

Fall 2018

The Physics of Color and Light

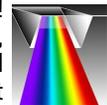
Optrix K-2

Discover the world of color and light with playful experiments and a couple of tricks along the way! Examine the effect of light on pupils and explore the eye adaptations of nocturnal animals. Use prisms to explore colors and wave lengths. Compare light colors to pigments and explore symmetry and reflection with multiple mirrors and crystals. Test the refractive powers of water and gelatin; explore convex and concave mirrors and magnification; and learn about the 'persistence of vision' that explains many common visual effects.



Illusions 2-4

Step right up and join us as we discover the world of optics! Bounce light off water, break light into pieces and learn how to make straight lines curve without bending them. Come see what your eyes can see in this light adventurous class! Study the anatomy of your own eye and learn how we 'see'. Explore binocular vision, test for a dominant eye, and compare pigments and light. Learn how light bends with gelatin, water, and fiber optics; make your own binoculars to explore magnification, convex and concave lenses and mirrors; and use mirrors to learn the law of reflection.



Kaleidoscope 3-5

Beam into the future and experiment with fiber optics! Children will make a model of their eye and test the limits of their own sight to learn about blind spots, peripheral vision, and right/left dominance. They will see how the eye looks up close by dissecting a real cow's eye and learn how light and color are used to create 3D movies, microscopes, and sunglasses! Experiment with mirrors and lenses to illustrate reflection, symmetry, and refraction.



Building Big and Small (Engineering)

Build a miniature green roof and life-size tipis. In this hands-on series, children will learn and apply geometry and measurement concepts, and learn new history, vocabulary, and craft skills. **Gr. 2-4**



Winter 2019

Architecture and Engineering

Dive into Dimensions K-2

Dive into the world of engineering where we will land in a sea of shapes. Use different shapes and building materials to make the strongest bridge and a tower taller than you! Work with simple machines, balance on a zip line and discover who lives in cone-shaped homes. Make models of these while exploring what key shapes make them so strong.



Scaling Great Heights 2-3

Grab your passport and hang on tight! We will be traveling the world learning about architectural marvels in this adventurous class. From the leaning tower of Pisa in Italy to the tallest tower in Dubai, you will be exploring a different bridge, tower, or unique structure and discover the engineering behind it. Build models and test their strength. During your travel, learn a new code each week. Can you crack the code at the end of your journey?



Rockin' Engineers 3-5

Construct, build, and propel yourself through this exciting hands-on STEM adventure! Explore engineering and architecture professions from roller coaster design and bridge construction while learning about Newton's laws of motion, forces, and energy! You will be making models of structures and testing their strength and accuracy. Build your own geodesic dome and test the trajectory of a launching catapult and air powered rocket!



Introduction to Robotics and Coding

Learn coding, logic, and loops by programming a KIBO robot. What are the essential commands for any program? How can you command KIBO to make noise, avoid obstacles, shine its light, dance, and then do it all over again? Write your code, test it out, and revise as necessary. Use the light, sound, and distance sensors to create conditional statements. Lego® build-ons and catapults make KIBO endless fun. Become a KIBO master! **Gr. K-2**

Spring 2019

The Physics of Sound and Flight

How does air make sounds and make things fly? Explore the movement of air as vibrations to make sound and as lift and propulsion to power flight. Create your own flying objects and instruments.

Hums, Buzzers, and Whirligigs K-2

Shake, rattle and go! Toot tunes on test tubes and buzz on kazoos to explore how sounds are made, how they travel, and how we hear them. Create rhythms and waves in different ways to explore the concept of vibration. Build and experiment with different fliers that soar through the air and compare them to parachutes that create drag. Which design will fly the best?



Air-O-Dynamics 2-3

Crash, boom, bang! What was that noise? Produce sound effects with a thunder clapper. Investigate how sound travels and how your ear receives it. Construct a model of your vocal chords that vibrate and make noise similar to your own. Watch out for that plane! How do things stay up in the air? Continue learning about air by constructing, flying, and testing helicopters, parachutes and planes.



Great Vibrations 3-5

Strum, buzz, and pop! How does sound travel? How do your ears hear? Investigate the complex system of the auditory system and how we make sounds in this fun hands-on adventure! Learn how to build a guitar from scratch and how to simulate sound waves while exploring pitch, tones, and frequencies. How do airplanes and boomerangs fly? Discover the science behind flight and then get your chance to launch a model rocket!



ECO-KID! (Engineering)

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

