



Kopernik Observatory & Science Center

698 Underwood Road, Vestal, NY 13850

Phone: 607-748-3685 * Fax: 607-748-3222 * www.kopernik.org

Program Schedule
Summer 2017

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Note Special Hours for Friday night programs in June and July

Doors open at 8 p.m.; programs start at 8:30 p.m. *unless otherwise indicated*

Adults: \$5, Seniors/Students: \$3, Family: \$16 maximum; Kopernik Members: free

June 2 (7 p.m.): Family Space Activities – Tish Bresee, NASA Solar System Ambassador

Bring the kids to explore NASA's new Earth & Space Tool kit with experiments about light and planetary orbits, and a variety of solar activities. Also, preview this summer's solar eclipse. Then stay for the Friday night program about NASA's Orion spacecraft and its race with SpaceX (see below).

June 2: Orion: New Hope for U.S. Spaceflight – Tish Bresee, NASA Solar System Ambassador

NASA's newest venture into human spaceflight will usher in the next era of space exploration. The Orion Crew Multipurpose vehicle will be tested in near the future. Find out what this test means for the United States' return to launching its own astronauts. Also, learn about NASA's cooperation with SpaceX and other companies to recharge the human spaceflight program. If clear see a gibbous Moon, Jupiter and other deep sky objects.

June 9 (9 p.m.): Summer Observing Session – Clear Only

There will not be a presentation this Friday night, but if skies are clear skies, enjoy an informal observing session with the Kopernik Astronomical Society. See Jupiter, star clusters, Saturn and a full Moon through Kopernik's powerful telescopes

June 10 (Saturday 9 a.m. to 6 p.m.): RocketFest 2017

Join the excitement of Kopernik's ninth annual RocketFest. Build and launch your own rocket! Three sessions (9 a.m., Noon, and 3 p.m.) and more rocket model selections will make this RocketFest a real blast! All ages are welcome! Visit www.kopernik.org for details and registration.



June 16: Women Who Broke Barriers in Science and Technology – Brooke Eiche, Lockheed Martin (ret.)

Discover ten fascinating women who made advancements in science and technology, challenging stereotypes and breaking through gender barriers. Get inspired to pursue a STEM career as Ms. Eiche discusses her first hand experiences as a young woman engineer in the oil and gas industry in the 1980s. She will share some of her challenges and things she wished she knew when starting her engineering career. If clear, see Jupiter, Saturn and a variety of deep-sky objects.

June 23: How It Works: Drone Edition – Vincent Socci, LHP Engineering Solutions

As Unmanned Aerial Vehicle (UAV) technology becomes more commercially available, the drone industry has grown to reach the general public. This presentation provides an overview of the utility of drones and dives into the engineering technology. The functional operation of the aircraft, ground control, power system, and payloads will be described. Attendees will learn about drone flight dynamics, how to compare flight systems and peripherals, and best practices in operation. Where possible, real drone equipment will be available for show-and-tell demonstrations.



June 30: The Great Telescope Dust-off – Kopernik Staff

Is there a telescope collecting dust in a corner of your basement, garage, or attic? Dig it out and bring it up to Kopernik! Kopernik experts will assess its condition and show you how to set it up and use it. There is always a lot to see in the sky. Let Kopernik help you *Look Up and Dream Big!* If clear, see a nearly first-quarter Moon, Jupiter and Saturn.

July 7: Revolution in Astronomical Imaging – George Normandin, Kopernik Astronomical Society

Over the past 25 years, astrophotography has changed greatly and Kopernik's telescopes have collected thousands of images, many of them on Kopernik's website. Mr. Normandin will talk about the history of astrophotography, starting with film and moving on to digital imaging, including DSLR cameras, web cams, and high resolution CCD cameras with filter wheels that create stunning composite color images. Throughout his talk, you will see numerous images taken at the Kopernik Observatory, some of which have been used in textbooks, magazine articles, and post-graduate research.



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July 14: Rock Hounding: Hands-on Geology – Roy Williams, Kopernik Educator

Learn about different types of rocks and how they are formed. Find out how rocks change from one form to another through the rock cycle. See a variety of samples from Kopernik's collection of rocks, fossils and meteorites. Bring your own rock samples to be identified.

July 21: Dinosaur Artifacts – Bruce Oldfield, SUNY Broome

What do we know about dinosaurs and how did we get that information? Professor Oldfield will discuss what we have learned from dinosaur remnants, artifacts left behind through fossilization. This includes dinosaur anatomy and physiology. In some cases, experts can tell male from female dinosaurs, how they lived and aged. Dinosaur evidence including bones, excrement, trackways, and two eggs that were CT-scanned for embryos will be displayed and discussed.

July 28: Comets & Meteors – Kopernik Staff

Learn about meteor showers and comets, and how to view them. See images of famous comets and meteor showers and learn about collisions that could devastate the world. Touch a meteorite and see a comet made right in front of your eyes. Color a glow-in-the-dark comet. If clear, see the peak of the Delta Aquarids Meteor Shower.

In August, Friday night programs are back to regular times. Doors open at 7:30 p.m., programs begin at 8 p.m.

August 4: Future Technology – Keith Werkman, Ph.D.

What does the future hold for us? This presentation will focus on how present and future technology might affect our lives. Dr. Werkman will discuss artificial intelligence, robotics, nanotechnology, and more! Discover what advances are feasible over the next 100 years given the laws of physics. If clear, see a nearly full Moon, Saturn, double stars, and more.

August 11: Preview of the Great American Solar Eclipse– Kopernik Astronomical Society

Learn about the big astronomical event that is occurring this summer. Learn what causes a solar eclipse and learn how to safely observe the Great American Solar Eclipse. Find out how a solar eclipse actually proved Einstein's Theory of Relativity. If clear, some Perseid meteors, Saturn, star clusters and the Moon.

August 12 (Saturday 9 p.m.): Perseid Meteor Shower Viewing CLEAR ONLY

The Perseid Meteor Shower is one of the best to observe, producing up to 50 meteors per hour! The waning gibbous moon will block out fainter meteors this year, but Perseids are bright and numerous enough that it still should be a good show. Activity will peak on August 12-13. Grab a lawn chair or blanket and head up to Kopernik's dark skies for great viewing, especially after midnight. Visit Kopernik's website or call after 5 p.m. to confirm that Kopernik will be open for viewing.



August 18: Basic Astronomy – Kopernik Staff

Bring the whole family to Kopernik for this beginner's guide to star gazing. Learn how to read a star map, how to find a comet, and how to use a Dobsonian telescope. Tour Kopernik's telescopes and bring your own telescope so Kopernik staff can help you learn how to use it.

August 21 (Monday, Preshow 11:30 a.m., Eclipse 1-4 p.m.): Great American Solar Eclipse

A total solar eclipse occurs when the moon completely blocks the Sun, revealing the Sun's beautiful outer atmosphere or corona. This is a rare event. The last one visible in the continental U.S. occurred in 1979 and the next will not take place until 2024. The path of totality will begin in the Pacific Ocean and travel through the central U.S. In our area, it will be a partial eclipse, which *cannot be safely viewed with the naked eye*. Watch this spectacular eclipse safely at Kopernik through specially filtered telescopes, including the Heliostat. Kopernik will be open that day regardless of sky conditions.

August 25: Community Shared Solar Power – Adam Flint, Binghamton Regional Sustainability Coalition

Solar energy now can be an option for everyone through Community Shared Solar (CSS). Until recently, only one in five New Yorkers could go solar, due to a lack of property, credit, or suitable site. Southern Tier Solar Works, a program of the Binghamton Regional Sustainability Coalition, is pioneering CSS in the Southern Tier, which allows anyone to change their electricity supply to a solar array.

Save the Date: October 13-14 AstroFest 2017