Hello everyone!
I’m excited to share information for this year’s 4-H Career Explorations! Career Ex is a great opportunity for you to experience life on campus, explore how your 4-H projects can lead to careers, and meet new friends!

I’d especially like to thank our great team of Educators, Volunteers, and Focus Assistants helping to plan and make this event happen.

Please read carefully through these Program Facts to decide how you will participate. Registration is online and needs to be completed by your county 4-H Educator.

I hope to see you at Cornell this June!
Alexa Maille
NYS 4-H STEM Specialist
4-H Career Explorations Event Coordinator

Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EEO, Protected Veterans, and Individuals with Disabilities and provides equal program and employment opportunities.
General Information

The 4-H Career Explorations Conference is made up of two programs – University U (for those entering 8th & 9th grade) and Focus for Teens (those entering 10th – 12th grade). Teens choose the grade appropriate program and then Focus participants select three Focus programs they are most interested in exploring.

- **University U**: Participants will be introduced to Cornell’s campus through campus tours and participating in six different departmental workshops that will expose participants to a wide variety of topics.
- **Focus for Teens**: This is a more intense program where participants spend 3 days with a specific Department. Returning Focus for Teens participants should not apply to the same department program they attended in previous years. See program listings for more details.

General 4-H Career Exploration Program Policies

**Behavior**: Everyone (youth and adults) is expected to create an inclusive and welcoming environment at Career Ex, respect the diversity of conference participants (e.g. race, religion, sex, sexual orientation, cultural background, etc.). Everyone will be expected to uphold the **NYS 4-H Code of Conduct**. All youth and adults are expected to model appropriate behavior and follow guidelines stated on the 4-H Career Exploration registration form. In addition, all Cornell property and Cornell program presenters should be treated respectfully. Delegates acting inappropriately will be sent home at their cost/inconvenience.

Please Note:

- Adult chaperones will have the authority to make decisions in the absence of a County 4-H Educator if necessary.
  In Focus for Teens groups, Focus Assistants should be involved in decisions about the group if appropriate.
- Chaperones will be expected to intervene in any situation that violates the rules of the event or the basic rights of others, including with youth from other counties. Any problems with youth from other counties should be dealt with immediately and then reported to the appropriate chaperones, Chrys Nestle, and Alexa Maile.

**Eligibility**: The 4-H Career Explorations Conference is open to all NYS youth in grades 8-12. However, registrations are handled through your local county Cornell Cooperative Extension (CCE) 4-H program. CCE County Associations have varying policies about participation in 4-H events, and not all counties participate in 4-H Career Explorations. The NYS 4-H Office encourages CCE Associations to invite all teens involved in their programs to participate in Career Ex.

**Program Evaluation**: Conference participants will be asked to help us learn about the program effectiveness by completing a survey or sharing their reflections. Participation in program evaluation efforts is completely anonymous, voluntary, and there is no impact on program participation if someone decides not to complete a survey. A participant, parent, or guardian may withdraw consent at any time and a participant may refuse any survey request at any time. Parents and participants give or deny their permission to participate in program evaluation efforts by completing the Permission Slip.

**Other policies**:

- Most youth will be assigned a double-occupancy room. Youth cannot switch rooms. Roommates requested on registration forms will be assigned when possible. Participants are responsible for damages that occur to the room during their stay.
- Any disturbances or emergencies should be reported to a chaperone.
- Alcohol, tobacco, and other drugs are strictly prohibited.
- Parents of disruptive participants will be notified and participants will be sent home at parents’ expense.
- Participants must be in the dormitory by 10:00 p.m. Lights out and strict quiet hours begin at 11:00 p.m.
- Photos taken during the program may be used to promote 4-H Youth Development.

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Preparing for the Conference

Registration: Participants must register with the local 4-H Youth Development program through your county Cornell Cooperative Extension Office. Registration opens early March and will close June 1 or when programs are full, whichever happens first. This can occur before June 1. Counties will be billed directly for the registration fee and any additional room and board fees as appropriate.

Cost: $250 per participant to cover room, board, and program fees. Early Arrival/Late Departure costs: Double Room per night - $30.00, Single Room per night - $38.00, Breakfast: $8.25, Lunch: $11.50, Dinner: $15.75. Scholarships are competitive but available. Please note: transportation to and from the event is at the participant’s own expense. Some CCE Associations charge additional fees to cover transportation & chaperone expenses.

Scholarships: Scholarship applications are due at the time of registration, or no later than May 1. To apply for a full or partial youth scholarship, please complete the scholarship section of the Registration Form. Scholarships are limited and will be awarded to qualified applicants through a competitive review process. Scholarship applications must be approved by a county 4-H Educator.

Early Arrival: Please indicate your needs on the registration form if your county plans to arrive on campus early. See costs above. Teens arriving early must have a chaperone (we provide chaperones for Focus Assistants). Contact Alexa Maille, ask37@cornell.edu, to make special arrangements.

Chaperones: Counties are expected to provide chaperones in about a 1 to 6 ratio for teens attending. Chaperones may be shared with other counties. Every participant must have a designated chaperone. The state office needs to know about multi-county groups that need to be housed together. The chaperone registration fee is the same as for youth. Chaperones will be expected to supervise youth from other counties during program times and while supervising evening social activities.

Lead Educator: Each Association is expected to have a Lead Educator designated as your group’s main contact, for volunteer supervision, and for crisis and incident management. Lead Educators may be from your Association or another Association.

Cancellation Policy: Cancellations prior to June 1 will not be charged. Cancellations after June 1 will be billed a $100.00 cancellation fee. Same gender, same program replacements are allowed, but need to be registered before arrival at the conference. No-shows will be charged in full.

Chaperone and Participant Orientation: The Delegate Handbook will be available online by early June. All chaperones and participants should review the new handbook prior to coming to Career Explorations. We strongly encourage 4-H Educators to hold an orientation meeting to review this information before coming to campus.

While you’re on Campus

Check In: Your delegation needs to arrive between 10:00 a.m. and 12:00 p.m. on Tuesday, June 30. There are lots of great things to do and see on campus should you arrive early. The delegate handbook will include a listing.

Parking: There is NO PARKING on central campus during the event. Association and personal cars must be left at Cornell Conference lot (CC). Vehicles with “official” plates may park on campus in eligible parking spaces without additional fees being assessed. Parking permits will be available for the CC Lot at registration. If you are in need of handicap parking, please notify the state office in advance.

Dormitory Housing
- Chaperones should check rooms upon arrival, noting damages or defective appliances.
- Please use hair dryers in the bathrooms only.
• Linens are provided with rooms including sheets, pillow and pillowcase, one blanket, one towel, one washcloth, and soap. Participants will be asked to make their own beds.
• Participants will have to supply their own towel for the pool.
• Participants may want to bring an alarm clock and a fan.
• If there are problems with the rooms (i.e. light bulbs burnt out), contact staff immediately so that problem can be resolved or noted.
• Youth need to be careful not to lock themselves out of their dorm rooms. Doors close and lock automatically.

**Telephones:** There are no phones in the dorm rooms. Do not use cell phones during program times unless it is part of the program or an emergency.

**Safety:** Even though Cornell has a rather tranquil setting, be assured that serious crimes can and do occur along its pleasant footpaths.

• Youth should never walk alone anywhere on campus at any time.
• Dorm doors should be locked at all times.
• Under no circumstances should youth leave the dorm at night.
• The Safety Division's (Cornell police) phone number is 255-1111.

**Emergencies:** Chaperones will receive a list of campus emergency numbers during orientation.

**Free Time/Recreation:** Some participants may wish to arrive early to meet with Cornell admissions and/or tour the Cornell campus (see handbook for where assistance in arranging tours is available). During evening free time on Tuesday and Wednesday nights, there will be several options for recreation including: a movie, swimming and bowling, billiards, outdoor games, and more. There will also be a quiet lounge open for reading and silent relaxation. During free time activities, chaperones will be assigned to supervise one of the free time activities. If you so choose, you may bring items such as Frisbees, soccer balls, footballs, etc. to use during free time outside, as there is plenty of space for outdoor activities. Evening activities are offered as a time to meet people from around the state. All participants are expected to participate in some form of evening activity with adult supervision and should not be in the dorm before 10:00 pm. If a youth needs to go to the dorm for some reason they need to be accompanied by an adult.

**Curfew:** It is required that all delegates (youth and adults) follow the following schedule.

- **10:00 p.m.** 4-H Career Exploration programs end.
- **10:00 – 10:45 p.m.** Everyone inside dorms
- **11:00 p.m.** Settled in assigned rooms and LIGHTS OUT!

To have the best possible experience at Career Explorations, youth should be getting at least 8.5 hours of sleep.

**Campus Transportation:** A 4-H Focus Assistant or chaperones will escort participants to their program or bus pickup every morning. Be on time and prepared to walk about 15-20 minutes to your program destinations. Program gathering and departure times will be listed in the Delegate Handbook within the itineraries for each specific program. Please be aware departure times may vary for specific programs. If there are special transportation needs, please be sure to notify Alexa Maille in advance of the 4-H Career Explorations Conference. Walking is a part of the college experience at a large world-class university like Cornell. Enjoy the beautiful campus and get some healthy exercise - **so wear sneakers or comfortable walking shoes!**

We will have a Google Map with all the Program Locations pinned to help you navigate campus. Look for it in the Handbook, available in June.
Focus for Teens

Title: Astronomy
Cornell Department: Astronomy
Maximum Number of Youth Accepted: 15  Minimum Number of Youth Needed: 5

Description
Our program exposes the students to several different branches of astronomy and are taught how astronomy affects their everyday life. We also make a big effort to educate the students about different science careers, and what it's like to go to school for those fields. Activities like the poster session are meant to help the students get a feel for how we communicate our science.

Packing Suggestions
None

Title: Discovering Birds and Nature Exploration
Cornell Department: Cornell Lab of Ornithology
Maximum Number of Youth Accepted: 18  Minimum Number of Youth Needed:

Description
We will teach bird ID via hands-on activities and presentations, go on bird walks, and contribute data to citizen science. We will offer opportunities to talk to staff and grad students about science and education careers. We will engage youth in our "Fancy Males" unit and activities regarding natural and sexual selection. If possible, students will see the Cornell Museum of Vertebrates or at least bird specimens. We may do sound recording. We will explore acoustic engineering topics. We will hold a behind-the-scenes tour of the Lab.

Packing Suggestions
Dress for the weather and spending time outside. Bring your water bottle.
Identify Environmental Engineering

**Title:** Waste to Energy, Utilizing Microbes, Water Quality, and International Development

**Cornell Department:** Biological and Environmental Engineering

**Maximum Number of Youth Accepted:** 20  
**Minimum Number of Youth Needed:** 8

**Description**
Explore what it means to be an environmental engineer! You will work with graduate students in Biological & Environmental Engineering, learn about their diverse research projects, and conduct fun environmental engineering experiments. We will learn how microbes can be used to produce useful fuels and chemicals through fermentation and perform an experiment to understand how pesticide and herbicide use affects useful soil bacteria. We will also focus on several aspects of water quality and treatment. Hands-on activities will show how environmental engineers help protect lakes, rivers, and other waterways. We will also work in teams to produce clean drinking water through the design of water filters tailored to the needs and cultures of different communities around the world. One of our graduate students who spent a year in East Africa will lead this activity along with a conversation on how engineers can support and work with developing communities around the world. Finally, we will visit the Ithaca wastewater treatment plant to see first-hand how wastewater is converted into biogas—a source of renewable energy—through anaerobic digestion.

**Packing Suggestions**
Closed-toed shoes (no flip-flops or open shoes) for the laboratory; pack an extra pair of water shoes or shoes that you don't mind getting wet in a stream for the second day of activities (these can be sandals or open-toed)

Identify Fossil Collecting

**Title:** And the Science of Paleontology

**Cornell Department:** Museum of the Earth and the Paleontological Research Institution

**Maximum Number of Youth Accepted:** 9  
**Minimum Number of Youth Needed:**

**Description**
This program leads teens through the process of science in the field of Paleontology. On day one, they will be introduced to the concepts of historical geology by comparing and exploring fossils on exhibit in the Museum and fossil collections held in the Research Collections. Teens then start to create their own field notebook by researching the history and fauna of the fossil collecting sites and compiling their own fossil pack. The next day will be field trips to one or more local fossil collecting sites. After accumulating their own fossil specimens, the teens will organize, identify, and curate their finds. Having a unique opportunity of researching diversity at these sites, the teens will record findings using data from the whole group’s fossils and create a data base of life in the fossil locales.

**Packing Suggestions**
Wednesday will require an extra packing of clothes. Recommend closed-toed shoes and long pants for fossil collecting trips.
**Title:** Genetics and Embryonic Development  
**Cornell Department:** Molecular Biology and Genetics  
**Maximum Number of Youth Accepted:** 10  
**Minimum Number of Youth Needed:** 6  

**Description**

All of us were once embryos, being shaped into babies inside our mom’s bellies. In this program, participants will get a peek at how the intermediate steps of this process look by dissecting chicken and mouse embryos at different embryonic stages. Participants will also analyze mutant mouse embryos that model human congenital malformations and will be introduced to some of the molecular biology techniques commonly used in genetic research. Through this program, participants will learn how results from developmental biology studies are applied for the diagnosis of human birth defects and genetically inherited diseases. This program includes hands-on lab work and dissection.

**Packing Suggestions**

Closed-toed shoes; no flip-flops, sandals, or open shoes in the laboratory.

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**Title:** Geospatial Discovery  
**Cornell Department:** School of Integrative Plant Science, Soil and Crop Sciences, Institute for Resource Information Sciences  
**Maximum Number of Youth Accepted:** 20  
**Minimum Number of Youth Needed:** 10  

**Description**

Come explore geospatial sciences. This program will train you to operate geospatial technology - specifically GPS units, GIS software, remote sensing products and hobby quadcopters. Connect all of these activities to prepare a community mapping project. You will be working outside and have time to use the equipment.

**Packing Suggestions**

Be prepared to walk campus in any weather (walking shoes, rain gear)
Get the Gist

Title: How Understanding the Brain Enables Us to Make Smarter Choices
Cornell Department: Department for Human Development, Laboratory for Rational Decision Making
Maximum Number of Youth Accepted: 25
Minimum Number of Youth Needed: 15

Description
Here is your rare opportunity to see more deeply into what makes us truly human, and to understand how our brains really work? Our program will explore psychology, neuroscience and decision making in depth. Through our interactive program, you will learn some of the secrets to what make us all tick. Here is a chance to take an active part and discover what influences our choices, and how as human beings, we process information. Our program will include a tour of Cornell’s Laboratory for Rational Decision Making, where we engage daily in cutting edge research using the latest high-tech equipment. For instance, we use the fMRI machine to see the brain in action. It is here at the lab that we embark on groundbreaking studies with future real-world applications. We will make time for you to talk directly with our faculty and students, who will tell you how to pursue such exciting career paths!

In addition to learning new research skills, our program can offer to teach you healthy living strategies to share with your local community. You will help us improve the program, also! During the program, you can communicate incredibly valuable feedback about what works best, so that we can continue to make improvements for future youth groups. All surveys are completely voluntary; deciding not to complete a survey will not affect your participation in our program. Prepare to explore the brain and learn what makes us all make the choices that we do in life!

Packing Suggestions
None

Title: It Starts with a Bang!
Cornell Department: Mechanical and Aerospace Engineering
Maximum Number of Youth Accepted: 20
Minimum Number of Youth Needed: 12

Description
Explore three different fields of Mechanical and Aerospace Engineering! What is Mechanical Engineering? Mechanical engineers deal with objects and motion ranging from mechanics of the human body to the mechanics of a car. In this program you will build and test the strength of bridges, launch rockets, and design cannons. In this 3 day Mechanical and Aerospace exploration we will make your designs into reality.

Packing Suggestions
Comfortable shoes - there will be plenty of walking
Title: Learning to Program Robots with Baxter
Cornell Department: Computer Science
Maximum Number of Youth Accepted: 12  Minimum Number of Youth Needed: 1

Description
In this program, you’ll get a chance to learn the fundamentals of computer programming by working with a sophisticated manipulator robot, Baxter. You’ll also explore some of the rewards and challenges of programming a robot by moving the robot instead of only using a software program on a computer. This does not require any prior experience with programming. You’ll use a software program that is a little like LEGO Mindstorms, where you can drag and drop functional behaviors and logical control flow blocks to construct simple programs to manipulate blocks on a table. The behaviors will be things like move to a block, open/close the gripper, and pick up the block. Alternating with this main activity, you will learn about careers in robotics and what subjects are particularly important to study for a career in robotics.

Packing Suggestions
n/a

Making for Sustainability
Title: Technology, community and agriculture.
Cornell Department: Cornell Cooperative Extension Administration Information Technology
Maximum Number of Youth Accepted: 20 Minimum Number of Youth Needed: 8

Description
How does technology connect communities? How can the Maker Movement contribute to sustainability? During this session we’ll explore these questions in order to design and prototype technologies and systems for a vibrant, multifaceted community nexus. Some of the issues we’ll be exploring include: sustainability and innovative food production, community revitalization and the value of technology and its role in forging community. We’ll work with 3D Modeling, 3D printing, Arduino/RaspberryPi, littleBits, pen and paper and more to develop solutions to our design challenges. We’d love to have a mixed group of artists and tech savvy participants for this session. Help us build a diverse team for this community focused session.

Packing Suggestions
None.

Title: Media Corps
Cornell Department: University Communications
Maximum Number of Youth Accepted: 18 Minimum Number of Youth Needed:

Description
Participants will see what we offer through University Communications on a Studio Tour. We will explore audio work, radio, and video. Time will be provided to work as a team. We will go over editing styles, producing footage, lighting, camera techniques, and then have time for everyone to work on 3-minute videos which can be uploaded to NYS 4-H’s YouTube channel. The theme of the videos will be “Grow True Leaders”. Participants are encouraged to bring their own devices to learn how to use these skills at home. This is a great training opportunity for youth interested in the State Fair Media Corps.

Packing Suggestions
Smartphones, tablets, or iPods if available, and the USB cord that connects with it. If you don’t have your own equipment, you will be able to share with someone else.
Nanoparticles in my what?

Cornell Department: Chemical and Biomolecular Engineering

Maximum Number of Youth Accepted: 10    Minimum Number of Youth Needed: 5

Description
Nanomaterials are everywhere, from your car to your sunscreen, and even in your ice cream! Nanomaterials are materials that are very very small – a nanometer is one billionth of a meter! But most importantly, nanomaterials are applied to answer some of the most complex medical issues we face. In our laboratory, come explore how nanoparticles can be used to improve medicines, materials development, and how chemical engineers use nanotechnology to solve practical problems. Students will make nanoparticles and explore their properties as it relates to materials and biological applications. We will also discuss the diverse set of powerful careers for chemical engineers, ranging from the petroleum industry, to healthcare, to microelectronics, and even the food industry.

Packing Suggestions
Closed-toed shoes; no flip-flops or open shoes in the laboratory

Quality H2O

Title: Collecting and Analyzing Water Quality Data

Cornell Department: Computer Science

Maximum Number of Youth Accepted: 25    Minimum Number of Youth Needed: 10

Description
This three-day workshop provides high school students with introductions to the fields of Computer Science and Geology in a college setting. The workshop is a partnership between Nate Foster from the Cornell University Computer Science Department; Stephanie Dunda, Rosalind Echols, Brad Latimer, and Caitlin Thompson from the Science Leadership Academy in Philadelphia; and Brett Hayhurst, from the United States Geological Survey. The program consists of lectures and labs related to collecting and analyzing water quality data using computational techniques, as well as a discussion of careers in Science, Technology, Engineering, and Mathematics (STEM) disciplines. This program includes collecting water samples, then working on a computer and analyzing the samples.

Packing Suggestions
Sturdy clothes and shoes for a field trip to a USGS monitoring station
So you want to be a Food Scientist?

Title: Pick your pathway as you build your own ice cream company
Cornell Department: Food Science
Maximum Number of Youth Accepted: 20
Minimum Number of Youth Needed: 4

Description
Teams of participants will create their own ice cream brand and develop a flagship ice cream flavor. Creativity is a must in choosing flavors and production strategies for a unique and marketable product. However, along the way students will be challenged with various snafus that food scientists must use technical skills to solve. What engineering principle can be adjusted to improve ice cream texture? How do ingredient interactions impact ice cream flavor, and are consumers accepting of these ingredient combinations? What do you do if your company is implicated in an outbreak of foodborne disease? Students will be on their toes coming up with lab-based solutions to these challenges and will give a final "pitch" to professional food scientists based on their product design.

Packing Suggestions
Lab appropriate clothing - pants and closed-toed shoes

Title: Where Life & Engineering Meet
Cornell Department: Biomedical Engineering
Maximum Number of Youth Accepted: 15
Minimum Number of Youth Needed: 12

Description
Students in this program will have the chance to see and discuss how engineering principles are abound in biology and medicine, and learn how these principles can be applied to create new medical therapies. The theme will be “Intersection of Developmental Biology and Regenerative Medicine.” Students will rotate through stations led by PhD students where they will get to: grow chick embryos outside the shell, learn how the environment affects cell behavior, identify structural changes in cardiac development, including an inside look at the beating heart, learn how three dimensional printing can lead to custom-built heart valve replacements, etc. Come ready to learn and have a GREAT time!

Packing Suggestions
Closed-toed shoes; no flip-flops or open shoes in the laboratory
Title: Women in Science
Cornell Department: Human Development
Maximum Number of Youth Accepted: 25

Description
Why aren't there more women scientists? Do the toys you have as a child shape your future career goals? Do stereotypes affect your academic performance, even without you being aware of it? These are the types of questions we explore in “Women in Science.” In addition, you will get to meet women scientists and learn about their different research areas within the fields of psychology and human development including forensic psychology and neuroscience. This program will give you a glimpse of what it’s like to be a social scientist in real life. This program includes interesting lectures and hands-on activities. Participation and activities are the best part! Come learn about the real world of psychology and human development you never hear about in school – and prepare to be entertained.

Packing Suggestions
None

Title: Youth Grow!
Cornell Department: Horticulture
Maximum Number of Youth Accepted: 19

Description
Have you ever savored a juicy peach grown here in NYS? Are you inspired by those who get involved with everything from creating their own blog, to working with the White House garden? Are you passionate about working for environmental sustainability and healthy communities? The local food systems movement is gaining momentum and there has never been such an exciting time to jump on board! This workshop will provide you with the preparation, leadership skills, and tools needed to get involved in the local food systems movement. You'll interact in lively activities to take home and re-create there; visit thought leaders at local farms and garden and get your hands dirty there; and learn how to create meaningful and effective change in your own community. You'll walk away with both an action plan to help get you started and a network of peers and mentors to guide you in the process! Passionate teens are urged to enroll and to be prepared to create something big.

Packing Suggestions
University U

**Title:** Animal Adventures  
**Cornell Department:** Animal Science

**Description**  
Find out how you can turn a passion for animals into a career. Many people know the animal science department prepares undergraduate students for entry into animal and human medical professions, yet did you know animal facility managers, technicians, nutritionists and animal trainers are viable career path choices too? Visit with some of our campus partners to discover more animal related careers in fields that benefit society with hands-on experiences. Who knows...you may be the next animal scientist to make a new discovery.

**Packing Suggestions**  
Students must wear closed toed shoes for safety. Exposure to hay, fur and latex is possible. Be prepared if you have allergies. Disposable boots, gloves and lab coats will be provided as needed. Wear clothes that would be ok to get muddy.

**Title:** Biomedical Research  
**Cornell Department:** Biological and Environmental Engineering

**Description**  
We will be talking about cell encapsulation with a particular focus on type 1 diabetes treatment. We will discuss the concept of cell encapsulation, how it works, what kinds of diseases it can treat and what kinds of potential problems we have to overcome before it becomes a real therapy. We will also discuss what kinds of roles scientists and engineers can play in medicine. The students will also have an opportunity to make the hydrogel microcapsules that are commonly used for cell encapsulation. (Biological & Environmental Engineering)

**Packing Suggestions**  
None

**Title:** Climate Leaders in the Making  
**Cornell Department:** Cornell Institute for Climate Change and Agriculture

**Description**  
Climate change is one of the most important issues of our time. Do you know what it means for you, and how you can become a climate change leader and expert? In this session, students will get to experience climate change from all angles through hands-on scientific activities, fun and informational videos, and an interactive “Climate Leader” role-playing game. We will also explore unique opportunities for everyone to get involved in climate change now and in their future careers, from art and photography, to science and technology.

**Packing Suggestions**  
n/a
**Title:** Clocks and Codes  
**Cornell Department:** Mathematics  

**Description**  
This program will consist of two parts- first we'll learn about careers in mathematics and talk to people in different careers and then we'll learn some new math! If you look at a clock at 5 and then again after 10 hours, we get the funny expression that for clocks, 5+10=3. We'll explore this world of clock arithmetic and use it to build secret codes.

**Packing Suggestions**  
pens/pencils

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**Title:** Construction of a Crystal Radio  
**Cornell Department:** Applied Engineering and Physics  

**Description**  
Students will work in teams to construct crystal radios and then be able to listen to them. Students will also look at modern integrated circuits with a microscope, to understand the benefits of miniaturization.

**Packing Suggestions**  
None

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**Title:** Explorations in Nanotechnology  
**Cornell Department:** Cornell Nanoscale Facility  

**Description**  
This hands on session will explore the exciting new field of nanotechnology, where very small things act in unexpected ways. How small is a nanometer, anyway? You will explore everyday things with various kinds of microscopes including a scanning electron microscope, and see how forces and interactions at the nanoscale cause materials to act in different ways. Finally, you will explore some of the different tools scientists and engineers use to build and explore nanostructures.

**Packing Suggestions**  
None

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**fishPHARM**  

**Title:** Bridging the Gap Between Science and Business  
**Cornell Department:** Cornell iGEM  

**Description**  
Explore ways that science and business interact. In this session, you will learn about the Cornell iGEM’s 2015 fishPHARM project, which won Best Environment, Best Supporting Entrepreneurship, and Best Applied Design at the iGEM international competition. Then you will get to work in a team to create a business that will solve a community problem using science.

**Packing Suggestions**  
None
Title: **Nutritional Artist**  
Cornell Department: Food Lab, Division of Nutritional Sciences  

Description  
In this program, we will explore the topic of “easy” nutrition. We will prepare a popular dish, focusing on ways to make it easier to prepare and more nutrient dense. We will talk about food science, the reasons why we cook things a certain way, and careers in cooking, food, or nutrition. Participants will be encouraged to cultivate a sense of individual expression through food while learning how to have fun with it at the same time.  

**Packing Suggestions**  
Close-toed shoes for safety, and clothes that you don't mind getting (potentially) splattered with food.

Title: **Polymer Chemistry**  
Cornell Department: Center for Sustainable Polymers/Department of Chemistry and Chemical Biology  

Description  

**Packing Suggestions**
### 4-H Career Explorations Conference Overall Schedule - Draft

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuesday</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 AM – 12:00 PM</td>
<td>Check In</td>
<td>RPCC (upper side)</td>
</tr>
<tr>
<td>12:30 PM</td>
<td>Youth Orientation</td>
<td>Court Hall green space – program signs</td>
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<tr>
<td>12:30 PM</td>
<td>Chaperone Orientation</td>
<td>RPCC 2nd Floor Auditorium</td>
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<tr>
<td>1:30 – 2 PM</td>
<td>Lab Safety Training – for specific Focus groups</td>
<td>RPCC 2nd Floor Auditorium</td>
</tr>
<tr>
<td>1:30 PM</td>
<td>Leave for programs – groups not in Lab Safety</td>
<td>Court Hall green space</td>
</tr>
<tr>
<td>2 – 4:30 PM</td>
<td>Focus groups: see specific group schedule</td>
<td>Focus groups: see group schedule</td>
</tr>
<tr>
<td>2 – 3 PM</td>
<td>UU: Opening Presentation</td>
<td>700 Clark Hall</td>
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<tr>
<td>2 – 3 PM</td>
<td>UU: Chaperone Orientation</td>
<td>700 Clark Hall</td>
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<tr>
<td>3 – 4:30 PM</td>
<td>UU: Campus Tour</td>
<td>Begins at Clark Hall</td>
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<tr>
<td>5 – 5:45 PM</td>
<td>County Group A: Dinner</td>
<td>RPCC Dining</td>
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<tr>
<td>5:45 – 6:30 PM</td>
<td>County Group B: County Meetings</td>
<td>Dorms</td>
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<tr>
<td>6:30 PM</td>
<td>Walk to Opening Assembly</td>
<td>Meet County outside of RPCC</td>
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<tr>
<td>7 – 8:30 PM</td>
<td>Opening Assembly</td>
<td>Appel Fields (rain location – Helen Newman Gym)</td>
</tr>
<tr>
<td>8:30 PM</td>
<td>Free Time and Recreation</td>
<td>RPCC, Helen Newman Hall, Outside</td>
</tr>
<tr>
<td>10 PM</td>
<td>County Check In – youth must be in dorms!</td>
<td>Dorms</td>
</tr>
<tr>
<td>11 PM</td>
<td>Lights Out</td>
<td></td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 – 8 AM</td>
<td>Breakfast – arrive no later than 7:30 AM</td>
<td>RPCC Dining</td>
</tr>
<tr>
<td>Varies</td>
<td>Leave for programs – check your schedule</td>
<td>Court Hall green space</td>
</tr>
<tr>
<td>9 AM – 4:30 PM</td>
<td>Programs – see specific schedules</td>
<td>See group schedule</td>
</tr>
<tr>
<td>5 – 5:45 PM</td>
<td>County Group A: Dinner</td>
<td>RPCC Dining</td>
</tr>
<tr>
<td>5:45 – 6:30 PM</td>
<td>County Group B: County Meetings</td>
<td>Dorms</td>
</tr>
<tr>
<td>6:30 – 10 PM</td>
<td>Free Time and Recreation</td>
<td>RPCC, Helen Newman Hall, Outside</td>
</tr>
<tr>
<td>10 PM</td>
<td>County Check In – youth must be in dorms!</td>
<td>Dorms</td>
</tr>
<tr>
<td>11 PM</td>
<td>Lights Out</td>
<td></td>
</tr>
<tr>
<td><strong>Thursday</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 – 8 AM</td>
<td>Breakfast and Checkout</td>
<td>RPCC Dining</td>
</tr>
<tr>
<td>Varies</td>
<td>Leave for programs – check your schedule</td>
<td>Court Hall green space</td>
</tr>
<tr>
<td>9 AM – 12 PM</td>
<td>Programs – see specific schedules</td>
<td>See group schedule</td>
</tr>
<tr>
<td>12:15 – 1 PM</td>
<td>Closing Ceremony and Send Off</td>
<td>TBD</td>
</tr>
<tr>
<td>1:15 – 2:15 PM</td>
<td>Lunch</td>
<td>RPCC Dining</td>
</tr>
</tbody>
</table>