

TEACHER GUIDE
Y2 MATHS

**Comparing Indigenous and
Western concepts of seasons, ordering
Western months and understanding
seasonal cycles**

Warning – Aboriginal and Torres Strait Islander teachers and students are advised that this curriculum resource may contain images, voices or names of deceased people.

YEAR 2 MATHS

Comparing Indigenous and Western concepts of seasons, ordering Western months and understanding seasonal cycles

Australian Curriculum Link

Maths/Year 2/Measurement and Geometry/Using units of measurement/[ACMMG040](#)

Australian Curriculum Content Description

ACMMG040: Name and order months and seasons.

Australian Curriculum Elaboration

ACMMG040: Investigating the seasons used by Aboriginal people, comparing them to those used in Western society and recognising the connection to weather patterns.

Essential question

How can we tell what season it is by both using an abstract instrument, such as a calendar, and by noticing the world around us?

Australians Together Learning Framework

Tells Australia's narrative through the lens of 5 Key Ideas that inform teachers and students about Aboriginal and Torres Strait Islander perspectives.



The Wound

Injustice from the impact of colonisation

Students will recognise the pain and disadvantage many First Nations people experience, that started at colonisation and continues today.



Our History

A past that shapes our story as a nation

Students will critically engage with Australia's stories and understand the impact our history continues to have on Aboriginal and Torres Strait Islander people and all who call Australia home.



Why Me?

What's it got to do with me?

Students will explore why Aboriginal and Torres Strait Islander histories and cultures are relevant to them today.



Our Cultures

Everyone has culture. Know about your culture and value the cultures of others

Students will learn more about their own culture and identity, and gain a better understanding of, and respect for, Aboriginal and Torres Strait Islander cultures.



My Response

Steps we can take to build a brighter future

Students will gain an understanding that a brighter future is possible for all Australians, but to get there we each need to play our part.

Glossary

Terms that may need to be introduced to students prior to teaching the resource:

abstract: theoretical or conceptual rather than physical or concrete.

Country: a place that First Nations Peoples belong to as well as a belief system. It's a relationship with all living things that are part of a landscape and includes everything within that landscape; rocks, trees, creeks, animals, plants, medicines, sacred sites, songs, stories, dance and art, as well as all people, ancestral spirits and community connections: past, present and future. Country sustains First Nations Peoples and must be cared for and respected by and for every generation that is and will be.

cycle: a series of events that regularly repeat and happen in the same order.

cyclical: happening as a collection of events that keep repeating in the same order or at a given time interval.

D'harawal (*also* Dharawal): the D'harawal Country and language area extends from the southern shores of Port Jackson (Sydney Harbour) to the northern shores of the Shoalhaven River, and from the eastern shores of the Wollondilly River system to the eastern seaboard.

eternal: lasting or existing forever; going on and on without ending.

First Nations people: Aboriginal and/or Torres Strait Islander people.


Nyoongar (*also* Noongar, Nyungar, Nyunga, Nyoongah): Country in the southwest of Australia, extending from Leeman in the northwest to further than Cape Arid in the southeast.

seasonal time: the cycle of time a season lasts, which depends on where in Australia (or the world) you live; a time period of 'medium length', as compared to the short length of a day.



Western: cultural and social norms associated with European countries or countries who have strong links to Europe through invasion, colonisation or immigration.

	Teacher guidance	Ideas for student activities
Introduction	<p><i>Before beginning the study, it's important to ask students to access their prior knowledge about the topic with an introductory question or activity.</i></p> <p>First Nations people have understood the changing seasons for thousands of years by using sophisticated methods for monitoring change, such as noticing when certain flowers bloom or when certain animals migrate.</p> <p>Using an abstract wall calendar to tell the seasons is removed from the reality of what is happening on Earth in terms of weather. Although abstract calendar months allocate seasonal transitions, in reality, dates of seasonal transition are defined by a change in actual weather, which is likely to be different in any given year. Indigenous cultures have less reliance on abstract representations and a stronger connection to Earth. For example, children in Western culture may know to find out the weather you look at a weather forecast on the television or a website. They may not think to go outside and <i>feel</i> the weather. There is something important that is gained by feeling weather – a more intrinsic, instinctive understanding of the Earth – and, particularly in the light of climate change, humans really need this intuitive connection.</p> <p>First Nations people in different regions of Australia define different seasons according to their local climate. If you don't know about your local seasons, the Bureau of Meteorology (BOM) website provides a useful starting point to compare Indigenous seasons across Australia (BOM 2016d). Using this resource, you can begin to teach students how to <i>feel</i> the seasons by going outside and noticing changes to the weather.</p>	<p>Class activity: introduction to Western and Indigenous seasons</p> <p>Ask students if they know what a season is, which ones they can name, and if they know what order the seasons go in. Ask students how they know which season it is on a given day.</p> <p>Taking input from the class, make a numbered list on the board of the 12 months and identify which Western season each month belongs to.</p> <p>As a class, read the book <i>Ernie Dances to the Didgeridoo</i>, by Alison Lester, and/or watch the BTN video: The Different Seasons in Australia's Indigenous Cultures (03:11).</p> <p>Then, using the BOM website on Indigenous weather for your local area (or as close as you can find), compare Indigenous seasons in your area to the Western seasons identified by students.</p>

	Teacher guidance	Ideas for student activities
	<p>In this unit students learn about Indigenous and Western seasons and the different ways of telling what season it is. Students learn how to sequence Western seasons throughout the calendar year and about the cyclical nature of seasons. In First Nations cultures, the cyclical nature of seasons is emphasised; seasons are not really viewed as sequential, because of how the passing of time is understood in Indigenous cultures. Specifically, time is viewed as cyclical, rather than sequential, where past, present and future are all intertwined aspects of the same reality; this concept is often described as 'everywhen' (Stanner 1979, p. 24).</p> <p>Learning about Indigenous seasons helps students understand that First Nations people have always had advanced scientific and mathematical knowledge. The knowledge Aboriginal and Torres Strait Islander people have about seasons is primarily scientific knowledge, but it is also underpinned by mathematics. For example, a person needs to be able to look at a number of factors, such as, which flowers are blooming, the behaviour of certain animals, and the coolness of the breeze, to deduce what season it is. The use of this deductive reasoning is a mathematical skill.</p> <p>The aims of this resource is for students to:</p> <ul style="list-style-type: none"> • Develop a deeper understanding of seasonal time, by learning about the context of seasons and stories about seasons. • Appreciate the importance of various methods of working out what season it is. • Recognise that Indigenous seasons define seasonal time in a more flexible way than Western seasons do; the change in season is marked by the progression of the natural environment and not a specific date. • Recognise the cyclical rather than sequential understanding of time that's present in First Nations' cultures. • Use mathematics in daily life and appreciate the vast scientific and mathematical knowledge held by First Nations people. <p>Students learn about Indigenous seasons to develop a broader understanding of seasonal time than what's offered by the Western calendar. This gives students an appreciation of Indigenous cultures and an awareness of how Country can be a calendar.</p> <p>Useful resources</p> <p><i>Ernie Dances to the Didgeridoo</i> by Alison Lester explores the seasons in Arnhem Land: https://alisonlester.com/products/ernie-dances-to-the-didgeridoo</p> <p>This Behind the News (BTN) video, <i>The Different Seasons in Australia's Indigenous Cultures</i>, provides an insight into the variety of seasons described by First Nations people from different areas of Australia (03:11): https://www.youtube.com/watch?v=vQVjCdq-2I</p> <p>This BOM website links to regional sites that show the different Indigenous seasons for different parts of Australia: http://www.bom.gov.au/iwk/index.shtml</p>	<p>Comment on how the Indigenous seasons are more flexible in length depending on the weather, whereas the Western seasons are rigidly set according to the calendar.</p> <p>Write on the board the Indigenous seasons for the land (Country) you are living on alongside the Western months and seasons so that students can see, for example, that in Kurna Country (Adelaide), summer in the Indigenous season goes roughly from January through to March, not December to February as dictated by the Western calendar.</p> <p>Class activity: singing a song about months and incorporating birthdays</p> <p>Use the song 'Singing the Months of the Year' (see p. 11) to help students learn the names of the Western months. The song incorporates repetition and a fun activity for students:</p> <ul style="list-style-type: none"> • The first time the song is sung, each child stands when the month of their birthday is called and remains standing. • The second time the song is sung, each child sits down when the month of their birthday is called and remains sitting. <p><i>Note:</i> to listen to the song, an online version (link in 'Useful resources') can be opened with free downloadable software, which will then play the song when the play button is selected.</p> <p>Months and seasons worksheet</p> <p>Use the 'Months and seasons worksheet' (see p. 12). With the list of months and seasons still on the board, ask students to name the four Western seasons in the order they occur in Australia (summer, autumn, winter, spring). Point out to students that month one – January – is actually the second month of summer, so on their worksheet, where summer will be the first season, summer will start with month 12 – December –</p>

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	<p>The song 'Singing the Months of the Year' (see p.11 for the music) is a fun way for students to learn the names and order of the Western months. An online version of the music has been created using an app. If you download the app and load the <i>Muse Score 3</i> file into the app, then the music will play for you:</p> <p>Download <i>Muse Score 3</i> software: https://musescore.org/en/download</p> <p>Open <i>Muse Score 3</i> file to play the music: Download file</p>	<p>followed by months one and two – January and February. You can choose for students to either write the names of the months on the worksheet or give students typed month names that they glue on.</p> <p>Ask students to draw a picture of an activity they would do in each season in the relevant season box. You may like to ask students to show you their worksheet after they have completed the first season.</p>
 <p>Our Cultures</p>	<p><i>Help students connect with and acknowledge the importance of culture and examine the living cultures of First Nations Peoples, which have adapted and survived since colonisation.</i></p> <p>Understanding seasons by looking at changes on Earth</p> <p>Indigenous cultures have always had an understanding of seasons, which aren't driven by an abstract wall calendar, but by Earth.</p> <p>Seasons are connected to the weather. Even though we have a calendar that tells us when the season changes, often Earth doesn't follow the calendar exactly – only roughly. We can notice when the season is changing by noticing the weather outside and noticing what the flowers and animals are doing.</p> <p>Here are some examples of changes on Earth; animals and weather that show us that the season is changing:</p> <ul style="list-style-type: none"> • In Western Australia, when the weather is still very warm but the nights change and get cooler, that's a sign that autumn has begun (BOM 2016b). • In South Australia, when you see yabbies come out of the mud, you know that it's summer. But when the ducks and water birds are making nests, you know that it's winter (BOM 2016c). • Near Sydney, when the lily pilli fruits start to fall off the trees, it's a sign that the weather is soon going to get colder. When the koalas start to fight and make a lot of noise, that's a sign that really hot weather is coming. <p>Sociology lecturer Mike Donaldson explains how time and seasons have been marked by First Nations people for thousands of years:</p> <p>Time could be and was counted by sleeps, moons, phases of the moon and by seasons. Seasons were marked by religious ceremony, by temperature, winds and weather; by the appearance and disappearance of particular people and groups of people; the arrival of certain blossoms, plants, insects, birds, fish, animals, each according to their locality. Was the return of the peewee birds the harbinger of the wet season's end, was it the end of the wet season which brought the birds, or was it the journey of the appropriate people to the place of the lily roots, which prompted one or the other or both?</p>	<p>Knowing signs of seasonal change: 3D tree</p> <p>Use the BOM website to find out about the Indigenous seasons in your local area.</p> <p>Use the 'Simple tree template' provided (see p.13) to create 'tree pictures' that show all of the Indigenous seasons in your area. Instead of four trees for four seasons, use the number of trees that corresponds to the number of Indigenous seasons in your local area. Have students write the Indigenous name of the season on the tree, and then draw or glue in a picture that represents a typical marker of that season.</p> <p>For example, in the Sydney area, the flowering of the weetjellan (<i>acacia implexa</i> – hickory wattle) marks the burran season (the hot season from January to March each year), so students could draw a picture of weetjellan flowering, or glue in a picture you've printed for them.</p> <p>Once the students have decorated the trees, fold the pictures in half vertically, and glue them together – modelling the pictures provided in the 'Simple tree template'.</p> <p>Students have now created an Indigenous weather calendar for their local area.</p>

	Teacher guidance	Ideas for student activities
	<p>[First Nations people] continuously created the cycle of time. Through ceremonies in which they re-created the events of their origin, they rejuvenated life – growth, depletion and renewal – through ritual activity. (Donaldson 1996, p. 193)</p> <p>The RAMR cycle – connecting the idea of seasons and real-life weather change</p> <p>The RAMR (reality, abstraction, mathematics and reflection) cycle describes a way of doing mathematics that's grounded in everyday life. Mathematical ideas are created as a way of explaining real-life experience. Those mathematical ideas are then critically reflected on to see if they help explain reality, or not. If they help explain reality, they are kept; if not, they are discarded.</p> <p>The RAMR cycle involves four steps:</p> <ul style="list-style-type: none"> • <i>Reality</i> – what are you trying to explain? • <i>Abstraction</i> – how can you write down symbols that explain your reality? • <i>Mathematics</i> – how would you write those symbols in mathematics? • <i>Reflection</i> – does the mathematics you've developed work? Does it explain what's going on in your reality? <p>For many thousands of years First Nations people have used the RAMR cycle for developing mathematics by abstracting from reality and then reflecting on that abstraction. You can apply this model to develop mathematics and to describe aspects of everyday life. With respect to seasons, in Indigenous cultures, the model (abstraction) for describing seasons is a continually evolving product of reflection on reality, rather than a fixed calendar. When students reflect on whether a calendar accurately describes seasonal length, they are reflecting on whether seasons actually encompass real-life, and so are participating in the RAMR cycle.</p> <p>Useful resources</p> <p>In this video, Professor Tom Cooper explains the RAMR (reality, abstraction, mathematics, reflection) cycle and why it's important to teach mathematics in a way that allows mathematics knowledge to develop out of real-life experience (08:43): https://www.youtube.com/watch?v=9FAntCEMyjQ</p> <p>Chris Matthews writes about the importance of understanding the relevance of cultures to mathematics education: https://www.theguardian.com/commentisfree/2015/aug/28/forty-thousand-years-of-indigenous-maths-can-get-kids-into-numbers-today</p>	<p>Class activity: tracking the weather</p> <p>As a class, track the weather over a period of at least two weeks or, if you can, for as long as a month. If possible, do this activity near a change in season.</p> <p>Each day, look outside and describe the weather; for example, is it sunny, cloudy, foggy and/or rainy? Is it hot or cold? Estimate the temperature in degrees Celsius by feeling what the weather's like. After the class has estimated, look up the temperature and compare the class estimation to the BOM maximum. Over the course of this activity, ask students:</p> <p>Does the weather you're observing match the Western season you're in?</p> <p>Class activity: a seasonal timetable</p> <p>Applying the RAMR cycle</p> <p>Discuss together as a class:</p> <p>If you could change the school timetable based on seasons, what would that look like? For example, would you want shorter days in some seasons and longer days in other seasons? Would you want more of some activities (e.g. PE) in certain seasons?</p> <p>Think about the RAMR cycle as you have this conversation with students. The <i>reality</i> you are working with (step 1 of RAMR) is scheduling school activities. These activities are often written down in a calendar (the calendar is the <i>abstraction</i>, step 2, that explains the reality); in this case, the <i>mathematical</i> symbols (step 3) are simply things like the numbers used to write down times and dates in the scheduling, and how to interpret those symbols when used in the context of date and time. The <i>reflection</i> bit (step 4) is where the students are thinking over whether the abstraction that has been developed (their timetable) meets their needs, or whether it should change.</p>

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 <p>Our History</p>	<p><i>There are many stories that make up Australia's history. It's important to use resources that include perspectives and voices of First Nations people, such as those contained in this resource.</i></p> <p>The first mathematicians</p> <p>We may not think of understanding seasons as being mathematical. But it takes complex mathematical knowledge to observe patterns, calculate seasonal time and predict seasons and weather.</p> <p>First Nations people were the first mathematicians in Australia. Going back many thousands of years, Aboriginal and Torres Strait Islander people have had a detailed understanding of complex mathematical concepts including those in relation to daily or short time, medium or seasonal time, and long or eternal time, for example:</p> <ul style="list-style-type: none"> • Daily time being measured by "daybreak, sunrise, morning, afternoon, late afternoon, sunset, evening and night" (Donaldson 1996, p. 193). • The relationship between moon cycles and tidal times being used to determine appropriate fishing times (The University of Melbourne n. d.). • The position of stars in the sky being used to determine seasons and appropriate times to carry out particular activities, such as, hunting particular animals or harvesting particular foods (Quach 2017; BOM 2016a, 2016b). • The blossoming of certain flowers marking the beginning or end of a season (BOM 2016a, 2016b). • Slow and subtle variability in the brightness of three huge, red stars in the sky – Betelgeuse, Aldebaran and Antares – being used to describe 'long time'. First Nations people worked out that Betelgeuse varies faster than Aldebaran (Betelgeuse varies by an order of magnitude about every 400 days) and used this fact in measuring time (Hamacher 2020). <p>This kind of knowledge continues to be an important part of cultural identity for many First Nations people.</p>	<p>Class activity: identifying seasons using the garden</p> <p>As a class, work out how to find out which plants you plant in which seasons in your local area. Find at least one or two plants that are planted in each season. For example, in Adelaide, tomatoes are planted in the spring. Are more plants planted in some seasons compared to others? Why? Is it enough just to know the season on the calendar in order to plant your garden? For example, if the calendar says it's spring but there's still frost on the ground, it's likely still too early to plant tomatoes.</p> <p>School activity: a school garden</p> <p>Does your school have a school garden? If so, use your research from the 'Identifying seasons using the garden' activity about when to plant certain plants to drive the planting of the school garden.</p> <p>Tend to the plants over time and record in which seasons you harvest particular plants.</p> <p>Encourage students to notice what works well around their timing of planting and harvesting, and when things don't work so well. Invite students to reflect on what might work better next time.</p>
 <p>The Wound</p>	<p><i>The story of our nation's past is hard to face but it's important; it's left a wound that can be seen in the inequality between Aboriginal and Torres Strait Islander people and non-Indigenous Australians. Help students understand how this wound continues to have an impact today.</i></p> <p>Why some Indigenous knowledge about seasons has been lost</p> <p>Indigenous weather and seasons knowledge is important for all Australians. It helps us understand and notice what's happening in the environment around us. This awareness of environmental changes is essential in order to live sustainably and address climate change.</p> <p>Unfortunately, some Indigenous knowledge of the weather, seasons and environment has been lost over the last 250 years. This is because since Europeans arrived in Australia in 1788 many Aboriginal and Torres Strait Islander people have been separated from Country and family, and forced to live and learn Western ways and in Western schools. Today, we recognise the importance of Indigenous knowledge and there are many people and institutions that are working hard to record this information.</p>	<p>Class discussion</p> <p>Let students consider and discuss why it might be valuable in Australia to explore Indigenous knowledge about seasons as well as Western.</p>



Why Me?

Teacher guidance

Help students understand that because they call Australia home this relates to them. Explore what's happening, or has happened, around your local area that's relevant to this topic.

How do you use knowledge about the seasons in your everyday life?

It's easy to just plan our lives around the calendar without thinking about whether this is working well for us. For example, does it make sense to wear short sleeves because the calendar has ticked over to 1 September, which indicates it's officially spring? If you plant tomatoes just because the calendar says it's spring, the tomatoes may well not survive; because if it's still cold enough for frost, as evidenced by frost on your car windscreen in the morning or the coldness of the morning ground when you walk on it barefoot, then it's too cold to plant tomatoes.

In Aboriginal and Torres Strait Islander cultures, time is cyclical, rather than sequential. The cycles that govern plant and animal life undergird seasonal cycles; rather than moving forward or backwards in time, time constantly cycles through seasons – seasons of weather and seasons of life (Morphy 1999). And time is flexible and shifts according to people's needs and what's happening on Earth. Time isn't rigid; for example, in Gariwerd seasons, *kooyang* (late summer) is depicted by a collection of natural markers including baby animals and mistletoe, as well as catching eels (BOM 2016a). *Gwagal moronn* (the autumn season), is depicted by "insects, pink heath and being at home in the wuurn" (an Indigenous dwelling that's permanent and can withstand seasonal changes in the weather) (BOM 2016a). So, changes in season are inherently flexible because they are governed by changes on Earth.

Understanding seasons in this way, and understanding changes to the natural environment, is becoming increasingly important for all Australians, as the necessity of addressing climate change becomes increasingly pressing.

This article explains how animal behaviours are central to seasonal definition in Aboriginal and Torres Strait Islander cultures: <https://theconversation.com/explainer-the-seasonal-calendars-of-indigenous-australia-88471>

Ideas for student activities

Class, small group or individual activity: tracking the price of fruits or vegetables

Choose at least one fruit or vegetable that's grown locally and where you've previously noticed a significant change in its price as it comes into season. Give students homework to monitor the price of this fruit or vegetable, by asking their parents how much that item costs at the moment at the shops, or by looking it up on an online supermarket site each day or every couple of days for a month or so.

Discuss how the significant drop in price indicates the fruit is coming into season. You could also bring in the fruit or vegetable for students to taste before it's in season, and then bring in some for them to taste when it's in season. The fruit or vegetable may taste much nicer, particularly some fruit may taste much sweeter, when it's in season.


As an extension activity, you may like to look into 'food miles' and discuss how the environmental cost of food that travels from a long way away is much higher than when we eat locally grown food.

Individual activity: seasonal foods

Provide each student with an outline of a table with four columns labelled:

- Fruit/vegetable name.
- Picture.
- Cost in-season.
- Cost out-of-season.

Ask each student to choose two or three of their favourite fruits or vegetables and write down their names and do a drawing of each of them. Ask students to take their table home and ask their parents roughly how much their favourite fruits/vegetables usually cost when in-season and when out-of-season and write this number down.

	Teacher guidance	Ideas for student activities
		<p>Compare and discuss the results when students bring their tables back to school.</p> <p>Class activity: identifying seasons using animal behaviours</p> <p>Create a template for students consisting of a circle divided into pie pieces, one piece for each Indigenous season in your local area (use the BOM website to find the seasons). You could print the name of each season on the relevant pie piece, or you could ask students to write it.</p> <p>Work with students to identify animal behaviours that characterise each season. For example, in Nyoongar Country (southern Western Australia), the <i>kambarang</i> (wildflower) season is the most likely time to see snakes, because they've woken up from hibernation and are looking for food.</p> <p>Once you've identified an animal behaviour to associate with each season, ask students to draw in their circle, in the right season, a picture depicting the animal concerned, or a picture depicting the animal behaviour identified.</p>
 <p>My Response</p>	<p><i>Help students critically and creatively process and demonstrate their learning on this topic by exploring meaningful ways to respond. Ask students to come up with their own ideas about what they can do.</i></p> <p>The value of understanding seasons in the context of Indigenous cultures</p> <p>Exploring seasons in the context of Indigenous cultures helps build understanding and respect. There are many ways to continue this journey including:</p> <ul style="list-style-type: none"> • Displaying Indigenous seasons alongside Western seasons in the classroom, and encouraging students to notice the weather, as well as features on Earth like flowers and animal behaviour, as part of working out which season it is on a particular day. • Displaying both Western and local Indigenous seasons on a circular wheel (i.e. see 'Making a class calendar' activity) at the front of the classroom, and referring to it throughout the year. • Inviting a First Nations person to come to the class to discuss the notion of cyclical time and how that shapes worldview. We suggest you ask a local Indigenous-led organisation. Be mindful of remunerating people appropriately for sharing their time and experiences. • Visiting a local museum or art gallery to continue to learn about Indigenous cultures, with a particular focus on seasons; for example, a museum might show the kinds of food harvested in different seasons, or in an art gallery, some paintings might depict cultural representations of seasons. 	<p>Class activity: making a class calendar</p> <p>Use the information on the BOM website to create a circle-shaped calendar of the Indigenous seasons in your local area. For each season, draw a picture that's indicative of the weather during that season, and a picture that relates to animals or plants that also indicates the season. The calendar should also include the Western months. Examples of such calendars are shown in the 'Useful resources' section.</p> <p>To prepare for this activity, cut out inner and outer circles on firm paper or light cardboard, and then use a pin-tack to attach the circles at their centres. That way an inner circle, showing, say, the Western months, can move independently of the outer circle, showing Indigenous seasons.</p>

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	<p>Useful resources</p> <p>The BOM has a table comparing seasons in the Miriwoong, Nyoongar and D’harawal Countries. Scroll down to the section entitled <i>Indigenous seasonal descriptions</i>: http://www.bom.gov.au/iwk/culture.shtml</p> <p>This diagram of the seasonal cycle shows the Noongar seasons: https://www.noongarculture.org.au/food/</p>	<p>This means that over the school year, the class can move the Western seasonal marker separately from the Indigenous one, to reflect the flexibility in the Indigenous seasons; the way they change according to the weather and other signs in nature, rather than changing on a particular day.</p> <p>Students can be involved by:</p> <ul style="list-style-type: none"> • Writing the names of months and seasons in an agreed spot on the calendar. • Drawing pictures or finding pictures to glue in that are representative of particular seasons. <p>Individual summative worksheet: ordering of Western months and identifying seasons</p> <p>Give each student a copy of the ‘Summative worksheet – the cycle of months and seasons’ (see p.15). Ask students to:</p> <ul style="list-style-type: none"> • Cut out the names of the 12 Western months and the 4 Western seasons. • Identify which month comes first in the Western calendar and glue in the months in order around the circle. • Identify which season corresponds to each month and glue into place. • In each section, draw one picture of either weather, an animal or a plant to represent that season. <p>Class activity: beyond your own backyard</p> <p>Explore as a class how First Nations people in different areas of Australia have different seasons, according to the regional weather in their area. Choose at least two or three areas and compare the seasons across those different areas.</p>

	Teacher guidance	
Other resources	K Lippincott & National Maritime Museum (eds) 1999, <i>The Story of Time</i> , Merrell Holberton, London, https://catalogue.nla.gov.au/Record/530604	
References	<p>Bureau of Meteorology (BOM) 2016a, <i>Indigenous Weather Knowledge: Gariwerd calendar</i>, viewed 19 November 2020, http://www.bom.gov.au/iwk/calendars/gariwerd.shtml</p> <p>Bureau of Meteorology (BOM) 2016b, <i>Indigenous Weather Knowledge: Nyoongar calendar</i>, viewed 19 November 2020, http://www.bom.gov.au/iwk/calendars/nyoongar.shtml</p> <p>Bureau of Meteorology (BOM) 2016c, <i>Indigenous Weather Knowledge: Kurna calendar</i>, http://www.bom.gov.au/iwk/calendars/kurna.shtml</p> <p>Bureau of Meteorology (BOM) 2016d, <i>Indigenous Weather Knowledge: language, culture and environmental knowledge</i>, http://www.bom.gov.au/iwk/culture.shtml</p> <p>Donaldson, M 1996, 'The end of time? Aboriginal temporality and the British invasion of Australia', <i>Time and Society</i>, vol. 5, no. 2, pp. 187–207, viewed 18 November 2020, https://ro.uow.edu.au/artspapers/150. Used with permission. © Mike Donaldson 1996</p> <p>Hamacher, D 2020, <i>The Stars</i>, Australian Indigenous Astronomy, viewed 9 December 2020, http://www.aboriginalastronomy.com.au/content/topics/stars/</p> <p>Morphy, H 1999, 'Australian Aboriginal concepts of time', in K Lippincott & National Maritime Museum (eds), <i>The Story of Time</i>, Merrell Holberton & National Maritime Museum, London.</p> <p>Quach, M 2017, <i>Aboriginal Astronomy: navigating seasons by the stars</i>, The University of Melbourne, viewed 10 December 2020, https://blogs.unimelb.edu.au/sciencecommunication/2017/09/21/aboriginal-astronomy-navigating-seasons-by-the-stars/</p> <p>Stanner, WEH 1979, <i>White Man Got no Dreaming: essays 1938–1973</i>, Australian National University, Canberra, p. 24, viewed 7 August 2020, https://openresearch-repository.anu.edu.au/bitstream/1885/114726/2/b12269815.pdf</p> <p>The University of Melbourne n. d., <i>Mathematics, Moon Phases, and Tides</i>, viewed 10 December 2020, https://indigenousknowledge.unimelb.edu.au/curriculum/resources/mathematics-moon-phases-and-tides</p>	

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'Singing the Months of the Year'

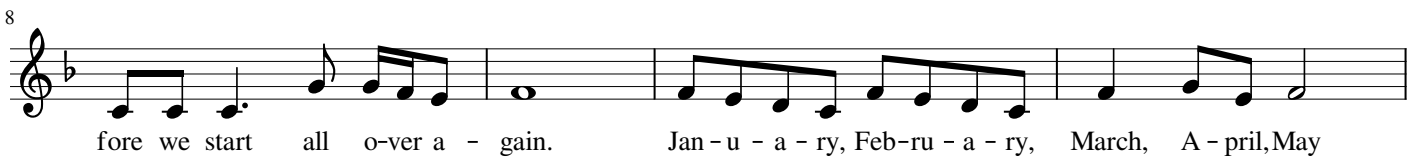
Anonymous



Jan - u - a - ry, Feb - ru - a - ry March, A - pril, May, June, Ju - ly,



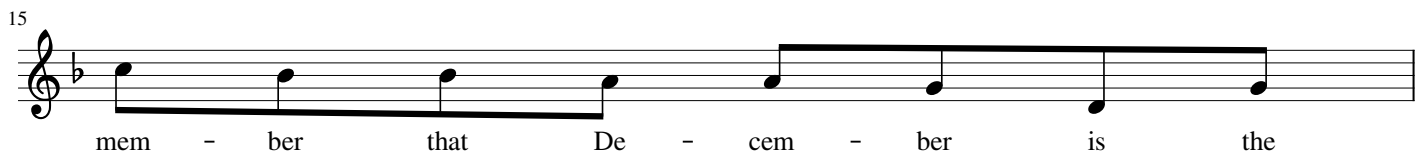
4 Au-gust and Sep-tem-ber, Oc - to-ber and No-vem-ber, re - mem-ber that De-cem-ber is the end be -



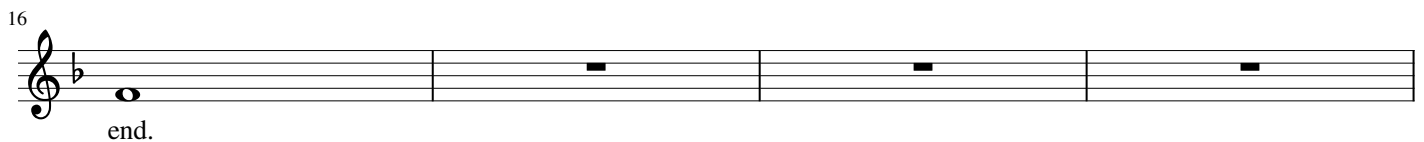
8 fore we start all o-ver a - gain. Jan-u - a - ry, Feb-ru - a - ry, March, A - pril, May



12 June, Ju - ly, Au - gust and Sep - tem - ber, Oct - o - ber and No - vem - ber, re -



15 mem - ber that De - cem - ber is the



16 end.



20



24



28

Transcribed by T Winn 2020

Months and seasons worksheet

Season

Season

Month number

Month name

Month number

Month name

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Season

Season

Month number

Month name

Month number

Month name

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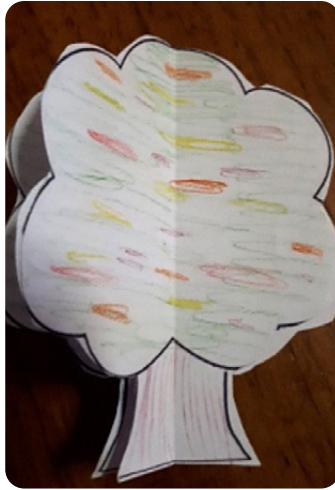
Simple tree template

Find the most relevant Indigenous seasonal information for your location from the [BOM website](#) to decorate the sides of your trees with the markers of the local seasons. This example was made for six seasons using the European names. These images show what a deciduous tree might look like cycling through the European seasons:

Mid-summer



Early autumn



Late autumn



Mid-winter



Early spring

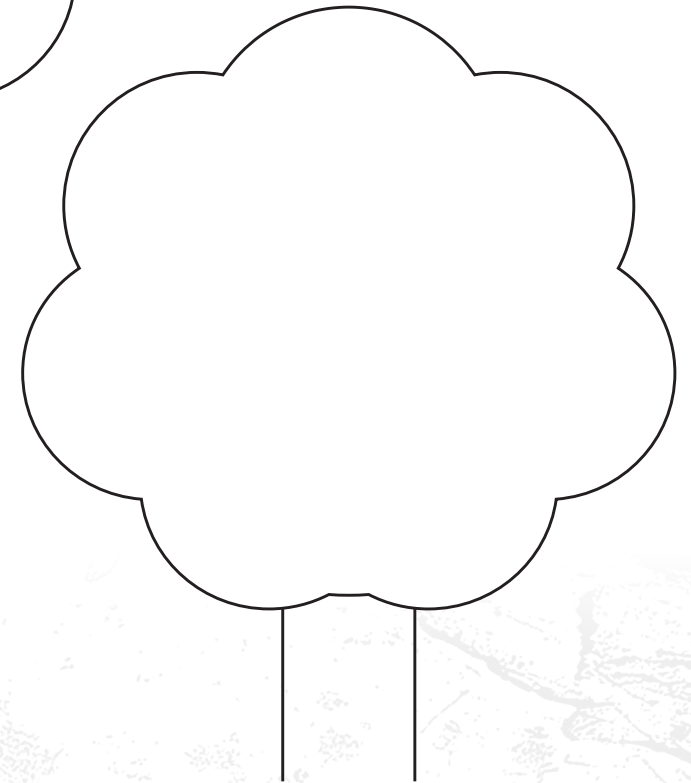
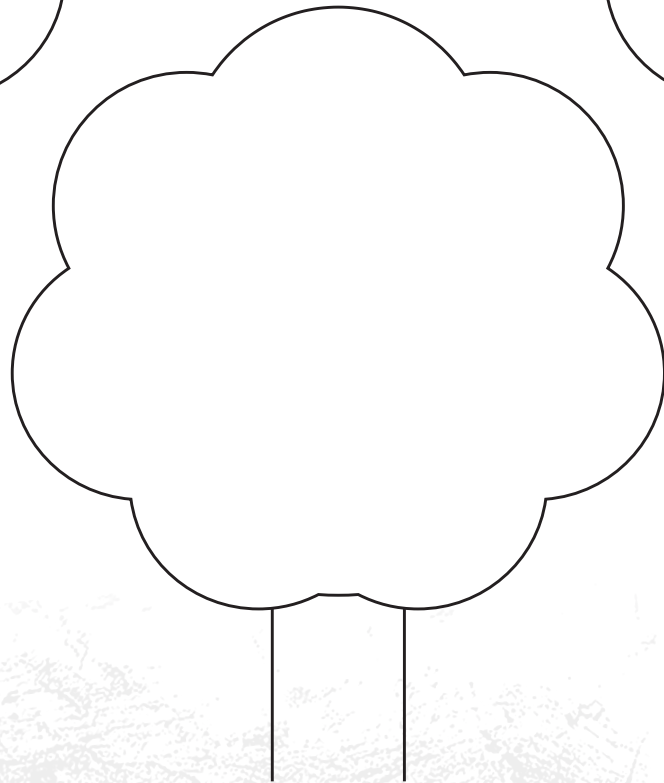
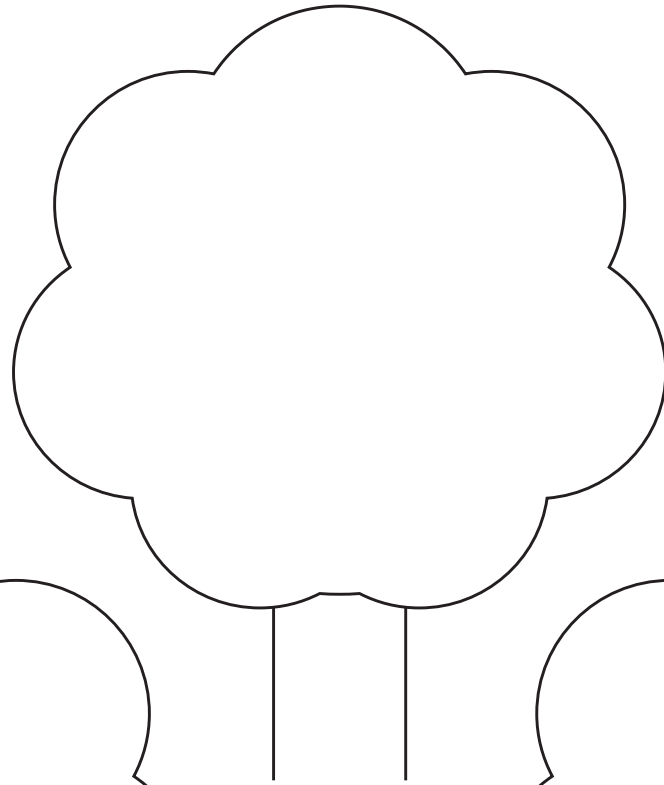
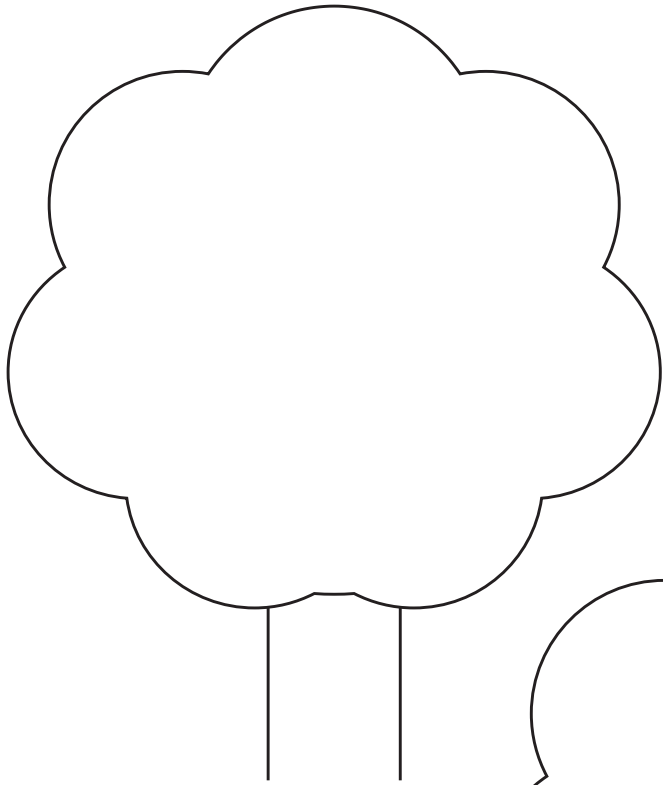


Late spring



The finished tree will look like this:





Summative worksheet – the cycle of months and seasons



February	October	March
June	December	January
September	May	November
July	August	April
Summer	Spring	Autumn
Winter		