THE CITIZEN SCIENCE LAB®

Group Program Catalog

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GROUP EXPERIENCES

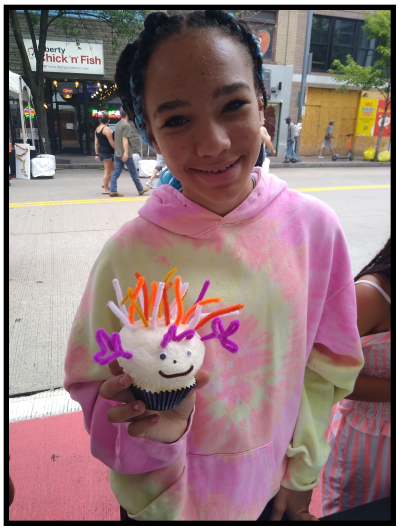
Group Experiences are workshops or programs that are held for a specific group, by request. We offer these programs to groups of all types including schools, scout groups, clubs, nonprofits, and any other group that has an interest in science!

ON-SITE EXPERIENCES

Bring your group to our university-grade Laboratory in the South Hills! We have a wide range of equipment from your standard pipettes, fridges, incubators, and centrifuges to more unique equipment like our elisa reader, UV stratalinker, and gene gun. Our materials aren't only limited to chemistry and biochemistry, we also have 3D printers, drones, iPads, and a variety of materials to tackle almost any laboratory learning.

Participants are provided personal protective equipment (PPE) as necessary, including branded lab coats (for use at the lab only), eye protection, gloves, and access to other lab safety equipment.

OFF-SITE EXPERIENCES



If field trips are not a possibility for you, we also offer programs right at your location! Our instructional staff will bring all of the lab equipment, materials, and PPE necessary for your learning.

We will require appropriate table space, seating, access to water, and a set-up areas for our staff. Note that while we prefer to be set up in laboratory type spaces, we can also do programs in a regular classroom space as well.

Offsite programs are only available in Pittsburgh and surrounding counties. Prices will vary depending on distance from The Citizen Science Lab.

Not all programs that are available on-site are also available off-site.

ON-SITE EXPERIENCE FEES

On-Site Programs take place at The Citizen Science Lab - South Hills location, located in the Landmark Building at 1699 Washington Rd Suite 200, Pittsburgh, PA 15228.

On-Site Programs	Base Price	Two Back to Back Programs	Two Concurrent Programs
45-60 Minute Program	275	450	550
90-120 Minute Program	325	550	650

We currently have a maximum number of 24 participants per individual on-site program. We can go up to 40 total participants at one time by doing two concurrent programs; one in our lab room that seats 24 and one in our lab room that seats 16.

Things to Know:

- Participants must be supervised by your group leadership while they are inside of the building and in the parking lot.
- Plan on arriving at The Citizen Science Lab 10-15 minutes before your program in order to start your program(s) on time.
- Back to back programs generally require about 15 minutes of “flip time” between back to back programs for us to reset the Laboratory space. During this time, participants will be able to remain in the Lab.
- Your group may be in the Laboratory at the same time as another group, though you will be in a different individual lab room.
- Our facility does include animal ambassadors such as snakes, bearded dragons, chameleons, geckos, and others. Please let us know if your group has a specific policy related to interacting with animals, or if you have a participant who may be uncomfortable with a specific animals.

Want more than just a few separate visits? We can custom-make a semester or year long semester for your group!

OFF-SITE EXPERIENCE FEES

Off-Site Programs take place away from The Citizen Science Lab, at various locations such as: schools, universities, after-school facilities, museums, libraries, and other community organizations. Most programs do not require access to a laboratory space.

Off-Site Programs	Base Price	Two Back to Back Programs	Two Concurrent Programs	Mileage Fees (round trip)			
				0-20 miles	21-40 miles	41-60 miles	61+ miles
45-60 Minute Program	325	550	700	Included	50	75	Contact Us
90-120 Minute Program	375	650	750	Included	50	75	Contact Us

Mileage fees are in addition to the base price. Mileage fees are calculated for the fastest route (by time) to your facility.

Things to Know:

- Instructional staff will usually arrive between 15-30 minutes in advance of the program for set up. Please make sure to alert the front desk that you will have guests.
- Most programs require nearby access to running water (such as a sink or a bathroom), and some programs require access to electrical outlets. Please make sure to communicate availability of water and outlets when booking a program.
- We generally move our materials with a wheeled wagon, so if stairs are required to access your building or room, please let us know in advance so we can plan accordingly.
- Programs require tables (or lab benches) and chairs to be set up for participants in advance of our arrival.
- At least one teacher or staff member must remain in the classroom to assist with classroom management.
- We require 15-30 minutes of time between programs to reset our equipment and materials. Gaps between programs of one hour or more will result in an additional fee.

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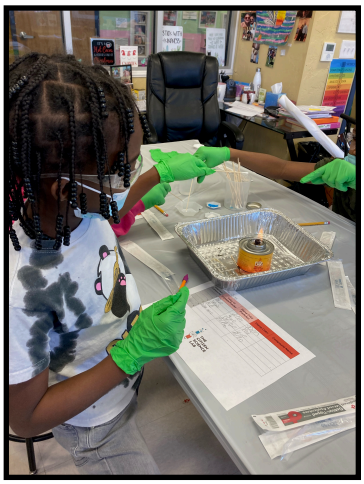

BIOCHEMISTRY

What do you get when you cross biology and chemistry? Biochemistry! In these lessons you will learn what proteins look like and what do they do in your body.

Enzymes and Digestion

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

Ever wonder how your body processes and breaks down the food you eat? What about why only a third of the world can process dairy products? These questions and more will be answered when participants get a close look at the different enzymes that make it possible for our bodies to break down food as well as dangerous compounds that could cause harm.

Biomolecule Investigation

On-Site: 90-120min
Off-Site: 90-120min

In this workshop, participants will complete a series of tests to analyze different samples and solve the Missing Pizza Mystery! First, they'll be introduced to the 4 biomolecules found in all living organisms. They'll learn the molecular structures and roles of carbohydrates, proteins, lipids, and nucleic acids. Then they'll conduct a series of experiments to isolate and detect the presence of these biomolecules and solve the mystery.

Urinalysis

On-Site: 45-60min / 90-120min
Off-Site: Not Available

The urinary system is often a part of physiology that is overlooked, but holds many of the body's secrets. Participants will achieve a greater understanding of the crucial role the kidneys play in the body and conduct urinalysis experiments to diagnose "patients".

Who Took Jerrell's iPod?

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

Who took Jerell's iPod?? Only you can answer the question with this expansion of the *Biomolecule Investigation*. Here participants will utilize new chemical analysis methods to test samples of starches, sugars, proteins, and lipids.

CHEMISTRY

Solids, liquids, and gases... foam, slime, and...non-Newtonian fluids! Learn by mixing chemicals, observing reactions that change colors, temperatures, and even mix up a tasty sweet treat to snack on.

Cabbage Juice Indicator

On-Site: 45-60min
Off-Site: 45-60min

Just because we use vegetables in the kitchen doesn't mean we can't also use them in a experiment! Participants will utilize red cabbage to create solutions for testing various pH levels. After the experiment, participants will have created a rainbow of colors and built their understanding of acidic and basic solutions.

Density: Sinking and Floating

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

This experiment investigates the idea of density in relation to sinking and floating in water. Participants will discover it is not the weight of an object, but its density compared to the density of water, that determines whether an object will sink or float. This concept is then applied to other liquids and how their comparative density affects their interaction with water.

Dissolving: Liquids, Gasses, and Temperature

On-Site: 45-60min / 90-120min
Off-Site: Not Available

This workshop investigates the effect of temperature on the rate of dissolution. Participants will experiment with the solubilities of liquids and gases and determine if a dissolution reaction is endothermic or exothermic through experimentation.

Ionic Reactions: Precipitation

On-Site: 45-60min
Off-Site: 45-60min

How can we tell if a chemical reaction has occurred? One way is through the formation of precipitates that often reveal themselves as a color or opacity change. This colorful experiment will test multiple ionic solutions together to see which form precipitates and have formed new chemicals.

Just the Basics and Chemical Unknowns

On-Site: 45-60min / 90-120min
Off-Site: Not Available

Sometimes you know what you're working with and sometimes you have to find out. In this experiment, participants will perform experiments on unknown chemicals in hopes of revealing key reactions and clues. It will be up to the participants to help determine the exact chemical formulas and save the unknown chemicals from being thrown away.

Matter, Molecules, and Movement

On-Site: 45-60min / 90-120min
Off-Site: Not Available

This experiment begins at a very elementary level understanding of what matter and molecules are. Participants will investigate water as being made up of molecules and understand what that means. Finally, participants will experiment with temperatures effect on molecules and make their very own basic thermometer.

The Science of Candymaking

On-Site: 45-60min / 90-120min
Off-Site: Not Available

No one ever said that chemistry had to be boring. What happens in your oven is just as much a chemical reaction as what happens in a test tube. In this module, participants will learn about melting points and crystallization while making delicious sweet treats.

Thermal Energy (Flame and Specific Heat)

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

It's a rule as old as time: Energy can neither be created nor destroyed. So where does that energy go? This experiment will demonstrate to participants that energy has to go somewhere - not be lost forever. In the first part of the experiment, participants will complete a Specific Heat Test, observing that the heat energy of their metal sample is absorbed by the water in their calorimeter. They will then calculate the specific heat of their metal. In the second part of the experiment, participants will complete a Flame Test to demonstrate the ground state electron configuration as well as the electromagnetic energy given off when an object falls back to the ground state. Different metals will be tested to observe the different color flames.

MICROBIOLOGY

What bacteria is living on a doorknob, your hands, or even in your mouth? In this module, you will learn how to collect, grow, and view bacteria.

Blood Typing

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

Not all blood is alike! Differences in blood can in fact mean life-or-death in cases of blood transfusions and even pregnancies! Participants will learn how blood works, how to find an individual's blood type, and how blood type is determined by genetics and heredity. We will then discover how blood typing can be used to solve mysteries.

Microscopes, Microbiology, and Microscopy

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

In this workshop, participants will be introduced to the parts and mechanisms of a microscope and well as the techniques to use them. Participants will then examine prepared slides demonstrating a variety of organisms and then learn how to create their own dry and wet mount slides!

Pill Coating Challenge

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

What considerations go into drug and pharmaceutical design? In this workshop, participants will have to use their knowledge of chemistry and biology to design and test a coating for the controlled release of their pills.

MOLECULAR BIOLOGY & GENETICS

Learn how your genes impact how you look, feel, and live. You will learn about the structure of DNA and practice your skills as "DNA detectives" to figure out all the things DNA can really tell you.

DNA Detectives

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

In this session participants will have a chance to be CSI technicians by comparing the DNA of four suspects to a sample found at a "crime scene." In the process, they will learn a variety of common molecular biology techniques such as restriction enzyme digestion and gel electrophoresis.

DNA Fingerprinting

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

It's one thing to say that everyone's DNA is unique, but quite another to prove it for yourself. In this module, participants will use techniques to harvest their own DNA from cheek cells and visualize the unique banding patterns through PCR and gel electrophoresis.

Introduction to DNA

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

DNA codes for messenger RNA, which in turn provides the codes for proteins: this simple process, which scientists call the central dogma of biology, lies at the center of all life on Earth. In this session, participants will explore the central dogma through hands-on modeling techniques. They will be introduced to the processes of replication, transcription, and translation as well as a variety of related molecular techniques.

PHYSICS

Learn the secrets behind magic; our experiments will teach you the art of levitation, the science behind light, even the arts of gravity! By the end of this experiment, you will be able to showcase your skills as an amateur magician.

Egg Drop

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

This classic experiment simulates how objects are affected by the forces of gravity and how certain measures can be taken to protect against damage. In this experiment, participants will problem solve like engineers and physicists as they design a support structure to protect an egg. At the end, they will test their design by dropping their egg and observing whether their design was effective.

Make Your Own Kaleidoscope

On-Site: 45-60min
Off-Site: 45-60min

A simple kaleidoscope can provide deep and meaningful insight into the concepts of reflection and refraction. In this experiment, participants will be able to explore the world of light through the eyes of a hand-made kaleidoscope.

Oobleck and Slime

On-Site: 45-60min
Off-Site: 45-60min

What object is able to act like a solid and liquid at the same time? Oobleck, that's what! Dr. Seuss was the man to name this non-Newtonian fluid with a high potential for fun. This module discusses states and properties of matter through a hands-on experiment that challenges the laws of physics. Slime is the original fun science experiment, but not many people talk about what's going on at a molecular level. Participants will be taught how to use proper laboratory techniques while carrying out this entertaining chemical reaction.

Squishy Circuits

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

What do you think of when you hear the word circuit? Probably something metal and delicate. But what if we could use what we know about conductivity and circuitry to create squishy and sculptable circuits! In this workshop, participants will be able to create their own wacky circuits in all shapes from an octopus with LED eyes to a monster with glowing antennae. The possibilities are endless with Squishy Circuits!

The Art of Levitation… and Making Sparks Fly

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

Levitation, a phenomenon found in science fiction and myths, is actually possible! Participants in this lab will learn about the imbalance of electrons also known as static electricity, and how we can use static electricity to make common objects levitate. Participants will also make sparks fly using an electrically charged balloon and a comb.

SPACE

Blast off into outer space with our lessons on rockets, stars, and other space-related fun. As an amateur NASA scientist you will build and launch model rockets, putting your creativity and design skills to work.

Alka-Rockets

On-Site: 45-60min
Off-Site: 45-60min

Who doesn't love a little fizzling action? In this session, participants will harness the power of Alka-Seltzer tablets to fuel the launch of their own "Alka-Rocket''. Participants can experiment with timing and water temperature to improve the power and rate of their rocket reactions.

DIY Telescope

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

How do astronomers and astrophysicists know so much about the universe around us? It all starts with the observation and understanding of the movement of the moons, planets, stars, and galaxies that make up the known universe. In this workshop, participants will learn the light bending and reflecting physics behind a telescope and even build their own to become stargazers.

Lunar Landing

On-Site: 45-60min / 90-120min
Off-Site: 45-60min / 90-120min

Think of all the power required to propel a spacecraft to the moon... and the technology required to stop it once it arrives. Participants will engineer a shock-absorption system out of homemade springs and marshmallow cushioning to ensure a safe landing that doesn't damage their "aircraft" or their "astronaut passengers".

Planetary Pasta Rover

On-Site: 45-60min / 90-120min
Off-Site: Not Available

Imagine designing a vehicle to travel across the surface of Mars; it must cross rocky, treacherous, and unpredictable terrain. Participants will construct their own vehicle, a "pasta rover" while staying within their project budget as they "buy" component pieces from the pasta "market" . Once they have completed their rover, participants will test its speed and stability down a model track.

ZOOLOGY

In zoology you will experience the awe and thrill of dissecting a fish, frog, worm, shark, or fetal pig. In the process you will learn how a heart works, why a fish floats, what makes worms so...wormy... and so much more.

Alcohol Tolerance in Fruit Flies

On-Site: 45-60min / 90-120min
Off-Site: Not Available
In this experiment we will learn about genes, enzymes, and phenotypes by observing fruit flies. We will use fruit flies that are alcohol intolerant; since the flies cannot digest the ethanol they consume, and will die shortly after being exposed to alcohol. Participants will observe the flies over a 24-hr period, which requires them to take the flies home overnight.

NOTE: This program comes with an extra fee, and requires participants to take home materials.

Dissections

On-Site: 45-60min / 90-120min
Off-Site: Not Available
Dissections can be an integral aspect of the study of biology and physiology. In this introduction to dissection, participants will build their familiarity with dissection tools and procedures, study both external and internal anatomy of the following organisms, and examine the connections between these organisms and human anatomy.

Possible Dissections include: Earthworm, Leopard Frog, Squid, Gray Perch, Fetal Pig, Sheep heart Pig Heart Cow Eye.
NOTE: This program comes with an extra fee.

Owl Pellets and PCR

On-Site: 90-120min
Off-Site: 90-120min

These hairball-like objects (owl pellets) contain a lot of information about different owl species as well as the habitats in which they reside. In this experiment participants will dissect an owl pellet, examining the bone structures it contains, to see what type of creature the owl has recently eaten. They will then take a sample of the fur and run a PCR to amplify the DNA from the prey the owl ate.

Predator and Prey

On-Site: 45-60min / 90-120min
Off-Site: Not Available

Some aspects of the world are impossible to experiment with-- it would be too expensive or too unethical to try. In cases like these, scientists rely on passive observation and mathematical models. In this module, participants will use both methods to explore the relationship between predator and prey. Participants will observe the microscopic Hydra use its tentacles to devour Daphnia, a tiny water crustacean.

The Wonderful World of Termites

On-Site: 45-60min / 90-120min
Off-Site: Not Available

In this highly entertaining session, participants will be looking at termites in two very distinct ways. Using the scientific method, participants will explore the behavior of termites when they come into contact with the pheromones in ink pens. During the second half of the session participants will learn about the symbiotic relationship that occurs between termites and the protozoans that live in their guts. Participants will be given the opportunity to extract the protozoans from the termite gut and view them under a microscope.

Note: This program comes with an extra fee.

OTHER

We are always thinking of new and exciting programs to offer, and some of them don't fit neatly into another category. Check out this category to learn more about some of the other amazing programs we offer, and learn more about getting a custom made program!

Paper Making

On-Site: 45-60min / 90-120min
Off-Site: Not Available

We use paper all of the time, but where does it come from? In this workshop, participants will understand and implement the biological, chemical, and industrial processes behind making paper. This workshop will also give participants a greater understanding of the importance of recycling materials and the impact manufacturing has on the environment.

Custom Programs

On-Site: TBD
Off-Site: TBD

Let us know what your participants want to know about, and we'll recommend some scientific adventures just for you!