

Grab a **COMETRON SCOPE** to view **COMET ISON**

Celestron has made a pair of low-cost telescopes for beginners watching the great sky show. **by Mike Reynolds**

I clearly remember my first telescope; in fact, I still have it. I was 9 years old, and my parents bought me a 2-inch reflector for Christmas. The tube was cardboard, it held a second-surface secondary mirror, and it had a 0.925" eyepiece with an all-plastic lens. The mirror cell was plastic and glued in, so there was no way to collimate (optically align) the telescope.

The mount was a ball with a locking clamp on a tripod. The finder scope was a hollow aluminum tube. As you might imagine, views through this telescope were not great. Yet, as a kid who was developing an interest in astronomy, I thought I had gotten the greatest gift ever.

Today's telescopes for children and adults just getting into the hobby are far superior to my reflector. And based on the predicted popularity of Comet ISON (C/2012 S1), lots of people will be looking up this year. To meet the demand for high-quality, low-cost telescopes, Celestron recently introduced two models for the beginner: the Cometron FirstScope and the Cometron 114AZ. These two products prove that you don't have to invest a large sum of money to get started in amateur astronomy.

The Cometron FirstScope

The Cometron FirstScope is barely reminiscent of my 1960s reflector. It has a higher-quality mirror, which also is larger (3 inches versus 2 inches). Other, better features for this telescope include a first-surface and adjustable secondary mirror and two 1¼" Kellner eyepieces. The 20mm eyepiece produces 15x, and the 10mm yields 30x. The tube is metal, and the focuser is a rack-and-pinion style. The telescope also has a real finder scope: a small 5x24 refractor.

The Cometron FirstScope includes both an end cap and a focuser cap to seal the optical tube assembly when not in use. This is a nice feature for those of us who might leave it in a car overnight. The mount is a Dobsonian-style tabletop mount, which I found works smoothly enough both for telescope movement and observing. The entire package is light — just over 5 pounds (2.3 kilograms) — so a child could take the telescope out and set it up.

Optically, the Cometron FirstScope sports a fast focal ratio at f/3.95. This makes for a shorter tube, thus a lighter telescope and mount. It also means the images will be bright with a wide field of view — all advantages for a beginner's first views of the heavens.

Mike Reynolds is an Astronomy contributing editor and dean of Liberal Arts and Sciences at Florida State College at Jacksonville.

The Cometron 114AZ

The Celestron Cometron 114AZ is a 4.5-inch reflector that also has the fast focal ratio f/3.95. The manufacturer notes that the mirror is parabolic, which is an essential optical characteristic for such a short focal length. The tube is metal with a dovetail mount for the included tripod. Tube and focuser caps also come with this instrument to keep the optics clean when not in use.

A rack-and-pinion focuser and easy-to-use collimation screws are part of the scope. Celestron placed a small circle on the primary mirror to aid in collimation. To help you locate objects, the Cometron 114AZ features Celestron's StarPointer Red Dot Finder. The company includes the same two eyepieces that come with the FirstScope: 20mm and 10mm Kellners. Used with the 114AZ, however, they provide magnifications of 22.5x and 45x, respectively.

The Cometron 114AZ tripod is an adaptation of those used to support lightweight cameras. It has one set of leg extensions, which I found adequate for viewing. Celestron also includes an easy-to-use snap-in shelf for holding eyepieces. A panning head adjusts the tripod in altitude and azimuth. I found that it extends far enough below and beyond the optical tube assembly to be easy to use. Both motions are smooth, and the azimuth has a lock screw.

Under the sky

I observed with the Cometron FirstScope and 114AZ at the same time. My first object — again reminiscent of the object I started with through my first telescope — was a 35-percent-illuminated waxing crescent Moon. After I aligned the optical finder of the FirstScope and the Cometron 114AZ's red dot finder, I used them to zero in on our satellite.

I began observing with the 20mm eyepieces. Through the two scopes, I had two different views of the Moon, as I expected. It looked fainter through the Cometron FirstScope because its primary mirror has only 44 percent of the surface area that the Cometron 114AZ has. Focus was good, and I could see a hint of earthshine.

Meanwhile, earthshine was easy to spot through the Cometron 114AZ. Focus was crisp and lunar details sharp.

I changed eyepieces on both scopes to the 10mm Kellners, at which time the view of the Moon was better through the FirstScope, probably because of the lower power. The Cometron 114AZ continued to surprise me, however, with nice views and snap focus.

I finished my observing session with several other objects, including Saturn. Even at 15x through the FirstScope, I could easily tell there was something in addition to the planet — rings! The best view of Saturn, however, was through the 114AZ at 45x.

I checked the edge of the field through the Cometron 114AZ to look for coma, an aberration found in Newtonian reflectors that really shows up in short focal lengths. I saw no glaring problems at either magnification.

How can you go wrong?

All in all, I was surprised and pleased at the performance of both Cometron telescopes, especially the 114AZ. These scopes are terrific bargains. However, if even the 114AZ's price is too high, yet you really want to purchase a telescope, the Cometron FirstScope would be a good first choice, especially for a child.

The Cometron 114AZ would make an excellent first telescope or even a "next" telescope. Children who get either of these as a gift might do the same thing as me in 50 years: look back fondly on their first telescope — with the added bonus of views it will give them of Comet ISON. ☿



The Cometron 114AZ is a 4.5-inch Newtonian reflector. With its included eyepieces (which give 22.5x and 45x), you'll get great views of the Moon, the bright planets, and Comet ISON (C/2012 S1).

PRODUCT INFORMATION

	Cometron FirstScope	Cometron 114AZ
Optical design:	Newtonian reflector	Newtonian reflector
Aperture:	3 inches	4.5 inches
Focal ratio:	f/3.95	f/3.95
Focal length:	300 millimeters	450 millimeters
Total weight:	4.3 pounds (1.95 kilograms)	8.4 pounds (3.81 kilograms)
Finder scope:	5x24	StarPointer Red Dot Finder
Included eyepieces:	10mm and 20mm Kellner	10mm and 20mm Kellner
Price:	\$59.95	\$179.95
Contact:	Celestron 2835 Columbia Street Torrance, CA 90503 [t] 310.328.9560 [w] www.celestron.com	



The Cometron FirstScope allows you to view celestial objects with the telescope sitting on a table. It's simple to set up and light enough for a child to carry. BOTH IMAGES COURTESY OF CELESTRON