Innovation is Everywhere!
Big Learning Science & Engineering: S&E

SCIENCE & ENGINEERING

Fall 2016: Natural Energy (classes begin week of Sept 19th)

Motion Commotion
Learn what makes things move! How does a tightrope walker balance? How well do you smell? How does color move and change through absorption? Make a butterfly fly and paper clips levitate using magnetic power. Race static magic cans and make a hygroscopic fish wiggle in the palm of your hand.
(Grades K-1 or K-2)

Action Attraction
Join the shocking adventure and explore static electricity and magnetism! How do you test if an object has a static charge? Which poles attract, which repel? Discover the science behind water and gravity using a spinning turbine and mix colors using capillary action. Make a static testing electroscope, slimy magnetic goo, and experiment with mini submarines! (Grades 2-3 or 2-4)

Invisibilia
Discover the science behind invisible forces! Observe a magnetic field using iron filings, make an electroscope to test static charge, and use solar panels to make a buzzer buzz. Connect conductive copper to make a colorful piece of LED light art! It will be a bright adventure while you learn about solar and wind energy, fossil fuels, and magnetism! (Grades 3-5 or 4-5)

Building Big and Small *(Engineering)*
Build miniature greenhouses and life-size tipis. In this hands-on series, children will stretch their understanding of what makes structures strong, learn and apply geometry and measurement concepts, and learn new history, vocabulary, and craft skills. (Grades 2-4) ***(Available Fall and Winter Sessions)***

Winter 2017: Mechanical Energy (classes begin week of Jan 9th)

Incredible Forces
What does friction have to do with a rolling YoYo ? How do wheels and axles work together? How does the size of a wheel change the distance it covers? What can you move with a pulley? Make a circuit bug out of a clothespin and learn how a Bristle Bot moves? (Grades K-1 or K-2)

Invention Convention
How far can you send a cotton ball with your catapult? How can you make a pulley to send messages? How fast can your Bristle Bot move? Can a potato complete a circuit? Construct fun machines using simple materials to explore wheels, levers, wedges, inclined planes, pulleys, screws, and circuitry. (Grades 2-3 or 2-4)

Gadgets and Gizmos
Be an inventor! Make your own electric PlayDoh. Build a battery out of pennies and lemon juice, make a microphone out of a matchbox and paint, and construct a steady hand tester. Try your hand at copper plating and a device that looks as if it's defying gravity. Explore Bristle Bots and Color Bots. (Grades 3-5 or 4-5)

NEW!!!! Let's Go: KIBO! *(Robotics)*
This exciting new offering uses the KIBO robotic system to teach computer coding, logic, and loops. Learn what a robot is and isn't, and what you have to tell KIBO to make it move? How can you command KIBO to make noise, avoid obstacles, shine its light, dance, and then do it all over again? Go all out with our design challenges. (Grades K-1) ***(Available all sessions)***

Spring 2017: Solar Energy (classes begin week of March 27th)

Bubbles to Rainbows
Create your own sun print pictures with light sensitive paper. How does a sundial work? Put on a food chain puppet show. Find rainbows in your very own sun bouncer. How can you make your ultraviolet beads change colors? Check out the heat keepers.
(Grades K-1 or K-2)

Hot Stuff
Split light with your own crystal prism and rainbow glasses. Use shadows to tell time. Dehydrate food and heat water with the sun's help. Use your thermometer to see which material heats up most quickly. Will your plant respond phototrophically through a maze? (Grades 2-3 or 2-4)

Solarific
Fracture sun light through a crystal and spectroscope. Create solar art with sun print paper and explore the world through your periscope. Use the sun to see how fast the earth spins. Prepare for star gazing with a constellation finder and luminosity tester. (Grades 3-5 or 4-5)

Eco-KID! (*Engineering*)
Calling all future ecologists! Explore Earth's natural mechanisms for continuity, balance, and survival. Design amazing habitats and explore plant and animal life cycles! Build a new project every class! (Grades 2-4)

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