

Tools for Teachers 4

Stephanie Alexander Kitchen Garden Foundation





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Curriculum matrix

		YEAR 5	YEAR 6
SUBJECT	The Arts	Kitchen Garden Art (p 44): Art from different times and cultures, creating artworks; exploring materials	Kitchen Garden Art (p 44): Art from different times and cultures, creating artworks; exploring materials
	English	Writing Prompts (p 11): Plan, draft and publish imaginative, informative and persuasive texts (ACELY1704)	Writing Prompts (p 11): Plan, draft and publish imaginative, informative and persuasive texts (ACELY1714)
		Running a Restaurant (p 38): Plan, draft and publish imaginative, informative and persuasive texts (ACELY1704)	
		Designed to Dig (p 46): Plan, draft and publish imaginative, informative and persuasive texts (ACELY1704)	Designed to Dig (p 46): Plan, draft and publish imaginative, informative and persuasive texts (ACELY1714)
		A Good Egg (p 60): Spelling and meaning of words changes over time (ACELA1500), experiment with sound devices and imagery (ACELT1611)	A Good Egg (p 60): Words, sounds, imagery and language patterns in limericks and other text forms (ACELT1617)
	Health and Physical Education	A Good Egg (p 60): the influence of media on health choices	A Good Egg (p 60): the influence of media on health choices
	History	Seasonal Cycles and Australia's History (p 15): Daily life in colonial settlements in Australia (ACHHK094), points of view in past and present (ACHHS104), use a range of communication forms (ACHHS106)	
	Mathematics	Practical Numeracy (p 7): Addition and subtraction of fractions (ACMNA103), financial plans (ACMNA106), units of measurement (ACMMG108), perimeter and area (ACMMG109), grid references to describe locations (ACMMG113), collect data (ACMSP118), construct displays (ACMSP119), describe and interpret different data sets in context (ACMSP120)	Practical Numeracy (p 7): Positive and negative numbers (ACMNA124), addition and subtraction of fractions (ACMNA126), percentage discounts (ACMNA132), decimals in metric units (ACMMG135), prisms and pyramids (ACMMG140), compare observed frequencies to expected frequencies (ACMSP146)
		Seasonal Cycles and Australia's History (p 15): Interpret data sets in context (ACMSP120)	
		Running a Restaurant (p 38): Financial plans (ACMNA106), pose questions and collect data (ACMSP118)	
Habitats for Life (p 24): Living things have adaptations (ACSSU043)			
Science		Designed to Dig (p 46): Advances in science from people of diverse cultures and times (ACSHE099)	
		A Good Egg (p 60): The physical environment affects the growth and survival of living things (ACSSU094), reversible and irreversible changes to materials (ACSSU095), investigation methods (AC SIS103)	
Technologies	Running a Restaurant (p 38): Considerations in the design of products, services and environments	Running a Restaurant (p 38): Considerations in the design of products, services and environments	
		Designed to Dig (p 46): Design; compare Australian product, service or environment to one from Asia	
CROSS-CURRICULUM PRIORITIES	Aboriginal and Torres Strait Islander histories and cultures	Seasonal Cycles and Australia's History (p 15); Habitats for Life (p 24); Kitchen Garden Art (p 44); Designed to Dig (p 46); A Good Egg (p 60)	Kitchen Garden Art (p 44); Designed to Dig (p 46); A Good Egg (p 60)
	Asia and Australia's engagement with Asia	Habitats for Life (p 24); Kitchen Garden Art (p 44); Designed to Dig (p 46); A Good Egg (p 60)	Kitchen Garden Art (p 44); Designed to Dig (p 46); A Good Egg (p 60)
	Sustainability	Seasonal Cycles and Australia's History (p 15); Habitats for Life (p 24); Kitchen Garden Art (p 44); Designed to Dig (p 46); A Good Egg (p 60)	Kitchen Garden Art (p 44); Designed to Dig (p 46); A Good Egg (p 60)



Seasons and Cycles

Year level 5

Curriculum Links

History

- Identify points of view in the past and present (Yr 5, ACHHS104)
- Use a range of communication forms (oral, graphic, written) and digital technologies (Yr 5, ACHHS106)

Cross-Curriculum Priorities

- Aboriginal and Torres Strait Islander histories and cultures
- Sustainability

Resources

- A map of Australia, digital or paper based, showing latitude
- Copies of the proforma for a circular seasonal cycle (on page 18 or from the Shared Table Resource Library)

Location

The classroom or out of doors

Duration:
30–45 minutes

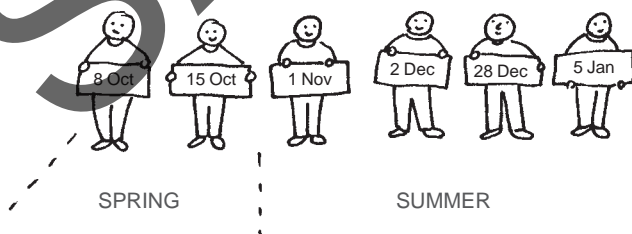
Seasonal line-up

- The European calendar divides the year into four seasons: spring, summer, autumn and winter. This convention was first established in Northern Europe.
- Ask students whether they think we always have four seasons here where we live. What's their experience?
- Get students to line themselves up along one wall of the classroom, or similar if outside, according to the season of their birthday. Begin with early spring at one end, then have the line progress through spring, late spring, summer, autumn and winter, ending at late winter. Don't mention months or dates or define precise points between seasons – if you're a bit ambiguous, students will be forced to work out a continuum for themselves.
- Give them 2–3 minutes to make a seasonal birthday line-up.
- Did students find this task difficult? Were there difficulties defining the seasons?
- The definitions of spring, summer, autumn and winter mean different things to different people.
- Discuss your thoughts about how dates and seasons can change from year to year with the weather.
- Encourage anyone in the line-up who wants to move, to move.
- If you have the space, get the students to walk their line into a circle to show how the seasonal cycle of the year repeats itself.

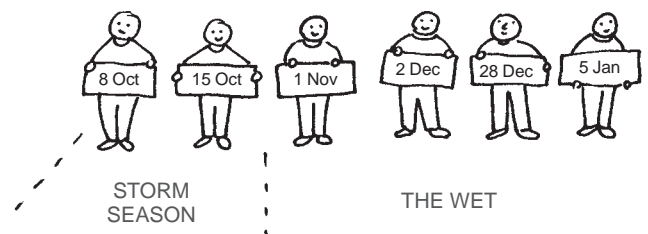
Seasons and latitude

- As a class, look at a map of Australia and compare the latitude of different places.
- Does summer come earlier the further north you go, or the further south? What else affects the seasons? (Proximity to water bodies, for example.)
- Ask: If we were in Darwin/Hobart/any place on the other side of Australia your students know of, would our birthday seasonal line-up look the same? (Use climate data if you need to.)

HOBART, TASMANIA:



DARWIN, NORTHERN TERRITORY:



- Discuss what changes occur when we compare our line-up to another latitude. If we were in the northern hemisphere, our line-up would run the opposite way.
- Discuss and ask questions until your students see that seasons are not absolute, they depend on your location and climate.

'It is spring again. The earth is like a child that knows poems by heart.'

Rainer Maria Rilke

Starting personal seasonal cycles

- Ask: what dictates the annual cycle? (The Earth's orbit around the Sun.) If you need to review this concept, review it now.
- Provide each student with a seasonal cycle template (a template is provided for you on page 18 or in the Shared Table Resource Library).
- Working individually, students plot key moments on their circular calendar, such as their birthday and those of friends, term dates and events of personal importance, such as summer holidays, Chinese New Year, *Eid-ul-fitr*, Christmas, key sporting events or seasonal fairs and shows.
- Students don't need to be too specific about plotting dates; this activity is about understanding seasons rather than recording specific days within months.
- They can use symbols, colour-coding, icons, stickers or dots, and create a legend.
- Ask students to tell you about seasonal changes in the natural world. Different schools will pose different questions: When do the termites appear? What time of year was it when we planted the broad beans? When do our chickens moult? When the winds come, what season is it? What about the rains? When do we worry about frost on fruit tree blossom?
- Probe and tell stories with students and others, such as the kitchen and garden volunteers and wider community, to facilitate students building a personal picture of their knowledge of seasonal cycles in nature.
- On their seasonal cycles, students add any of the observations, events or stories that have personal meaning to them, such as when certain bush foods are ready or when favourite foods come into season. An example is provided on page 20.
- Students could create a food dial around the outside of their cycle with names or images of the fruit and vegetables available in each season. The circular format emphasises the cycle of the seasons, which a rectilinear calendar can disguise.

Extension

- You might organise a collaboration at any point in this unit with a class in a different climate zone, such as another part of Australia. To find connections, try asking another Kitchen Garden School to partner with you via the Shared Table. Your exchange might take the form of a Skype call, or students in each class could take videos and post photos with questions for each other about the current season and footage of their gardens.



Designed to Dig

Year levels 5–7

Curriculum Links

Science

- Important contributions to the advancement of science have been made by people from a range of cultures (Yr 6, ACSHE099)

Technologies

- Compare the design and production of products, services and environments in Australia and a country in the Asia region
- Analyse and select appropriate materials, components, tools, equipment and processes to achieve intended designed solutions (Yrs 5–6, Draft Technologies document)

Cross-Curriculum Priorities

- Aboriginal and Torres Strait Islander histories and cultures
- Asia and Australia's engagement with Asia
- Sustainability

Resources

- A variety of garden tools including a hand fork and a full-size garden fork
- Books and images of ancient tools, such as stone hand axes, flint choppers, Medieval ploughs and traditional tools of local Indigenous cultures. Some resources are provided on page 59
- One copy per student of the Designed to Dig Comparison Chart on page 49

Location

The classroom or the garden

Duration:
45 minutes

Getting started

- Hold up one of the tools and ask a student to demonstrate how it is used in the garden. Have the student point out each part and explain what it does. This is a good time to go over vocabulary (handle, tines, blade etc.).
- Hold up a small hand fork and ask: Would this be good for digging out the grass in a paddock to make a new garden bed that will be 6 m by 10 m? Why or why not? What other tools might we use? (Garden fork, plough, rotary hoe, tractor, mattock etc.)
- Show the full-size garden fork. Would this be good to gently dig around a small herb in a pot 30 cm in diameter? Why or why not? What other tools might be used? (Trowel, cultivator, old spoon, our hands.)

Tools for tasks

- Discuss: Every tool is designed to solve a problem, or to make a task easier.
- We know that the purpose of the tool determines what the tool looks like: a big tool for a hefty job; a little tool for a delicate job.
- Ask what other tools students have used or seen in use. Capture all responses as a list (everything from dibbers to full-sized tractors) for use in this unit.

Tools for humans

- Ask students to look around the class: What are some things that all of you have in common? (Two hands, two legs, a range of heights and masses, some mobility differences but lots of similarities as well.)
- Discuss: If we travelled back in time by 500 years, would humans still look the same? What about 1000 or even 2000 years ago?
- Human biology is one of the things that remains consistent throughout history.
- Ask students to describe what it's like to dig in the soil. What's the difference between digging in a well-cultivated garden bed or a sandpit or the beach, and digging up grass to create a new garden bed? Which is easiest? Could we use something shaped like a cricket bat to dig with? What about something shaped like an egg? Why or why not? Get students to articulate what the tool needs to look like when we are digging in the soil.
- Discuss how hand axes from Stone Age societies were designed to fit securely and comfortably in a hand.
- Share some images with students of tools across time (see page 59).
- Introduce the Designed to Dig Comparison Chart on page 49. Students need to respond to this chart, finding similarities and differences. For example, all of them have a sharp point for digging, but they are very different in size. This means that you could lean on the handle of the Dutch hoe, or on the end of the digging stick if you needed your whole body weight to move something heavy, like a rock.

- Have students physically demonstrate the size of each tool so that they can see how a digging stick is a large item and a homi is relatively small. When we look at levers in later lessons, this will be a useful experience to refer back to.

Assessment



- Depending on your needs, students' responses can be:
 - a persuasive text or presentation piece explaining which tool will be most useful in their own garden
 - a short skit showing how these tools are used, explaining how the tool relates to human biology
 - a comparison table showing which characteristics are the same for the three tools, which are different, and what sort of tasks each tool is best suited to.

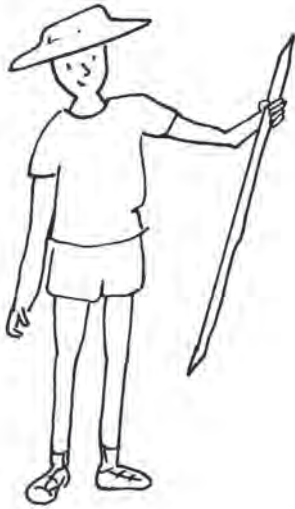
SAMPLE

ONLY



Designed to Dig Comparison Chart

Digging stick



A carved wooden digging stick with tapered points at each end, as used by some Indigenous cultures in Australia. Both ends of the stick can be used to scrape and dig in soil. It has been hardened, and its length allows it to be used to lever away rocks and to pry out roots such as yams. It can also be used to dig out or spear burrowing animals when hunting.

Materials: wood
Dimensions:
 Length: 970 mm
 Diameter: 81 mm

Korean homi cultivator



An ancient tool, the homi, or Korean hoe, is good for digging holes to transplant seedlings, heaping (hilling) soil around plants, and creating rows for planting seeds. It can be used for smoothing the soil over seeds after planting, moving soil and loosening it, and cutting through weeds.

Materials: wood, metal
Dimensions:
 Total length: 270 mm
 Head length: 170 mm

Dutch hoe



Designed for farm cultivation, the Dutch hoe is operated from a standing position. It is designed to be pushed or pulled through the soil, and its two sharp blade faces cut through weeds. It can also be used, on its side, to score a furrow (row) and heap soil back into the row after seeds have been planted.

Materials: wood, metal
Dimensions:
 Total length: 1500 mm

Challenge questions:

- 🍎 How would you hold each tool?
- 🍎 How much of your body would you use to operate each tool, and what is the main movement you would use (swinging, poking, twisting, scraping)?
- 🍎 Which tool would you use to dig a deep hole, big enough for a seedling tree? Why?
- 🍎 Which tool would you use to create a long shallow furrow for seeds? Why?
- 🍎 Which tool do you think could be used for the widest variety of tasks? Why?