Tools for Teachers 4

Stephanie Alexander Kitchen Garden Foundation

Stephanie Alexander Kitchen Garden Foundation®

Growing Harvesting Preparing Sharing

Years 3&4

Table of contents

Curriculum matrix

		YEAR 3	YEAR 4
SUBJECT	The Arts	**Using our Senses** (p 37): imagine and create movement, music, images and objects	**Using our Senses** (p 37): imagine and create movement, music, images and objects
		Bees in Australia (p 53): create images, respond to art	**Bees in Australia** (p 53): create images, respond to art
	English	**Engaging with English** (p 12): different types of texts (ACELA1478), evaluative language (ACELA1477), responding (ACELT1596), creating imaginative, informative and persuasive texts for different audiences (ACELY1678, ACELY1682)	**Engaging with English** (p 12): texts vary in complexity and technicality (ACELA1490), experiment with word play (ACELT1606), different texts from earlier times (ACELY1686), creating imaginative, informative and persuasive texts (ACELY1694)
		Writing Prompts (p 16): creating imaginative, informative and persuasive texts (ACELY1682)	**Writing Prompts** (p 16): creating imaginative, informative and persuasive texts (ACELY1694)
		Materials (p 63): responding to texts (ACELT1596)	
	Geography		**Materials** (p 63): natural resources (ACHGK024)
	Health and Physical Education	**Using our Senses** (p 37): movement skills and patterns	**Using our Senses** (p 37): movement skills and patterns
	History	**Bees in Australia** (p 53): Aboriginal and Torres Strait Islander ways of life (ACHHK060)	**Bees in Australia** (p 53): Aboriginal and Torres Strait Islander cultures and daily life (ACHHK077)
		Materials (p 63): change and continuity (ACHHK061), posing questions about the past (ACHHS067)	**Materials** (p 63): posing questions about the past (ACHHS083)
	Mathematics	**Practical Numeracy** (p 7): odd and even numbers (ACMNA051), fractions (ACMNA058), measurement of mass and volume (ACMMG061), maps (ACMMG065), time (ACMNG062), data collection & display (ACMSP068, ACMSP069, ACMSP070)	**Practical Numeracy** (p 7): equivalent fractions (ACMNA077), measurement and comparison (ACMMG084), maps (ACMMG090), time problems (ACMMG085, ACMMG086), data collection and display (ACMSP095, ACMSP096)
		One Metre (p 68): measurement, area and volume (ACMMG061)	**One Metre** (p 68): equivalent fractions (ACMNA077), measurement, area and volume (ACMMG084, ACMMG290, ACMMG087)
	Science	**Earth, Moon and Sun** (p 19): Earth's rotation creates night and day (ACSSU048)	**Earth, Moon and Sun** (p 19): living things depend on the environment (ACSSU073)
		Using our Senses (p 37): making observations using our senses	
		Water in the Landscape (p 43): living things (ACSSU044), science knowledge and the effect of our actions (ACSHE051), compare results with predictions (ACSIS215)	**Water in the Landscape** (p 43): living things (ACSSU073), science knowledge and our actions (ACSHE062), Earth and erosion (ACSSU075), forces (ACSSU076), use equipment to observe (ACSIS055), compare results with predictions (ACSIS216)
		Bees in Australia (p 53): science knowledge and the effect of our actions (ACSHE051)	**Bees in Australia** (p 53): life cycles (ACSSU072), living things (ACSSU073), science knowledge and our actions (ACSHE062)
		Materials (p 63): science knowledge and the effect of our actions (ACSHE051)	**Materials** (p 63): properties of materials (ACSSU074), science knowledge and the effect of our actions (ACSHE062)
	Technologies	**Materials** (p 63): properties of materials	**Materials** (p 63): properties of materials
CROSS-CURRICULUM PRIORITIES	Aboriginal and Torres Strait Islander histories and cultures	**Bees in Australia** (p 53)	**Bees in Australia** (p 53)
	Asia and Australia's engagement with Asia	**Using our Senses** (p 37)	**Using our Senses** (p 37)
	Sustainability	**Practical Numeracy** (p 7), **Water in the Landscape** (p 43), **Bees in Australia** (p 53), **Materials** (p 63)	**Practical Numeracy** (p 7), **Water in the Landscape** (p 43), **Bees in Australia** (p 53), **Materials** (p 63)

Literature

Year levels 3–4

Curriculum Links

English

- Draw connections between personal experiences and the worlds of texts, and share responses with others (Yr 3, ACELT1596)
- Understand, interpret and experiment with a range of devices and deliberate word play in poetry and other literary texts, for example nonsense words, spoonerisms, neologisms and puns (Yr 4, ACELT1606)

A Special Lunch Guest

Students select a fictional character who appeals to them, then design a meal they think the character would like. What clues in the text helped them decide? What do they know about their character's interests, background, age and even – if the character is not human – what their dietary needs might be?

Real-Life Recipes

Read a story in which food is a feature. Students research recipes and evaluate them to choose which one to make in a kitchen class.

For older students, there are plenty of books in which food is a plot device or provides insight into its characters' lives. For example, in Lemony Snicket's *The Bad Beginning*, Violet and Klaus make pasta puttanesca for Count Olaf. They know how to make the pasta – but Olaf wants roast beef. What does that tell students about these characters?

For a list of book suggestions, download 'Picture Books for Kitchen Gardens' from the Shared Table Resource Library.

Alliteration Alimentation

Create a menu in which all the dishes begin with the same letter or sound. Turn it into a tongue twister – literally! Add adjectives: big beautiful bowls of baked beetroot with bok choy and bread. Write it up, decorate it and challenge visitors to say it three times, quickly!

Edible Astronomy

Year level 3

Curriculum Links

Science

- The Earth's rotation on its axis causes regular changes, including night and day (ACSSU048)

Resources

- A quantity of spherical fruit such as apples, oranges, nectarines, peaches – whatever is in season
- An equal quantity of small spherical fruit such as grapes, cherries or cherry tomatoes
- Toothpicks, or double-ended cocktail sticks
- Measuring tapes

Location

The kitchen

Duration:
15 minutes, possibly for one group during a kitchen class

Teacher's note

It's always popular to have an edible finale to a unit and an 'Earth and Moon' themed lunch can be loads of fun. The following fruit activity has the added advantage of providing a delicious model of the relative sizes of the Earth and the moon.

Edible astronomy

- The 'Earth, Moon and Sun: Night and Day' unit provides opportunities to explore myths and ideas in kitchen classes – such as the myth that the moon is made of green cheese. Green cheese is not actually the colour green, it is young cheese that has been freshly made, like a freshly-made brie. Discuss young cheeses, and try some if you can.
- Students can propose recipes for a kitchen class celebrating the Earth, the moon and the sun. Try recipes that include cheese (or blue cheese), sun-dried fruit or tomatoes, and root vegetables. You can stretch the metaphor a bit to make it fit what you have.
- A multitude of recipes can be made in round and crescent moon shapes, such as ricotta-and-spinach pastries. Many types of dumplings from cuisines around the world are crescent or full-moon shaped. Any round food item can be cut into moon-phase shapes.
- If the class has time, decorate paper tablecloths with drawings of the moon phases. To do this, lay a large piece of paper on the table. Turn a plate upside down and draw around it with a pencil to create a circle. Draw one circle at each place where a person will sit.
- Shade crescents of these moons around the table to make a cycle:
  - New Moon: no colour at all
  - Waxing crescent: a quarter on the left-hand side is coloured in
  - First Quarter: colour in the left-hand side
  - Waxing gibbous: colour three quarters of the left-hand side
  - Full Moon: colour in the whole moon!
  - Waning gibbous: colour in three quarters of the right-hand side
  - Second Quarter: colour in the right-hand side
  - Waning crescent: colour in a quarter of the right-hand side
  - And back to New Moon again ...

Left or Right?

Some images start the moon's cycle with the light sliver of the new moon on the left, and some on the right. It's not that they are wrong; it's just that the point of view – northern or southern hemisphere – affects which way you view the moon. The phases are the same regardless, but our perspective changes. See more information and resources on page 27.

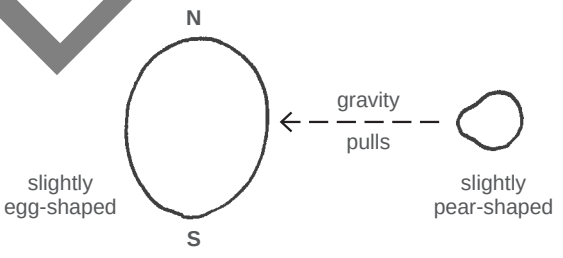
Planet fruit

- Ask the students which is larger: the Earth or the moon?
- Students select a piece of fruit and measure the circumference. (For example, a grape or a small cherry tomato will be roughly 4 cm in circumference.)
- Students write down the measurement, then multiply it by four (4 × 4 = 16 cm).
- Students measure other pieces of fruit, looking for a large piece of fruit with a measurement that matches their result (i.e. the fruit item that is closest to 16 cm. Apples are often close).
- Explain that this ratio of 1:4 is roughly the same as the size of the moon in relation to the Earth. (Students aren't studying parts of a sphere until later, so for the moment you can keep this simple or introduce the word 'circumference', as you like.)
- Students connect their small fruit (moon) with their large fruit (Earth) using a double-ended cocktail stick.
- Place the fruit planets on the table for dessert.

Challenge question: If the large fruit is the Earth, what size item would we need to represent the sun?

To be or not to be a sphere ...

The Earth is not a perfect sphere: its rotation has flattened it slightly, so that its circumference when measured around the equator is slightly larger than when measured around both poles.



Not to be left out of the irregularity competition, the moon is shaped ever so slightly like a pear. Imagine a lump on the side of the moon that is permanently facing the Earth. This slight lump is formed because of the gravitational pull of the Earth (remember that the same side of the moon always faces the Earth even as it orbits us).

Earth circumference: 40,075 km

Moon circumference: 10,917 km

Where's the Water?

Year levels 3–4

Curriculum Links

Science

- Living things can be grouped on the basis of observable features and can be distinguished from non-living things (Yr 3, ACSSU044)
- Living things, including plants and animals, depend on each other and the environment to survive (Yr 4, ACSSU073)
- Science knowledge helps people to understand the effect of their actions (Yr 3, ACSHE051; Yr 4, ACSHE062)

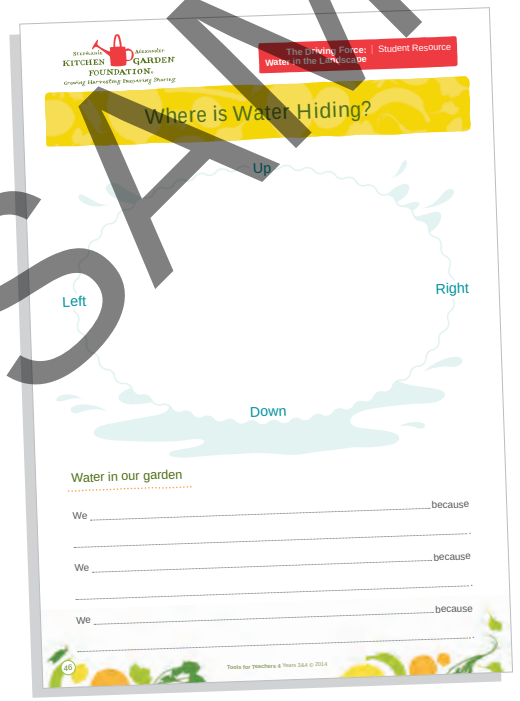
Resources

- Copies of the proforma on page 46

Location

The garden

Duration
30–45 minutes



Water hunt

- In pairs or groups, students take a three-minute tour of the garden, looking for all the sources of water.
- Provide them with copies of the proforma on page 46.
- Prompt students by telling them that 'down' includes under the ground and 'up' includes anything above the ground, right up to the sky.
- Encourage students to think creatively of places where water might be hiding. The tiniest bits of water count, so if students list a water bottle on their worksheet, or a puddle, no matter how small, that's great.
- After three minutes, come back together and share everyone's thoughts: where is water hiding? (In plants, clouds, in the soil or compost and under the mulch, in large containers such as tanks and in small containers such as cups and water bottles, in puddles at times, as water vapour in the air, in tree leaves, in vegetables and fruit, in each living thing in the garden, including us ... Water is pretty much everywhere.)
- Talk about our experiences of water in different seasons in our garden.
- For example, have our water tanks ever overflowed? Have we ever had washouts, or lost a whole crop due to an irrigation failure or heat of the summer? What is it like when the air feels full of water (humid) or dry? In which seasons does this occur? Have you ever seen the water vapour in your breath puffing out like smoke on a cold, cold morning?

In some gardens the main learning will be that water is very, very well hidden. These gardens appear dry to us, but there is water in every leaf and in parts of plants such as fleshy stems and tap roots. There is some water (vapour) in the air, even though it's hard to see unless there are clouds today. There will be some in the earth, and we need to know where to look for it, perhaps by sticking a fork into the compost or by digging gently in the shadiest spots under the mulch.

In arid gardens, discuss students' local knowledge of how to look for water in the landscape. This is a fantastic opportunity to involve local Elders or Indigenous communities and to discuss how plants hold and protect their reserves of water through adaptations.

Catch me if you can!

- Ask students to pretend they each have a big bowl of water. They have put it down in the garden and left it for a day or two. What are the ways the water can disappear?
- In response to every answer, ask 'And then where is it?' If a student suggests it dried up (evaporation), it's now in the air. If it was spilled, it's now in the earth, where plants, worms, microbes and other living things can make use of it. Maybe a bird or animal drank it – it's now inside the bird or animal, keeping them alive.
- Water is always on the move.
- Discuss what moves water. (Gravity, evaporation, condensation, capillary action in plants.)
- Create a class list to answer the question: How do we capture, change or slow down the movement of water?
- Include not just the ways we collect, store and move water but also the decisions and actions we take to conserve the water we have, such as thick mulch, buried drip irrigation, timers on the irrigation system and shade cloth for vegetables.

'Life in us is like the water in a river.'

Henry David Thoreau

Finishing up

- Students draw or write down all the places in the garden where they concluded water was hiding. They include ideas from their tour of the garden plus new ideas from the class list of the ways we catch and move water.
- To make this more challenging, ask students to write three statements using the word 'because': We capture the water in water tanks *because* that means we can use it later. We shade the plants *because* the sun will evaporate the water from their leaves.

Extension/Variation

- Extend the learning into adaptations developed by plants. Students identify plants that prefer dry locations in the garden and plants that prefer 'wet feet'. You might even be growing wetlands plants, such as kang kong greens or watercress. Students list plants, their preferred habitat and the adaptations these plants have developed to make them suited to their preferred location.

Assessment

- Does the student's written and illustrative work show an awareness that water is in living things, the earth and the air (as well as in tanks, ponds, streams and other immediately apparent locations)? Students do not learn the water cycle until later years; you just need to look for evidence that they understand that water exists in soil, in plants and animals, and in the air as water vapour, such as in clouds.

'Tears are only water, and flowers, trees, and fruit cannot grow without water. But there must be sunlight also. A wounded heart will heal in time.'

Brian Jacques, *Taggerung*