Secrets of Code (Engineering, students entering grades 3 & 4)  
During this camp your KSA (Kopernik Secret Agent) will discover the world of codes, old and new. KSAs will each receive a TOP SECRET folder filled with a variety of codes and activities. They will have fun using them to create messages and decipher codes. KSAs will be introduced to Morse Code and learn about the electrical transmission of messages. They will practice Braille and American Sign Language, codes for the blind and deaf. The students will discover ways in which we all use code in our daily lives. As the week progresses, they will be involved in a variety of “unplugged” coding activities that will teach them the vocabulary and skills they need to code on the computer. Activities will include music and movement, art/crafts and games to make the learning fun.

Space and Stars (Astronomy, students entering grades 4 & 5)  
Students will explore what lies beyond our Solar System, including fun demonstrations and activities that help us understand blue, red giant, and sun-like stars, supernovas, constellations, galaxies, and beautiful nebulae! Students will learn how telescopes work and how to observe the Sun safely. Students will explore black holes with experiments in gravity. While discussing constellations, kids will be encouraged to act out the myths associated with a constellation. Activities will include making Planispheres, modeling the Milky Way Galaxy and building a NASA Spacecraft model. Students will also spend time exploring the universe using Stellarium software.

What’s In Your Backyard? Become A Nature Scientist! (Biology, students entering grades 4 & 5)  
Participants in this camp will be given a Nature and Science Packet which they will use for the many activities throughout the week. In this camp, students will explore the diversity of life on our planet. Students will be introduced to a range of biomes and then create their own imaginary biome as well as their own living biodome. Students will explore their backyard, neighborhood, or nearby park to observe and collect (or photograph) different plants, animals and insects. We will discover the importance of pollinators, such as bees, and what we can do to help them. There will be a virtual bird watch in which we will identify different species of birds.

Welcome Aboard the International Space Station (STEM, students entering grades 5 & 6)  
What is it like to become an astronaut and work on the International Space Station (ISS)? What training is required to work out of this world? Students will spend the week exploring what Astronauts do on this orbiting laboratory and learn about the science and engineering research on the ISS. This week of exploration and engineering includes training in radio communication, and how to track and map satellites which will be useful as students will speak live, by Ham Radio, with an astronaut currently aboard the ISS!

Weather Disasters from Floods to Tornadoes (Earth Science, students entering grades 5 & 6)  
Can you predict a storm? In this camp, students will learn meteorological skills from the National Weather Service to help them predict and prepare for weather disasters. Students will measure weather data (outside) each day, including experiments with temperature, wind, cloud cover, and air pressure and learn to predict those weird weather events. Students make model tornado simulators used to demonstrate how tornadoes form. Using household items, they will create a mini flood and observe patterns in water flow over a tiny model village. They will develop skills in analyzing the Water Cycle, Temperature, Air Pressure, Cloud Formation, and Wind Patterns.

Creative Construction (Engineering, students entering grades 6-8)  
In this camp, students exercise their creativity and explore engineering as they learn how to design and build a variety of things, including model buildings, weight bearing structures, and powered vehicles. Students will begin by measuring the rooms in their house and then build a detailed 3-D scale model of their home both with foam core and/or computer software. Next, they will learn about designing structures that carry loads by constructing and testing a bridge made of wooden craft sticks. Finally, students will design and build a mousetrap-powered car and participate in a virtual race to determine the best design.

Entering a Virtual Universe (STEM, students entering grades 6-8)  
In this NEW camp, students take their first steps into a larger, virtual world where anything is possible! They will learn about the past, present, and future of virtual reality (VR) with live and interactive demonstrations on how the technology works. Students will receive a VR headset in the mail which they can decorate and make their own. They will pair this headset with a smartphone to view a wide variety of VR content, including a tour of Kopernik Observatory and a flight aboard the International Space Station! Campers will learn how to construct 360-degree images which they will use to create a virtual tour of their home or location of their choosing! Campers will participate in class activities designed to teach the basics of a web-based VR creation. Using a tool called CoSpaces they will gain programming and 3D modeling experience as they design a virtual world, limited only by what can be imagined! Required for the camp: access to a smartphone (iOS or Android).
**The Search for Life Beyond the Earth** (STEM, students entering grades 7-9)

7/13 – 7/17

Students will explore the search for life beyond the earth. How would you know life when you see it? Is a model of life based on earthly life sufficient? They will consider fossils as evidence of life and document this evidence by photographing locally available specimens. Students will explore the role of DNA in life. They will build an “edible” DNA model and encode their name in the model in much the way that characteristics of an organism is encoded in DNA. The students will consider searching for life on Mars, and beyond such as Saturn’s moon Enceladus. A Cornell speaker will give a presentation on Mars exploration involving the search for life. Students will consider life on exoplanets orbiting stars and build a model demonstrating a method of detecting exoplanets.

All Kopernik Online STEM camps will require that the student have access to a PC, tablet or Chromebook with a camera and microphone and a reasonably high-speed Internet connection.

Register for camps online at [www.kopernik.org](http://www.kopernik.org) or fill out and return this form.

Please check the session(s) for each camp your child will attend:

<table>
<thead>
<tr>
<th>LSSE Camp (focus, grades)</th>
<th>Dates of the Camp</th>
<th>Member / Non-Member Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secrets of Code (Engineering, 3-4)</td>
<td>7/20 – 7/24</td>
<td>$120 $140</td>
</tr>
<tr>
<td>Space and Stars (Astronomy, 4-5)</td>
<td>7/27 – 7/31</td>
<td>$120 $140</td>
</tr>
<tr>
<td>What’s In Your Backyard? (Biology, 4-5)</td>
<td>8/10 – 8/14</td>
<td>$120 $140</td>
</tr>
<tr>
<td>Welcome Aboard the ISS (STEM, 5-6)</td>
<td>8/17 – 8/21</td>
<td>$120 $140</td>
</tr>
<tr>
<td>Weather Disasters (Earth Science, 5-6)</td>
<td>6/29 – 7/3</td>
<td>$120 $140</td>
</tr>
<tr>
<td>Creative Construction (Engineering, 6-8)</td>
<td>7/6 – 7/10</td>
<td>$140* $160*</td>
</tr>
<tr>
<td>Entering a Virtual Universe (Engineering, 6-8)</td>
<td>8/3 – 8/7</td>
<td>$140* $160*</td>
</tr>
<tr>
<td>The Search for Life Beyond the Earth (STEM, 7-9)</td>
<td>7/13 – 7/17</td>
<td>$120 $140</td>
</tr>
</tbody>
</table>

* (Tuition includes Material fee)

Student name: ___________________________ Gender: □ Male □ Female Grade in 2020/21: ______

Parent/Guardian/Grandparent name: __________________________________________________________

Student’s Birthday: __________

Address: __________________________________________ City/St/ZIP __________________________

Phone: ___________________________ Email Address: __________________________________________

(please write legibly)

Enclosed is: $_________ (checks payable to “Kopernik Observatory”) KOSC Member □ Yes □ No (□ * add $60 to join)

Credit Card # __________ Expiration Date: __________

CVV code (3 digit code) ______ Phone: ___________________________

Request Financial Aid – please see website for a Financial Aid form. Aid offered on a financial need basis.

Each student receives a Link Summer STEM Exploration T-Shirt (included in the tuition). Please indicate shirt size:

- □ Youth Small
- □ Youth Medium
- □ Youth Large
- □ Adult Small
- □ Adult Medium
- □ Adult Large
- □ Adult X-Large

For more information visit our website at [www.kopernik.org](http://www.kopernik.org) or email: registration@kopernik.org

Students must register and pay in full in order to secure a place in the camp. Late registrations will be permitted if space is available (call to inquire). Refunds are available (less a $15 administration fee) if student withdraws 14 days prior to the start of camp. In case of cancellation due to insufficient enrollment, participants will be notified one week in advance and will receive a full refund.

Please describe on a separate page if student has an IEP, an aide at school, or needs any special educational, behavioral, or physical accommodations.

Complete this registration form and mail it to:

LSSE2020 Online

Kopernik Observatory, 698 Underwood Rd, Vestal, NY 13850

or email it to: registration@kopernik.org or fax it to: (607)748-3222