

Around
the sky
with a

SMALL

SCOPE

Think you need a huge telescope to get anything out of astronomy? Think again.

by Glenn Chaple

DO YOU OWN A SMALL TELESCOPE?

By “small,” I mean a refractor with an aperture of 3 inches or less or a reflector whose mirror measures under 4½ inches. If not (or if you do, but rarely use it because you believe the sky belongs to water heater-sized telescopes), you’re missing out on some eye-popping cosmic adventures. Read on!

During the 1960s, in what were my salad years as a backyard astronomer, I simply couldn’t afford one of those 6-inch or greater equatorially mounted “beasties.” My maiden celestial voyages were with a secondhand 3-inch f/10 reflector purchased from a high school friend for \$15.

I started out with the usual easy fare: the Moon, naked-eye planets, and a smattering of bright double stars and deep-sky objects. Over time, my eyes became sensitive to faint light, and I found myself seeing things I never dreamed possible with so small a scope. In the summer of 1978, I plunked it down in front of a large crowd at a Stellafane Convention talk session and sang the praises of the little scope that could. Let me take you on a similar small-scope spin around the universe.

The Moon

What better place to start a cosmic journey than with our neighbor, the Moon? The practical upper magnification limit for a small telescope is 120x to 150x. With just one-third that power, you can view the Moon in its entirety and get a ringside seat to a lunar eclipse. Between 75x and 100x, hundreds of craters, from monsters like Clavius — large enough to contain the state of Connecticut — to pits a few miles in diameter, come into view. Lofty mountain ranges add to the breathtaking sight.

Now and then, the Moon will pass in front of (occult) a bright star or one of the planets. Stellar occultations are well within reach of small scopes (any magnification will suffice). Even when you know what to expect, it’s still a surprise when the star suddenly blinks out of sight or reappears at the Moon’s dark edge. An occultation of a planet is much more gradual, and a higher magnification (75x to 100x) will enhance the dramatic sight of the Moon “swallowing” an entire world.

The Sun

Danger ahead! A direct unfiltered view of the Sun through even the smallest scope can result in permanent eye damage. The good news? A small scope won’t collect as much sunlight as its big brothers, allowing for safe projection of the Sun’s image onto a sheet of white cardboard. For a direct view, you can buy an aperture filter that clamps to the front end of the telescope. Those designed for small scopes cost less than ones made for bigger instruments.

As long as you have an approved solar filter that fits over the front of your telescope, you can view the Sun. Look for sunspots and sunspot groups, which can be huge sometimes.

PETE LAWRENCE



↑ The Moon offers hundreds of features plus a constantly changing face to observers with small telescopes. You can view the entire Moon with low-power eyepieces or zoom in to individual craters or mountains if you use higher magnifications. JIM THOMPSON

Like the Moon, the Sun doesn’t require high magnification. At 30x to 50x, you’ll see the entire disk — perfect for viewing solar eclipses. You’ll also pick out sunspots and bright cloudlike plages, or unusually bright areas, near the solar limb. Under steady seeing, 100x will reveal granulation — the mottled texture of the Sun’s turbulent surface.

The solar system

Now that Pluto has been demoted from planetary status, I can confidently state that a small telescope will embrace all the planets. A magnification of just 30x is enough to monitor the changing phases of Venus, follow the night-to-night dance of Jupiter’s four bright moons, and admire Saturn’s fabled rings. Mercury will appear

Observer Dan Lewelyn looks through a 6-inch Sky-Watcher Esprit 150 telescope at Deerlick Astronomy Village in Sharon, Georgia. Such an instrument will show lots of detail on the Moon and planets, and will reveal a large number of deep-sky objects from a dark site. DAVID WOOLSTEEN