Partnering with 4-H Manual

For

Summer Reading
AT NEW YORK LIBRARIES

FIZZ BOOM READ
Manual Prepared by:

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Crystil-Lee Skoda, CCE of Columbia and Greene Counties

Cornell Cooperative Extension provides equal program and employment opportunity.
Why Partner?

The Summer Reading theme for 2014 offers a real opportunity to help youth with two kinds of literacy – reading and science! Through our connection to Cornell University, the New York State 4-H program can offer resources connected to “real” scientists, that are kid- and volunteer-friendly.

Hands-on is what 4-H does best – we have a reputation for designing activities that combine fun with research-based learning approaches that really work. These approaches and activities have been refined through our outreach to hundreds of thousands of youth and volunteers. In addition, youth who participate in our long-term 4-H club program reap benefits that last a lifetime (see “4-H Today” included at the end of this section and Appendix B - 4-H Research.)

Informal hands-on science activities can improve vocabulary and comprehension. This manual provides not only the informal science activities, but also techniques and strategies to maximize literacy gains, recommended by Cornell’s Teacher Education Program.

Your library can become a place of inspiration to the next generation of scientists, who will make the world a better, healthier place.

Local 4-H Connections

Cornell Cooperative Extension has local 4-H staff in your area who are looking for outreach opportunities. They may be able to partner with you on many levels from advertising your summer reading programs to providing staff or volunteers to assist with the teaching.

Here are a few examples of possible partnerships:

• The library provides time for 4-H staff to visit the program, talk about other 4-H opportunities available to the youth, and then lead a short activity. In return, 4-H assists with the promotion of your summer reading program through its newsletter and website.
• The 4-H staff assists in identifying youth and adult volunteers to help with the science activities.
The library and 4-H staff work together to write small grants to cover the costs associated with the program (this may include program fees so that a 4-H educator can lead the science activities at your site). There are as many possibilities as there are libraries in the system. Each CCE office has its unique mix of staffing and funding, so it is best to contact your local 4-H staff and brainstorm together (See contact list in Appendix A).

In addition, other departments at the Cooperative Extension Office may be able to support the program. For example, CCE Nutrition Educators may be able to lead activities for parents and young children while you work with the youth in Grades K-2.

**4-H Lessons are Value-Added**

The activities developed for this project are reviewed and tested at many levels. Content is developed or reviewed by faculty from Cornell and other land-grant universities. Staff in the field have pilot-tested the activities and provided feedback to ensure that the activities are engaging and practical. Educational specialists have determined that the approaches represent best practices in the fields of science education and youth development.

Special Opportunities for Summer 2013 and 2014

Through federal Smith-Lever funds, Cornell Cooperative Extension is able to partner with “Summer Reading at New York State Libraries” for the 2013 and 2014 summer programs. Funding enables a library partnership coordinator to offer professional development training based on NYS 4-H Youth Development’s approach to non-formal science for 6 library systems (3 per year), as well as a resource kit of 4-H science lessons which will be provided to all NYS libraries through their local CCE offices.

In addition, Cornell faculty and extension staff are creating the non-formal science lesson units to ideally support and correspond with the summer reading themes. In 2014, the
theme is’’Fizz, Boom, Read” and 4-H is providing three units — “Fizz- the Power of Lightning” (weather), “Boom- the Power of Vibration” (sound), and Fizz, Boom- Power!” (Electricity).

**How do we become an official “4-H site?”**

Once you have contacted your local 4-H staff and determined the best method of partnering, e-mail project coordinator Bonnie S. Peck (bsp8@cornell.edu). This will give you access to the 4-H lessons, and a resource for any questions that you may have.

Official sites will be asked to share program attendance statistics (numbers not names) and evaluation summaries either with their local CCE office or the project coordinator. This will provide helpful information to the New York State Library Association as well as the NYS 4-H program.
Our Background
For more than 100 years, 4-H has stood behind the idea that youth is the single strongest catalyst for change. What began as a way to give rural youth new agricultural skills, today has grown into a global organization that teaches a range of life skills.

4-H is dedicated to positive youth development and helping youth step up to the challenges in a complex and changing world. 4-H is dedicated to helping cultivate the next generation of leaders and tackling the nation's top challenges such as the shortage of skilled professionals, maintaining our global competitiveness, encouraging civic involvement, and becoming a healthier society.

Most Effective Youth Organization
According to an in-depth, longitudinal study conducted by the Institute for Applied Research in Youth Development, Tufts University 4-H youth are three times more likely to actively contribute to their communities and have higher educational achievement.

4-H in Numbers
7,000,000
Youth Served Worldwide
3,068 71
U.S. Counties Countries
3,500+
Educators
532,312+
Volunteers
60,000,000+
Alumni

Largest Youth Organization
4-H 6.3M
Boys & Girls Club 4.8M
Junior Achievement 4.2M
Boy Scouts 2.8M
Girl Scouts 2.7M
Girls Inc. 0.9M
National FFA 0.5M
Big Brothers Big Sisters 0.25M

High Quality Positive Youth Development=
Competence+
Caring+
Character+
Confidence+
Connection.

Ultimately the 4-H youth makes a contribution to his/her community.
What Does 4-H Offer Youth Today?

4-H Science explores such relevant and cutting-edge topics as climate change, water quality and usage, alternative energy, robotics, scientific and technology literacy and sustainable agriculture.

4-H Healthy Living is a holistic approach that includes encouraging healthy eating habits, physical fitness, the capacity to recognize and direct emotions and the ability to develop and maintain positive social interactions and relationships.

4-H Citizenship concentrates on community action, leadership and personal development, and communication and expressive arts. Through Citizenship programs 4-H youth develop concrete skills to become capable, confident and contributing citizens.

Life Skills
The life skills that 4-H kids learn are as diverse as the kids themselves.

- Rocketry
- GPS Mapping
- DNA Analysis
- Photography
- Community Service

Robots
- Agricultural Science
- Public Speaking
- Nutrition
- Leadership

How Do We Reach Youth?

<table>
<thead>
<tr>
<th>Number of</th>
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<tr>
<td>4-H Clubs</td>
<td>1,500,000</td>
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<tr>
<td>4-H Camps</td>
<td>418,000</td>
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<tr>
<td>4-H After-School Programs</td>
<td>307,000</td>
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<td>4-H School Enrichment Programs</td>
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Our Past & Current Partners Include:

- Coca-Cola
- JCPenney
- Bill & Melinda Gates Foundation
- DUPONT
- Molina Healthcare
- Monsanto
- Walmart
- NOYCE Foundation
- UnitedHealthcare
- Toyota

4-H is the youth development program of our nation’s Cooperative Extension Service.
The Secret of 4-H Science

4-H’s approach to science is hands-on and engaging. It is active and fun. To some it might seem like “child’s play,” but we are actually using “tried and true” techniques that are supported by research. Our goal reflects these effective approaches:

- Youth “learn by doing” and are actively engaged in the process of science.
- Youth learn to ask questions and investigate the answers.
- Youth spend enough time on a topic/skill so that there will be a lasting impact.
- Youth develop positive attitudes about science and science learning.
- Youth increase their science vocabulary and improve their comprehension of information text.

Planning Multiple Sessions

It doesn’t just apply to science – in most cases, the more time you spend learning about a topic and actually applying that knowledge, the bigger impact it will have on your development in that area. Six contact hours is the 4-H “rule of thumb” to ensure measurable changes in understanding and skill development.

There are many ways that your library can offer a program for this length of time. The curriculum has been developed as a series of “one-hour” activities that can be put together in various ways to accommodate different scheduling options. A few models that have worked for 4-H include:

- “Every Thursday” - once a week for two hours (3 weeks total)
- “Two Week Program” – twice a week for 90 minutes (4 sessions)
- “Science in the AM” – two mornings (3 hours each – use team approach)
- “Camp program” – every day for a week (1 hour each day, with a two hour closing session.)
- Or a combination of any of the above.

Sample schedules are included with the curriculum units.

Different Approaches for Longer Sessions

- Team teaching – If you are covering more than one lesson in a session, have a different person lead each lesson. If possible, change locations in the library as well.
• Stations – recruit teens to lead some of the activities in a round-robin fashion. Have the youth travel from station to station with a passport or some other guide to help them make sure they have done all of the activities.
• Family Closing – On the final day of the program, give the participants a chance to show their parents what they have learned by leading stations for their families and siblings to try.
• Clean as We Go – Break up the activities by organizing the participants into a clean-up crew. Assign each group a job that helps prepare for the next set of activities.
• Library Scavenger Hunt – To extend the learning and provide more variety in the activities, give the participants clues to seek out related non-fiction books in the library.

Involving Teens and Volunteers

Teens and volunteers can be an added plus, if you have clear guidelines and expectations. Here are a few ideas of how to “put them to work” effectively:

• Activity Assistant: Act as an extra set of hands – listen to the directions and help the participants follow them. Help with passing out and collecting materials, and keeping kids on task.
• Crowd Control: Lead fun activities or read books to younger siblings while the older youth are doing the science activities. Parents can be a good source for crowd control. (Note: you may also be able to bring in another organization to work with this group, as long as it isn’t distracting to the kids participating in the 4-H lessons.)
• Co-Teacher: Help by leading activities in tandem with the staff person. They can “switch off” (one leads, while the other one gets ready for the next activity – great for the longer sessions) or “rotate” (two or more activities are run at the same time and the children are rotated between stations).
• Materials manager – Shop for needed supplies ahead of time. Help with set-up and clean-up. Seek out donations, if needed.

Managing Materials

Organization is key when you are doing hands-on activities. A little prep time can save you from chaos. One strategy is to have a materials table (if space allows) and limit access to this table (i.e. assign one person from each group to go to the table – switch on different days or as you change activities).
Other considerations:

- Make it easy for the youth to get what they need without making a mess (open packages, provide kid-friendly scoops or spoons, transfer out of hard to use containers, etc.)
- Have clearly marked and easy accessed garbage cans.
- Designate areas for certain messy tasks (i.e. “We will only have the pots with soil at this table that is covered.”)
- Need a quick-clean up? Bring a couple of extra garbage bags – put items to be washed in one, garbage in another, items to be sorted in yet another, etc.
- Recruit an adult helper to help reorganize and put away at the end of the session.

Note: There is balance here. We want the youth to be involved in as much of the measuring and organizing as possible. If you are limited on time or space, you may need to do more of the “staging” so that the activities will run well. Just don’t overdo, and do everything for the youth. A little mess may lead to a large amount of learning!

Questions are Good

The most important component of 4-H Science activities is to encourage and support a child’s natural curiosity about a topic. Don’t worry if you don’t know all of the answers – your job is to help the child figure out a way that they can discover the answer. And keep in mind that the person doing the work of the thinking should be the one who is actually learning, so let the child search for the answers. It might be a little mini-experiment or it might be some research in the library. Most groups will need you to get them “processing the information.” Here is a chart to get you started:

<table>
<thead>
<tr>
<th>Question to Ask</th>
<th>Science Literacy Skill</th>
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</table>
| How would you describe. . .  
Tell me about. . .                                   | Observing                                            |
| How are these alike? Different?                      | Using the senses to gather information                |
| What do you think will happen?  
What if. . .?  
I wonder why. . .                                      | Classifying                                          |
|                                                       | Ordering or grouping observations                     |
|                                                       | Predicting                                           |
|                                                       | Stating future cause-effect relationships             |

Adapted from Cornell Cooperative Extension In-Touch Science Series
Literacy Connections

While research does provide evidence that just completing the hands-on 4-H activities will help your participants improve their vocabulary and comprehension, there are techniques you can use to maximize those gains.

- Reinforce science vocabulary with visual cues – post the words around the room, recruit a talented teen to create a poster with graphics, etc. A modified word wall of key words and ideas for the duration of your program will keep these critical words fresh in learners’ minds.

- Supplement the activities by taking a minute to talk about the vocabulary – have each group come up with their own definition or describe how they would explain the term to a friend.

- Learners often know something about the science we are studying, so allow students to think about what they already know about key concepts and vocabulary. Give the youth opportunities to develop their own working definitions of these “science words.”

- Etymology – many science terms have interesting origins – incorporate these discussions into your activities (i.e. planet is derived from the Greek word for wanderer). Where possible, help students learn prefixes and suffices that are common both in science and in everyday life. Learning these will help students truly become lifelong learners.

- Use icebreakers that provide non-fiction opportunities – i.e. give each group a short biographical sketch of a scientist related to your science topic. Play Pictionary and have each group draw clues to the scientist’s name or discoveries.

4-H’s Research Connection

As mentioned in Section One, our programs and curriculum are developed and supervised by University faculty. Our approaches are based on research. For more information about these connections, visit Appendix B.
SECTION THREE – PROMOTION

Getting The Kids There

As you already know from planning past Summer Reading programs, promotion is key. One advantage in partnering with 4-H is that you will have something “new and exciting” to describe to your library audience. Another possibility is that your local 4-H program will become a partner in promotion, helping get the word out to the 4-H families in your area.

If you decide to plan multiple session programs (and we hope you do), it is key to emphasize regular attendance in your flyers and newsletters. One approach is to offer some kind of attendance incentive – and that doesn’t have to cost a lot of money.

Here are some approaches we have found to be effective:

- Create a “passport” for the program and youth receive special stamps or stickers for each day (or activity) completed. At the end of the program, the passports are submitted for some kind of recognition (a fancy certificate, a small prize, or attendance at a special event). Be sure to keep the passports at the library, so there will be no drama over losing them.

- The names of those who attend all the sessions are submitted into a drawing for a very special prize (recruit a volunteer to get a fitting donation from a local store).

- Charge a non-refundable fee that reflects the value of six hours of programming. For example, a $5 fee is about the same price as a “bargain price” 2-hour movie. So it might be reasonable for a parent to think, “even if my child only attends once, we will get a good value for our money.” Would they make the same conclusion if it were $15? Only you can determine the “right number” and approach for your library community.

The point is to communicate that the children will benefit the most by attending all of the sessions, and that they will “miss out” if they pick and choose when to attend. From the 4-H perspective, we are trying to deliver a “specific dosage” of science learning, and those who don’t receive this minimum amount will not reap the full benefits of the experience.
Bigger Isn’t Always. . . .

You may also want to promote this as a special opportunity for a certain number of participants. In general for this age range, 4-H recommends a group size of 8-12.
To accommodate larger numbers of participants, you can offer several time slots on the same day (saves in set-up and clean-up time) or recruit more teachers/helpers.

Don’t Lose Them Mid-Stream

Realistically, we know that not every family will “buy in” to multiple sessions. As partners, we will need to work together and do our best to clearly communicate the value of the full six hours. One key strategy is to build anticipation for the next session. At the end of session one, be sure to give some “highlights” of what will happen at session two. Share them on your library’s facebook page or post them on your bulletin board. Every little bit helps — and you don’t have to do it on your own. Share the overview of the program and our attendance goals with some of your key parents and volunteers. Enlist their help in spreading the word.

The 4-H Clover is a highly recognized symbol for youth education programs. So recognized, that the US Congress had to pass legislation to protect its use. By partnering with your local 4-H program, you can co-develop your program’s flyers and have access to our 4-H graphics.

Of course, you are free to use the word “4-H” in your newsletter and other social media to promote the program. We strongly encourage you to do so!

You may also develop your own flyers without the 4-H clover. Examples of both types of flyers are included at the end of this section.

Using the Clover
<table>
<thead>
<tr>
<th>Lesson One</th>
<th>Lesson Two</th>
<th>Lesson Three</th>
<th>Lesson Four</th>
<th>Lesson Five</th>
<th>Lesson Six</th>
<th>Lesson Seven</th>
<th>Lesson Eight</th>
</tr>
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4-H Summer Reading Passport

Name: 
"4-H Magic Bubbles"

WHEN: Classes begin August 2, 2011 & end August 23 (4 sessions)

WHERE: Catskill Library

TIME: 3:00 to 4:30PM

COST: Free!

WHO: Youth in Grades 3-6

Participants will:
- Experiment with many kinds of bubbles, including foam
- Practice the science skills of observing, comparing, and predicting.

4-H Volunteer Amie Roe will be teaching the course.

Youth who attend all four sessions will receive a special "4-H Family Science Kit" with activity guide.

Class size is limited to 12 participants and will be cancelled if less than 5 pre-register by August 1.

Classes are once a week on Tuesdays: August 2, 9, 16, and 23. Parents are welcome to stay and watch. Youth should wear experiment-appropriate clothing.

4-H Magic Bubbles Registration Form

Youth’s Name: ___________________________ Phone #: _______________________

Mailing Address: __________________________________________________________________________

Grade in School: _______________________

Return to the Catskill Library no later than August 1.
"Dig Into Dinosaurs"

WHEN: Classes begin July 6 - 3 fun afternoons!  
7/6, 7/13, 7/20

WHERE: Claverack Library

TIME: 2PM to 4PM

WHO: Youth in Grades 3-6

Participants will:

• Investigate the fossil record and assemble an ancient creature!
• Take a geological journey and create their own comic book.
• Learn about prehistoric beasties and solve a dino crime scene.

Youth are encouraged to participate in all three Thursday afternoons. Those who do will be entered into a drawing for a “Dinosaur Discovery pack.”

Questions? Call the CCE Office at 518-828-3346 X201.

Cornell Cooperative Extension provides equal program and employment opportunities. Accommodations for persons with special needs may be requested by calling 518-828-3346 by 7/1.

RETURN TO CLAVERACK LIBRARY BEFORE JULY 1.

Youth’s Name: _______________________________ Phone #: ____________________

Mailing Address: _______________________________ Grade: __________

E-mail Address: ______________________________ 4-H member? YES NO (not required)
Lesson Overviews

For

NYS Library

Summer Reading Programs

For complete lesson unit packets, contact the 4-H staff at your local CCE Office (see Appendix A) or e-mail NYS Project Coordinator Bonnie S. Peck (bsp8@cornell.edu).
Welcome! The following lessons are a brief glimpse into the science of weather (lightning), vibration (sound), and power (electricity). Connecting with the 2014 “Fizz Boom Read” Library theme, we have compiled lessons in each of lessons broken down into 3 categories. The target age group is children in grades K-2. There will be a activity connection for those youth in grades 3-6 available upon request.

**Fizz- The Power of Lightning**

Book “What Will the Weather Be?” by Lynda DeWitt

Or: Franklin and the Thunder Storm

**Lesson 1: Stormy Weather, What Makes a Thunderstorm?** 15-20 minutes

This activity is done as a demonstration. Thunderstorms happen when two very different characterized air masses are forced together by wind movement or some other event. Youth will observe how two colliding air masses create a thunderstorm.

**Lesson 2: Build your own lightning generator** 30 minutes

This activity will involve youth in building their own lightning generator using items easily found around the house. They will choose someone to be struck by “lightning”.

**Lesson 3: Build a Static Electricity Detector** 30-40 minutes

Youth will construct a “Static Electricity Detector,” then use it to determine whether an object has a static electricity charge.

**Lesson 4: Positive and Negative Charges Game** 30-40

This game models the process of electron transfer and accumulation that causes static electricity. It is best played in a gym or outdoor playground where the child “atoms” have plenty of room for energetic electron transfers and charged atom interactions!

Take-home activity worksheet. “Make a rain gauge”
**Boom- The Power of Vibration**

Book- “What’s that Sound” by Mary Lawrence

**Lesson 5: Explore Sound Stations 30-40 minutes**

Youth will explore sound at 6 stations doing activities relating to different aspects of sound.

Optional Review/continue: Read the book “Sounds All Around” by Wendy Pfeffer. Make the telephone Cups as described in the book. (additional 30 minutes)

**Lesson 6: Wave Game 15-20 minutes**

Youth should have completed the “Rubber Band Guitar” and “Balloon Drum” stations prior to playing this game. The game teaches how sound is caused by vibrations using musical instruments.

**Take-home activity worksheet. “Make a Kazoo”**

Sound is vibration moving through air, water, or some other material. Families will work together to make a kazoo!

**Fizz, Boom, Power!**

**Book: Bulbs Batteries and Sparks by Darlene Stille.**

**Lesson 7: Power Under Control - 15 minutes**

Participants will learn of at least three primary ways that controlled electricity can help us. This section takes a look at how we use electric power to: 1. Heat things 2. Create light 3. Make things move (mechanical/motors). Participants will explore various appliances and how the work.
Lesson 8: How Does Electricity Get From Here to There? - 20 minutes
The concept of conductors, insulators and switches will be explored in this activity. As a group (lead by the instructor) participants will build a simple circuit board including a battery, simple mini light fixture, wire and switch.
Vocabulary words: circuit, electric current, electric switch, battery, fixture (bulb & socket)

Take Home Activity: For Extra Fun, Be an Energy Sleuth at Home
To be a sleuth is like being a “detective”. Your role will be to go home and find all sorts of the tools and appliances and put them in three different groups: Heat, Mechanical, and Light...then your task will be to have your parents help you to see how much electric energy each tool or appliance requires when it is turned on (or operating).

CELEBRATE SCIENCE!
Appendix A - Contact Information for Local CCE Offices

Note – 4-H is the youth development program of Cornell Cooperative Extension.

<table>
<thead>
<tr>
<th>County</th>
<th>Contact Information</th>
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<tbody>
<tr>
<td>Albany</td>
<td>William Rice Jr. Ext. Ctr. 24 Martin Rd, PO Box 497, Voorheesville, NY 12186 Phone: 518-763-3500</td>
</tr>
<tr>
<td>Allegany (and Cattaraugus)</td>
<td>5435A County Road 48, Belmont, NY 14813 Phone: 585-268-7644</td>
</tr>
<tr>
<td>Broome</td>
<td>840 Upper Front Street, Binghamton, NY 13905-1500 Phone: 607-772-8953</td>
</tr>
<tr>
<td>Cattaraugus (and Allegany)</td>
<td>28 Parkside Drive, Ellicottville, NY 14731 Phone: 716.699.2377</td>
</tr>
<tr>
<td>Cayuga</td>
<td>248 Grant Avenue, Suite I, Auburn, NY 13021-1495 Phone: 315-255-1183</td>
</tr>
<tr>
<td>Chautauqua</td>
<td>3542 Turner Road, Jamestown, NY 14701-9608 Phone: 716-664-9502</td>
</tr>
<tr>
<td>Chemung</td>
<td>425 Pennsylvania Avenue, Elmira, NY 14904-1766 Phone: 607-734-4453</td>
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<tr>
<td>Chenango</td>
<td>99 North Broad Street, Norwich, NY 13815-1386 Phone: 607-334-5841</td>
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<tr>
<td>Clinton</td>
<td>6064 Route 22, Suite 5, Plattsburgh, NY 12901-9601 Phone: 518-561-7450</td>
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<tr>
<td>Columbia (and Greene)</td>
<td>Extension Education Center, 479 Route 66, Hudson, NY 12534 Phone: 518-828-3346</td>
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<tr>
<td>Cortland</td>
<td>60 Central Avenue, Room 105, Cortland, NY 13045 Phone: 607-753-5077</td>
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<tr>
<td>Delaware</td>
<td>34570 State Hwy 10 Suite 2, PO Box 184, Hamden, NY 13782 Phone: 607-365-6531</td>
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<td>County</td>
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<tr>
<td>Dutchess</td>
<td>2715 Route 44</td>
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<td>Millbrook, NY 12545</td>
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<td>Phone: 845-677-8223</td>
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<td>Erie</td>
<td>21 S. Grove St.</td>
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<td>East Aurora, NY 14052</td>
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<td>Phone: 716-652-5400</td>
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<td>Essex</td>
<td>3 Sisco St., PO Box 388</td>
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<td>Westport, NY 12993</td>
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<td></td>
<td>Phone: 518-962-4810</td>
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<td>Franklin</td>
<td>355 West Main Street, Suite 150</td>
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<td>Malone, NY 12953</td>
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<td>Phone: 518-483-7403</td>
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<td>Fulton (and Montgomery)</td>
<td>50 East Main Street</td>
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<td>Canajoharie, NY 13317</td>
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<td>Genesee</td>
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<td>Hamilton</td>
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<td>Room 20, Piseco Common School</td>
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<td>Phone: 315-788-8450</td>
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<td>Phone: 315-376-5270</td>
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| Montgomery (and Fulton) | 50 East Main Street  
Canajoharie, NY 13317  
Phone: 518-673-5525  
Fax: 518-673-5594 |               |              |
| Nassau               | 5 Old Jericho Turnpike  
Jericho, NY 11753  
Phone: 516-433-7970  
Fax: 516-433-7971 |               |              |
| New York City        | 40 E. 34th Street  
Suite 606  
New York, NY 10016  
Phone: 212-340-2928 |               |              |
| Niagara              | 4487 Lake Avenue  
Lockport, NY 14094-1139  
Phone: 716-433-8839 |               |              |
| Oneida               | 121 Second St  
Oriskany, NY 13424  
Phone: 315-736-3394 |               |              |
| Onondaga             | The Atrium, Suite 170  
2 Clinton Square  
Syracuse, NY 13202  
Phone: 315-424-9485 |               |              |
| Ontario              | 480 North Main Street  
Canandaigua, NY 14424  
Phone: 585-394-3977 |               |              |
| Orange               | 18 Seward Avenue  
Suite 300  
Middletown, NY 10940  
Phone: 845-344-1234 |               |              |
| Orleans              | 12690 NYS Rt. 31  
Albion, NY 14411  
Phone: 585-798-4265 |               |              |
| Oswego               | 3288 Main Street  
Mexico, NY 13114  
Phone: 315-963-7286 |               |              |
| Otsego               | 123 Lake Street  
Cooperstown, NY 13326  
Phone: 607-547-2536 |               |              |
| Putnam               | Terravest Corporate Park  
1 Geneva Road  
Brewster, NY 10509  
Phone: 845-278-6738 |               |              |
| Rensselaer           | 61 State Street  
Troy, NY 12180 |               |              |
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<td>Rockland</td>
<td>10 Patriot Hills Drive</td>
<td>518.272.4210</td>
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<tr>
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<td>Stony Point, NY 10980</td>
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<tr>
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<td>Phone: 845-429-7085</td>
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<td>Saint Lawrence</td>
<td>20438 State Highway 68</td>
<td>315-379-9192</td>
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<td>Canton, NY 13617</td>
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<td>Saratoga</td>
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<td>107 Nott Terrace</td>
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<td>Schoharie (and Otsego)</td>
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<td>Schuyler</td>
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<tr>
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<td>64 Ferndale Loomis Rd</td>
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<td>Ulster</td>
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<td>377 Schroon River Rd.</td>
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<td>Washington</td>
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<td>Hudson Falls, NY</td>
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<td>Wayne</td>
<td>1581 Route 88 North</td>
<td>315-331-8415</td>
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<td>Westchester</td>
<td>26 Legion Drive</td>
<td>914-285-4620</td>
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<tr>
<td>Wyoming</td>
<td>401 North Main Street</td>
<td>585-786-2251</td>
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<tr>
<td>Yates</td>
<td>417 Liberty Street, Suite 1024</td>
<td>315-536-5123</td>
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Appendix B – Research Connections and 4-H

Approaches to Science Education

4-H Impacts Young People’s Interest in Science, Engineering, and Technology: Data from the 4-H Study of Positive Youth
http://www.ca4h.org/files/1319.pdf

SET (Science, Engineering, and Technology) Programming in the Context of 4-H Youth Development
http://www.ohio4h.org/sites/d6-ohio4h.web/files/4-H%20897%20SET%20Programming%20in%20the%20Context%20of%204-H%20Youth%20Development.pdf

What is the Importance of Reading and Writing in the Science Curriculum,” Edthoughts 2001.
http://www1.cbsd.org/sites/teachers/middle/csioka/Academy%203/What%20Is%20the%20Importance%20of%20Reading%20and%20Writing%20in%20the%20Science%20Curriculum.pdf

Benefits of the 4-H Club Program

Results from New York State 4-H Club Study
http://www.4-h.org/images/volunteer/VolunteerResources/4-H-YES.pdf

Results from Iowa 4-H Club Study

National Results from a Long-Term 4-H/Youth Development Study
http://www.georgia4h.org/yapi/content/Lerner%20Study.%20essential%20elements.%2040%20assets.pdf