

EQUIPMENT REVIEW

Set up this simple solar viewer, and you're sure to attract a crowd.

/// BY RAYMOND SHUBINSKI

Follow the daytime star

Planetarium professionals, teachers, and other educators have always had a thorny problem with observing: Most students are available only during daylight hours. It's difficult to get students together for an evening under the stars. One option is to view the Sun. Although

viewing our star can be dangerous, a number of safe methods exist. These include handheld or telescope-mounted filters and pinhole projection. The ideal product for sun-viewing would combine safety and low

cost, and now you can buy such an instrument. It's called Solarscope. Solarscope was invented by astronomer Jean Gay from the Cote d'Azur Observatory in Nice, France, as an easy way for groups to view the Sun.

The product is light-years ahead of a cardboard box that uses pinhole projection, but it stops just short of being a telescope. It's safer than projecting through a telescope (inexperienced observers may look through the scope), and it's less expensive than using Hydrogen-alpha filters.

The viewer comes in two sizes and is made of sturdy cardboard. Some assembly is required. A booklet shows how the parts fit. As with a pinhole-projection system, you need a shaded viewing area. With the Solarscope's cleverly designed base and hood assembly, the Sun's image can be viewed in a large darkened area by a group.

The Solarscope's optics set this viewer apart. During assembly, a mirror inserts into an aluminum holding device. This snaps into the base of the Solarscope. Because of the mirror's shape, the Sun's image is offset inside the box.

The other optical portion is a simple "telescope" made of a plastic tube with a front lens, but without an eyepiece. The telescope attaches to the hood. To focus, simply screw the telescope in or out.

Once you fit the base-with-the-mirror and the hood-with-the-telescope together, you're ready to observe. It took me about 10 minutes to assemble the Solarscope.

Using it is easy. Set the assembled instrument on a table or stand to make the Sun easier to see. To point it, move the hood with the telescope up or down while turning the base side to side until the telescope points at the Sun.

POINT THE SOLARSCOPE at the Sun, and make sure the focused beam falls on the small spherical mirror in the base. Adjust the angle slightly so the Sun's image is off-center, and look for sunspots. Because you can't look directly at the Sun through this device, there's no threat of eye injury.



ALL IMAGES: ASTRONOMY; WILLIAM ZUBACK

SOLARSCOPE

Materials: Colored, labeled cardboard; glass lens and mirror; plastic and aluminum mechanical mounts

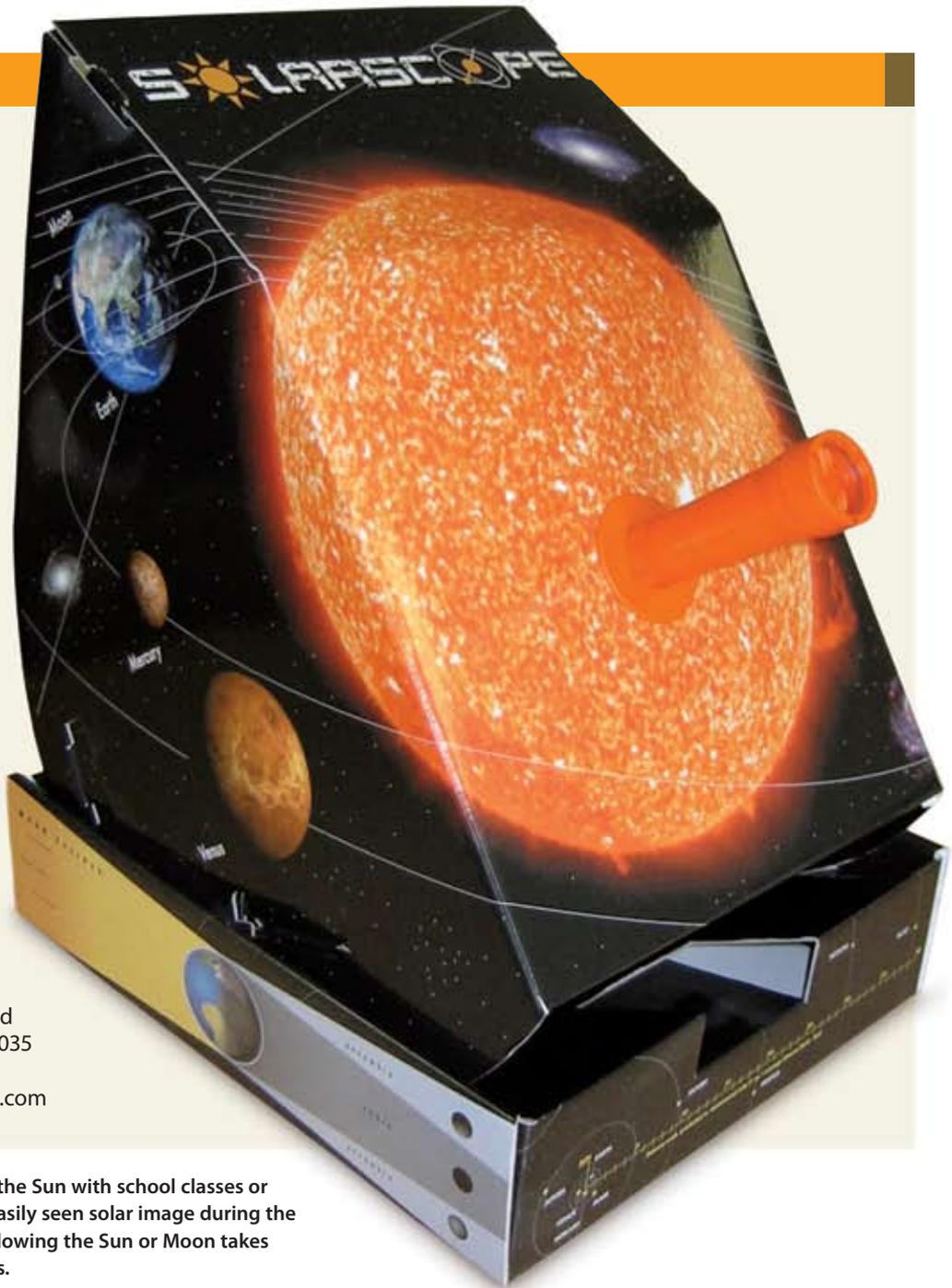
Lens aperture: 1.6"
(40 millimeters)

Sun's image: approx. 3.2"
(80mm)
in diameter
(Individual model);
approx. 4" (100mm)
in diameter
(Education model)

Screen size: 9.4" (240mm)
square
(Individual model);
14" (356mm)
square
(Education model)

Price: \$59 (Individual
model); \$89
(Education model)

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Highland Park, IL 60035
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[w] www.solarscope.com



THE SOLARSCOPE is perfect for viewing the Sun with school classes or public groups. Its optics project a large, easily seen solar image during the day or the Full Moon's image at night. Following the Sun or Moon takes only small adjustments every few minutes.

Once you've found the Sun, the box's interior lights up. Keep moving the box until the beam of sunlight hits the mirror. Rotate the mirror slightly to throw the Sun's image to either side of the telescope.

The Solarscope shows even medium-size sunspots. The Sun currently is at a solar-activity minimum, but during the past year, there have been surprises.

Watching the Sun move across the box's inside is a nice way to demonstrate Earth's

Raymond Shubinski is the director of the East Kentucky Science Center, from where thousands of visitors have viewed the Sun.

daily motion. Eventually the planet rotates enough that you have to realign the Solarscope on the Sun. Simple movements toward the west and either up or down are all that's required. If teachers want to use multiple Solarscopes, students can operate them without fear of eye damage.

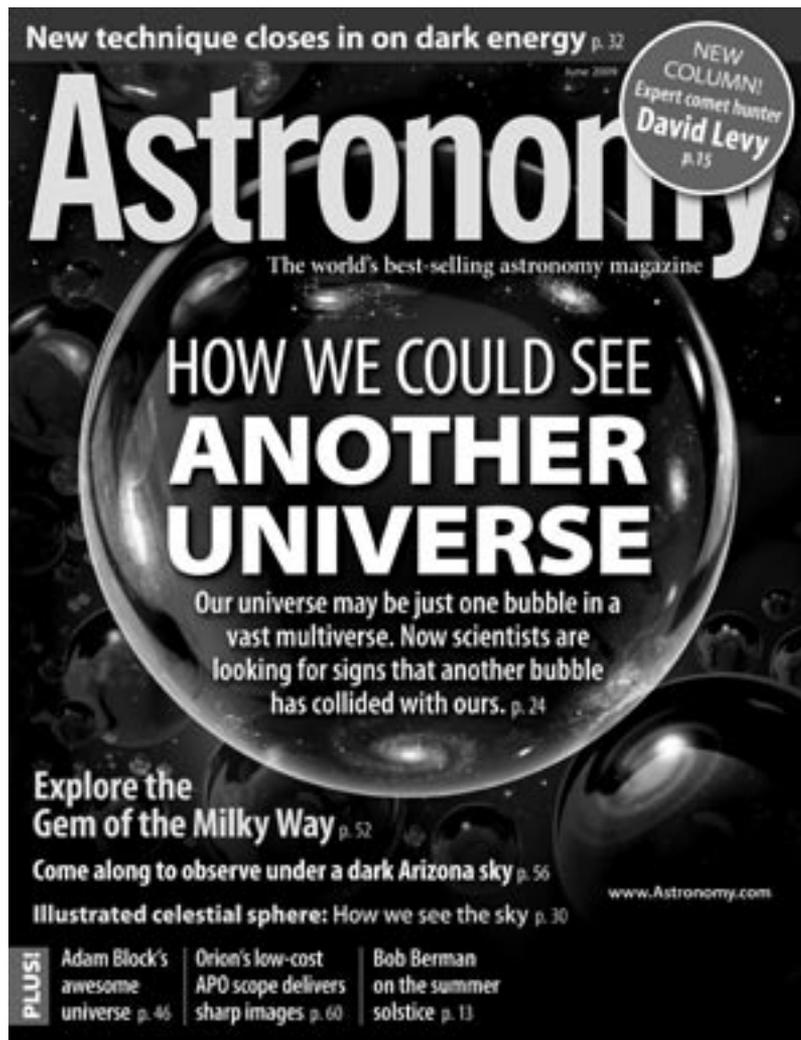
Solarscopes also can be used as Moonscopes. The lens collects just enough light and provides just enough magnification to view a bright Moon. The projected image (the same size as the Sun's) inside the hood shows the Full Moon's major features easily, allowing you to point out maria, highlands, and cratered areas.

Solarscope maintains a web site at www.solarscope.com that provides helpful ideas, information, and projects.

For a small investment, Solarscope is a great way to view the Sun. Solarscope comes in two sizes, so it's useful for either one person or a group. The Solarscope also looks great. The base and hood are covered with astronomical images and information, so you can learn a lot of astronomy even before you take it outside.

This clever instrument gets two thumbs up from me. It may be made of cardboard and plastic, but it should have a place right next to your telescope. ■

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