



Explorium long island
Children's Museum of Science & Engineering

A Children's Museum of Science and Engineering

Our distinctive challenge-based programs are built on New York State Science Learning Standards, New York State English Language Arts and Mathematics Learning Standards and the National Core Arts Standards.

Professional Teacher Development

The Long Island Explorium is a New York State certified provider of Continuing Teacher and Leader Education (CTLE) credits. Our programs help inspire teachers to incorporate STEAM and constructivist approaches into their standards-based lessons. Teachers learn how to foster engagement of all learners through hands-on challenges that explore the engineering design process, encourage teamwork, and incorporate career and civic awareness.

Dates:

SESSION I

October 17th

(Grades K-2 teachers)

Deadline to register:

October 3rd.

SESSION II

November 15th

(Grades 3-5 teachers).

Deadline to register:

November 8th.

Time: 4 - 6 pm

Location:

Long Island
Explorium

COST

Cost \$45/teacher per session, includes all materials and light refreshments

Register online at: www.longislandexplorium.org
or call **631-331-3277**

Visit our webpage at longislandexplorium.org

The Long Island Explorium is a 501(c)3 not-for-profit educational organization chartered with the New York State Department of Education. Listed with BOCES and New York City Dept. Of Education



Workshop Offerings



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Light It Up

Electrical Engineering

The challenge is to make a beacon that will protect ships from a rocky shoreline. Students become "Makers" and electrical engineers as they explore circuitry. Using wires, gadgets, modular circuits, and safe construction materials, students design and construct a working beacon or lighthouse.



Little Sparks

A Pre-School STEM Experience

This program aims to spark creativity and ignite innovation in young minds. Research supported by the National Science Foundation shows that young children demonstrate a readiness and enthusiasm to engage in science, technology, engineering, and math thinking. Our distinctive challenge-based curriculum ignites an interest in the "big ideas" of science and critical and creative thinking. Our programs are aligned with the Next Generation Science Standards. During our 90- min. workshop, children will immerse themselves in hands-on learning in science, technology, engineering, art, and math. Let's think and build and invent together! This program is geared towards 4 year olds.

Bridging the Gap

Civil Engineering

Students learn about forces, strength, and stability as they build and test different types of bridges. They become civil engineers and are challenged to examine materials available to them in order to design and construct a bridge that will enable cars to safely pass across it and a boat to travel underneath it. This is a 2-day workshop for the primary grades and a 1-day workshop for intermediate.



Introducing MakerSpaces

in Classrooms

Introducing Makerspaces in the classroom is not only a wonderful way to align curriculum with the New York State Science Learning Standards, it is also an effective format to engage students in active learning. Although our workshops will primarily focus on science and engineering topics that are aligned with appropriate NYSSLS, makerspaces are useful to incorporate other disciplines such as English/Language Arts and Math which will be discussed. At the Long Island Explorium, we utilize a constructivist approach in our teaching and educational programs to create an active learning environment for students while they explore and construct an understanding of the world around them. This is geared towards educators in elementary and pre-K.

Measure, Make and Marvel

Color Chemistry

Working as color technologists, students begin with a quest to develop the perfect "green" for the Incredible Hulk, Shrek, or Fiona. While investigating the conservation of volume and concepts of scale and proportion, students predict, calculate, and measure additions and subtractions of volumes in order to create the perfect batch of color. Teachers can task students with finding other "perfect" colors to provide rich extensions to this workshop.



Squeaky Clean Water

Water Resource Engineering

Cleaning dirty water seems like an easy task, but it is a task that is filled with opportunities to construct, experiment, learn about controlling variables, gauge them, compute distance, determine particle size, and sequence a series of activities. This workshop encourages teamwork and creative thinking in order to coordinate efforts to assure that we have clean water. Students work as water resource engineers where they explore the nature of solutes and particle size, as well as the pore size of the sieves, strainers, and fabrics as they focus on scientific processes and recording skills.

Launch It

Field Biology Meets Engineering

As ecologists, students explore the value of native plants in the landscape. They determine which native plant seeds need to be distributed and which places are most appropriate for the seeds they have selected. Then, as engineers, students design and build a catapult that will safely launch their seeds into the landscape.

Roller Coaster — Forces for Fun

Playground Architecture

Students become playground architects as they design and construct a safe and fun roller coaster. Students create pathways and change elevations to test the distance their "vehicle" travels upon exiting the roller coaster and strategize to regulate the distance so that the "ride" ends well!



Hop to It

Engineering Meets Field Biology

Students use the engineering design process to design a humane trap to catch an invasive "toad" before it causes environmental harm. We'll be exploring mechanical engineering, physical principles, measurements, and prototype testing to build the perfect toad trap! As field biologists they will need to find ways to trigger the trap from afar and to ensure that the "toad" is unharmed.



Ship Shape

Logistics Management

Working as logistics managers, students explore shapes and how they tessellate in order to find the best way to load cargo on a transport ship. Students investigate important geometry principles while linking their thinking to artwork by the famous M.C. Escher. This workshop sets the stage for studying tessellations in a variety of fields including architecture, manufacturing, and landscaping.



Do You Dig It?

Archaeology

Students will utilize the mathematical idea of a "quadrat," a standard method of measurement in archeology and ecology, to quantify findings on any field or area with such questions as "How many seedlings are on a farm?" to "How many fossils are on a slope?" As archaeologists, students explore a unique "dig site" to unearth evidence and construct a story about who might have been at the site. The lesson requires students to investigate statistics, engage in systems thinking, find patterns, and analyze stability and change over time.

Run the Colors

Forensic Investigation

Students conduct experiments using chromatography methods in order to figure out who ate the cookies! Both pattern recognition and logical deduction are key to figuring out the guilty party!



Car Design

Green Engineering

Using recycled materials, students explore physics and math by testing ramps, pathways, and the objects that roll on them. Students will find ways to make objects move just the right amount up or down a ramp while also developing a familiarity with angles, friction, and gravity and how they impact momentum.



Wiggly Worms

Animal Behaviourism

Students become animal behaviorists as they design respectful, animal-friendly experiments to investigate the senses and reactions of earthworms. Students will use this information to explore what components of the habitat will make them most comfortable.

Penny Shine

Chemistry

Students explore the chemistry of substances while creating a unique and safe cleansing product to make tarnished pennies sparkle. Students experiment with cleaning methods that cause mechanical and chemical reactions. Students document their work as chemists in various formats so they can recreate their cleaners and design a marketing strategy with a packaging system.



To the Rescue

Package Engineering

Students are introduced to the engineering design process and learn how it might be applied to help solve real issues of civic and social concern. Students get hands-on as they design, construct, and test aid packages and delivery systems that will get supplies safely to those in need in a flood zone. The students explore the properties of materials, aeronautical engineering, package design, weight, and measurement as they solve multiple challenges encompassed in this workshop.



Water wheels at Work

Civil Engineering

Students become civil engineers by designing and building an elevator system to lift cargo. Powered by water, the system needs to include a wheel, a shaft, water catchment device, and a lift basket. Once they are satisfied with their construction, they make a blueprint of their design to replicate it at home.



Design a Boat

Naval Architecture

Students become naval architects and are challenged to design and construct boats needed to deliver food and building materials to countries in need. Through testing, they come to understand the relationship between boat shape, the upward force of water, and buoyancy. Grade-appropriate mathematical concepts and skills are used for the design process.

Oceans of Motion

Oceanography

Students measure the volumes and mass of various liquids and solids and explore density, floating, and sinking. As oceanographers, they have the quest of determining the best combination of materials to design their own Ocean In Motion; a model sea of colorful solids and liquids.



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WE DEVELOP

the next generation of Inventors,
Scientists, Engineers, Artists,
Designers, Tinkerers and
Dreamers.

WE SPARK INVENTIVE SOLUTIONS

through our
curriculum
exhibition and
educational
approach

WE BUILD CONFIDENCE

by embracing the “fail forward” concept

WE FOSTER TEAMWORK

through minds-on workshops and
activities that pose challenges with
multiple outcomes or solutions.



For additional information or
to schedule a program,

Please Call: 631-331-3277 or
Email: etambone@longislandexplorium.org
Mail: P.O. Box 465, Port Jefferson, NY 11777

Our mission is to
provide cutting edge,
inquiry based learning
experiences for P-12 students,
state-of-the-art professional
development for P-12 teachers, and
inventive STEAM challenges for family
groups – all aimed at advancing
the learning of STEAM concepts
that translate into skills that
address social, economic
and environmental
issues.

Visit our webpage at longislandexplorium.org