



Looking Up — the Sky and Solar System! Year 2 Science at Home

You can help! You don't need to know anything about space to help with this. Just go outside together and look up — your child will do the science!

Why are we learning this? The sky above our Country

Up here in remote northern Australia, we have some of the clearest night skies in the world — no city lights means you can see thousands of stars. First Nations Australians have been reading the stars for tens of thousands of years, using them to navigate, to mark the seasons, and to know when certain foods are ready to find. The Southern Cross has guided people across Country for generations. When your child looks up and asks questions about the sky, they are connecting to one of the oldest and most important sciences on Earth.

My child will learn to:

✓ What is the solar system?

Know that the Sun is a star at the centre of our solar system, and that 8 planets travel around it.

✓ Where is Earth?

Understand that Earth is the third planet from the Sun — just the right distance for liquid water and life.

✓ Sky patterns — day

Describe how the Sun appears to move across the sky from east to west, and explain that this is caused by Earth spinning.

✓ Sky patterns — night

Identify the Moon and stars in the night sky and describe how they change over time.

Big ideas to know:

The Solar System

The Sun is a giant star at the centre of our solar system. Eight planets travel around the Sun in oval paths called orbits. In order from the Sun: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Earth is the third planet — just the right distance from the Sun for liquid water and life!

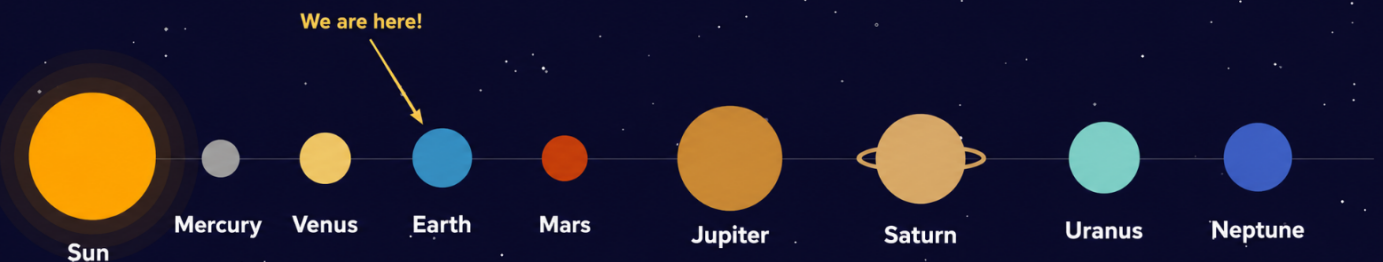
Celestial objects

Anything we can see in the sky is called a celestial object. Stars are giant balls of burning gas far away — the Sun is our closest star. The Moon is a rocky ball that orbits Earth. Planets orbit the Sun — they do not make their own light, but reflect the Sun's light. That is why planets look steady (no twinkle) but stars twinkle!

Patterns in the sky

The Sun rises every morning in the east and sets in the west — because Earth is spinning. The Moon slowly changes shape (moon phases) over about 4 weeks — from a thin crescent to a full moon and back. First Nations peoples used these patterns to track seasons and plan activities for thousands of years.

Our Solar System



The Sun is a star. The 8 planets travel around the Sun in paths called orbits.



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Celestial objects — patterns and facts

Object	What to look for	Pattern or fun fact
The Sun	Rises in the EAST each morning, moves across the sky, sets in the WEST each evening.	NEVER look directly at the Sun! Earth spinning causes sunrise and sunset — the Sun does not actually move.
The Moon	Changes shape slowly over about 4 weeks — crescent, half, full moon, and back to crescent.	These shapes are moon phases — the Moon does not change size, just the lit part we can see from Earth.
Stars	Visible at night because the Sun's light hides them in the daytime. Same patterns appear every year.	The Southern Cross is visible from up here — used by First Nations and European sailors for navigation!
Planets	Venus, Jupiter and Mars can sometimes be seen — they look like very bright, steady stars.	Planets reflect the Sun's light; stars make their own. That is why planets do not twinkle like stars.

Think Like a Scientist — Sun Tracker

For 3 days in a row, go outside at the SAME time morning and afternoon. Look at your shadow — where does it point? Draw a sketch each day. Compare your drawings — what do you notice?

Ask: "Is the Sun in the same place as yesterday? Does your shadow point the same direction in the morning as the afternoon?" You are discovering the daily pattern of the Sun — just as ancient astronomers did!

You will need: (Materials)

- Paper and pencil or crayons (for daily sketches)
- Simple diary or notebook
- Phone or camera (optional — for photos)
- Outdoor space with a clear view of the sky

Steps to track the Sun:

1. Pick a regular time — e.g. 7am and 4pm each day
2. Stand in the same spot outside each day
3. Look at your shadow — which direction does it point?
4. Draw a simple sketch of the Sun's position in the sky
5. Compare your 3 days of drawings — what stays the same?

Questions to ask your child

1. Can you show me where the Sun is right now? Where will it be this afternoon?
 2. What shape is the Moon tonight? Can you draw it for me?
 3. How many planets are in our solar system? Can you name them?
 4. Is the Sun a planet or a star? How do you know?
 5. Why can we not see stars in the daytime?
 6. Why do we say the Sun "rises in the east"? Is the Sun actually moving?
 7. What is the difference between a planet and a star?
- Keep a "moon diary" with your child — every evening for a month, draw the shape of the Moon. By the end of the month your child will have discovered the lunar cycle by themselves — that is real science done at home, the same way people have observed the Moon for tens of thousands of years!*

Key words to know:

Solar system	The Sun and all the objects that orbit it — including 8 planets, moons, asteroids and comets
Planet	A large object that orbits the Sun — does not make its own light but reflects the Sun's light
Star	A giant ball of hot gas that makes its own light — the Sun is our closest star
Moon phases	The changing shapes of the Moon we see over about 4 weeks — caused by the Moon's orbit around Earth
Orbit	The path an object takes as it travels around another object — planets orbit the Sun
Celestial object	Any natural object in the sky — the Sun, Moon, stars and planets are all celestial objects
Constellation	A named pattern of stars in the sky — the Southern Cross is a famous southern constellation

Key words to look up

Solar system · Planet · Star · Moon phases · Orbit · Celestial object · Constellation

What school will check

By the end of Year 2, your child needs to describe observable features and patterns of celestial objects, and explain how Earth and Moon move relative to the Sun to cause daily and monthly patterns.

Try it at home!

On a clear night, find the Southern Cross together — 4 bright stars in a cross shape, with 2 pointer stars nearby. Aboriginal astronomers used this for navigation and seasonal knowledge. Look up the traditional name and stories for the Southern Cross from your local language group!