

# Summer stargazing FOR KIDS

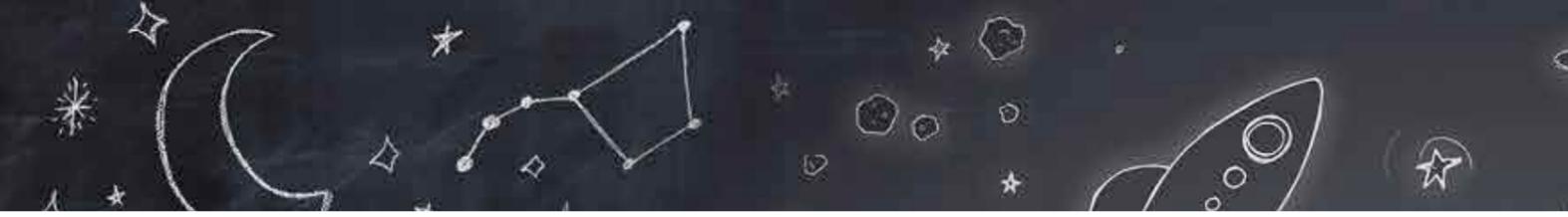
**Ruth Perkins** takes a look at some of the best ways to introduce kids to the rewarding hobby of astronomy

**S**targazing with children is a joy if you tackle it in the right way. Here is our quick guide to making the most of it now school's out for summer. It's never too early to start exploring the night sky. Try a mix of activities and don't worry if things don't go the way you planned.

Let your child lead the way and listen to their questions. Never be afraid to answer with "I don't know, but that's a brilliant question. Let's look it up together." If they're struggling, prompt their interest by asking them about what they can see, or what they already know. Build on their curiosity, but don't overwhelm them with too much information.

Everyone learns better through play, so have fun! ▶

Bright ideas: you'll be surprised what facts you discover when you answer the questions raised by children about the night sky



the red glow from Mars? Have they seen the Moon during the day?

Try asking them how you might measure the change in the apparent shape of the Moon over time. They could take a picture or draw the Moon with glow in-the-dark paint once a week.

A verse of Twinkle Twinkle Little Star leads nicely into a discussion about why planets don't twinkle as much. The stars, being much further away and pinpoints of light, appear to flicker because of the way their light is affected by our atmosphere. The planets, which are much closer and reflect the light from the Sun, aren't affected as much.

## Choose the right equipment

Having the right accessories makes a big difference. Help kids get used to handling a rotating star map as soon as they are able to. A red head torch can reassure children if they are nervous of the dark, and take a laser pointer to help them point at the sky but make sure they know it's dangerous to point it at anyone. Astronomy apps are useful and are an appealing tool for some children.

Binoculars are the best choice for most beginner stargazers, and kids will get more general use out of them. Look for lightweight models and check the smallest eye width setting fits them. Get them into the habit of always using the neck strap.

A refractor telescope is a good. It is low maintenance and is easy to use. Try borrowing or renting a telescope before you buy. Is there a local astronomy group that would welcome you all?

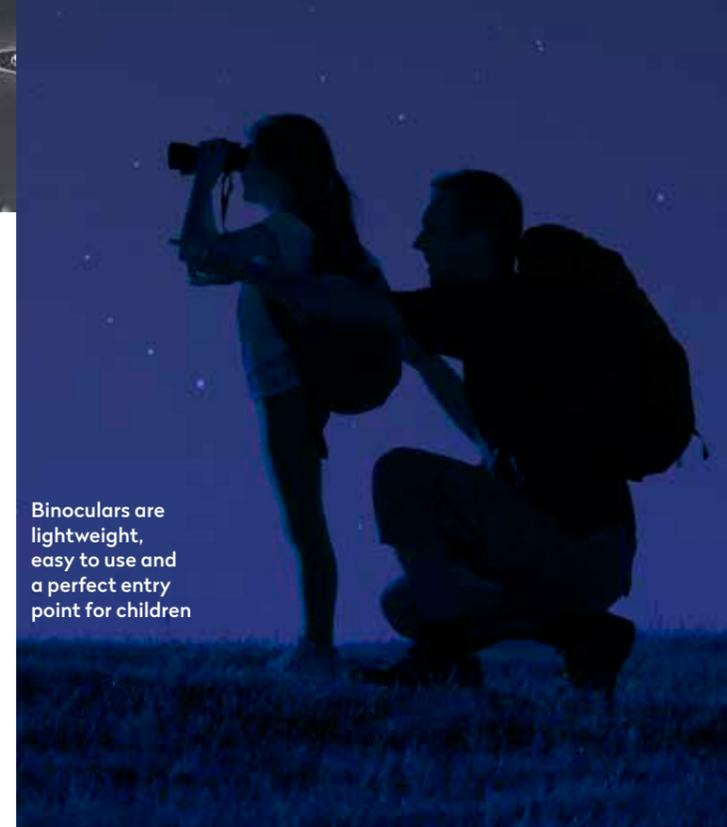
▲ Laser pointers can be great observational aids, just make sure they are used responsibly

▼ Exercises such as painting the lunar crescent can help children to understand the lunar cycle

## Think about the practicalities

The first consideration should be to get comfortable. Try bringing a mat to lie on or camping chairs, then allow time to adjust to the dark. What can they see; are there any patterns? Encourage your young stargazer to practise looking with one eye. Ask if they would like you to help cover one eye with a hand, or bring a toy eye patch just in case. They could use a 'dark sky tube' by rolling up a piece of black card into a cylinder big enough to fit over their eye. It'll also help to combat inner city light pollution.

Have a step stool for them if you are observing with a telescope. Let them move the scope to find something bright in the sky, then show them how



Binoculars are lightweight, easy to use and a perfect entry point for children



Teach kids about an eclipse with a tennis ball and a torch

the picture they see changes with just a little nudge of a hand. Explain that it's best not to touch the equipment once it's pointing at a particular object. If you hold a child's hand while they're at the eyepiece it will help stop them grabbing at the eyepiece as well as giving them stability. Have patience and take time to enjoy this special experience.



**Ruth Perkins** BSc is a STEM Communicator for science made simple in Manchester.

visible and avoid trying to observe the fainter planets during the brightness of a full Moon.

## Find a good place to observe

Start your observations in a familiar place such as a back garden or local park. Once they're comfortable with that, start venturing further afield. Streetlights affect night vision so get as far away from them as possible. There are now 12 International Dark Sky Places across the UK and Ireland. Seek out one of these wonderful areas for the best night skies protected from light pollution. But if you can't get out that far remember it's still possible to see the Moon, some planets, and the brightest stars from a city if it's a clear night. Get out there and have some fun! 🌌

## Consider the time of year

Remember to bring layers when you are venturing outside, as it can be cold at night even in summer. Bug spray, snacks and drinks are all recommended. Keep an eye on the weather and have a back-up plan should clouds appear or rain sets in. Check when Mercury, Venus, Mars, Jupiter, and Saturn will be

## Teach them what they're looking at

If you can't get outside you can use a tennis ball and a torch to demonstrate the phases of the Moon or an eclipse. Hold the torch and explain you represent the Sun. Ask them to hold the tennis ball above their heads and look at the shape of the shadow on the ball as they turn slowly on the spot. Another activity, which shows scale, involves a basketball and a tennis ball. Ask what the tennis ball represents if the basketball is Earth. Next, give them the tennis ball Moon and see how far away they think they need to stand from the basketball (on this scale it's about 7.5m). By shining a light on a tennis ball you can also show how an eclipse works, as the Moon casts its shadow on Earth.

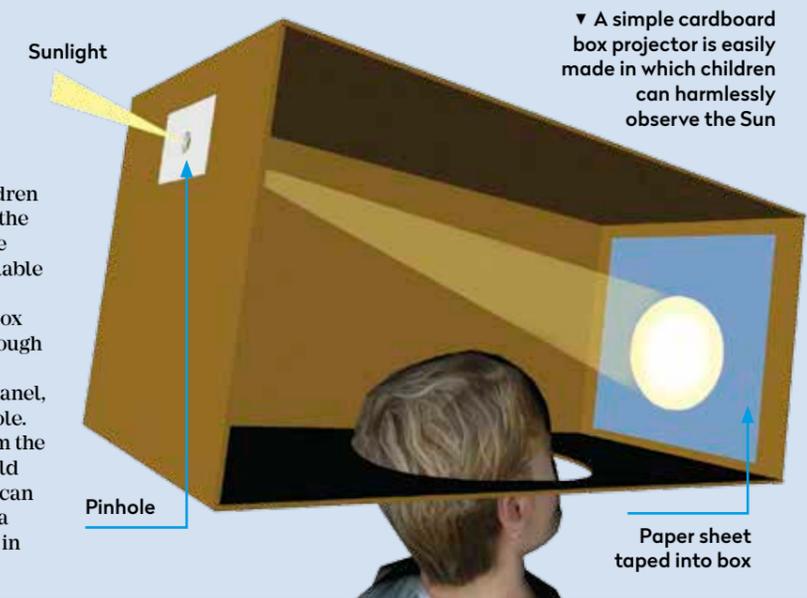
## Look at bright targets

"What is the brightest thing you can see in the sky tonight?" It is easiest to start by looking for bright targets such as the Moon or planets. Do they notice



## Safely observe the Sun

Summer is a great time to try solar observing. Children are taught from a young age not to look directly at the Sun, but remind them of this, particularly if you are using magnification. Special eye protection is available but the safest way for them to observe is using projection. Take a long fully enclosed cardboard box and make a hole big enough to stick their head through on one of the longest panels. Place a sheet of white paper over the end they will face. On the opposite panel, behind where their head will be, make a high pinhole. They will need to stand so they are facing away from the Sun, but the pinhole is pointing at it. The light should travel over their head onto the paper. A solar filter can be used with binoculars or a scope to project onto a white sheet, but never leave that setup unattended in case anyone tries to look through the eyepiece.



▼ A simple cardboard box projector is easily made in which children can harmlessly observe the Sun

PHOTO: ISTOCK/ALAMY; STOCK PHOTO: STEVE MARSH X 2; INES BAZDAR/ALAMY; STOCK PHOTO: VIADANS/ISTOCK/GETTY IMAGES; ILLUSTRATION BY PAUL WOOTTON