



**EARLY YEARS  
(AGES 3–5)**

# Astronomy

## EDUCATOR RESOURCE

Created in collaboration with First Nations cultural advisers

Aligned with the Early Years Learning Framework v2.0

Written by teachers for teachers

AUSTRALIANS  
TOGETHER

**Warning:** This resource may contain images, voices and names of deceased persons, and references to language or events that may be considered culturally sensitive, offensive or outdated.

**Language note:** It's important to consider the historical context and evolving nature of language when viewing the information in this resource. While it may not be our preferred language, Australians Together at times uses or includes terms necessary for context, due to the educational nature of our content.



## Essential question

What can we learn from Sky Country?



### Before teaching

#### Embedding First Nations perspectives

Accessing sources from First Nations perspectives, which contain information from First Nations people about histories and cultures, is the best way to embed this learning for your students. If you're concerned about trying to teach First Nations cultures, an important step to avoid this, is to identify who the information comes from that you'd like to share. Look for sources created *by* First Nations people or in collaboration or consultation with First Nations people, and published with their permission. This could be in written, video or audio formats. Make the most of the opportunity to point out reliability identifiers to students, such as who created or contributed to the source material. Recognising sources is also useful for showing students that what they learn always has a source, and they should be assessing their own sources all the time.

And remember the rich diversity of First Nations cultures and Peoples – one First Nations perspective doesn't equal all First Nations perspectives.

#### Indigenous astronomy

Aboriginal and Torres Strait Islander Peoples have a strong connection to the land, sky, sea and waterways, which are interconnected and integral to First Nations cultures. This reciprocal relationship allows First Nations People to use the night sky to guide navigation of Country, seas and waterways; predict weather patterns; and understand the seasonal behaviour of plants and animals. The night sky informs **lore** and other cultural practices, such as art, navigation, hunting and food collection, ceremony and **songlines**. This knowledge of the night sky has been passed down through stories, song and dance, and provides First Nations people with a sophisticated and deep understanding of the sky and landscape formed over thousands of years (Tucak 2024).

Indigenous astronomy knowledge is a living, active part of the lives of many First Nations people. By learning about these deep knowledges from diverse First Nations Peoples, all Australians can better value the richness of Aboriginal and Torres Strait Islander astronomical knowledge.

First Nations people's observations of the night sky, and use of the knowledge gained, predates that of Greek and Egyptian observers, who many believe to be the founders of astronomy. One of the most notable differences from Indigenous astronomy is the way First Nations Peoples recorded, documented and communicated discoveries, knowledge and understandings. Unlike Western science methods, Aboriginal and Torres Strait Islander people recorded and passed on observations and knowledges of the night sky through oral and creative traditions – song, dance, stories and art. In this way, many Aboriginal and Torres Strait Islander Peoples developed comprehensive knowledge and understandings of the solar system and its celestial bodies – the sun and moon, and planets visible to the eye.

## Emu in the Sky

The *Emu in the Sky* is a significant story of the night sky in many First Nations Peoples' cultures, and acts as a guide in physical, spiritual and cultural connections to Country. The changing positions of this shape across the seasons has been used by many Aboriginal and Torres Strait Islander Peoples across Country for thousands of years to guide their collection of emu eggs (NMA n.d.).

Gamilaraay (also Gamilaroi and Kamilaroi) People of what's now north-western New South Wales and south-western Queensland refer to this feature of the night sky as 'Gawarrgay', the Celestial Emu (Noon and Mateo n.d.). This story and knowledge has been passed down for thousands of years and tells Kamilaroi people "about the changing seasons, the animal's behaviour and when to hold ceremony" (Hamacher et al 2020, para. 8).

The same constellation is relevant to First Nations Peoples across the continent and named in each language, for instance 'Gugurmin' (the Great Celestial Emu) in Wiradjuri language on Country that's now central New South Wales (Banks 2018).

## Using local First Nations language/s

In this resource you're encouraged to use local Indigenous language for the seasons, flora and fauna in your area. Be mindful that language is and should be protected as Indigenous Cultural and Intellectual Property (ICIP), so be sure to connect with and consult local language custodians and work according to local cultural principles and protocols.

There are also some online resources that can be used. The '[Gambay Languages Map](#)' is a good place to start, especially if you're unsure what language is spoken on your Country, and the [50 Words Project](#), which is working to record 50 words in First Nations languages across the continent, to highlight the diversity of language and as a language-learning resource for schools and the public.

For localised information about languages and protocol try the following websites:

Australian Capital Territory and New South Wales	' <a href="#">AECG regions</a> ', NSW Aboriginal Education Consultative Group Inc. (AECG) ' <a href="#">Ngunnawal language revival project</a> ', AIATSIS
Northern Territory	<a href="#">Guidelines for the Implementation of Indigenous Languages and Cultures Programs in Schools</a> , Northern Territory Government
Queensland and Torres Strait Islands	<a href="#">Indigenous Cultural and Intellectual Property Protocol for the teaching of Aboriginal languages and Torres Strait Islander languages in Queensland State Schools</a> , Queensland Department of Education
South Australia	<a href="#">Kurna Warra</a> , University of Adelaide
Tasmania	<a href="#">Policy and Protocol for Use of palawa kani Aboriginal Language, 2019</a> , Tasmanian Aboriginal Centre
Victoria	' <a href="#">Teaching Aboriginal and Torres Strait Islander culture</a> ', Victorian Department of Education
Western Australia	' <a href="#">Aboriginal Languages and Torres Strait Islander Languages Framework: guiding principles</a> ', School Curriculum and Standards Authority, Government of Western Australia  ' <a href="#">Protocols</a> ', Kaartdijin Noongar – Noongar Knowledge, Sharing Noongar Culture website, South West Aboriginal Land & Sea Council

## Recommended reading

The following resources may be helpful in your own professional development or to help further guide your students in this learning:

- Corey Tutt's award-winning book [The First Scientists: deadly inventions and innovations from Australia's First Peoples](#) is an illustrated science book for primary-aged students and includes a chapter on astronomy, with illustrations by Blak Douglas.
- Larry Brandy's book [Wiradjuri Country](#), for middle to upper primary students, takes readers on a journey through Wiradjuri Country, including the sky world.
- Karlie Noon and Krystal De Napoli's book [First Knowledges Astronomy: Sky Country](#) provides introductory information about "Aboriginal knowledge of the night skies and its connection to Country" (Thames & Hudson 2025, para. 1).
- The [Aboriginal Astronomy website](#) provides information about Australian Indigenous astronomy, including videos, articles and resources. It also details the history of how First Nations Peoples of this continent use knowledge of the night sky to monitor time, and inform how and when to travel and hunt.
- The ABC Science article '[Indigenous song Twinkling Stars tells science of the seasons](#)' explains that Meriam People of Mer (Murray Island) in the Torres Strait have a song that passes on knowledge about predicting weather by observing the stars.

## Glossary

**lore:** the learning and transmission of customs, traditions, kinship and heritage. Lore is the knowledge of First Nations Peoples and is transmitted by oral tradition from generation to generation. Much lore is told through Dreaming stories.

**songlines:** a series of songs that map a path across the land or sky marking the route followed by ancestral spirits; a way to remember information about place, ceremony, laws and customs.

## Activity materials

You'll need:

- a copy of *Bubbay's Desert Adventure* by Josie Wowolla Boyle and Fern Martins
- a device with internet connection to present online content
- painting materials and equipment for a shooting star artwork
- a copy of *Sky Country* by Aunty Patsy Cameron and Lisa Kennedy
- a large, long piece of paper for the Milky Way artwork
- brown craft paper and oil pastels/crayons
- a copy of *Brother Moon* by Maree McCarthy Yoelu and Samantha Campbell
- a set of 'Moon phases cards'
- a 'Moon journal' for each child – A5 or A6 black cardboard stapled or held together with rings
- black cardboard and star stickers and/or other art materials for a constellation artwork.

## Activities



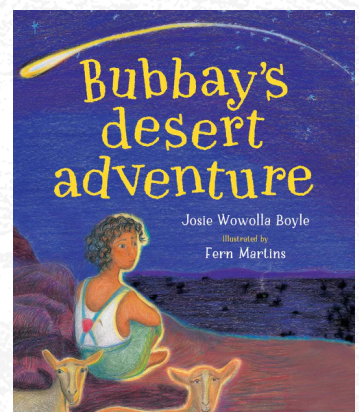
### Shooting stars

#### Read *Bubbay's Desert Adventure*

Before reading the picture book, look at the front cover together and ask the children what they think the book is going to be about. Perhaps point out the shooting star on the cover, especially if you've already been doing some learning in the classroom about astronomy.

Share the picture book [Bubbay's Desert Adventure](#) with the group then, after reading, ask the children:

- Have you ever seen a shooting star before? Or wished on one?
- Do you have any questions or are you wondering about anything after reading the book?





### Discuss: what land is around us?

*Bubbay's Desert Adventure* is set in a desert, somewhere where it's often easier to see the features of the night sky.

Talk with the children about what the land's like around the preschool or their homes, asking questions such as:

- Is it desert Country too?
- Or perhaps salt water or freshwater Country?
- Or the city – Country with lots of buildings on top?

Help them to understand that no matter where we are, no matter what the land looks like, we're always on a First Nations Country.

You may also like to discuss the ways the land around you is similar to or different from Bubbay's desert.



### Research: what Country are we on?

Use the AIATSIS [Map of Indigenous Australia](#) to look for the Country or Countries that the preschool/site is located on, identifying it by name; for example, "Our preschool is on Kurna Country".

The author of *Bubbay's Desert Adventure*, Josie Wowolla Boyle is a [Wangkatha](#) woman from Western Australia. Find Josie's Country on the AIATSIS Map and talk about why she may have been inspired to write a story set in the desert.

Note: Wangkatha (or Wangkathaa) Country is in the south-east part of what's now Western Australia.



### Words from the sky

Use the resources in the 'Before teaching' section to find some local First Nations words related to the sky, such as sun, moon, emu, star, sky or any others relevant to the topic.

These words could be written on card and illustrated by the children for display in the classroom.



### Paint a shooting star artwork

Children create a painted artwork featuring a shooting star, based on the lands around your school, such as river Country, sea Country, bush Country or city Country.

You may like to go for a nature walk outside, before the children paint their pictures, so they can observe the features of the land, such as hills and mountains, and also any flora and fauna.

Ensure children's artworks aren't recreating Josie's illustrations, but that they instead come up with their own painted artwork/image.

### Activity resources

For more information on cultural appropriation, read the 2020 article from Community Early Learning Australia (CELA), [What is Cultural Appropriation and How Do We Avoid It](#) (914 words, 3-minute read).



### The Milky Way

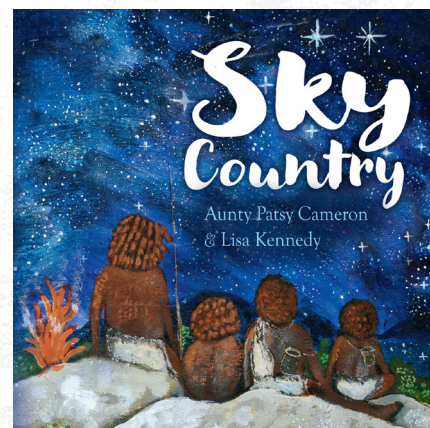
#### Read *Sky Country*

Share the picture book [Sky Country](#), by Aunty Patsy Cameron and Lisa Kennedy, with the children. After reading discuss as a group:

- What did you notice in the book?
- Was there anything new you saw or learnt?

Look through the book for a second time, this time looking more closely at the illustrations by Lisa Kennedy. Ask the children:

- How does the illustrator draw the night sky?
- Where did you see stars that you didn't expect to (e.g. throughout the Country on page 9)?
- Why do you think the stars were there?



Then watch this timelapse video of the night sky, [The Moving Stars of the Southern Hemisphere](#), with children and ask them to compare what they saw in the video, to the illustrations in the book.

Discuss with students what else they think could be added to the book's pictures, from what they saw in the video.

You may like to record the students' thoughts and ideas to use in the 'Collaborative Milky Way artwork' activity.



### Find out about animals of the night

In the back of the picture book *Sky Country* there's a game titled 'Did you spot these creatures?'. Spend some time with the children playing the game together, where they find the different animals shown on the pages throughout the book; for example, platypus, whale, echidna, wombat and kangaroo.

As you find each of the animals in the book, you could also ask children to do some actions for the animal, such as a wombat shuffling around on the ground, or a kangaroo jumping.

Discuss with children that many of these animals are nocturnal, and ask if they know what 'nocturnal' means.

Do some research together to find some examples of nocturnal animals that may live in the areas around the school. You may like to print out some photos of the animals to use in the next activity.



### Collaborate: Milky Way artwork

Work together as a group with a large, long piece of paper to create the night sky and Milky Way. You may like to paint the background together first, then come back when it's dry to add the details.

Using brown craft paper and oil pastels/crayons, children then draw an A4 picture of one of the nocturnal animals from your area.

When finished, cut out the nocturnal animals and add them to the night sky artwork. Then put the finished artwork up on display in the classroom.

As an extension to the activity you may also like to find some of the local First Nations names for the animals and include these on your artwork as well.



### Listen: Nocturnal Worlds relaxation

During relaxation time, ask students to find a space to lie down in the classroom, away from others, and close their eyes.

Play an episode from the '[Nocturnal Worlds](#)' podcast from the Australian Museum. Each episode is approximately 25 minutes and "lulls listeners into a state of awe and relaxation, effortlessly blending conservation with storytelling, magical realism with factual information". (Australian Museum 2025, para. 9)

After listening, ask the children how they're feeling and to share one thing they learnt from the episode.



### Constellations

#### Discuss: what's a constellation?

Discuss as a group what a 'constellation' is. Ask the children if they know the names of any constellations or have seen any themselves.

Share the [video](#) with children, which shows some of the constellations visible in the Southern Hemisphere. The video is accompanied by calm and relaxing music, so you may like to turn off the lights in the classroom and ask children to lie down on the floor while they're watching it. Explain that the lines aren't visible in the sky, but the bright stars are.

After watching the video, ask students about the shapes and images they saw in the constellations, and why they may not have seen some of these constellations in the night sky before (too much light pollution, cloudy sky, etc.).



#### Play: constellation provocations

Set up some play provocations in the classroom for the children to access and interact with. For example:

- Use a sharp pencil to poke holes in black cardboard, then hold these up to a window.
- Recreate the constellations on the constellation cards by:
  - drawing with chalk on a blackboard
  - sticking star stickers for the placement of the stars and drawing the connecting lines
  - making holes for the star placements and having children use wool to thread the connecting lines.

- Create constellations using loose parts such as glass pebbles, matchsticks, beads or pipe-cleaners etc.
- Draw constellations in sand or rice.
- Draw constellations with white crayons or candles then paint over the top with watercolour paint.
- Use a Geoboard and rubber bands to create constellations.



### Watch *Emu in the Sky*

The following videos both describe the Emu in the Sky constellation and the ways First Nations people use the constellation's position in the sky to understand Country.

Before watching, ask the children what they know about the sun, moon and stars.

As a group watch '[The Emu Constellation Adventure](#)' *Play School* video (07:02) from ABC Kids featuring [Wiradjuri](#) astrophysicist Dr Kirsten Banks.

After watching, ask the children:

- Had you heard the Emu in the Sky story before? What do you know about it?
- How does the Emu in the Sky help First Nations people? What information does it give?
- What do you think might happen if First Nations people couldn't see the Emu in the Sky?

Then watch '[Through Our Eyes – Dhinawan 'Emu' In The Sky](#)' (02:23) featuring [Kamilaroi](#) man Ben Flick, where the constellation is outlined for a clearer view.

After watching, ask the children if there was anything more they learnt about this constellation.



### Act out the Emu

Discuss with the children which month you're in now and so what position the Emu may be in the night sky.

For example in [Kamilaroi](#) and [Euahlayi](#) traditions:

- April and May – the Emu is seen as a female running across the sky
- June and July – the Emu is seen as male sitting on a nest of eggs
- August and September – the eggs begin to hatch, and the male Emu is seen getting up from the nest
- October and November – the Emu is seen to be sitting in waterholes

As you share this information, you could act out what the Emu would be doing at each time of the year, and ask the children to copy you; for example, sitting on a nest of eggs or running across the room.



### Watch Tagai

Watch the [video](#) from the Art Gallery of NSW showing [Meriam](#) artist Gail Mabo talking about her artwork 'Under the Stars' (04:07). In the video, Aunty Gail shares why the constellation of Tagai is so important to Torres Strait Islander Peoples.

After watching, you may like to share Tagai's story from the article '[A shark in the stars: astronomy and culture in the Torres Strait](#)'. 'Tagai's story' (221 words) is about halfway down the article, and tells the tale of Tagai as a fisherman, who now forms the constellation of Tagai in the islands of the Torres Strait. There's further information in the final section, 'Tagai today' (221 words).



### Read local constellation stories

To hear Dreaming stories about the night sky, that may be local to your area, access these websites:

- [Kullilla Art](#)
- [Deadly Story](#)
- [The Conversation](#)
- [Cosmos](#) magazine.

Due to the limited resources online about night sky Dreaming stories, it's not always possible to find a story that's connected to the Country your school's located on. But you may be able to find one for a Country that's nearby. The aim of this activity is to broaden students' understandings of how First Nations people communicate their knowledges about the night sky, and that the stories are heard, rather than focusing on where the story comes from.

If your school has a relationship with a local First Nations Elder or community member you may also like to invite them in to visit your school and tell a story about the constellations.

Encourage students to reflect on the stories they found or heard by discussing:

- How are the patterns in the night sky shared in this story?
- What does this story teach us about patterns in the night sky?

## The Moon

### Read *Brother Moon*

Share the picture book *Brother Moon*, by Maree McCarthy Yoelu, and illustrated by Samantha Campbell, with children. After reading ask:

- Why does Great-Grandpa Liman call the moon his brother?
- How does the moon help him?

Show the children the double-page spread in the middle of the book that shows the phases of the moon. Ask the children if they've seen the moon looking like this illustration.

### Watch, think, wonder: Phases of the moon

Remind the children of the *Play School* video watched in an earlier activity. In the video Kirsten Banks demonstrated how the shadows on the Earth cause night and day. Discuss with children that the same happens to the moon when the Earth blocks its view.

Share with children the Free School [Phases of the Moon](#) video (05:41) and then do a collaborative '[See, Think, Wonder](#)' response by asking students what they saw in the video, what the video made them think about and what they're wondering after watching the video. You could draw a large, three-columned table and write the students' ideas and responses in it during the discussion.

### Play a moon movement game

Place the enlarged 'Moon phases cards' on the floor around the room, ensuring there's plenty of space for children to move around safely. This game could also be played outside.

Call out one of the moon phases and have students move to the card that matches on the floor.

You could have children taking one turn at a time or moving in small groups to minimise the risks of any injuries when moving around the room.

You may like to make connections to seasons on local Country and/or language as part of the game.

### Draw your moon journal

Create individual moon journals for the children using pieces of A5 or A6 black cardboard stapled or held together with rings. Encourage children and their parents to venture outside after dark for a few nights and to draw what they observe – this doesn't need to be limited to just the moon, but could also include their observations of trees, buildings or the weather in the sky.

As the moon journals are brought back into the classroom, give children an opportunity to share what they observed and then put the journals in a shared reading area.

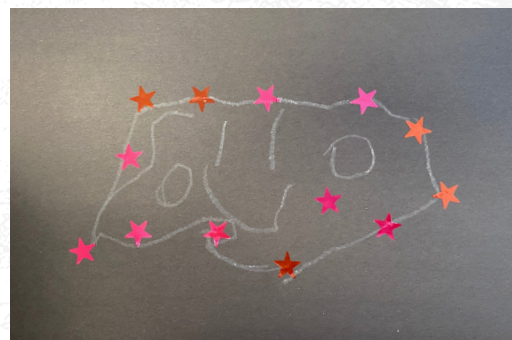
## Sharing our learning

### Create a constellation

Ask children to reflect on the stories and aspects of the night sky that have been explored throughout their learning. You may like to run a show and tell, of the books they've read and the children's work so far, to remind them what they've done.

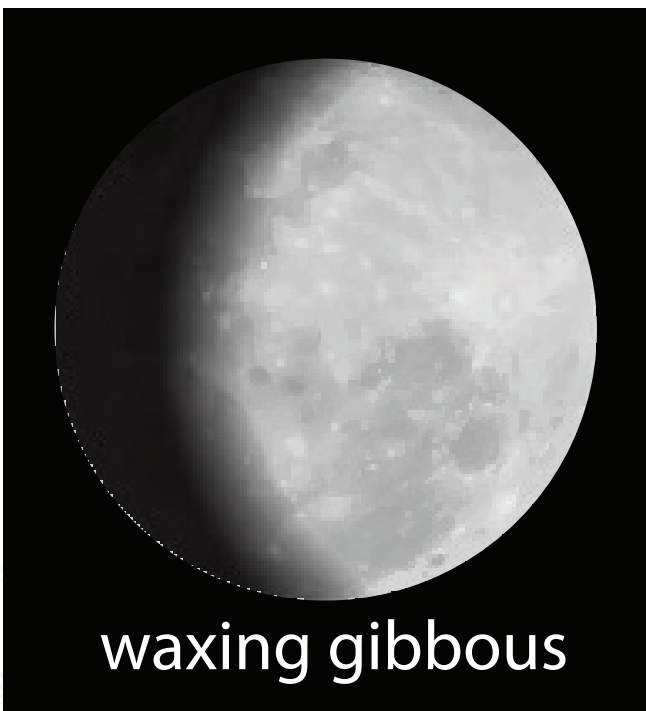
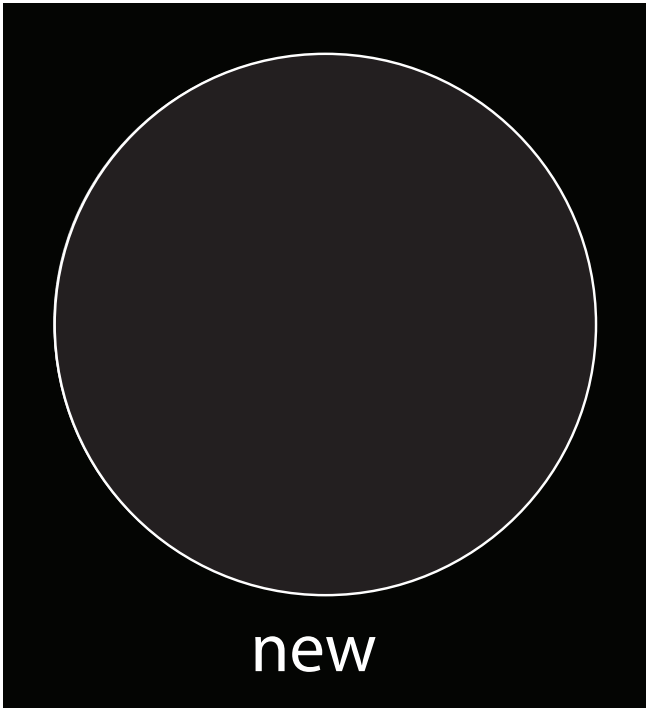
Then the children spend some time creating their own constellation using art materials and naming it.

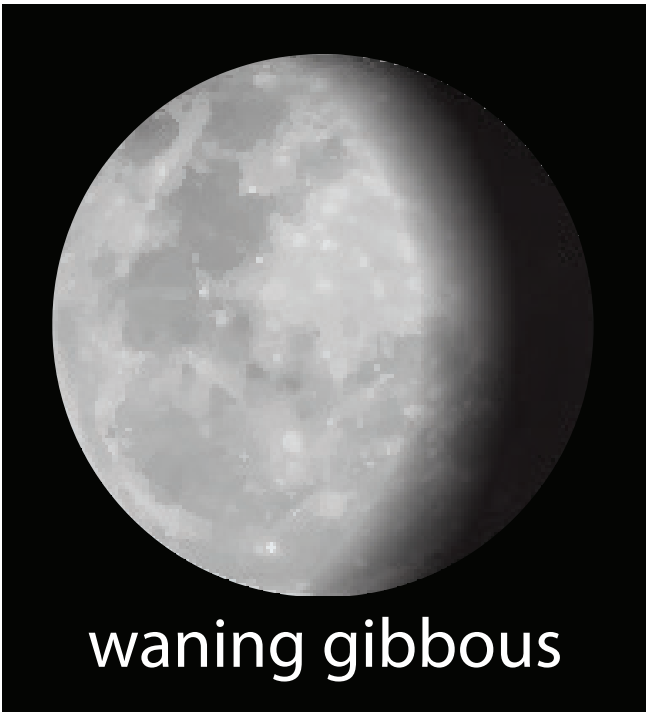
When finished, these constellations can be added to the Milky Way collaborative artwork as a way of sharing students' learning with parents and the wider community.



## Moon phases cards

Photocopy these cards (enlarge to A4) for students to use in the moon phases movement game.







# Astronomy

## EARLY YEARS (AGES 3–5)

### Australians Together Learning Framework™

Our resources follow a framework of 5 Key Ideas that are designed to shape a new narrative for all Australians. Each Key Idea underpins the content and activities in its section to take students on a transformational learning journey. You can download the framework from our [Curriculum Resources page](#).



#### **The Wound**

Injustice from the impact of colonisation



#### **Our History**

A past that shapes our story as a nation



#### **Why Me?**

What's it got to do with me?



#### **Our Cultures**

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



#### **My Response**

Steps we can take to build a brighter future

### Alignment to the Early Years Learning Framework (EYLF v2.0)

#### **Learning Outcome 1: Children have a strong sense of identity**

- 1.1 Children feel safe, secure, supported
- 1.2 Children develop their emerging autonomy, inter-dependence, resilience and agency
- 1.4 Children learn to interact in relation to others with care, empathy and respect

#### **Learning Outcome 2: Children are connected with and contribute to their world**

- 2.1 Children develop a sense of connectedness to groups and communities and an understanding of their reciprocal rights and responsibilities as active and informed citizens
- 2.2 Children respond to diversity with respect
- 2.4 Children become socially responsible and show respect for the environment

#### **Learning Outcome 3: Children have a strong sense of wellbeing**

- 3.2 Children become strong in their physical learning and mental wellbeing
- 3.3 Children are aware of and develop strategies to support their own mental and physical health and personal safety

#### **Learning Outcome 4: Children are confident and involved learners**

- 4.1 Children develop a growth mindset and learning dispositions such as curiosity, cooperation, confidence, creativity, commitment, enthusiasm, persistence, imagination and reflexivity
- 4.2 Children develop a range of learning and thinking skills and processes such as problem solving, inquiry, experimentation, hypothesising, researching and investigating
- 4.4 Children resource their own learning through connecting with people, place, technologies and natural and processed materials

## Learning Outcome 5: Children are effective communicators

5.1 Children interact verbally and non-verbally with others for a range of purposes

5.2 Children engage with a range of texts and gain meaning from these texts

5.3 Children express ideas and make meaning using a range of media

---

## References

Australian Museum (2025) *Nocturnal Worlds podcast*, Australian Museum website, accessed 2 June 2025.

Hamacher D, Anderson MG, Towney S, Fuller R and Leaman T (28 May 2020) '*Coins and constellations*', *Pursuit*, The University of Melbourne website, accessed 2 June 2025.

NMA (National Museum of Australia) (n.d.) *Endeavour voyage: Sky stories*, NMA website, accessed 2 June 2025.

Noon K and Mateo B (n.d.) *Celestial Emu*, The Powerhouse Museum website, accessed 2 June 2025.

Thames & Hudson (2025) *First Knowledges Astronomy*, Thames & Hudson website, accessed 2 June 2025.

Tucak P (2024) '*Indigenous astronomy: How the sky informs cultural practices*', SBS Australia website, accessed 2 June 2025.

## Image acknowledgments

Cover image: Peter Bergmeier (2017) *Night sky over Kalkarindji*, © Concilia. Reproduced with permission.

*Clearly Milky Way*, coloursinmylife/Shutterstock.com

Josie Wowolla Boyle and Fern Martins (2020) *Bubbay's desert adventure* [book cover], Magabala Books website. Reproduced with permission.

Aunty Patsy Cameron and Lisa Kennedy (2024) *Sky Country* [book cover], Magabala Books website. Reproduced with permission.

My Preschool Place (2022) *Constellation Space Art* [photograph], My Preschool Place website. Reproduced with permission.

*Moon phases*, BlueRingMedia/Shutterstock.com

---

First published in 2025 by Concilia Ltd trading as Australians Together, Adelaide, South Australia.

© Concilia Ltd trading as Australians Together 2025.

Australians Together consents to the reproduction and transmission of these curriculum resources for educational purposes on the following terms and conditions <https://australianstogether.org.au/product-terms-of-use/>. All rights in and to the curriculum resources are otherwise reserved by Australians Together.

Australians Together acknowledges the third parties who have granted permission for their copyright materials to be used in these curriculum resources. Copyright holders are listed in the specific locations in which their copyright works appear in the curriculum resources and while every effort has been made to locate, contact and obtain approval from third-party copyright owners to reproduce their copyright works, any omissions or errors are entirely unintentional. Any person or organisation who believes that their copyright work has been reproduced without the appropriate permission or due credit are asked to contact the publisher: [contact@australianstogether.org.au](mailto:contact@australianstogether.org.au)

Images © individual contributors as noted.

All web addresses were live at the time of publication.

For the Early Years Learning Framework (ELYF v2.0) information: © Australian Government Department of Education 2022, unless otherwise indicated. The ELYF material was downloaded (accessed 3 October 2024) and was not modified. The material is licensed under CC BY 4.0 DEED (<https://creativecommons.org/licenses/by/4.0>).