#MakeitHappen in the Library

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Project ECS@ESC: Encouraging Connections through STEM at the Environmental Study Center
Welcome to The Environmental Study Center!

Over 1 acre of beautiful land in Bergen Beach, Brooklyn

Home to over 200 different animal species

Greenhouse, Aquaponics, and Hydroponics

Organic Garden

PreK-12th Grade programming

Student Camps
PreK and K Programming

Our Five Senses

Students participate in hands on investigation and inquiry using their senses

Students have an animal encounter and investigate how different animals use their senses

Students develop a deeper understanding of how our senses help us to explore the world around us
K-2 Programming

Fantastic Frogs
Students observe a live fire-bellied toad and identify its physical characteristics
Students explore the life cycle of the frog and create a diagram
Students play a game of frog survival in which they explore what frogs need to survive in the wild
Students discuss environmental factors that threaten the survival of frogs

Incredible Insects
Students learn specific characteristics that distinguish insects from other bugs
Students understand the importance insects play as pollinators
Students examine the life cycle of an insect
Students understand that although some insects can be harmful all are necessary in the ecosystem
Upper Elementary Programming

Eat or Be Eaten

Students determine the difference between predators and prey

Students dissect an owl pellet to discover the type of prey their owl hunted

Students focus on an animal at ESC to observe and determine what type of consumer it is within its ecosystem

The whole class creates an interactive Muir Food Web to discuss eating relationships within an ecosystem
Tools of the Trade

Students determine the tools and units scientists use to observe and collect data
Students differentiate between the customary and metric measurement systems
Students learn how to use scientific instruments through a series of stations

Zoom into Microbiology

Students will become familiar with the parts of a microscope and their functions
Students will analyze (known and unknown) objects under the microscope
Student will learn proper laboratory protocols to create slides of live protists and observe them under the microscope
Middle & High School Programming

Wildlife Forensics

Students will solve the mystery of the chinchilla fur coat using DNA fingerprinting.

Students will learn how to run gel electrophoresis and analyze the results.

Students discover endangered animals and discuss their role as a conservationist.
Hydroponics

Students will employ modern farming techniques to build and maintain hydroponic systems to grow lettuce and herbs.

Students will monitor their systems through various water quality tests and analyze the results while continually measuring the growth of plants.

Compare the ecological impacts of hydroponics to traditional farming.
Student and Teacher Learning

Student Camps
● Seed to Table
● Hydroponics
● DNA Barcoding
● Who Lives There?
● Summer Safari
● Hands in the Garden
● Weapons of the Wild
● Food without a Footprint
● CSI@ESC

Professional Learning
● Wildlife Forensics
● Plants, Pollinators and People
● Teaching Inquiry Based Science
How did ESC begin to partner with NYCSLS?

NYC School Library System supported ESC professional learning by:

- Encouraging teachers to use and integrate NOVELny
- Demonstrating how NOVELny can support science instruction
- Introducing teachers to a wide array of digital tools (AASL Best Websites and Apps, Teachingbooks.net) available to enhance teaching and learning
Need

58.8% stated there were not enough nonfiction/informational texts at the school level to support literacy-based science instruction.

75.6% said if books and resources were available at a cultural institution to further student learning, they would take advantage of these opportunities.

94% said if resources were available digitally and the return process was simple, they would check out books and other digital resources to help enhance their pedagogy.

Mazza, Christine *Availability of Science Resources Survey*, 2014
The Partnership Model

Project ECS@ESC: Encouraging Connections through STEM at the Environmental Study Center (ESC) is a unique partnership between the ESC and the New York City School Library System.

Purpose: to develop a digital depository of instructional materials and digital resources that connect the content and programs of the ESC to PreK-12 students in their classrooms.
Goals

Educators will learn to use these texts and resources to encourage students to:

- Question what they read
- Build background knowledge
- Synthesize information from a variety of resources
- Identify, understand and remember key ideas, facts and vocabulary
- Recognize how texts are organized
- Monitor own comprehension
- Evaluate an author’s ideas and perspective
Project ECS@ESC Digital Depository

Sustainable collection of e-content texts and digital resources with instructional materials

Available to 1.3 million students served in the NYCDOE and NYCSLS
Project Design

- Working groups selected
- 1-day summer professional development
- Visit the ESC
- Continue using Libguide to further learning
- 5-day planning series
- Pre-activity
- Post-activity
Project Design

**Year One**
- Grade 3, 4, 5 and elementary science cluster teachers: Eat or Be Eaten
- Grade 8 and High School classroom teachers: Introduction to Hydroponics

**Year Two**
- Early Elementary: Incredible Insects
- Middle School: Zoom into Microbiology
- High School: Wildlife Forensics

**Year Three**
- Elementary & Middle School: Every Day is Earth Day
- High School: Genetically Modified Foods
## Teacher Professional Development

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>ESC Program Alignment</th>
<th>Number of Cohorts</th>
<th>Total Number of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Elementary</td>
<td>Eat or Be Eaten</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>High School</td>
<td>Hydroponics</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>Early Elementary</td>
<td>A Bugs Life</td>
<td>3</td>
<td>60</td>
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Methodology

✓ Pre- and post-assessments
✓ Observations of planning and PD sessions
✓ Educator interviews
✓ ESC program and school site visits/classroom observations
✓ Focus groups
✓ Examining student work
Dr. Mary Ann Cappiello and Dr. Erika Thulin Dawes
Lesley University
Elementary Team: Eat or Be Eaten
Eat or Be Eaten
Secondary Team: Hydroponics
Hydroponics at the ESC
Libraries Build Learners Grant
Need

“Background knowledge is one reason why children who read the most bring the largest amount of information to the table and thus understand more of what the teacher or the textbook is teaching.” A deficit in the early accretion of background knowledge puts students at an immediate academic disadvantage in school. In an ongoing study of 22,000 kindergartners, government researchers discovered that upwards of 50 percent of children coming from economically disadvantaged families finished in the bottom quartile in background knowledge.


*
Goals

Librarians will use the LBL Grant to support student literacy in the following ways:

• Improve student access to physical and digital library collections of high-quality resources of depth, breadth and perspectives.
• Increase parental involvement in their child’s literacy development.
• Strengthen student background knowledge through independent reading of informational texts.
How?

1. The LBL project will increase student physical and digital access to high-quality resources through targeted school investment in robust library collections (print and digital), and educator training in how to select informational texts from these collections to build instructional units that impact student achievement.

2. Encourage independent reading of diverse informational texts to develop background knowledge through multiple student book blubs with ESIFC Assessments and reading promotional activities (LibGuides, Reading Ambassadors, etc.)

3. Increase parental involvement in their child’s literacy development through Family Literacy Nights, book giveaways and enhanced school library borrowing privileges
Project Design

Year I
- Four Professional Developments
- $8,000 for Collection Development
- Four FLN Nights
- One book club
- Create LibGuide

Year II
- One Professional Development
- $8,000 for Collection Development
- 40 Digital eBooks
- Four FLN Nights
- Three book clubs
- Promote LibGuide
# Teacher Professional Development

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<tr>
<td><strong>Collection Development</strong></td>
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<td><strong>Family Literacy Nights</strong></td>
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<td><strong>Nonfiction Book Clubs</strong></td>
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<td><strong>Creating LibGuides</strong></td>
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<td><strong>Selecting Texts for Informational Purposes</strong></td>
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Methodology

- Pre- and post-assessments
- Observations of planning and PD sessions
- Educator interviews
- Library Circulation Statistics
- PALS pre-K Assessments
- Parent and Librarian surveys
- FLN Attendance records
- Focus groups
- Examining student work
- Edmodo Posts
COLLECTION DEVELOPMENT

Learning to Use Automation Reports and Collection Analysis to Determine Gaps
Titles added to one school for 2014-2015: 681:
NEW Library Books
“On Monday, I hosted a Professional Development called "Sweet Reads" where teachers were invited to come and view all the new books that were purchased with our grant money and had cookies and coffee. The teachers were asked to fill out surveys that helped me to know what books they thought would be most effective in their classroom research for next year and what types of books they would like to see more of in the library. It was a resounding success. The teachers loved the new books and have already requested books!”
Family Literacy Nights: FDNY
MAKE IT WORKSHOP:  
How to Make Books
DR. SEUSS NIGHT
NONFICTION BOOK CLUBS
Learning How to Run a Book Club

Librarians were introduced to the in’s and out’s of running student book clubs

- Why run a book club
- How to start a book club
- Meeting logistics
- Generating discussion questions and starting conversations
- Kick-off
- Wrap-up Celebration
P.S. 247K
Book Club Experience

Animoto Video
Reading Ambassadors
Visit Barnes and Noble
Next Steps

• Create print/digital Guide of Best Practices for Early Childhood Literacy

• Give Professional Development for schools not in grant on Early Literacy in Libraries

• Promote partnerships on early literacy between schools with Public Library and Community Based Organizations

• Working with all of you!