Year 3-4, Year 5-6.
- Each unit consists of 5 lessons, each taking approximately one hour. Lessons are modular and can be broken down to fit the class' schedule.
- Full lesson plans, interactive whiteboard support and worksheets are available for each unit.
- The final lesson in each unit is a meal that students create together and allows them to enjoy a simple dish with vegetables in class.
- The pedagogic framework of the Taste & Learn™ program is built around the 5E's instructional model (Bybee, 1997); Engage, Explore, Explain, Elaborate and Evaluate. For information on each of the 5E's in the instructional model, access the "BSCS 5E Instructional Model" via https://bscs.org/bscs-5e-instructional-model.
- The five lessons of each unit move through the 5E's from "Engage" in lesson 1 to "Evaluate" in lesson 4 and 5.
- For cross-curricular alignment to specific learning areas and curriculum objectives of the Australian Curriculum, see chapter 7.

3.1 Objectives and lesson plans unit 1

The objectives of unit 1 (Foundation – Year 2) are for students to:

- Increase knowledge and familiarity with common vegetables.
- Describe vegetables in terms of the five senses.
- Learn that liking/disliking of specific foods can change by repeated trying.
- Become more open to tasting a wide variety of vegetables.

LESSON	TITLE	LESSON OUTLINE
1	**The five senses**	Students: • Learn about the senses involved in eating. • Experience the five senses through tasting vegetables. • Taste and describe three vegetables with different colours, tastes and textures.
	Homework	Students create a vegetable tasting record with their parents.
	Extension	Students draw vegetables they would serve at a vegetable tasting party.
2	**From seed to vegetable**	Students: • Can recognise and name different types of common vegetables. • Understand what plants need to grow. • Understand which parts of plants are eaten as vegetables. • Taste vegetables from three different plants parts.
	Extension	Students grow a bean plant.
3	**The basic tastes**	Students: • Learn that we taste foods using the taste buds on the tongue. • Can recognise the four key basic tastes (sweet, sour, salty and bitter). • Give examples of foods for each of the basic tastes. • Taste two vegetables and can identify their dominant taste (sweet and bitter).
	Extension	Students categorise foods according to their basic taste.
4	**Becoming a food adventurer**	Students: • Learn that liking/disliking of foods can change by repeated trying. • Learn about the role of variety in the diet (included colour in vegetables). • Try foods they have not tasted before.
	Extension	Students discover colour variety in vegetables.
5	**Picnic in class: sandwich**	Students: • Prepare a tasty sandwich with vegetables and other ingredients. • Enjoy eating a sandwich together. • Discuss their experiences of eating a sandwich that includes vegetables.
	Extension	Students know at least ten vegetables that can be consumed on a sandwich.

3.2 Objectives and lesson plans unit 2

The objectives of unit 2 (Year 3-4) are for students to:

- Increase knowledge and familiarity with less common vegetables.
- Increase knowledge about growing and preparing vegetables.
- Develop their awareness of cultural diversity in food and vegetable preferences.
- Build on their vocabulary concerning how food preparation affects vegetable sensory characteristics.
- Understand how appearance influences food choices.
- Become more open to try culturally diverse vegetables.

LESSON	TITLE	LESSON OUTLINE
1	**Discover vegetables through the senses**	Students: • Enrich their knowledge of vegetables. • Develop their awareness of cultural diversity in vegetable preferences. • Taste and describe two vegetables, plain and with two different condiments, and become aware of individual preferences.
	Extension	Students identify the vegetable in a dish from a particular country. Students complete Find a Word "I know my vegetables".
2	**Vegetables grow in different climates**	Students: • Grow their own micro herbs. • Develop their understanding of plant lifecycles, climates and seasons. • Taste and describe vegetables from two different climates. • Understand the difference between descriptive and evaluative words for describing vegetables.
	Extension	Students imagine their own vegetable garden. Students explore the role of agricultural sciences through imagining their own vegetable hybrid.
3	**Preparing vegetables – a science experiment**	Students: • Understand what cooking techniques are used to prepare vegetables. • Investigate the relationship between cooking/preparation and the taste/texture of vegetables through a simple scientific experiment.
	Extension	Students complete crossword "I know even more about vegetables". Students use Veggycation website to find out how to cook two non-preferred vegetables.
4	**Perfectly imperfect vegetables**	Students: • Understand how expectations and visual cues can affect our food choices and willingness to try different foods. • Become aware of food wastage and its relation to food appearance. • Write persuasive dot points to convince someone to try an imperfect vegetable.
	Extension	Students can differentiate between poor quality and odd appearance.
5	**MasterChef® in class: the salad**	Students: • Prepare a mixed salad that is appealing and nutritious. • Critically appraise the food they eat. • Enjoy eating a meal together.
	Extension	Students compile and graph a class record on number and type of vegetables consumed.

3.3   Objectives and lesson plans unit 3

The objectives of the unit 3 (Year 5-6) are for students to:

- Increase knowledge and familiarity with vegetable products and processing.
- Understand how the senses interact in the perception of vegetables.
- Learn how cultural background and exposure shape food preferences.
- Build a vocabulary about how processing affects vegetable sensory characteristics.
- Conduct an experiment about vegetables using a scientific approach.
- Become more open to experiencing a broad variety of vegetable forms.

LESSON	TITLE	LESSON OUTLINE
1	**How our senses interact**	Students: • Discover how our senses interact when we eat foods. • Investigate how appearance influences perception and consumption.
	Extension	Students explore colour variety in vegetables and graph results.
2	**A science experiment on the taste of vegetables**	Students: • Learn to identify, plan and apply the elements of scientific investigations such as hypothesis, variables, constant. • Participate in a scientific experiment about the taste of vegetables. • Plan their own scientific experiment about the taste of vegetables.
	Homework	Students observe, measure and record data for a scientific investigation about the taste of vegetables.
	Extension	Students suggest improvements to the scientific methods used in their experiment.
3	**Vegetables from farm to plate**	Students: • Investigate the role of food technology in producing vegetable products available all year round. • Compare the taste and texture of two fresh vegetables and their processed variant.
	Extension	Students describe how a vegetable gets from farm to plate.
4	**Vegetables and cultural diversity**	Students: • Understand how cultural background shapes food preferences from an early age by evaluating culturally diverse vegetables and preparation. • Compare data from the students' investigations about the taste of vegetables.
	Extension	Students enhance their understanding of multicultural diversity by exploring dishes and vegetables from their chosen culture.
5	**The vegetable dip challenge**	Students: • Create a recipe for a dip that is tasty and looks good. • Taste and evaluate different vegetable dips. • Realise that dips can be a fun way to add vegetables to their diet.
	Extension	Students 'pitch' their dip to other students.

4 Theory around the Taste & Learn™ education program

This chapter provides theoretical background information on some of the key concepts of the Taste & Learn™ program. It provides information on the senses, a tasting protocol and the development of food preferences.

4.1   The five senses

The following section provides a brief description of each of the five senses and the role they play in eating and drinking.
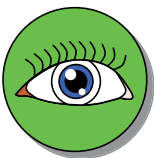
SIGHT – EYES

Often, the first characteristic noticeable in a food product is its appearance. Sight provides information on the colour, the size and shape and the surface texture (e.g. rough, smooth, shiny) of the food. It helps identify the food. On the basis of appearance, expectations are often formed about the taste of a food. It facilitates the recall of the taste characteristics of this product, e.g. the green colour of an apple will lead to the anticipation that it tastes sour whereas the red colour of an apple will indicate a sweet taste. Unconsciously, foods with more intense colour are anticipated to be more intense in flavour. Appearance can also be useful in providing information about whether a food is suitable for eating, e.g. green banana indicating that it is unripe.

SMELL – NOSE

The odour of a product is detected when sniffing a product, voluntarily or not. Small molecules ('volatiles') enter the nose and are perceived by olfactory cells at the back of the nose. These small odour molecules can also reach the olfactory cells through the mouth/oral cavity during mastication, which is called flavour (see taste).

TASTE – MOUTH

There are five commonly acknowledged basic tastes: sweet, sour, salty, bitter and umami (a savoury/brothy taste). These basic tastes are detected through taste receptors located in taste buds on the tongue. Flavour, for example strawberry flavour, is a combination of basic taste and specific odours. This is because when eating, the basic tastes are detected on the tongue and the small odour molecules reach the olfactory cells at the back of the nose via the mouth. When we have a cold and the nose is fully blocked, or when we deliberately pinch our nose, we can only taste the basic tastes and this can give the impression that the food is bland.

TOUCH – FINGERS/HAND AND/OR MOUTH

- Several organs can be used to evaluate the texture of food that refers to the structural, mechanical and surface properties of a food.
- When foods are touched with the fingers or hands before eating, several textural aspects can be perceived (i.e. roughness, grittiness, softness, denseness ...) and this provides expectations and clues about what a product may feel like in the mouth (e.g. dry, juicy, mushy ...).

- The texture or consistency of a food is also perceived by sensors in the mouth. There are pressure sensors that are activated when biting a food with our front teeth and chewing it down with our molars. This provides information on how the food responds to mechanical pressure, for example hardness, denseness, fracturability (e.g. hardness and crunchiness of raw carrot vs. softness of cooked carrot) and stickiness (peanut butter vs. water). With the oral tissues on the surfaces of the mouth (lips, tongue, gums, palate) information is received about texture related to particle structure of the food. Examples are smooth/slippery (avocado), rough (raw broccoli florets), chalky, fibrous (beans) and lumpy. Further, aspects of moisture or oil content of a food can be perceived e.g. juicy (cucumber), watery, fatty (avocado) and greasy.

- The mouth also has receptors to perceive heat-related sensations that are not considered as tastes or textures but that do contribute to the eating experience. These include the spiciness of a chilli, the cooling sensation of a mint chewing gum and the pungency of mustard.

HEARING – EARS

- Hearing plays an important role in daily life. Although seemingly less obvious, it also plays a role in eating foods. Sound is produced during chewing of foods. This sound can reach the ear via the outside when biting something off with our front teeth and when chewing down a food with a closed mouth, sound can reach the ear from the inside. Sound plays an important role in the assessment of freshness/staleness, e.g. the crunch of potato chips, an apple, a celery stalk, the fizz when pouring a carbonated drink.

- This program aims to create the awareness in students that taste is not the only sense involved when consuming foods. The five senses can be solicited to offer a range of sensations. By encouraging students to pay attention to the products sensory features, they will become more familiar with the product. They will progressively learn to appreciate a wide range of sensations and will start looking for a wider variety of foods and foods with more complex characteristics.

HOW OUR SENSES INTERACT

- Our senses interact with each other, for example, smell interacts with taste. For example, the smell of vanilla can influence taste perception and people are more likely to find a product sweeter in the presence of a vanilla smell than without. Another example of the senses interacting is the influence of texture on taste. Pureed vegetables, for example, become much more difficult to identify based solely on their taste characteristics, whereas they are much more easily identifiable when consumed whole. Appearance interacting with taste/flavour is probably the most important interaction. For example, a pink yoghurt will, in most cases, lead people to think the product tastes like strawberry or raspberry, but until they have tasted it, they cannot confirm this. People are usually not aware of the way their senses interact and how this influences their judgments.

- The program aims for students to realise that they should not base their judgment on the appearance alone, just because it is the first sense that comes into play when presented with a food. Information on appearance could give misleading and incomplete information about the product's taste. Instead, students are encouraged to try a piece of this food to experience all sensations and before making a judgment on whether they like it or not.

- Some children dislike all green vegetables because they have negative associations with the colour green in vegetables. They do not pay attention to the taste and texture. The program encourages students to avoid over generalising based on colour. In reality, there is a wide variety of vegetables available and green vegetables differ a lot in their tastes and textures (e.g. avocado, cucumber, spinach, okra and broccoli are all green vegetables that feel and taste different). The program encourages students to understand this as it will lead them to really taste the vegetables and not discard a whole category just because of its colour.

4.2   Tasting methodology

Vegetables are tasted in each lesson as part of Taste & Learn™. The program adopts a tasting methodology/protocol for these tastings that follows the sensations we experience naturally when tasting a food. Following this protocol ensures that no aspect of the food is overlooked and gives students the best opportunity to form an opinion of the food. Applying the protocol will become routine over time and will make classroom activities even easier to run.

Throughout the tasting exercise, students need to have their journal/book to record words to use and build a word bank. They can refer to it at each exercise.

The tasting protocol consists of the following steps:

- First, students need to pick up the piece of vegetable (with hand or spoon) and have a **look** at it. They can describe the colour, the size, the shape and add any other observable features they may notice.

- While **holding** the vegetable **in their hand**, they can describe how it feels i.e. slippery, sharp, dry, irregular …

- Then, students bring the piece of vegetable close to their nostril and **take** a few **sniffs**. Describing odour is very difficult but they might come up with a few terms (i.e. green, grassy, fruity, floral, pungent …) that are relevant.

- Students will then **place the vegetable in their mouth**. They can think about the taste/flavour and the texture of it simultaneously.

  – First, they will **bite** down on the vegetable and may notice initial texture (e.g. juiciness, crunchiness, softness, denseness…) and taste (e.g. sweet, bitter…).

  – Then they need to eat the piece of vegetable naturally and either **manipulate** it **with their tongue or chew** it **down**. During that process, they may experience other sensations and tastes and produce descriptive terms i.e. mouth drying, toothpacking … They may also **hear** signals from the food i.e. crunchy, crispy …

4.3   Verbalisation skills

- The Taste & Learn™ program encourages students to build their vocabulary in order to describe the sensations when tasting vegetables in terms of appearance, smell, taste and texture. The program also supports them to understand what the difference is between objective, descriptive words and subjective, hedonic words.

  – Descriptive words are objective words that describe the properties of the product. Examples are hard, smooth, sticky, crispy, pungent, nutty flavour, sweet, bitter, salty, spicy …). Descriptive words are a feature of the product and everyone can agree on them.

  – Hedonic words are subjective words that describe how a person evaluates/appreciates the product. Examples are appetising, pleasant, tasty, disgusting, awful, unpleasant …). Hedonic words are a feature of the person in interaction with the food. These evaluations can be different for different people and can change.

  – For example, we can all agree that carrot tastes somewhat sweet (descriptive word). Other people may not think so and may like them. Some people can find them delicious (hedonic word) whereas others may find them unpleasant (hedonic word).

- The focus in this program is for students to build their skills in providing descriptive words. In order to create constructive discussions about the taste of vegetables, it is important to learn to properly describe what is perceived without introducing any judgment whether positive or negative. These skills will also help students to understand what aspects of vegetables they like or do not like and will help avoid generalisations.

- Being able to identify and name sensations when eating a food is called 'verbalisation'. Building verbalisation skills will familiarise children with the food and with different sensations. This may make children more inclined to eat the food again or to seek other foods with similar sensations (e.g. "I really like crunchy foods!"). The more sensations one can perceive and identify, the more adventurous one might become with their food experiences. Working on verbalisation skills as part of this program provides many opportunities to complete literacy activities and build a word bank.

- The range of vegetables available is so large that there is a wide variety of sensations that can be experienced while consuming them. Vegetables cannot be seen as only one category in terms of eating properties (i.e. they do not all taste the same). It is necessary to be able to identify the sensations in each vegetable to be able to draw conclusions on which sensations are liked.

4.4 Vegetables

The term vegetable is somewhat arbitrary and largely defined through culinary and cultural tradition. In this program, a 'vegetable' is considered to be any part of a plant (fruit, seeds, roots, leaves …) that is consumed by humans as part of a savoury dish. From a botanical perspective, there is a clear definition of a fruit as the organ that protect the seeds. Some plant parts, although botanically defined as fruit, are considered vegetables because of their culinary use e.g. squash, tomatoes, eggplant, cucumber …

The Taste & Learn™ program is designed to expose students to a variety of vegetables throughout the program and increase their knowledge about vegetables so that they seem more familiar and they are more willing to try them. One of the objectives is to broaden student's knowledge of vegetables by introducing and exposing them to less common vegetables, i.e. vegetables they do not necessarily know or consume on a regular basis. In doing so, students will discover the variety of shapes, flavours and textures among vegetables. The program aims to teach students that it can be fun to eat vegetables and overcome dislikes of unfamiliar varieties.

VEGETABLE SUGGESTIONS IN THE LESSON PLANS

Exposure to vegetables is critical to build familiarity. If possible, exposure will be achieved through tasting but exposure to the visual appearance of the vegetable is still considered a 'win' and a very important parameter for those students that could be considered to be fussy eaters. In this program, specific vegetables are suggested in each of the activities. By following these suggestions the students will:

- Taste different vegetables in each lesson.
- Taste a minimum of ten different vegetables in each unit (over five lessons).
- Taste at least five new/unique vegetables in each unit.

The vegetables have been selected on the basis of their suitability for each tasting exercise to achieve the educational objectives. Alternatives are proposed in case those vegetables are not available. In most cases, raw vegetables are suggested for practical reasons. Occasionally, vegetables require cooking that could be done prior to the lesson by the teacher, a teacher's aid or by a parent.

4.5   How do our food preferences develop?

- Nearly all our food preferences are learned. Humans are omnivores and can learn to like a wide range of different foods depending on the foods that are available to them in their environment.
- Childhood is a critical stage in the development of food preferences and it is a phase of life in which it is easier to change food preferences than in adulthood.
- Notwithstanding our body's ability to learn to like a wide variety of foods, flavours and textures, humans are born with an innate liking for sweet taste and an innate disliking for bitter taste. We also learn to like salty and energy dense (=fatty) foods very early in life.
- This means that foods that are sweet, salty and fatty (e.g. cake, chips, ice-cream) have very high appeal for children, whereas liking for vegetables that do not possess these attributes, is largely learned.
- This type of learning usually occurs without us being aware of it. Exposure, repeated eating, building familiarity and eating foods in a positive context are all key parts in learning to like a food.
- This program uses the aspects of this implicit learning to build acceptance for vegetables.

Enjoying vegetables is largely a learned behaviour

4.6   Training tastebuds – The role of repeated trying/exposure

- Learning to like a wide range of flavours and textures takes time, just as learning to ride a bike does.
- Building familiarity, e.g. by repeatedly eating a small portion of the same food over time, is one of the most important ways to learn to like vegetables.
- If we dislike a vegetable, we can learn to like it.
- Vegetables can have a low innate appeal (i.e. low sweetness and high bitterness). It may take ten or more times of trying a new food before one starts to like it.
- It only takes a small taste each time. Encourage students to just take a little nibble if they are reluctant to eat the whole piece.
- Students should be encouraged to try vegetables when they are offered to them. If they are reluctant, you can ask them to take a really tiny nibble or just touch it with their tongue.
- If a child really does not want to taste, do not force them. Perhaps they will want to take part next time.
- Seeing other children take part in the tastings may give them the courage to also try themselves the next time.
- Learning to like new vegetables and other foods becomes easier as we broaden our diets.
- Although every child and adult has their own likes and dislikes, every child can learn to enjoy a wider variety of foods.

Repeatedly eating a small portion builds acceptance of vegetables

4.7   Turning fussy eaters into food adventurers

- Children and adults differ in their willingness to try new foods that are offered to them. In particular, some children may be reluctant to eat vegetables. Generally, this "fussy eating" is at its peak in younger children.
- Children have an ability to learn to accept new foods more readily than adults which means they can be taught to become less "fussy" through encouragement to try foods when it is offered to them.
- Teachers can support this in the program through the concept of a "food adventurer" that can be used to create a positive atmosphere around trying new foods.
- Food adventurers are 'brave' as they try and overcome their dislikes. Just as riding a roller coaster takes courage, trying a food or vegetable that you have not had before (or even may not like) takes courage.
- Seen in this way, trying a vegetable that one does not like (knowing that one will come to like it with time if one keeps trying) is an even larger act of bravery.
- Being a food adventurer also means that one can go to a friends' place or to restaurants without worrying that one may not like the food served.

Food adventurers are brave for trying vegetables

4.8   Everyone is different – the role of culture

- People are different in their food likes and dislikes. Everyone may perceive Brussels sprouts to be somewhat bitter, yet some people like Brussels sprouts and others may not.
- Likes and dislikes are very much influenced by experiences.
- People live in different parts of the world where different foods are naturally available.
- Culture has a large influence on food preferences and food habits. Different cultures have different cuisines that determine which foods are consumed, when, where, and in what combinations.
- Thus, students from a particular background might like certain vegetables more than others (e.g. bean sprouts for students with a Chinese background and eggplant for students with a Lebanese background). This is largely because they have built the familiarity already.
- In this program, students are offered many different vegetables and in this way, will build familiarity with them and may learn to enjoy a wider variety of vegetables.

Culture affects acceptance through the foods we eat

4.9   Do not focus on health or nutrition

- Research has shown that talking about the health benefits of vegetables has a negative effect on how much children like them. Avoid explicit references to how healthy vegetables are.
- If saying to children, "You should eat vegetables because they are good for you," they may think that the vegetables must taste bad. After all, such things are not said about ice cream or chips.
- Health and taste are not mutually exclusive. This means that there can be foods that are good for you which you like to eat and others that you do not. Similarly, there can be foods that are not so good for you to eat, some of which you like, but others that you do not.
- So, although the ultimate aim of the program is to promote vegetable consumption because of their positive contribution to health, this is not something that should be directly communicated to the students.
- The school can provide opportunities to taste vegetables that some students may not experience at home.

Do not mention that 'vegetables are good for you'

4.10 Teachers are role models

- Realise how important teachers are as role models for students. Some evidence suggests students' observation of their teacher's behaviour has a greater influence on their learning than their teacher's verbal communication.
- Social learning theory recognizes the significant opportunity of teachers to vicariously influence student behaviour by role modelling, normative practices, and social support.
- Teachers will differ in their likes and dislikes, including in the consumption of vegetables. Of course it will be easier to display positive attitudes towards vegetables if one really likes vegetables. Although authenticity is key, it is advised that teachers who do not like specific vegetables do not display negative attitudes towards the category as a whole. They can focus more on the vegetables that they do like and/or positive experiences they have had that involve vegetables.

Some aspects that teachers could use to be positive role models for vegetable consumption are:

- Verbal modelling:

  - Students seeing or hearing their teachers talking about enjoying vegetables will feel more positive about trying them.
  - Use positive language around vegetables ("I love carrots. They are one of my favourites.").
  - Do not express distaste for vegetables. If you do not like certain vegetables yourselves, you could add to the discussion "I have never learned to like this vegetable myself. Maybe I should give it another go".
  - Express curiosity in trying new foods; be adventurous.

- Unintentional modelling – children adopting eating behaviours that the role model had not intentionally modelled:

  - Be aware that children will pick up on behaviours even when role models are not consciously trying to model behaviour e.g. when role models are eating.

- Behavioural consequences – children's eating behaviours are associated with modelling:

  - Demonstrate desirable behaviour through actions.
  - Taste the foods.
  - Express pleasure in involvement with foods (shopping, preparation, cooking and eating of foods) and share positive (including childhood) experiences with vegetables.

5 Implementation of the program – safety

Taste & Learn™ involves tasting of vegetables in each lesson, and in some lessons, tasting of other specific foods. This chapter provides information on how to safely implement the program in school, addressing medical (e.g. allergies and intolerances) and cultural sensitivities (5.1).

5.1   Allergies, food intolerance and cultural/religious sensitivities

Ensure you have up to date information on students' food allergies and food intolerances. You may also have students in your class or at your school who do not eat certain foods for cultural, religious or other reasons. Take this information into account when purchasing foods and when offering students foods for tasting. An example permission slip for parents is provided on the following page that may be used to update your records and seek parental permission for students' involvement in the tastings.

Permission letter for parents – example

[Name School/ Logo]

[Address]

[Address]

Dear Parent/Carer

Over the next five weeks, our [school / class] will be implementing a program entitled 'The Taste & Learn™ program', developed by CSIRO. This program will provide students with activities and hands-on experiences that will help them build knowledge, awareness and enjoyment of foods, with a strong focus on vegetables.

As part of this program, the students will be tasting different vegetables as well as some other common food products. No nuts will be provided. Some foods with other allergens may be provided (e.g. bread or dairy) but we will take your child's allergies into consideration when such foods are offered.

Please complete the permission slip below and return to the school by [date].

Please do not hesitate to contact me if I can be of any further help.

Yours sincerely,

[School principal or teacher name]

_____

Permission Slip

I give / do not give my permission for my child _____ from class _____ to take part in the food tastings conducted as part of the Taste & Learn™ program.

My child has an intolerance/ is allergic to the following foods or food ingredients:

_____

My child cannot eat the following foods due to our religion/culture/belief:

_____

Signed: _____

Date: _____

5.2   How to safely prepare vegetables

All vegetables should be fresh and of good quality. You will be preparing food for children in your work area, e.g. in the staff room, the classroom or the school's canteen. Some areas are not necessarily designed for such preparation. Fresh vegetables are safe, delicious and nutritious. However, when these foods are cut, there is a risk of harmful bacteria contaminating and growing on the produce unless it is handled correctly. Listed below are tips that will contribute to ensuring that risks are minimized. Obviously, each school has a different set up and materials available. Therefore, we will only present general best practices and tips to prepare food safely for you to take into account.

- Start by **washing your hands**. (https://www.youtube.com/watch?v=sopxnqGrqSc&feature=youtu.be) Wet your hands and rub together well to build up a good lather with soap as the suds help to carry the bugs away. Do this for at least 20 seconds and do not forget to wash between your fingers and under your nails. Rinse well under running water to remove the bugs from your hands. Dry your hands thoroughly on a clean towel for at least 20 seconds. Touching surfaces with moist hands encourages bugs to spread from the surface to your hands.

- **Organise your preparation area**. Choose an area that is neat, clean and easily accessible and preferably close to the sink. Give it a clean with detergent and water to sanitise.

- **Wash the vegetables** under running tap water to remove any traces of soil.
- **Use** a clean and dedicated vegetable cutting board.

- **Use appropriate knives.** Be careful when manipulating knives to avoid injuring yourself. When you are not using them, rest far from the edge of the table so you do not risk dropping them and harming yourself or others.

- **Remove** any bruised or **damaged parts**.
- **Peel** the vegetables if needs be. Then, **prepare** them in **bite-size pieces** (i.e. individual florets for broccolis and cauliflowers, sticks for carrots, slices for cucumbers and mushrooms, dices for beetroots, shreds for cabbages, etc.).

- Place cut vegetables on a plate covered with cling wrap or use a plastic container (i.e. Tupperware).
- Serve immediately after preparation or **within two hours** (if possible).
- If not serving within two hours, cover and **store in the fridge** for maximum 24h.

The preparation of one vegetable for the whole class normally will take no more than 5-10 min.

For further information of safe preparation of foods, see:
www.foodsafety.asn.au/
csiro.au/Outcomes/Food-and-Agriculture/refrigerated-storage-of-perishable-foods/Refrigerating-products.aspx

6 Implementation of the program – general

This chapter provides practical information for the implementation of the program in your school.

6.1 Timing of the lessons

The Taste & Learn™ program involves tasting of foods. The last lesson of each unit involves preparing a dish or meal with vegetables. For this reason, it is advised that you conduct the lessons just before the lunch break.

6.2 Procuring of materials

The vegetables and other foods tasted as part of this program should be fresh and of good quality. As this means that they will need to be bought weekly, consider the options to organise this aspect the most efficiently for your school. Options could include organising one teacher that will do all the shopping for one week for one unit or for all units across the school. Some shops offer delivery services. This may be a worthwhile option for your school.

Several of the materials can be purchased in advance, such as disposable materials (e.g. cups, spoons etc.) or items with a long shelf life (e.g. food colouring, herb seeds).

Shopping lists for each lesson are provided to facilitate purchasing (section 6.5). The details of the materials are contained in the lesson plans. These shopping lists are based on the suggestions in the lesson plan and on standard class sizes. Please take into account your schools and students' situation and needs and adapt where necessary.

6.3 Preparation and organising assistance

The hands-on focus of this program means that all lessons require preparation of vegetables and in some cases some other foods. It is recommended to organise assistance either from parents (e.g. through the P&C committee) or teacher assistants to facilitate the implementation of this program. They can help with the preparations in advance of the lessons.

Some lessons require assistance in class (e.g. the last lesson in each unit of work).

If several classes run the lessons at the same time, preparation of vegetables and other foods can be shared. You may also consider to running some lessons as a buddy class.

6.4 Parental involvement

Parental assistance with the program supports the practical implementation. However, it also increases parents understanding and involvement in the program which may help extend the benefits of the program into the home environment. Communication of the activities through the school's usual channels (e.g. newsletters, social media) could also be used to extend the benefits of the program to the home environment.

6.5   Shopping lists for each unit / lesson

UNIT 1

LESSON	ITEMS NEEDED (WITH QUANTITY PER STUDENT)	SHOPPING LIST (FOR A CLASS OF 25 STUDENTS)
Lesson 1	3 vegetables with different colours, tastes and textures - 1 carrot slice - 1 cauliflower floret - 1 cucumber slice	- 1 medium sized carrot (approx. 18cm = 150g) - ½ cauliflower head (based on average sized cauliflower of approx. 16cm diameter) - ½ telegraph cucumber (based on average cucumber of 30cm)
Lesson 2	3 vegetables from different plant parts - 1 cube of beetroot - 1 baby spinach leave - 1 broccoli floret	- 1x 425g tin of diced or sliced beetroot - approx. 30-40g of baby spinach leaves - ½ broccoli head (based on average size of broccoli of approx. 11cm diameter)
Lesson 3	2 vegetables differing in taste (1 sweet, 1 bitter) - 2-3 corn kernels - ½ slice of green capsicum 4 taste solutions - 4 cotton buds	- ½ can of 400g of sweet corn kernels - ½ standard green capsicum (approx. 100g) - 100 cotton buds - 4 sturdy beakers / cups to present solutions - 1 ½ tablespoon sugar - ¼ teaspoon salt - ½ teaspoon of citric acid (in baking aisle) or lemon juice (from bottle) - 200mL tonic water
Lesson 4	2 adventurous vegetables - ¼ radish - ¼ button mushroom 2 adventurous foods - 1 piece of meat product - 1 piece of cheese	- 6-7 radishes (approx. 3-5 cm diameter) - 6-7 button mushrooms (approx. 70g, based on mushroom of 4cm diameter) - 2 cabanossi sausages - 100g of goats cheese
Lesson 5	Sandwich buffet - 1 slice of beetroot - 10g of grated carrot - 2 slices of cucumber - 3 spinach leaves - 10g of shredded lettuce - eggplant (for adventurous children) - 2 bread slices or 1 bread roll - 1 slice of cheese - 1 slice of meat product - condiments	- 1x420g can of sliced beetroot - 2 medium sized carrots (approx. 300g based on average carrot length of 18cm) - 1 telegraph cucumber (approx 30cm long) - 120g of baby spinach leaves - ½ iceberg lettuce head - ½ jar of sliced char grilled eggplant - 2 ½ loaves of bread (50 slices), preferably wholemeal or multigrain - 25 cheese slices - 2 packs of shaved ham/chicken/turkey (prepacked) - 6 boiled eggs - 1 jar of mayonnaise, mustard, etc. - 25 plastic plates - bowls/plates and utensils for displaying/serving foods

Common items needed for all lessons:

- Knife.
- Cutting board.
- Containers with lids (max of 4 needed).
- Pair of tongs for serving.

UNIT 2

LESSON	ITEMS NEEDED (WITH QUANTITY PER STUDENT/GROUP)	SHOPPING LIST (FOR A CLASS OF 30 STUDENTS)

Lesson 1	1 common and 1 uncommon vegetable
	- 3 cucumber sticks
	- 3 soy bean pods
	
	2 condiments served in plastic cups/bowls
		- 3 telegraph cucumbers (based on average size of approx. 30cm length)
		- 1 pack of frozen soy beans pods (400g)
		
		- 4 plastic cups/bowls
		- Choose 2 condiments from the below list:
		  - 50-100g of mustard
		  - 100mL of soy sauce
		  - 100g of mayonnaise
		  - 250g of cream cheese

Lesson 2	2 vegetables from 2 different Australian climates - ½ or ⅓ of an English spinach leaf - 1 cube of sweet potato Materials to grow microherbs Per group: - 1 container - some potting mix - 2-3 seeds	- ½ bunch of English spinach leaves - 1 averaged size sweet potato (approx 18-20cm long) - 2 spray bottles (for filling with tap water) - 1 pack of micro herb seeds (note: fastgrowing herbs, no regular herb seeds; an example are Micro greens mix from Mr Fothergill's at Bunnings) - 1L of potting mix - 5-6 containers (1 per group), e.g. rectangular disposable take away containers
Lesson 3	2 vegetables that can be eaten raw and cooked - 1 floret of fresh raw cauliflower - 1 floret of frozen (and cooked) cauliflower - ½ fresh green bean - ½ frozen (and cooked) green bean	- ½ cauliflower head (based on average size of cauliflower of approx. 16cm diameter) - 1 x500g bag of frozen cauliflower florets - 15 green beans - 15 frozen whole green beans from a bag (sold in 500g packs) - 2 microwave safe containers
Lesson 4	1 vegetable in its perfect and imperfect version - 1 cube of tomato (perfect looking) - 1 cube of tomato (imperfect looking)	- 1 medium sized tomato (good looking quality) (approx. 115g/6cm diameter) - 1 medium sized tomato (imperfect looking)* (approx. 115g/6cm diameter)
Lesson 5	Salad bar 2 sources of protein (tuna (canned), cheese (cubed), ham (sliced or cubes), chicken (sliced)) 2 dressings - 2 spoonfuls of diced beetroot - 2 spoonfuls of corn kernels - 1-2 slices of red capsicum - spinach leaves - some rocket - 15g of cubed ham or 1 chicken slice - 4-5 cheese cubes - 1 plastic plate - 1 plastic spoon - some dressing - 1 bread roll or 1 slice of bread	- 4 tins of 420g of diced beetroot - 2 tins of corn kernels - 1 red capsicum - 1 large bag (500g) of baby spinach leaves - 300g of rocket - 450g of shredded ham (e.g. pre-packed) or 3 packs of 10 slices of chicken - 1kg block of tasty or colby cheese - 30 plastic plates - 30 plastic spoons - 1x330mL bottle of dressing (store-bought or home made) - 1 ½ loaf of bread (30 slices), preferably wholemeal or multigrain - plates/trays and utensils to display/serve foods to the students - optional: table cloth

Common items needed for all lessons

• Knife.

• Cutting board.

• Two containers with lids.

• Pair of tongs for serving.

Equipment needed

• 1 microwave (lesson 3).

* See lesson 4 Materials and Preparation for further details.

UNIT 3

LESSON	ITEMS NEEDED (WITH QUANTITY PER STUDENT/GROUP)	SHOPPING LIST (FOR A CLASS OF 30 STUDENTS)
Lesson 1	2 green vegetables. One that most students would like and one that most students will not like. - 1 dice of avocado - ½ slice of green capsicum	- 1 medium sized avocado (of approx. 12-15cm long) - ½ green capsicum of medium size (approx. 100g)
Lesson 2	1 vegetable that can be presented in two forms (different colours or shapes …) - 2 pieces of celery (1 cm): one green, one blue	- ½ bunch of celery with leaves - 2x1L jugs - 2-3 mL blue food colouring (in baking aisle)
Lesson 3	2 vegetables that can be consumed in different processed forms - 2-3 corn kernels (fresh) - 2-3 frozen and cooked corn kernels - 2-3 peas (fresh) - 2-3 frozen and cooked peas	- ½ 420g tin of sweet corn kernels - 100g of frozen corn kernels (sold in 500g bags) - ½ 420g tin of peas - 100g of frozen peas (sold in 500g bags)
Lesson 4	3 vegetables that differ in how familiar students might be with consuming them - 1 cucumber stick - 1 dice of zucchini - 1 slice of fennel	- 1 telegraph cucumber (of approx. 30cm long) - 1 medium sized zucchini (of approx. 20cm long) - ½ fennel bulb
Lesson 5	Vegetable dips	Ingredients for 3 different dips. See Lesson 5 Preparation (Page 32) for details. - 1 butternut pumpkin - 2 large telegraph cucumbers - 3 large avocados (ripe) - 1L of Greek style yoghurt - ½ bulb of garlic - 1 small red onion - 1 tomato (ripe) - 2-3 different herbs (fresh or dried), e.g. dill, coriander, parsley, mint - 50mL olive oil - 50mL lemon juice (bottle or freshly squeezed) - ground cumin (spice jar) - ground coriander (spice jar) - salt and pepper - bowls / containers / plates for serving ingredients - garlic press - optional: citrus press (if using fresh lemons) - 5-6 bowls (1 for each group) to prepare dips - 5-6 cutting boards - 5-6 knives, forks, teaspoons and tablespoons
	Vegetables / crackers for dipping	- 1 kg of carrots - 2 packs of water crackers

Common items needed for all lessons

- Knife.
- Cutting board.
- Containers with lids (max of 3 needed).
- Pair of tongs for serving.

Equipment needed

- Microwave (lesson 3).

6.6   Taste & Learn™ when access to fresh vegetables is limited

For some schools, for example in rural or remote areas, access to some fresh vegetables might be challenging and limited. In order to implement Taste & Learn™, consider the following strategies:

- For each lesson, specific vegetables are suggested that work best with the lesson. The first vegetables listed are the preferred option, others are potential swaps. The success of Taste and Learn™ lies in tasting a variety of vegetables during class time. If for any reason none of the suggested vegetables are available, we trust that the teacher will be able to source another vegetable that will work with the activities suggested. In any case, getting children to taste a variety of vegetables and talk about them is the most important.

- Work with the whole community: you might be able to use vegetables from your school canteen, community or staff gardens.

- Try as much as possible to include vegetables that parents can also access locally, so that children have opportunity to consume the vegetables at home that they have tried in class.

- Consider the season in which you are conducting the program in and what vegetables are available at that time. Vegetables when consumed in their prime season of production are at their freshest and tastiest (and most affordable) and therefore in the best condition to convince children's tastebuds.

- Ensure that children are exposed to a broad variety of vegetables even if you have to make swaps.

- If some fresh vegetables are difficult to source, consider frozen or canned vegetables, or vegetables in jars, in advance. They will differ from fresh vegetables in their taste and texture properties but could still fit the lesson objective. A large range of frozen and canned vegetables are available commercially in large supermarkets. Examples include (check online availability at your chosen supermarket as not all supermarkets may stock all products):

  – Frozen: broccoli, cauliflower, carrot, beans, peas, pumpkin, Brussels sprouts, broad beans, spinach, onion, herbs. Stir fry mixes also may contain specific other vegetables.

  – Canned: peas, beans, corn, carrot, mushroom, asparagus, beetroot, cherry tomatoes, edamame beans, capsicum, bamboo shoots, sauerkraut.

  – Jar: pickled cucumber, capsicum, eggplant, artichoke.

7 Curriculum alignment

The Taste & Learn™ program is tailored to the Australian curriculum. It fits across several key learning areas, general capabilities and cross-curriculum capabilities. Curriculum links for each unit have been provided (F to 10 Curriculum, the Australian Curriculum).

7.1   Foundation – Year 2

SCIENCE

Science understanding – Biological sciences

- *Foundation.* Living things have basic needs, including food and water (ACSSU002)
  - identifying the needs of humans such as warmth, food and water, using students' own experiences

- *Year 1.* Living things have a variety of external features (ACSSU017)
  - identifying common features of plants such as leaves and roots
  - describing the use of plant parts for particular purposes such as making food and obtaining water

Science as a human endeavour – Nature and development of science

- *Foundation.* Science involves observing, asking questions about, and describing changes in objects and events (ACSHE013)
  - recognising that observation is an important part of exploring and investigating the things and places around us
  - sharing observations with others and communicating their experiences
  - exploring and observing using the senses: hearing, smell, touch, sight and taste
- *Year 1 and 2.* Science involves observing, asking questions about, and describing changes in, objects and events (Year 1, ACSHE021) and (Year 2, ACSHE034)

Science as a human endeavour – Use and influence of science

- *Year 1 and 2.* People use science in their daily lives, including when caring for their environment and living things (Year 1, ACSHE022) and (Year 2, ACSHE035)

Science inquiry skills – Questioning and predicting

- *Foundation and Year 1 and Year 2.* Pose and respond to questions about familiar objects and events (Foundation, ACSIS014) and (Year 1, ACSIS024) and (Year 2, ACSIS034)

Science inquiry skills – Planning and conducting

- *Foundation.* Participate in guided investigations and make observations using the senses (ACSIS011)
  - using sight, hearing, touch, taste and smell so that students can gather information about the world around them
- *Year 1.* Participate in guided investigations to explore and answer questions (ACSIS027)
- *Year 2.* Participate in guided investigations to explore and answer questions (ACSIS038)
  - researching with the use of simple information sources
- *Year 1 and 2.* Use informal measurements to collect and record observations, using digital technologies as appropriate (Year 1, ACSIS026) and (Year 2, ACSIS039)

Science inquiry skills – Processing and analysing data and information

- *Foundation.* Engage in discussions about observations and represent ideas (ACSIS233)
  - using drawings to represent observations and ideas and discussing their representations with others
- *Year 1.* Use a range of methods to sort information, including drawings and provided tables and through discussion, compare observations with predictions (ACSIS027)
  - exploring ways of recording and sharing information through class discussion
- *Year 2.* Use a range of methods to sort information, including drawings and provided tables and through discussion, compare observations with predictions (ACSIS040)
  - sorting information in provided tables or graphic organisers

Science inquiry skills – Evaluating

- *Year 1.* Compare observations with those of others (ACSIS213)
  - discussing observations as a whole class to identify similarities and differences in their observations
- *Year 2.* Compare observations with those of others (ACSIS041)
  - discussing observations with other students to see similarities and differences in results

Science inquiry skills – Communicating

- *Foundation.* Share observations and ideas (ACSIS012)
  - working in groups to describe what students have done and what they have found out communicating ideas through role play and drawing
- *Year 1.* Represent and communicate observations and ideas in a variety of ways (ACSIS029)
  - discussing or representing what was discovered in an investigation
  - engaging in whole class or guided small group discussions to share observations and ideas
- *Year 2.* Represent and communicate observations and ideas in a variety of ways (ACSIS042)
  - presenting ideas to other students, both one–to–one and in small groups
  - discussing with others what was discovered from an investigation

ENGLISH

Language – Language variation and change

- *Year 1.* Understand that people use different systems of communication to cater to different needs and purposes and that many people may use sign systems to communicate with others (ACELA1443)
- *Year 2.* Understand that spoken, visual and written forms of language are different modes of communication with different features and their use varies according to the audience, purpose, context and cultural background (ACELA1460)

Language – Language for interaction

- *Foundation.* Understand that language can be used to explore ways of expressing needs, likes and dislikes (ACELA1429)
  - recognising some of the ways we can use speech, gesture, writing and media to communicate feelings
  - recognising some of the ways emotions and feelings can be conveyed and influenced by visual representations, for example in advertising and animations
- *Year 1.* Understand that language is used in combination with other means of communication, for example facial expressions and gestures to interact with others (ACELA1444)

- *Year 2*. Identify language that can be used for appreciating texts and the qualities of people and things (ACELA1462)
  - exploring how language is used to express feelings including learning vocabulary to express a gradation of feeling, for example 'happy', 'joyful', 'pleased', 'contented'

Language – Text structure and organization

- *Foundation*. Understand concepts about print and screen, including how books, film and simple digital texts work, and know some features of print, for example directionality (ACELA1433)
- *Year 1*. Understand concepts about print and screen, including how different types of texts are organised using page numbering, tables of content, headings and titles, navigation buttons, bars and links (ACELA1450)

Language – Expressing and developing ideas

- *Foundation*. Recognise that texts are made up of words and groups of words that make meaning (ACELA1434)
- *Foundation*. Understand the use of vocabulary in familiar contexts related to everyday experiences, personal interests and topics taught at school (ACELA1437)
  - building vocabulary through multiple speaking and listening experience discussing new vocabulary found in texts
  - bringing vocabulary from personal experiences, relating this to new experiences and building a vocabulary for thinking and talking about school topics
- *Year 2*. Understand the use of vocabulary about familiar and new topics and experiment with and begin to make conscious choices of vocabulary to suit audience and purpose (ACELA1470)
  - interpreting new terminology drawing on prior knowledge, analogies and connections with known words

Language – Phonics and word knowledge

- *Foundation*. Recognise and name all upper and lower case letters (graphemes) and know the most common sound that each letter represents (ACELA1440)
  - using familiar and common letters in handwritten and digital communications
- *Foundation*. Understand how to use knowledge of letters and sounds including onset and rime to spell words (ACELA1438)
- *Foundation*. Know how to read and write some high–frequency words and other familiar words (ACELA1817)
- *Foundation*. Understand that words are units of meaning and can be made of more than one meaningful part (ACELA1818)
- *Foundation*. Segment sentences into individual words and orally blend and segment onset and rime in single syllable spoken words, and isolate, blend and manipulate phonemes in single syllable words (ACELA1819)
- *Foundation*. Write consonant–vowel–consonant (CVC) words by representing some sounds with the appropriate letters, and blend sounds associated with letters when reading CVC words (ACELA1820)
- *Year 1*. Use short vowels, common long vowels, consonant digraphs and consonant blends when writing, and blend these to read single syllable words (ACELA1458)
  - using knowledge of letters and sounds to write words with short vowels, for example 'man', and common long vowel sounds, for example 'cake'
  - using knowledge of letters sounds to write single–syllable words with consonant digraphs and consonant blends, for example 'wish' and 'rest'
- *Year 1*. Use visual memory to read and write high–frequency words (ACELA1821)
  - learning an increasing number of high–frequency words recognised in shared texts and texts being read independently, for example 'one', 'have', 'them' and 'about'
- *Year 1*. Segment consonant blends or clusters into separate phonemes at the beginnings and ends of one syllable words (ACELA1822)
  - saying sounds in order for a given spoken word, for example 's–p–oo–n' and 'f–i–s–t' segmenting blends at the beginning and end of given words, for example 'b–l–ue' and 'd–u–s–t'
- *Year 2*. Understand how to use knowledge of digraphs, long vowels, blends and silent letters to spell one and two syllable words including some compound words (ACELA1471)

- using knowledge of known words to spell unknown words, for example using the word 'thumb' to spell the word 'crumb'
- drawing on knowledge of letter–sound relationships, for example breaking a word into syllables, then recording the sounds heard and thinking about the letter patterns that represent the sounds

- *Year 2*. Orally manipulate more complex sounds in spoken words through knowledge of blending and segmenting sounds, phoneme deletion and substitution in combination with use of letters in reading and writing (ACELA1474)
  - blending and segmenting sounds in words, for example 'b–r–o–th–er' or 'c–l–ou–d–y'
- *Year 2*. Use knowledge of letter patterns and morphemes to read and write high–frequency words and words whose spelling is not predictable from their sounds (ACELA1823)
- *Year 2*. Use most letter–sound matches including vowel digraphs, less common long vowel patterns, letter clusters and silent letters when reading and writing words of one or more syllable (ACELA1824)

Literacy – Interacting with others

- *Foundation*. Listen to and respond orally to texts and to the communication of others in informal and structured classroom situations (ACELY1646)
  - listening to, remembering and following simple instructions
  - participating in class, group and pair discussions about shared experiences including shared texts asking and answering questions to clarify understanding
- *Foundation*. Deliver short oral presentations to peers (ACELY1647)
- *Foundation*. Use interaction skills including listening while others speak, using appropriate voice levels, articulation and body language, gestures and eye contact (ACELY1784)
  - learning to ask questions and provide answers that are more than one or two words
  - participating in speaking and listening situations, exchanging ideas with peers in pairs and small groups and engaging in class discussions, listening to others and contributing ideas
  - showing understanding of appropriate listening behaviour, such as listening without interrupting, and looking at the speaker if culturally appropriate
  - asking and answering questions using appropriate intonation
  - speaking so that the student can be heard and understood
- *Year 1*. Engage in conversations and discussions, using active listening behaviours, showing interest, and contributing ideas, information and questions (ACELY1656)
  - participating in informal and structured class, group and pair discussions about content area topics, ideas and information
  - speaking clearly and with appropriate volume interacting confidently and appropriately with peers, teachers, visitors and community members
- *Year 1*. Use interaction skills including turn–taking, recognising the contributions of others, speaking clearly and using appropriate volume and pace (ACELY1788)
  - participating in pair, group and class speaking and listening situations, including informal conversations and class discussions, contributing ideas and listening to the contributions of others
  - taking turns, asking and answering questions and attempting to involve others in discussions demonstrating active listening behaviour and responding to what others say in pair, group and class discussions attempting correct pronunciation of new vocabulary
- *Year 2*. Listen for specific purposes and information, including instructions, and extend students' own and others' ideas in discussions (ACELY1666)

Literacy – Interpreting, analysing and evaluating

- *Foundation.* Use comprehension strategies to understand and discuss texts listened to, viewed or read independently (ACELY1650)
- *Year 1.* Use comprehension strategies to build literal and inferred meaning about key events, ideas and information in texts that they listen to, view and read by drawing on growing knowledge of context, text structures and language features (ACELY1660)

Literacy – Creating text

- *Foundation.* Create short texts to explore, record and report ideas and events using familiar words and beginning writing knowledge (ACELY1651)
- *Foundation.* Produce some lower case and upper case letters using learned letter formations (ACELY1653)
- *Year 1.* Write using unjoined lower case and upper case letters (ACELY1663)
- *Year 2.* Create short imaginative, informative and persuasive texts using growing knowledge of text structures and language features for familiar and some less familiar audiences, selecting print and multimodal elements appropriate to the audience and purpose (ACELY1671)
- *Year 2.* Write legibly and with growing fluency using unjoined upper case and lower case letters (ACELY1673)
  - writing sentences legibly and fluently using unjoined print script of consistent size

MATHEMATICS

Number and algebra – Number and place value

- *Foundation.* Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001)
- *Foundation.* Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002)

  - understanding that each object must be counted only once, that the arrangement of objects does not affect how many there are, and that the last number counted answers the 'how many' question

- *Foundation.* Sub itemise small collections of objects (ACMNA003)

  - using subitising as the basis for ordering and comparing collections of numbers

- *Foundation.* Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)
- *Year 1.* Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts (ACMNA015)
- *Year 2.* Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030)

Statistics and probability – Data representation and interpretation

- *Foundation.* Answer yes/no questions to collect information and make simple inferences (ACMSP011)

  - representing responses to questions using simple displays, including grouping students according to their answers
  - using data displays to answer simple questions such as 'how many students answered "yes" to having brown hair?'

- *Year 1.* Choose simple questions and gather responses and make simple inferences (ACMSP262)
- *Year 2.* Gather data relevant to the question (ACMSP048)
- *Year 2.* Collect, check and classify data (ACMSP049)

THE ARTS

Exploring ideas and improvising with ways to represent ideas – Visual arts

- Explore ideas, experiences, observations and imagination to create visual artworks and design, …. (ACAVAM106)

– observing and recording the shapes, colours and textures of people, objects and concepts they experience in their daily lives, for example, drawing faces, insects, plants, food

TECHNOLOGIES

Digital technologies – Processes and production skills

- Collect, explore and sort data, and use digital systems to present the data creatively (ACTDIP003)
  - collecting, and sorting data through play, for example collecting data about favourite toys and sorting them into categories such as toys they like or dislike
  - exploring and creating graphs to represent classroom data….

Design and technologies – Knowledge and understanding

- Explore how plants and animals are grown for food, … and how food is selected and prepared for healthy eating (ACTDEK003)

HEALTH AND PHYSICAL EDUCATION

Personal, social and community health – Being healthy, safe and active

- *Year 1 and 2.* Recognise situations and opportunities to promote health, safety and wellbeing (ACPPS018)
  - exploring how eating healthy foods can influence health and wellbeing

Personal, social and community health – Contributing to healthy and active communities

- *Foundation.* Identify actions that promote health, safety and wellbeing (ACPPS006)
  - grouping foods into categories such as food groups and 'always' and 'sometimes' foods

GENERAL CAPABILITIES

Literacy

The program includes children interpreting and using language confidently for learning and communication. It involves students listening to, reading, viewing, speaking, writing and creating oral, print, visual and digital texts. They use their literacy knowledge and skills to access, understand, analyse and evaluate information, make meaning, express thoughts and emotions, present ideas and opinions and interact with others. Students are

motivated to use their literacy skills broadly as they brainstorm, participate in guided discussion, explain their reasoning, write and draw to communicate their ideas and share their recorded observations.

Numeracy

The program provides opportunities for students to become numerate as they develop the knowledge and skills to use mathematics confidently. It assists with the development of the mathematical knowledge, skills, behaviours and dispositions. The students use mathematical knowledge and skills purposefully. The students collect data on vegetable tasting, join numbers in the correct order, making physical grouping of 'did not like', 'unsure' and 'like' categories and by tallying sandwich appropriate vegetables.

Information and communication technology capability

The program includes students developing Information and Communication Technology (ICT) capability as they use ICT effectively to access, create and communicate information and ideas through interacting with PowerPoint displays and videos. They access and manage information and interact with and add data to PowerPoint slides.

Critical and creative thinking

The program includes students developing capability in critical and creative thinking as they learn to generate and evaluate knowledge, clarify concepts and ideas, seek possibilities, consider alternatives and solve problems. They are encouraged to interpret, analyse, explain, compare, question and make generalisations. Critical thinking is at the core of most intellectual activity that involves students learning to recognise or develop an argument, use evidence in support of that argument, draw reasoned conclusions, and use information to solve problems. The program provides opportunity for developing critical thinking through making considered decisions about how their five senses help them make sense of their world.

'Creative thinking involves students learning to generate and apply new ideas in specific contexts, seeing existing situations in a new way, identifying alternative explanations, and seeing or making new links that generate a positive outcome.' The program provides opportunities for creative thinking through activities such as creating a paper plate of items for a vegetable tasting party, creating a placemat depicting familiar vegetables and creating a sandwich.

Personal and social capability

The program encourages students to develop personal and social capability as they are recognising and regulating emotions, making responsible decisions and work effectively together. The program encourages them to understand their feelings, likes and dislikes concerning vegetables and to consider that they can change their feelings towards vegetables.

Intercultural understanding

Intercultural understanding involves students learning about and engaging with diverse cultures. The program facilitates this through developing knowledge of different foods being liked according to what they are familiar with. They are encouraged to become 'food adventurers' who try things they have never tried before. Students may learn about food preferences of different cultural groups and to respect these differences.

7.2   Year 3 – 4

SCIENCE

Science understanding – Biological sciences

- *Year 3*. Living things can be grouped on the basis of observable features and can be distinguished from non–living things (ACSSU044)

– recognising characteristics of living things such as growing, moving, sensitivity and reproducing

• *Year 4.* Living things have life cycles (ACSSU072)

Science inquiry skills – Processing and analysing data and information

• *Year 3 and 4.* Use … simple column graphs to represent data and to identify patterns and trends (Year 3, ACSIS057) and (Year 4, ACSIS068)
  – discussing how to graph data presented in a table (Year 3, ACSIS057)
  – identifying and discussing numerical and visual patterns in data collected from students' investigations and from other sources (Year 4, ACSIS068)

Science inquiry skills – Communicating

• *Year 3 and 4.* Represent and communicate observations, ideas and findings using formal and informal representations (Year 3, ACSIS060) and (Year 4, ACSIS071)
  – communicating with other students carrying out similar investigations to share experiences and improve investigation skill (Year 3, ACSIS060)
  – using simple explanations and arguments, reports or graphical representations to communicate ideas to other students (Year 4, ACSIS071)

ENGLISH

Language – Language for interaction

• *Year 4.* Understand that social interactions influence the way people engage with ideas and respond to others for example when exploring and clarifying the ideas of others, summarising their own views and reporting them to a larger group (ACELA1488)
  – recognising that language is adjusted in different contexts, for example in degree of formality when moving between group discussions and presenting a group report

• *Year 4.* Understand differences between the language of opinion and feeling and the language of factual reporting or recording (ACELA1489)
  – becoming familiar with the typical stages and language features of such text types as: simple narrative, procedure, simple persuasion texts and information reports

Language – Text structure and organization

• *Year 3.* Understand how different types of texts vary in use of language choices, depending on their purpose and context (for example, tense and types of sentences) (ACELA1478)
  – becoming familiar with typical structural stages and language features of various types of text, for example narratives, procedures, reports, reviews and expositions

• *Year 4.* Understand how texts vary in complexity and technicality depending on the approach to the topic, the purpose and the intended audience (ACELA1490)
  – becoming familiar with the typical stages and language features of such text types as… simple persuasion texts and information reports

Literacy – Interacting with others

• *Year 3.* Listen to and contribute to conversations and discussions to share information and ideas and negotiate in collaborative situations (ACELY1676)
  – participating in collaborative discussions, building on and connecting ideas and opinions expressed by others, and checking students' own understanding against group views

• *Year 3.* Use interaction skills, including active listening behaviours and communicate in a clear, coherent manner using a variety of everyday and learned vocabulary and appropriate tone, pace, pitch and volume (ACELY1792)

- participating in pair, group and class speaking and listening situations, including informal conversations, class discussions and presentations
- listening actively including listening for specific information, recognising the value of others' contributions and responding through comments, recounts and summaries of information

- *Year 3*. Plan and deliver short presentations, providing some key details in logical sequence (ACELY1677)
  - drawing on relevant research into a topic to prepare an oral or multimodal presentation……

- *Year 4*. Use interaction skills such as acknowledging another's point of view and linking students' response to the topic, using familiar and new vocabulary and a range of vocal effects such as tone, pace, pitch and volume to speak clearly and coherently (ACELY1688)
  - participating in group and class listening situations, including informal conversations, class discussions and presentations

- *Year 4*. Plan rehearse and deliver presentations incorporating learned content and taking into account the particular purposes and audiences (ACELY1689)
  - reporting on a topic in an organised manner, providing relevant facts and descriptive detail to enhance audience understanding…
  - developing appropriate speaking and listening behaviours including acknowledging and extending others' contributions, presenting ideas and opinions clearly and coherently
  - choosing a variety of appropriate words and prepositional phrases, including descriptive words and some technical vocabulary, to communicate meaning accurately

Literacy – Creating text

- *Year 3*. Plan and publish … persuasive texts demonstrating increasing control over text structures and language features and selecting print … appropriate to the audience and purpose (ACELY1682)
  - selecting appropriate text structure for a writing purpose and sequencing content for clarity and audience impact
  - using appropriate simple, compound and complex sentences to express and combine ideas
  - using vocabulary, including technical vocabulary, relevant to the text type and purpose, and appropriate sentence structures to express and combine ideas

- *Year 4*. Plan, draft and publish imaginative, informative and persuasive texts containing key information and supporting details for a widening range of audiences, demonstrating increasing control over text structures and language features (ACELY1694)
  - using research from print and digital resources to gather ideas, integrating information from a range of sources; selecting text structure and planning how to group ideas into paragraphs to sequence content, and choosing vocabulary to suit topic and communication purpose
  - using appropriate simple, compound and complex sentences to express and combine ideas

MATHEMATICS

Statistics and probability

- *Year 3*. Collect data, organise into categories and create displays using ….. simple column graphs, with and without the use of digital technologies (ACMSP069)
  - exploring meaningful … ways to record data, and representing and reporting the results of investigations

- *Year 4.* Construct suitable data displays, with and without the use of digital technologies, from given or collected data. Include tables, column graphs and picture graphs where one picture can represent many data values (ACMSP096)
  - exploring ways of presenting data and showing the results of investigations

TECHNOLOGIES

Design and technologies – Knowledge and understanding

- *Year 3 and 4.* Investigate food production and food technologies used in modern societies (ACTDEK012)
  - identifying the areas in Australia where … food .. plants … are grown…
  - describing ideal conditions for successful plant … production including how climate and soils affect production and availability of foods …
  - recognising the benefits food technologies provide for health and food safety and ensuring that a wide variety of food is available and can be prepared for healthy eating

HEALTH AND PHYSICAL EDUCATION

Personal, social and community health – Being healthy, safe and active

- *Year 3 and 4.* Identify and practise strategies to promote health, safety and wellbeing (ACPPS036)
  - examining their own eating patterns by researching The Australian Guide to Healthy Eating and identifying healthier food choices

Personal, social and community health – Contributing to healthy and active communities

- *Years 3 and 4.* Describe strategies to make the classroom and playground healthy, safe and active spaces (ACPPS040)
  - planting food plants – grow microherbs
- *Year 3 and 4.* Research … cultural identities … (ACPPS042)
  - investigating how food practices differ between families, communities and cultural groups …

HUMANITIES AND SOCIAL SCIENCES

Knowledge and understanding ¬— Geography: Concepts for developing understanding

- *Year 3.* The main climate types of the world and the similarities and differences between the climates of different places (ACHASSK068)
  - identifying and locating examples of the main climatic types in Australia and the world (for example, equatorial, tropical arid, semi–arid, temperate and Mediterranean).

GENERAL CAPABILITIES

Literacy

The program includes children interpreting and using language confidently for learning and communication. It involves students listening to, reading, viewing, speaking, writing and creating oral, print, visual and digital texts.

Literacy encompasses the knowledge and skills students need to access, understand, analyse and evaluate information, make meaning, express thoughts and emotions, present ideas and opinions, interact with others and participate in activities at school and in their lives beyond school. The program supports this development.

The program also supports the development of behaviours and dispositions that assist students to become effective learners who are confident and motivated to use their literacy skills broadly. These include students managing their own learning to be self–sufficient, working harmoniously with others and being open to ideas, opinions and texts from and about diverse cultures.

Numeracy

The program provides opportunities for students to become numerate as they develop the knowledge and skills to use mathematics confidently. It assists with the development of the mathematical knowledge, skills, behaviours and dispositions. The students use mathematical knowledge and skills purposefully.

The program gives students opportunities to transfer their mathematical knowledge and skills. They calculate whole numbers and understand and use numbers in context. They have opportunities to collect, record and display data and to use appropriate language and numerical representations.

Information and communication technology (ICT) capability

The program includes opportunities for students to develop Information and Communication Technology (ICT) capability. They are provided with opportunities to:

- investigate with ICT
- create with ICT
- communicate with ICT

as they use ICT effectively to plan information searches, locate and access data and information, select and evaluate data and information and manage and present information and ideas through PowerPoint displays and videos. They access and manage information as they interact with and add data to PowerPoint slides.

Critical and creative thinking

The program includes students developing capability in critical and creative thinking as they generate and evaluate knowledge, clarify concepts and ideas, seek possibilities, consider alternatives and solve problems. They are encouraged to think broadly and deeply using skills, behaviours and dispositions such as reason, logic, resourcefulness, imagination and innovation as they make discoveries about vegetables – factors influencing their consumption, the influence of climate on production, experimenting with cooking techniques, understanding the link between food appearance and food wastage and the various methods of preparation of vegetables for eating.

Personal and social capability

The program involves the students in developing personal and social capability as they learn to understand themselves and others and manage their relationships, lives, work and learning more effectively. It also involves students to develop personal and social capability through a range of activities that promote the development of the four interrelated elements of the learning continuum:

- Self awareness – through recognising emotions attached to food selections and eating and reflecting upon these after investigations
- Self management – through appropriately expressing their emotions about certain foods and becoming confident to try new things
- Social awareness – through appreciating the diversity of perspectives about vegetable consumption and understanding why they may or may not accept certain vegetables
- Social management – through the opportunities to communicate their ideas effectively, work collaboratively with class mates, make their own and collaborative decisions, and negotiate agreements with their peers (such as selections in the creation of a salad).

Intercultural understanding

The program provides opportunities for the students to develop intercultural understanding. It involves students learning about and engaging with diverse cultures in ways that recognise commonalities and differences, create connections with others and cultivate mutual respect. The program facilitates this through using vegetable flavours, preparation and cooking practices from different cultures. Students may learn of about food preferences of different cultural groups and to respect these differences.

CROSS–CURRICULUM PRIORITIES

Asia and Australia's engagement with Asia – Asia and its diversity

The program provides some learning opportunities about Asian foods. By knowing something of Asian societies, students may deepen their intercultural understanding, enrich their own lives and increase the likelihood of successful participation in the 'Asian century', for themselves and Australia as a whole. Knowing about the foods of other cultures can help build an understanding of the diversity of cultures and people living in Australia and fosters social inclusion and cohesion that is vital to the prosperity of Australia.

Sustainability

Sustainability addresses the ongoing capacity of Earth to maintain all life. The program provides opportunities to challenge students to:

- consider sustainable futures through developing an understanding of plant life cycles, climates and seasons – how environmental systems interact to support and maintain life
- become aware of food wastage in relation to food appearance.

Students are presented with opportunities to develop an understanding of systems that support more sustainable patterns of living – the need to consider environmental as well as economic systems as they are part of the interdependent systems that also include social and cultural.

7.3 Year 5 – 6

SCIENCE

Science inquiry skills – Questioning and predicting

- *Year 5*. With guidance, pose clarifying questions and make predictions about scientific investigations (ACSIS231)
  - exploring the range of questions that can be asked about a problem or phenomena and with guidance, identifying those questions that could be investigated
  - applying experience from similar situations in the past to predict what might happen in a new situation
- *Year 6*. With guidance, pose clarifying questions and make predictions about scientific investigations (ACSIS232)
  - refining questions to enable scientific investigation
  - asking questions to understand the scope or nature of a problem
  - applying experience from previous investigations to predict the outcomes of investigations in new contexts

Science inquiry skills – Planning and conducting

- *Year 5*. Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSIS086)
  - experiencing a range of ways of investigating questions, including experimental testing, internet research, field observations and exploring simulations
  - explaining rules for safe processes and use of equipment
- *Year 5*. Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy ... (ACSIS087)
  - discussing in groups how investigations can be made as fair as possible
- *Year 6*. Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSIS103)
  - following a procedure to design an experimental or field investigation
  - discussing methods chosen with other students, and refining methods accordingly
  - considering which investigation methods are most suited to answer a particular question or solve a problem
- *Year 6*. Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (ACSIS104)
  - using the idea of an independent variable (note: this terminology does not need to be used at this stage) as something that is being investigated by changing it and measuring the effect of this change

Science inquiry skills – Processing and analysing data and information

- *Year 5*. Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate (ACSIS090)
  - constructing tables, graphs and other graphic organisers to show trends in data identifying patterns in data and developing explanations that fit these patterns
- *Year 5*. Compare data with predictions and use as evidence in developing explanations (ACSIS218)
  - sharing ideas as to whether observations match predictions, and discussing possible reasons for predictions being incorrect
- *Year 6*. Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate (ACSIS107)
  - using digital technologies to construct representations, including dynamic representations
- *Year 6*. Compare data with predictions and use as evidence in developing explanations (ACSIS221)
  - sharing ideas as to whether observations match predictions, and discussing possible reasons for predictions being incorrect
  - referring to evidence when explaining the outcomes of an investigation

Science inquiry skills – evaluating

- *Year 5.* Reflect on and suggest improvements to scientific investigations (ACSIS091)
  - working collaboratively to identify where methods could be improved, including where testing was not fair and practices could be improved
- *Year 6.* Reflect on and suggest improvements to scientific investigations (ACSIS108)
  - discussing improvements to the methods used, and how these methods would improve the quality of the data obtained

Science inquiry skills – Communicating

- *Year 5.* Communicate ideas, explanations and processes using scientific representations in a variety of ways ...... (ACSIS093)
  - constructing multi–modal texts to communicate science ideas
- *Year 6.* Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi–modal texts (ACSIS110)
  - discussing the best way to communicate science ideas and what should be considered when planning a text
  - using a variety of communication modes, such as reports, explanations.... to communicate scientific ideas.

ENGLISH

Language – Text structure and organisation

- *Year 5.* Understand how texts vary in purpose, structure and topic as well as the degree of formality (ACELA1504)
  - becoming familiar with the typical stages and language features of such text types as: narrative, procedure, exposition, explanation, discussion and informative text and how they can be composed and presented in written, digital and multimedia forms

Language – Exploring and expressing ideas

- *Year 5.* Understand the use of vocabulary to express greater precision of meaning, and know that words can have different meanings in different contexts (ACELA1512)
  - moving from general, 'all–purpose' words, for example 'cut', to more specific words, for example 'slice', 'dice', 'fillet', 'segment'

Literacy – Interacting with others

- *Year 5.* Clarify understanding of content as it unfolds in formal and informal situations, connecting ideas to students' own experiences and present and justify a point of view (ACELY1699)
  - asking specific questions to clarify a speaker's meaning, making constructive comments that keep conversation moving, reviewing ideas expressed and conveying tentative conclusions
- *Year 5.* Use interaction skills, for example paraphrasing, questioning and interpreting non–verbal cues and choose vocabulary and vocal effects appropriate for different audiences and purposes (ACELY1796)
  - participating in pair, group, class and school speaking and listening situations, including informal conversations, discussions and presentations
  - using effective strategies for dialogue and discussion including speaking clearly and to the point, pausing in appropriate places for others to respond, asking pertinent questions and linking students' own responses to the contributions of others
  - choosing vocabulary and sentence structures for particular purposes including formal and informal contexts, to report and explain new concepts and topics, to offer a point of view and to persuade others
- *Year 5.* Plan, rehearse and deliver presentations for defined audiences and purposes incorporating accurate and sequenced content and multimodal elements (ACELY1700)

- planning a report on a topic, sequencing ideas logically and providing supporting detail, including graphics, sound and visuals to enhance audience engagement and understanding
- *Year 6*. Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions (ACELY1709)
- *Year 6*. Use interaction skills, varying conventions of spoken interactions such as voice volume, tone, pitch and pace, according to group size, formality of interaction and needs and expertise of the audience (ACELY1816)
    - participating in pair, group, class, school and community speaking and listening situations, including informal conversations, discussions, debates and presentations
- *Year 6*. Plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements for defined audiences and purposes, making appropriate choices for modality and emphasis (ACELY1710)

Literacy – Interpreting, analysing, evaluating

- *Year 5*. Identify and explain characteristic text structures and language features used in imaginative, informative and persuasive texts to meet the purpose of the text (ACELY1701)
- *Year 5*. Use comprehension strategies to analyse information, integrating and linking ideas from a variety of print and digital sources (ACELY1703)
- *Year 6*. Analyse how text structures and language features work together to meet the purpose of a text (ACELY1711)
- *Year 6*. Select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings (ACELY1712)
    - using research skills including identifying research purpose, locating texts, gathering and organising information, evaluating and using information
- *Year 6*. Use comprehension strategies to interpret and analyse information and ideas, comparing content from a variety of textual sources including media and digital texts (ACELY1713)
    - using prior knowledge and textual information to make inferences and predictions
    - asking and answering questions

Literacy – Critical and creative thinking

- *Year 5*. Use comprehension strategies to analyse information, integrating and linking ideas from a variety of print and digital sources (ACELY1703)
    - using research skills including identifying research purpose, locating texts, gathering and organising information, evaluating its relative value, and the accuracy and currency of print and digital sources and summarising information from several sources

Literacy – Creating texts

- *Year 5*. Plan, draft and publish …… persuasive print and multimodal texts, choosing text structures, language features, images and sound appropriate to purpose and audience (ACELY1704)
    - using research from print and digital resources to gather and organise information for writing
    - selecting an appropriate text structure for the writing purpose and sequencing content according to that text structure, introducing the topic, and grouping related information in well–sequenced paragraphs with a concluding statement
    - using vocabulary, including technical vocabulary, appropriate to purpose and context
- *Year 5*. Re–read and edit student's own and others' work using agreed criteria for text structures and language features (ACELY1705)
    - editing for flow and sense
- *Year 6*. Plan, draft and publish ….. persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714)
- *Year 6*. Re–read and edit students' own and others' work using agreed criteria and explaining editing choices (ACELY1715)

– editing for coherence, sequence, effective choice of vocabulary….. , as appropriate to the task and audience

- *Year 6.* Use a range of software, including word processing programs, learning new functions as required to create texts (ACELY1717)

MATHEMATICS

Statistics and probability – Data representation and interpretation

- *Year 5.* Pose questions and collect categorical or numerical data by observation or survey (ACMSP118)
- *Year 5.* Construct displays, including column graphs, tables, appropriate for data type, with and without the use of digital technologies (ACMSP119)
  – identifying the best methods of presenting data to illustrate the results of investigations and justifying the choice of representations
- *Year 5.* Describe and interpret different data sets in context (ACMSP120)
  – using and comparing data representations ….. to help decision making
- *Year 6.* Interpret and compare a range of data displays ….. (ACMSP147)
  – comparing different student–generated diagrams, tables and graphs, describing their similarities and differences and commenting on the usefulness of each representation for interpreting the data

TECHNOLOGY

Design and technologies – Knowledge and understanding

- *Years 5 and 6.* Investigate how and why food and fibre are produced in managed environments and prepared to enable people to grow and be healthy (ACTDEK021)
  – sequencing the process of converting 'on–farm' food or fibre products into a product suitable for retail sale, that is, the 'paddock to plate' supply chain, or when making yarn or fabric from fibre

HEALTH AND PHYSICAL EDUCATION

Personal, social and community health – Being healthy, safe and active

- *Years 5 and 6.* Plan and practise strategies to promote health, safety and wellbeing (ACPPS054)
- comparing …. nutritional information in recipes and suggesting ways to improve the nutritional value of meals

Personal, social and community health – Contributing to health and active communities

- *Years 5 and 6.* Investigate the role of preventive health in promoting and maintaining health, safety and wellbeing for individuals and their communities (ACPPS058)
  – investigating practices that help promote and maintain health and wellbeing, such as eating a diet reflecting The Australian Guide to Healthy Eating, …….

GENERAL CAPABILITIES

Literacy

The program includes children interpreting and using language confidently for learning and communication. It involves students listening to, reading, viewing, speaking, writing and creating oral, print, visual and digital texts. They use their literacy knowledge and skills to access, understand, analyse and evaluate information, make meaning, express thoughts and emotions, present ideas and opinions and interact with others. Students are motivated to use their literacy skills broadly. The program supports this development through activities such as Carousal Brainstorming, discussion and creating lists.

Literacy encompasses the knowledge and skills students need to access, understand, analyse and evaluate information, make meaning, express thoughts and emotions, present ideas and opinions, interact with others and participate in activities at school and in their lives beyond school. The program supports this development through the conducting of scientific investigations and investigating the role of technology in producing vegetable products.

The program also supports the development of behaviours and dispositions that assist students to become effective learners who are confident and motivated to use their literacy skills broadly. These include students managing their own learning to be self–sufficient, working harmoniously with others and being open to ideas, opinions and texts from and about diverse cultures. The program supports this development through developing an understanding of how cultural background influences vegetable consumption and by evaluating culturally diverse vegetables and preparation methods.

Numeracy

The program provides opportunities for students to become numerate as they develop the knowledge and skills to use mathematics confidently. It assists with the development of the mathematical knowledge, skills, behaviours and dispositions. The students use mathematical knowledge and skills purposefully.

The program gives students opportunities to transfer their mathematical knowledge and skills. They calculate whole numbers and understand and use numbers in context. They have opportunities to collect, record and display data (e.g. in graphs and tables) and to use appropriate language and numerical representations.

Information and Communication Technology (ICT) Capability

The program includes opportunities for students to develop Information and Communication Technology (ICT) capability. They are provided with opportunities to:

- investigate with ICT
- create with ICT
- communicate with ICT

as they use ICT effectively to plan information searches, locate and access data and information, select and evaluate data and information and manage and present information and ideas through PowerPoint displays and videos. They access and management information as they interact with and add data to PowerPoint slides.

Critical and creative thinking

The program includes students developing capability in critical and creative thinking as they generate and evaluate knowledge, clarify concepts and ideas, seek possibilities, consider alternatives and solve problems. They are encouraged to think broadly and deeply using skills, behaviours and dispositions such as reason, logic, resourcefulness, imagination and innovation as they plan and conduct science investigations, think about how they can improve investigations, create vegetable dips and through enhancing their understanding of multicultural diversity through exploring dishes and vegetables from other cultures.

Personal and social capability

The program involves the students in developing personal and social capability as they learn to understand themselves and others and manage their relationships, lives, work and learning more effectively. It also involves students in a range of activities that promote the development of the four interrelated elements of the learning continuum:

- self awareness – through recognising emotions attached to food selections and eating and reflecting upon these after investigations
- self management – through appropriately expressing their emotions about certain foods and becoming confident to try new things

- social awareness – through appreciating the diversity of perspectives about vegetable consumption and understanding why they may or may not accept certain vegetables
- social management – through the opportunities to communicate their ideas effectively, work collaboratively with class mates, make their own and collaborative decisions, and negotiate agreements with their peers (such as selections in the creation of a salad).

Intercultural understanding

The program provides opportunities for the students to develop intercultural understanding. It involves students learning about and engaging with diverse cultures in ways that recognise commonalities and differences, create connections with others and cultivate mutual respect. The program facilitates this through using vegetable flavours, preparation and cooking practices from different cultures and providing opportunities to understand multicultural diversity from vegetables chosen in different cultures. Students may learn about food preferences of different cultural groups and to respect these differences.

CROSS−CURRICULUM PRIORITIES

Asia and Australia's engagement with Asia – Asia and its diversity

The program provides some learning opportunities about Asian foods. By knowing something of Asian societies, students may deepen their intercultural understanding, enrich their own lives and increase the likelihood of successful participation in the 'Asian century', for themselves and Australia as a whole. Knowing about the foods of other cultures can help build an understanding of the diversity of cultures and people living in Australia and fosters social inclusion and cohesion that is vital to the prosperity of Australia. The program enables them to study multicultural cooking, food preparation and vegetable choices.

Sustainability

Sustainability addresses the ongoing capacity of Earth to maintain all life. The program provides opportunities to challenges students to investigate the role of food technology in producing vegetables all year round.

Image credits

Screencraft – cover image

Rob Palmer – pages 18 (washing vegetables), 19 (cutting vegetables)

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Hort Innovation