



YOUR TELESCOPE
SHOWS YOU WHAT THE
SKY ALLOWS, BUT
OBSERVING TECHNIQUE
DETERMINES HOW
MUCH OF IT YOU
ACTUALLY SEE

OBSERVING TECHNIQUES

Pointing a telescope at an object is only the beginning. The human eye and brain are remarkably good at detecting faint and subtle detail, but they need time and the right conditions to do so.

Good observing is therefore an active process. Taking a little more time, changing how you look and experimenting with magnification can reveal details that aren't immediately obvious.

PRACTICAL ASTRONOMY GUIDE #7

This guide is designed to help you get more from your telescope by developing simple observing techniques that allow you to detect, interpret and appreciate more detail in the objects you observe.

OBSERVATION TECHNIQUES I

1. GIVE YOUR EYES TIME

One of the easiest mistakes for a newcomer is to look through the eyepiece for a few seconds and decide that an object isn't visible. Some objects reveal themselves immediately. Others require patience. Spend several minutes with a difficult target rather than continually moving on to something else. As your eyes become accustomed to the view, faint features can gradually become easier to detect. This is particularly important with galaxies, nebulae and other low-contrast deep-sky objects. If you're struggling, don't immediately assume that the telescope isn't capable of showing the object. Give your eyes time to adjust and look for changes in the view.

2. AVERTED VISION

Averted vision is one of the most useful techniques for observing faint objects. The central part of your retina provides your sharpest vision, but it isn't the most sensitive part for detecting very faint light. Looking slightly to one side of a faint object can therefore make it appear more readily. Rather than staring directly at a faint galaxy or nebula, look slightly away from it while keeping your attention on the area. The exact direction that works best varies between people. Experiment until you find the position that makes the object easiest to detect. Averted vision can turn a barely detectable patch of light into something much easier to recognise.



SEEING IS IN SOME
RESPECT AN ART,
WHICH MUST BE
LEARNT.

William Herschel



OBSERVATION TECHNIQUES II

3. WAIT FOR GOOD SEEING

Planetary observing is particularly dependent on atmospheric stability. Even on a night when the view appears unsteady, there may be brief moments when the atmosphere becomes noticeably calmer and the image sharpens. Don't judge the view from the first few seconds. Watch the planet continuously and look for those brief moments of clarity. When a moment of good seeing arrives, take advantage of it. Fine planetary detail may become visible for only a few seconds before the image softens again.

4. USE THE WHOLE FIELD OF VIEW

When observing a faint object, don't concentrate only on the object itself. The surrounding stars provide useful information about its position, size and orientation. Comparing the object with nearby stars can also help you recognise subtle changes in brightness or shape. For some deep-sky objects, the wider view is part of the experience. A large nebula or open cluster may be more impressive at low magnification, where you can see the object together with its surrounding star field.

REMEMBER ...

**DON'T JUST LOOK AT
AN OBJECT.**

**GIVE YOURSELF TIME
TO SEE IT.**

OBSERVATION TECHNIQUES III

5. EXPERIMENT WITH MAGNIFICATION

More magnification does not automatically mean more detail. Increasing magnification makes the image larger, but it also reduces its brightness and can make atmospheric turbulence more obvious. There is therefore a point at which increasing magnification makes the view worse rather than better. Start with a moderate magnification and increase it gradually. For planets and double stars, higher magnification may reveal additional detail or help separate close objects. For faint deep-sky objects, a lower magnification may provide a brighter and more easily detected image. Try more than one eyepiece. The best magnification is the one that gives you the most useful information - not necessarily the largest object size. Don't ask how much magnification your telescope can handle. Ask how much magnification the night can support.

6. OBSERVE MORE THAN ONCE

A difficult object isn't necessarily a lost cause. Conditions change, your eyes adapt and your observing technique improves during a session. An object that seems unremarkable early in the evening may reveal considerably more when you return to it later. This is particularly true for planets and other objects whose apparent position changes as they rise higher in the sky. Don't be afraid to return to a target you've already observed. Sometimes the second look is the one that reveals the detail you were looking for.



DON'T ASSUME YOU'VE
EXHAUSTED AN OBJECT
SIMPLY BECAUSE
YOU'VE FOUND IT.
LOOK LONGER, LOOK
DIFFERENTLY

Patrick Moore



TIP...
PATIENCE,
DARK ADAPTATION,
AVERTED VISION,
APPROPRIATE
MAGNIFICATION AND
CAREFUL ATTENTION

OBSERVATION TECHNIQUES IV

7. LEARN TO SEE SUBTLE DETAIL

The most rewarding observations are often not the most obvious ones. Once you've found an object, resist the temptation to immediately move on. Spend some time asking yourself what you can actually see. With a planet, look for differences in colour, bands, shadows and changes in brightness. With a galaxy, look for its shape, orientation, brighter central region or variations in brightness. With a nebula, look for its boundaries, brighter and darker areas and relationship to surrounding stars. You don't need to see everything that photographs show. Part of the visual astronomy experience is discovering what your eyes, your telescope and the conditions allow you to see.

8. MAKE A NOTE OF WHAT YOU SEE

Keeping a simple observing log can improve your observing. Record the date, object, telescope and magnification, along with a brief description of what you saw. You don't need to write an essay. A few words can be enough: "M51 – faint, two cores visible, very subtle extension around the larger galaxy." Over time, your notes become a record of what you've observed and provide something to compare against when you revisit an object. Sketching can be particularly useful. Even a simple sketch encourages you to look carefully at the position, shape and relative brightness of features rather than relying on memory.

ABOUT NSO

Our Vision

We envision a world where anyone with an interest in astronomy can begin their journey with confidence and enjoy rewarding first light experiences. Where choosing equipment is exciting rather than overwhelming, expert guidance is always within reach, and every astronomer has a trusted partner throughout their journey under the stars.

Our Commitment

We believe our responsibility doesn't end with a sale. We are committed to supporting our customers throughout their astronomy journey.

- Expert Guidance
- Carefully Selected Stock
- Accessible Value
- Long-Term Partnership

