



Kopernik Observatory & Science Center

698 Underwood Road, Vestal, NY 13850

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

Pegasus Classes

2016-17

Grades 1-12



*The Pegasus programs for students in grades 1-12 encourage students to work and think like scientists as they explore the world around them. These workshops emphasize creativity, teamwork, and independent learning and teach students to draw on **Science, Technology, Engineering, and Math (STEM)** resources to solve problems in the real world.*

Glowtopia Grades 1-2

Sat., Nov. 5, 1-4 PM

Member \$30 / Non-Member \$36

During this program, students will experience various types of light: visible, ultra-violet and infrared. They will do experiments to gain a deeper understanding of light components, and learn how to detect and use different types of light. Students will travel to the mysterious planet Glowtopia, which emits a special purple light. They will design their own poster of this planet and experiment with glowing substances, floating bubbles, and glowing creatures. Students will build a glowing star-finder to navigate back to Earth.

Rocks Tell a Story Grades 1-2

Mon., Feb. 20, 9 AM – 12 PM

Member \$30 / Non-Member \$36

Young scientists get the chance to be geologists for the day! With goggles and rock hammers, students will discover the ancient past as they look inside rock formations! They will identify, compare, and analyze rocks and minerals from KOSC's collection. They may even find ancient fossils inside rocks right under their feet.

Waves & Quakes Grades 3-4

Sat., Dec. 3, 9 - 12 PM

Member \$30 / Non-Member \$36

Using an ocean simulator in KOSC's Earth Science Lab, students will create a virtual tsunami and then will build a model village and study what happens when these monster waves hit it. Back on dry land, students will build a candy house and test its ability to withstand a simulated earthquake. Finally, students will learn about the distribution of earthquakes around the world using a computer program called Seismic Eruptions.

Lunar Explorations Grades 3-4

Fri., Feb. 3, 6-9 PM

Member \$30 / Non-Member \$36

In this evening workshop, students will become lunar scientists and investigate the Moon's environment. Students discover what causes the phases of the moon and learn about the different lunar rocks. See rare footage of the Apollo moon landings and make your own impact craters! If it is clear, they will observe a first-quarter Moon through KOSC's telescopes.

Life Cycles Grades 3-4

Sat. Mar. 11, 9 AM – 12 PM

Member \$30 / Non-Member \$36

You can't live without them! During this program, students will learn about the life cycles of different animals. They will enjoy creating models of the various life cycles and work together to compare, contrast and categorize the unique and diverse cycles of birds, insects, reptiles, mammals, and amphibians.

Ready, Set, Code! Grades 3-4

Sat., Nov. 12, 9 AM – 12 PM

Member \$30 / Non-Member \$36

Students need no prior programming experience to enjoy and participate in these coding activities. They will work together to create "unplugged" programs to solve problems and also will learn how to write basic computer programs. Children who enjoyed "Secrets of Code" this summer won't want to miss this program.

Robotic Creations Grades 5-6

Sat., Mar. 11, 1-4 PM

Member \$40 / Non-Member \$46

Students will learn about the history of robots and how robots have been portrayed in science fiction. They will build and control their own robot using LEGO® WeDo Robotics. Their robotic creation will use sensors and have at least two degrees of freedom. Students also will build a mini solar-powered car to take home. (\$10 materials fee is included in cost of the program)

Electricity & Magnetism Grades 5-6

Sat., Dec. 3, 1-4 PM

Member \$30 / Non-Member \$36

Students will safely produce artificial lightning packing more than 200,000 volts in KOSC's lab! They will learn how to create magnetism from electricity and reverse the process to get electricity from magnetism. They then will learn about different electronic components and work together as engineers to build a variety of Snap Circuit® projects.

Received _____

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Observational Astronomy Grades 6-8 Fri./Sat., Oct. 28/29, 6:30-9:30 PM Member \$50 / Non-Member \$58

This two-evening class will teach students about observing the night sky. The class will start with basic training on the use of binoculars, Dobsonian, refractor and other basic telescopes. Students will learn about various constellations and their celestial objects. Reading star maps, star finders and other observing aids also will be incorporated into the program. This class will be held on two nights to double the chances of clear skies!

Extreme Magnification! Grades 6-8 Sat., Mar. 25, 10 AM – 3 PM Member \$45 / Non-Member \$52

Students will explore the smallest parts of our world using high magnification techniques. This approach reveals vivid details of natural and manufactured objects. They will capture images of tiny objects, such as insects, hair and frost, under extreme magnification. Students then will use special software to process and manipulate these images artistically and create a composite of their macroscopic images for display.

Deep-Sky Expedition Grades 8-12 Fri. Mar. 31 – Sun. Apr. 2 Member \$125 / Non-Member \$145

Overnight with Rocket Symposium Begins Friday, March 31 at 7 PM; Students depart Sunday, April 2 by 9 AM
Students will enjoy a stellar weekend at the Kopernik Observatory as they hunt down a multitude of galaxies and deep-sky objects. They will learn about a variety of celestial objects and how to observe them. They will discuss how galaxies, star clusters, and nebulas form and will build a detailed map of the Milky Way galaxy. On Saturday morning, students will participate in a *Rocket Symposium* where they will build their own model rocket and then launch it later in the afternoon. Rocket launching and telescope observing activities will vary, depending on weather and sky conditions. Saturday and Sunday meals will be provided.

Patterns of the Universe Grades 8-12 Sat., Apr. 29, 1- 4:30 PM Member \$35 / Non-Member \$42

Students will embark on an amazing journey into the beautiful, surrealistic world of *fractals* where math, science, and art come together. They will ponder these mysterious and infinite patterns, see how they exist throughout nature, from Scandinavian coastlines to frost crystals, and learn how fractals are where math becomes hands-on. Students will experiment with computer applications in constructing fractals, and, try their hand at computer programming!

Register online at Kopernik.org or fill out this form and return to Kopernik Observatory

Please check the session(s) you plan to attend:

- | | | |
|--|--|---|
| <input type="checkbox"/> Glowtopia | <input type="checkbox"/> Rocks Tell a Story | <input type="checkbox"/> Waves & Quakes |
| <input type="checkbox"/> Lunar Explorations | <input type="checkbox"/> Life Cycles | <input type="checkbox"/> Ready, Set, Code |
| <input type="checkbox"/> Robotic Creations | <input type="checkbox"/> Electricity & Magnetism | <input type="checkbox"/> Observational Astronomy |
| <input type="checkbox"/> Extreme Magnification | <input type="checkbox"/> Deep-Sky Expedition | <input type="checkbox"/> Patterns of the Universe |

Student name: _____ Grade (2016/17) _____

Parent/Guardian/Grandparent name: _____ Student Birth date _____

Address: _____ City/ST/ZIP _____

Phone: _____ Email: _____

Enclosed is: \$ _____ (checks payable to "Kopernik Observatory") KOSC Member Yes No (add \$60 to join)

Credit Card # _____ Visa MasterCard Discover

Name on Credit Card _____ Expiration Date: _____ CVV code (3 digit code) _____

Registration form and fee must be received seven days prior to class. Walk-in registrations available, space permitting, with additional \$5 fee. Minimum enrollment 10 students required for each class to run. In case of cancellation, participants will be notified in advance and full refund returned. Refunds available (less \$5 administration fee) if student withdraws seven days prior to the start of the class.

Return to: Pegasus, Kopernik Observatory, 698 Underwood Road, Vestal, NY 13850

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