PHILADELPHIA SCIENCE FESTIVAL

April 24–May 2

PROGRAM GUIDE 2015

www.PhilaScienceFestival.org
Welcome to the 2015 Philadelphia Science Festival!

As we enter our fifth year, we continue to encourage Philadelphians of all ages to unleash their nerdy sides and explore the science happening across this great city—science that is happening not only in universities and labs, but in your own backyard!

Budding scientists of all ages will have the opportunity to look to the stars, explore working farms, build real robots, and get a little closer to nature. Culinary enthusiasts can learn which ingredients make the perfect chocolate chip cookie, how to create a delicious dish from garden weeds, and how to brew age-old classics; mead, cider, and beer. Discover the science behind what makes us happy, learn about the health of our river from the fish that call it home, explore how nature inspires modern technology, and so much more!

Young or old, this suite of programming is sure to inspire and amaze. Embrace your curiosity and learn something new—DISCOVERY IS IN YOUR DNA!

Get nerdy Philadelphia!

#GetNerdyPHL    |    www.PhilaScienceFestival.org

We are grateful to the Dow Chemical Company for generously supporting the Festival as Presenting Sponsor for the fifth consecutive year.
Advanced registration is strongly recommended. Tickets may not be available at the door. Learn more and buy your tickets in advance at www.PhilaScienceFestival.org.
PSF Kick-Off Party: Science After Hours 8-Bit Night

Kick off the Festival at The Franklin Institute with a night devoted to classic video games! Enjoy 50+ interactive activities in this opening night extravaganza and meet the organizations that bring the Festival to life. Discover the science behind Oregon Trail, Frogger, and Dr. Mario, play Galaga in the Fels Planetarium, dissect an arcade machine, and enjoy music from your favorite video games! Be a pinball wizard, see dueling tesla coils, learn how to play music on your old Gameboy, and tap the official Yards Brewing Company’s Science Festival beer, Parallel Brewniverse!

$15; $10 Franklin Institute Members, 21+
7:00–10:00 pm
The Franklin Institute | 222 North 20th Street

For a full list of participating organizations, please visit the website.

ASTRONOMY NIGHT

Friday, April 24 (Rain date: Friday, May 1)
7:30–10:30 pm

What’s something universities, community centers, cemeteries, and wildlife refuges all have in common? A beautiful view of the starry night sky! Join the biggest stargazing party in the region as local astronomers at 25+ sites provide a tour of the cosmos. No gear? No problem! We’ll have telescopes and binoculars onsite.

FREE
VARYING LOCATIONS, SEE NEXT PAGE FOR MAP
Advanced registration is strongly recommended. Tickets may not be available at the door. Learn more and buy your tickets in advance at www.PhilaScienceFestival.org.

**ASTRONOMY NIGHT**
Friday, April 24, 7:30–10:30 pm

**Northwest Philadelphia:**
1. Awbury Arboretum
   1 Awbury Road
2. Blair Christian Academy
   220 West Upsal Street
3. Grumblethorpe Historic House & Garden
   5267 Germantown Avenue
4. John Story Jenks Academy for the Arts and Sciences
   8301 Germantown Avenue

**Suburbs:**
5. Haverford College
   370 West Lancaster Avenue
   Lower Merion, PA
6. Riverbend Environmental Education Center
   1950 Spring Mill Road
   Gladwyne, PA
7. Swarthmore College Science Center, Van de Kamp Observatory
   500 College Avenue, Whittier Place
   Swarthmore, PA
8. Battleship New Jersey
   100 Clinton Street
   Camden, NJ
   Timber Creek Park
   Somerdale Road
   Clementon, NJ
   (OFF MAP)
   West Chester University South Campus
   844 South New Street
   West Chester, PA
   (OFF MAP)
   Rowan University Science Hall
   201 Mullica Hill Road
   Glassboro, NJ
   (OFF MAP)

**South Philadelphia:**
   8601 Lindbergh Boulevard
10. Mastery Charter Thomas Elementary Playground
    814 Bigler Street

**Fairmount Park:**
11. Laurel Hill Cemetery
    3822 Ridge Avenue

**North Philadelphia:**
12. Esperanza College
    4261 North 5th Street
13. Ferko Playground
    1101 East Cayuga Street
    2900 Germantown Avenue
15. The Lenfest Center
    3890 North 10th Street

**Northeast Philadelphia:**
16. Philadelphia Center for Arts & Technology
    211 Eastburn Avenue
17. Saint Raymond
    1350 East Vernon Road
18. Zion Baptist Church
    3600 North Broad Street
19. Glen Foerd on the Delaware
    Grant Avenue and Milnor Street
20. MaST Charter School
    1800 Byberry Road

**Center City and West Philadelphia:**
21. Drexel University Dornsife Center for Neighborhood Partnerships
    3509 Spring Garden Street
22. Folks Arts-Cultural Treasures Charter School
    1023 Gallowhill Street
23. Independence Seaport Museum
    211 South Christopher Columbus Boulevard
24. Thomas Jefferson University Lubert Plaza
    At the corner of 10th and Locust Streets
    1600 Vine Street
26. Schuylkill Banks
    Center City side of the Schuylkill River under the Walnut Street Bridge
DISCOVERY DAY

There’s something fun for every member of the family at each of these outdoor science extravaganzas. Taking place at local parks, a school, and a nature center, each event features loads of hands-on experiments and demonstrations. All Discovery Day events are FREE unless otherwise noted. Visit www.PhilaScienceFestival.org for complete lists of Discovery Day activities.

**Discovery Day Venue Partners:**

**Chestnut Hill Science Discovery Day**

Join us for the first ever Chestnut Hill Discovery Day at John Story Jenks Academy for the Arts and Sciences! Participate in hands-on science as you learn about the chemistry behind bread baking and how paint gets its color. Find out where your groceries come from and what your teeth are made of. Participate in an awesome exercise session that will work your muscles and your brain! Science is everywhere at this brand new event! J.S. Jenks will also be hosting a Funfest on site, including bouncies, games, face painting and science themed activities.

FREE  
10:00 am–2:00 pm  
John Story Jenks Academy for the Arts & Sciences | 8301 Germantown Avenue

**Clark Park Science Discovery Day**

West Philadelphia has a lot of science to share! Meet local scientists and STEM students and experience the beauty of Clark Park. Participate in hands-on activities and hear about the great research happening all over University City!

FREE  
10:00 am–2:00 pm  
Clark Park | 4398 Chester Avenue

**Naturepalooza! Science Discovery Day**

The whole family will enjoy this day blossoming with nature in celebration of Earth Day. Enjoy environmental-themed activities including live music, sustainable technology demos, crafts, nature walks, live animal shows, and more. Explore the forest and be a citizen scientist for the day, share your best fort building talent in a competition, and capture your favorite nature moments while wishing the Earth a very happy birthday on social media.

FREE  
10:00 am–2:00 pm  
The Schuylkill Center for Environmental Education | 8480 Hagy’s Mill Road

**Hunting Park Science Discovery Day**

Science, technology, engineering, and math explode in Hunting Park! Explore dozens of hands-on activities at this outdoor science extravaganza. Join your neighbors to paint a new community mural, created in partnership with the Mural Arts Project. Create your own fizzy rockets, build working circuits, test your boat building skills, and much more!

FREE  
10:00 am–2:00 pm  
Hunting Park | 900 Hunting Park Avenue

Organized by the Hunting Park Community Science Network and underwritten by Esperanza, Inc.

**Mess Fest Science Discovery Day**

Don’t miss this ultra-messy, ooey-gooey, slimy and oozy celebration! Shoot off fizzy rockets, make slime to take home, find out why Mentos® and Coke combine to create an enormous fountain, and see how far the soap bubble monster will spread.

$5 suggested donation  
10:00 am–2:00 pm  
Smith Memorial Playground & Playhouse | 3500 Reservoir Drive

**Science Night at the Ballpark**

Root for the Phillies as they take on the Atlanta Braves! Watch the game under the lights, join the Phanatic for a science themed dugout dance, and explore exciting sports-themed science activities on the first level concourse!

$8 discount on tickets with code SCIENCE  
7:05 pm, gates open at 5:05 pm for activities

Citizen’s Bank Park | 1 Citizen’s Bank Way

For a full list of participating organizations, please visit www.PhilaScienceFestival.org.
EXPLORER SUNDAY
Sunday, April 26

See science in action with behind-the-scenes access to nearly 20 of the region’s laboratories, nature centers, museums, gardens, and other creative locations. Most events are FREE and admission is first-come, first-served unless otherwise noted. Some programs can only accommodate small groups—arrive early to guarantee a spot. Visit www.PhilaScienceFestival.org for more information.

1. Mingle with the Maker Movement
   Philadelphia Performing Arts: A String Theory Charter School
   1600 Vine Street

2. Is There a Doctor in the House?
   Jefferson Simulation Lab
   Thomas Jefferson University
   Dorrance Hamilton Building 1001 Locust Street

3. Discover the History of Philadelphia Science: A Self-Guided Tour
   Various locations: Washington Square and Society Hill

4. Patriots and Pirates: Science at Sea
   Independence Seaport Museum
   211 South Christopher Columbus Boulevard

5. Student-Run Urban Ecosystem
   Mastery Charter School—Thomas Campus
   927 Johnston Street

6. Building the Schuylkill Banks Boardwalk
   Schuylkill Banks
   Center City side of the Schuylkill River under the Walnut Street Bridge

7. Atlatls: Physics of the Hunt
   Penn Museum
   3260 South Street

8. Notes, Bits, & Bytes
   ExCITe Center at Drexel University
   3401 Market Street, Suite 100

9. DNA (Cell)fie Station
   University City Science Center
   Department of Making + Doing
   3711 Market Street

10. Bones, Bells, & Whistles: A History of Philly’s Scientific Men and Women
    Laurel Hill Cemetery
    3822 Ridge Avenue

11. Fishing Around
    Fairmount Water Works
    640 Waterworks Drive

12. What’s in a Garden?
    Grumblethorpe
    5267 Germantown Avenue

13. Sustainability Sunday: Simple Steps to a Naturally Greener Life
    Riverbend Environmental Education Center
    1950 Spring Mill Road | Gladwyne, PA

14. Harvesting History
    Wyck Historical House, Garden and Farm
    6026 Germantown Avenue

15. Restoring the Land Through Environmental Art at the Schuylkill Center
    Schuylkill Center for Environmental Education
    8480 Hagy’s Mill Road

16. Community Supported Agriculture: Henry Got Crops!
    W. B. Saul High School
    7100 Henry Avenue

17. Lights, Camera, Wagner!
    The Wagner Free Institute of Science
    1700 West Montgomery Avenue
**EXPLORER SUNDAY**

**Harvesting History**
Visit the oldest residential home in Germantown to see a working farm and the historic tools still used today. Tour the house museum to see a collection of historical artifacts from Wyck family members and Naturalist Reuben Haines III who was a founding member of the Academy of Natural Sciences. Take a stroll through the oldest rose garden in America (pre-bloom) to learn how roses have been used medicinally throughout history.
- **FREE**
- **11:00 am–2:00 pm**
- Wyck Historic House, Garden, and Farm | 6026 Germantown Avenue
- Presenting Partner: Wyck Historic House, Garden, and Farm

**Mingle with the Maker Movement**
Create, build, conduct, fly, and go 3D as you become part of the maker movement! See some cutting-edge technology and experience experimental learning at its finest. Play and learn about the technology that fosters engineering, robotics, digital design, biotechnology, and life sciences.
- **FREE**
- **11:00 am–3:00 pm**
- Philadelphia Performing Arts: A String Theory Charter School | 1600 Vine Street
- Presenting Partner: String Theory Schools

**Patriots and Pirates: Science at Sea**
Ahoy! Visit the Independence Seaport Museum and learn how pirates and sailors used science in their everyday lives. Explore the building of the **Patriots and Pirates** exhibit as our boat builders work on **Diligence**, a 65-foot schooner under construction right inside the museum! Lift heavy cargo, shoot cannons, discover the everyday use of simple machines aboard ships, and participate in ongoing plank shaping and hanging demonstrations with the Seaport’s own boat builders.
- **FREE with admission**
- **11:00 am–3:00 pm**
- Independence Seaport Museum | 211 South Christopher Columbus Boulevard
- Presenting Partner: Independence Seaport Museum

**Working Farm Exploration**
Explore a working farm and get your hands dirty as you plant seasonal veggies, meet farm animals, and taste what’s growing at the Longview Center for Agriculture. You’ll not only be taking home a tasty seasonal recipe, but the know-how to build your own garden!
- **FREE**
- **11:00–3:00 pm**
- The Longview Center for Agriculture | 3215 Stump Hall Road, Collegeville, PA
- Presenting Partner: Greener Partners

**DNA (Cell)fie Station**
Take your selfie to the next level and create a one-of-a-kind family portrait. Use a digital microscope to photograph and examine your cheek cells, hair follicles, and even your DNA! Walk away with pictures that capture the real you after viewing yourself in a whole new way.
- **FREE**
- **10:00 am–1:00 pm, sessions start on the half hour.**
- University City Science Center, Department of Making + Doing First Floor | 3711 Market Street
- Presenting Partner: University City Science Center

**Community Supported Agriculture: Henry Got Crops!**
Discover how important a rake and a shovel are to your community. Experience students’ first-hand attempts to bring food to their neighbors! See the co-op’s community supported agriculture farm, check out the educational raised beds, and dig your hands into the earth while transplanting veggies.
- **FREE, registration required**
- **11:00 am–2:00 pm**
- W. B. Saul High School | 7100 Henry Avenue
Discover the History of Philadelphia Science: Self-Guided Walking Tour

Journey into the past and explore Philadelphia’s rich scientific history! Hear an Historic Philadelphia, Inc. storyteller reveal the tale of Thomas Jefferson’s mastodon, take a tour of Pennsylvania Hospital’s historic surgical amphitheater, and peek inside one of Lewis & Clark’s notebooks from their famous exhibition. Explore the Chemical Heritage Foundation’s exhibitions on alchemy and the history of chemistry with guided tours, and learn the Physick House’s connection to the Yellow Fever epidemic of 1793.

FREE
12:00–3:00 pm
Receive a self-guided tour map at any location:

Pennsylvania Hospital
800 Spruce Street (Enter at the Gatehouse on 8th Street)

American Philosophical Society
104 South 5th Street

Physick House
321 South 4th Street

Chemical Heritage Foundation
315 Chestnut Street


Lights, Camera, Wagner!

Abandon your camera phone and travel back to the Victorian-era when you visit the Wagner Free Institute of Science for a day filled with yesteryear’s technology. Learn about historic “selfies” by cutting silhouette portraits and utilize the illumination of the sun to create a solar photogram. Then, tie it all to today’s technology with mechanical art projects led by local engineer and artist Adolphe Alexander and a light microscopy demonstration by Dr. Karen Snetselaar of the Biology Department at Saint Joseph’s University!

FREE
12:00–4:00 pm
The Wagner Free Institute of Science | 1700 West Montgomery Avenue
Presenting Partner: The Wagner Free Institute of Science

Bones, Bells, & Whistles: Histories of Great Philadelphia Scientists

Hear the stories of Philadelphia’s most influential scientists as you visit their gravesites at the beautiful Laurel Hill Cemetery. Learn how the life’s works of these Philadelphians have contributed to science long after their internment. Conduct experiments to identify marble, granite, and metal headstones, and build a sextant near David Rittenhouse! Not recommended for children under 10.

FREE with pre-registration, $5 at the door
1:00–3:00 pm
Laurel Hill Cemetery | 3822 Ridge Avenue
Presenting Partner: Laurel Hill Cemetery
Building the Schuylkill Banks Boardwalk
Learn about the engineering marvel of the Schuylkill Banks Boardwalk! Participate in hands-on activities that explore amazing engineering principles and speak with an engineer that contributed to the design and construction of the boardwalk. See how science helped to make the Schuylkill River Banks beautiful!

★ FREE
1:00–3:00 pm
Schuylkill Banks | Schuylkill Banks Trail at Walnut Street
Presenting Partner: Schuylkill River Development Corporation

Is There a Doctor in the House?
Go behind the scenes at Jefferson and see the high-tech simulation robots and control rooms that test the skills of future doctors and healthcare professionals. Then participate in hands-on activities to experience what life is like in the healthcare and biomedical fields.

★ FREE
1:00–4:00 pm
Thomas Jefferson University Dorrance Hamilton Building Jefferson Clinical Simulation Labs | 1001 Locust Street
Presenting Partner: Thomas Jefferson University

Notes, Bits, & Bytes
Produce music from modular circuit components, dance with a humanoid robot, and more as you explore what technology can do at Drexel’s ExCITe Center. Whether you’re a tech n00b or a natural, you’ll have a fantastic technology-filled day!

★ FREE
1:00–4:00 pm, sessions start on the half hour
The ExCITe Center at Drexel University | 3401 Market Street, Suite 100
Presenting Partner: ExCITe Center at Drexel University

Restoring the Land through Environmental Art
Enjoy a walk through the Schuylkill Center’s fields and forests to see how art can address ecological challenges, from invasive plants to dropping pollinator populations. The Center’s LandLab resident artists will talk about how they developed their installations, and how they combined art and science to create positive change for the land. With artists and scientists sharing their perspectives, it’s a great chance to learn about how art crosses boundaries and offers creative solutions to pressing environmental issues.

★ FREE
1:00–3:00 pm
The Schuylkill Center for Environmental Education | 8480 Hagy’s Mill Road
Presenting Partner: Schuylkill Center for Environmental Education

Explorer Sunday at Rowan University
It’s a STEAM (Science, Technology, Engineering, Art and Mathematics) celebration at Rowan University! Enjoy hands-on activities for all ages, exciting demonstrations, and experience virtual reality like never before. Explore science through world cultures and history, design and play your own video games, watch a show in the Planetarium and see how computer science and engineering informs art. Plus, take an immersive, 3D tour through the heart, brain, and the cells of your body at Rowan University’s high tech CAVE system at the New Jersey Tech Park!

★ FREE
1:00–3:00 pm
Science Hall, Westby Hall, and James Hall | 201 Mullica Hill Road, Glassboro, NJ Technology Park | 107 Gilbreth Parkway, Mullica Hill, NJ

Learn more and buy your tickets in advance at www.PhilaScienceFestival.org
**Student-Run Urban Ecosystem**

Come see how Green Club Students from the Mastery Charter School make their school and neighborhood greener as you tour planted native gardens and view an onsite greenhouse. Grab a pair of binoculars and go birding, or even participate in a native plant scavenger hunt! Peer into a mini-ecosystem in an urban landscape!

*FREE*

1:00–3:00 pm

Mastery Charter School
Thomas Campus | 927 Johnston Street

*Presenting Partners:*
Audubon Pennsylvania and Mastery Charter School, Green Club

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**Sustainability Sunday: Simple Steps to a Naturally Greener Life**

Join Riverbend, Lower Merion Township’s Environmental Advisory Council, the Lower Merion Conservancy, The Franklin Institute, and other local green organizations for a day devoted to easy ways to protect our planet. Learn how to reduce, reuse, and recycle to achieve a more sustainable Earth. Get a closer look at composting and discover how fish can grow our food!

*FREE*

1:00–4:00 pm

Riverbend Environmental Education Center
1950 Spring Mill Road, Gladwyne, PA

*Presenting Partners: Riverbend, Lower Merion Township’s Environmental Advisory Council, the Lower Merion Conservancy, The Franklin Institute and other local green organizations*

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**Atlatls: Physics of the Hunt**

Experience how our ancestors developed the Atlatl, one of the earliest hunting technologies that utilized our understanding of physics. Participate as Penn experts illuminate the history of this ancient hunting device and see more items from the museum’s collections. Make your own darts and practice throwing with a modern atlatl. How good of a hunter are you?

*FREE with admission, registration required*

2:00–3:30 pm

Penn Museum | 3260 South Street

*Presenting Partner: Penn Museum*

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**Fishing Around**

Fish populations can inform us about the health of our rivers and streams. Visit the Fairmount Water Works and take a closer look at some of the local inhabitants of the Schuylkill River. Dig, determine, and divulge to discover how healthy your river sample is by examining the different species of fish. There’s no better way to conserve a river than by learning from the fish that call it home.

*FREE*

2:00–4:00 pm

Fairmount Water Works | 640 Waterworks Drive

*Presenting Partners: Fairmount Water Works and the Philadelphia Water Department*

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**What’s in a Garden?**

What can YOU find in Grumblethorpe’s Garden? Explore the historic 2-acre garden and see what you can dig up! Search for common and not-so-common animals and plants, and keep your eyes peeled as there may be some things that don’t belong. You’re sure to get a little dirty, so dress for mess!

*FREE*

2:00–5:00 pm

Grumblethorpe Historic House & Garden | 5267 Germantown Avenue

*Presenting Partner: Grumblethorpe Historic House & Garden*
Robot Build Day
From wiring LED’s to making conductive dough to learning how 3D printers create solid objects, it’s a day all about what it takes to build a real robot. Come explore the many shapes, sizes, and functions of robots as you learn how to make your own!

FREE
10:00 am–2:00 pm
NextFab | 2025 Washington Avenue

Fun with Kitchen Science
Discover how science plays a pivotal role in the kitchen during this fun and food-filled extravaganza for foodies of all ages! See how chefs utilize science to bake, emulsify, and whip their dishes into shape, learn which foods keep your body lean and strong, and participate in hands-on activities that you can recreate in your own kitchen. Do you know much sugar is in a strawberry? How much fat is in a piece of chocolate? How does yeast work, and what exactly is leavening? Put on your apron and let’s get cooking!

FREE
2:00–4:30 pm
Free Library of Philadelphia, Parkway Central, 4th Floor | 1901 Vine Street

Fishtown Science Crawl
Take pub hopping to a whole new level during the Fishtown Science Crawl! Enjoy great drink specials as you explore your favorite Fishtown spots and experience hands-on science activities from distilling to squinking (painting with squid ink, obviously)! For a full list of activities and Happy Hour specials at each location, please visit PhilaScienceFestival.org.

FREE to attend, $5 wristband for Happy Hour prices at all venues
2:00–5:00 pm
Bottle Bar | 1308 Frankford Avenue
Fette Sau | 1208 Frankford Avenue
Frankford Hall | 1210 Frankford Avenue
Get wristbands here
Kensington Quarters | 1310 Frankford Avenue
La Colombe | 1335 Frankford Avenue
Get wristbands here

Murder at the Mütter™: Preconceptions
A body has been found in the Library during a gala event honoring renowned sixteenth century anatomist Andreas Vesalius. It seems like a horrible accident, but is it? Looks can be deceiving. Is there a killer on the loose at the Mütter Museum? Can anyone be trusted?

$40, $35 for students with valid student ID,
$30 for College Fellows and Friends of the Mütter
2:30–5:30 pm
The Mütter Museum of The College of Physicians of Philadelphia
19 South 22nd Street

Collaborators: The College of Physicians of Philadelphia, in collaboration with Arcadia University, Association of Women in Forensic Science (AWIFS), CFS Forensic Services, LLC, Center for Forensic Science Research & Education, Drexel University, Montgomery County District Attorney’s Office, Philadelphia College of Osteopathic Medicine, Philadelphia University, Swarthmore College, Teva Pharmaceuticals, and University of the Sciences in Philadelphia
NEIGHBORHOOD SCIENCE AFTERSCHOOL
Free Library of Philadelphia Locations
Monday, April 27–Thursday, April 30, 3:30–5:30 pm

Join the Philadelphia Science Festival at your neighborhood library after school for a celebration of science exploration! Scientists, engineers, and other experts will share their knowledge to provide FUN and FREE programs filled with exciting activities, animal encounters, family-friendly experiments, and hands-on demonstrations for all to enjoy. For a full list of activities taking place at each event, please visit www.PhilaScienceFestival.org

OWLS HAVE A SPECIAL ORGAN CALLED A "GIZZARD" WHERE SAND AND ROCKS HELP TO GRIND UP FOOD.

Monday, April 27
Philadelphia City Institute Library
1905 Locust Street

Ramonita de Rodriguez Library
600 West Girard Avenue

Torresdale Library
3079 Holme Avenue

Wadsworth Avenue Library
1500 Wadsworth Avenue

Whitman Library
200 Snyder Avenue

Tuesday, April 28
Bushrod Library
6304 Castor Avenue

Bustleton Library
10199 Bustleton Avenue

Cecil B. Moore Library
2320 West Cecil B. Moore Avenue

West Oak Lane Library
2000 East Washington Lane

Wednesday, April 29
Chestnut Hill Library
8711 Germantown Avenue

Greater Olney Library
5501 North 5th Street

Joseph E. Coleman Northwest Regional Library
68 West Chelten Avenue

Walnut Street West Library
201 South 40th Street

Wynnefield Library
5325 Overbrook Avenue

Thursday, April 30
Haddington Library
446 North 65th Street

Kingsessing Library
1201 South 51st Street

Lawncrest Library
6098 Rising Sun Avenue

Oak Lane Library
6614 North 12th Street

Find your local Free Library location at www.freelibrary.org.
Big Ideas for Busy People

From advances in detecting ovarian cancer and electronic brain stimulation, to the unearthing of a new dinosaur and using chemistry to preserve priceless art—countless groundbreaking discoveries are made right here in Philadelphia. Spend time with some dynamic local scientists and engineers who are making heads turn and profoundly impacting our understanding of the world around us!

$10, $5 for WHYY members
Doors open at 6:30 pm, 7:00–8:30 pm
WHYY | 150 North 6th Street

SPEAKERS: Prof. Michel W. Barsoum Ph.D., Drexel University | George C. Brainard, Ph.D., Thomas Jefferson University | Roy Hamilton, M.D., M.S., University of Pennsylvania | Melinda Keefe, Ph.D., Dow Chemical Company | Kenneth J. Lacovara, Ph.D., Drexel University | George Preti, Ph.D., Monell Chemical Senses Center | Denise Wong, GRASP Laboratory, University of Pennsylvania

HOST: Maiken Scott, WHYY

DIY Brewing: Cider and Mead

Give your home brew skills a little twist by learning the science behind making the delicious age-old classics, mead and cider. Get some hands-on experience while learning the chemistry behind these refreshing drinks. Participants will take home their own bottle of cider or mead!

$15, adults 21+
7:00–9:00 pm
Yards Brewing Company | 901 North Delaware Avenue

SPEAKERS: Andrew Howard, Yards Brewing Company | Al Bruno, The Franklin Institute | Steve Frecon, Frecon Farms

Learn more and buy your tickets in advance at www.PhilaScienceFestival.org
The Science of Networking

The knowhow to build a robust professional network is a valuable skill set to have, especially in STEM fields. Don’t miss this showcase of the science behind networking, which illustrates (for both college students and professionals) the how’s and why’s of building a great network. Put your new skills to work during a post-program networking session with industry leaders. College students are highly encouraged to attend!

FREE, registration required
5:30–7:30 pm
Quorum at the University City Science Center | 3711 Market Street, 8th Floor

SPEAKERS: Nick Marzano, Young Involved Philadelphia | Matt O’Donnell, University of Pennsylvania | Monet Thomas-Anderson, Campus Philly

An Alchemist’s Toast to Health, Wealth, and Longevity

Raise your goblets and toast the alchemists, who promised that their philosopher’s stone could transmute lead into gold, heal a multitude of diseases, and provide an exceptionally long, youthful life. Explore the fascinating world of alchemy, its surprising importance in the history of science and medicine, and the way alchemy’s values are carried on by modern scientific research.

$10 in advance, $12 at the door
Doors open at 6:00 pm, 6:30–8:30 pm
The Chemical Heritage Foundation | 315 Chestnut Street

SPEAKERS: Samantha Falk, University of Pennsylvania Perelman School of Medicine | Dr. Joel A. Klein, Columbia University & The Chemical Heritage Foundation | David Casarett M.D., M.A., University of Pennsylvania Perelman School of Medicine | Katherine Palozola, University of Pennsylvania Perelman School of Medicine | Prof. Eric J. Schelter Ph.D., University of Pennsylvania

Cookie Lab

A cup of butter, a pinch of salt, three teaspoons of vanilla extract; baking is a science and every step is crucial—especially when making the classic chocolate chip cookie. Enter the cookie lab and bake, dissect, and taste how one little recipe adjustment can make a big difference to the quality of your cookie!

$20, adults 21+
6:30–8:30 pm
The Free Library of Philadelphia, Parkway Central, Culinary Literacy Center, 4th Floor | 1901 Vine Street

SPEAKERS: Shanna Caster, The Franklin Institute | Peter Scarola, R2L Restaurant
Nerd Nite: Science Myths Busted!
You’ll find no tall-tales or twisted-truths at this PSF-edition of Nerd Nite. Join myth busting nerds and examine popular myths and their logical rebuttals. From cryptozoology, to gluten free diets and forensics, see what’s fact and what’s fiction.

- $5, adults 21+ (unless accompanied by parent/guardian)
- Venue opens at 4:00 pm, Program begins at 7:30 pm
- Frankford Hall | 1210 Frankford Avenue

SPEAKERS: Ned Gilmore, Academy of Natural Sciences of Drexel University
Stephanie Moleski, M.D., Thomas Jefferson University | Kimberlee Sue Moran, M.Sc., R.P.A., Center for Forensic Science Research & Education

ENTERTAINMENT: Los Festingos

Let’s Get Happy
What makes you happy? Take a calming breath and join local scientists to discuss positive psychology, nature deficit disorder, pet therapy, and meditation. Hosted by local Comedian Chip Chantry, this night will be complete with happy sights, sounds, and sensations that will have you walking on sunshine!

- $10 in advance, $12 at the door, adults 21+
- Doors open at 6:30 pm, 7:00–8:30 pm
- Ruba Club Studios | 416 Green Street

SPEAKERS: Gail Farmer, The Schuykill Center for Environmental Education | Andrew Newberg, M.D., Thomas Jefferson University | Lisa Serad, M.S., The Children’s Hospital of Philadelphia | Dr. Cynthia Skema, Morris Arboretum of the University of Pennsylvania | David Bryce Yaden, University of Pennsylvania | Sigrid Veasey, M.D., University of Pennsylvania Perelman School of Medicine

HOST: Chip Chantry

Dinner from the Weeds
Tired of pulling pesky weeds from your garden? If you can’t beat ‘em, eat ‘em! Join local acclaimed chef Daniel Stern as he whips wild weeds into delicious dishes. Meet professional forager Tama Matsuoka Wong and learn about the top ten spring weeds easily foraged in Philadelphia area backyards.

- $35, adults 21+
- 6:30–8:30 pm
- Free Library of Philadelphia, Parkway Central Culinary Literacy Center, 4th Floor, 1901 Vine Street

SPEAKERS: Daniel Stern, R2L Restaurant | Tama Matsuoka Wong, Meadows and More

Gross Anatomy
Sometimes our bodies can be, well, gross. Celebrate all of your unsavory secretions with this taboo-breaking cabaret, and discover why the things we DON’T discuss at the dinner table are so important to our health!

- $7 in advance, $10 at the door, adults 21+
- 6:30–8:30 pm
- Ruba Club Studios | 416 Green Street

SPEAKERS: Daniel Beiting, Ph.D., University of Pennsylvania School of Veterinary Medicine | Gary Beauchamp, Ph.D., Monell Chemical Senses Center | Pamela Dalton, Ph.D., M.P.H., Monell Chemical Senses Center | Kevin Murphy, Philadelphia Zoo | Bridget Nugent, Ph.D., University of Pennsylvania School of Veterinary Medicine | Katharine Prigge, Ph.D., Monell Chemical Senses Center

ENTERTAINMENT: Olde City Sideshow | Chlamydia dell’Arte | Adam Piazza, The Franklin Institute

Inspired by Nature
Did you know that scientists and engineers often look to nature to solve some of society’s most complex challenges? Get up close and personal with the biological inspiration for some of today’s most advanced robotics innovations, and see special demonstrations by a swimming fish robot and flying robot that grasps like a hawk.

- $10 in advance, $12 at the door, $7 students with ID
- 6:30–8:30 pm
- Painted Bride Art Center | 230 Vine Street

SPEAKERS: Gavin Kenneally, GRASP Laboratory, University of Pennsylvania | Tonia Hsieh, Ph.D., Temple University | Justin Thomas, GRASP Laboratory, University of Pennsylvania | Denise Wong, GRASP Laboratory, University of Pennsylvania | Brooke Flammang, Ph.D., New Jersey Institute of Technology | Gabe Carryon, Drexel University | Alicia DeVane, Philadelphia Zoo

HOST: Mikey Ilagan, Geekadelphia.com
Beer Lab
Take a trip back to your high school science lab, but forgo the frog dissections. Instead, dust off those science skills for something a lot more refreshing: beer! Take a scientific tour of the ingredients behind your favorite sudsy brews, and don’t forget to record your observations in your lab manual. Best grade in the class gets some sweet prizes!

$15, adults 21+
7:00–9:00 pm
Yards Brewing Company | 901 North Delaware Avenue

SPEAKERS: Frank Winslow, Yards Brewing Company | Tim Roberts, Yards Brewing Company | Dr. Cynthia Skema, Morris Arboretum of the University of Pennsylvania | Matthew J. Farber, Ph.D., University of the Sciences

You’re the Expert
What do you get when you mix three comedians and one of Philadelphia’s top scientists? A scientifically-proven good time. Watch as comedians attempt to guess the scientist’s area of expertise and then dig deeper into this topic during this laughter-filled program. Featuring comedians Jo Firestone, Zhubin Parang, and Wyatt Cenac, former correspondent on The Daily Show! Hosted by Chris Duffy, producer and host of You’re the Expert, a live show, podcast, and new public radio program.

$15 in advance, $20 at the door
8:00–9:30 pm
The Franklin Institute | 222 North 20th Street

COMEDIANS: Wyatt Cenac, Jo Firestone, and Zhubin Parang
HOST: Chris Duffy
SCIENTIST: Kimberlee Sue Moran, M.Sc., R.P.A

Learn more and buy your tickets in advance at www.PhilaScienceFestival.org
SCIENCE CARNIVAL ON THE PARKWAY

Don’t miss the chance to GET NERDY on the Parkway with your friends, family, and science lovers from all over the region! It’s a jamboree of fun featuring more than 150 exhibitors offering family-friendly experiments, games, and a packed line-up of live entertainment. Gaze at the sun (safely!), meet zoo animals, explore the science of sports, interact with robots, try your hand at countless chemistry experiments, grab a bite from your favorite food trucks, and so much more!

A full list of exhibitors and activities is available online at www.PhilaScienceFestival.org/carnival.

10:00 am–4:00 pm
20th Street & The Benjamin Franklin Parkway in front of The Franklin Institute

KA-BOOM! WHAT HAPPENS WHEN YOU COMBINE ULTRA-COLD LIQUID NITROGEN WITH STEAMING HOT WATER AND THOUSANDS OF GREEN BALLS? STOP BY AT 3:45 PM TO FIND OUT!

CARNIVAL PARTNER: Philadelphia Parks & Recreation
EDUCATOR WORKSHOPS

Looking for ways to invigorate your STEM teaching? Attend a FREE Professional Development Workshop and acquire new skills and materials to inspire the future scientists in your classroom.

All Professional Development Workshops are free but you must register online at www.PhilaScienceFestival.org to attend.

PSF Educator Programs are sponsored by FMC

Project Learning Tree and Project WET
For pre-K, elementary, and middle school educators
Looking for a way to make the environment relevant to your urban students? Earn ACT 48 credit in this full-day combined Project WET and Learning Tree workshop and learn tips and techniques to get your students thinking about the environment. Discover how trees and water connect us all and leave with resource materials containing hundreds of lessons!

Saturday, April 25, 9:00 am–4:00 pm
John Heinz National Wildlife Refuge | 8601 Lindbergh Boulevard
Presented by John Heinz National Wildlife Refuge

STEM on a Shoestring
For preK, elementary, and middle school educators
Looking to enhance your STEM curriculum on a limited budget? Obtain sample lesson plans and activities from a former Philadelphia School District educator and learn how to spice-up your classroom activities without breaking the bank.

Monday, April 27, 4:00–5:30 pm
The Franklin Institute, 5th Floor Conference Center | 222 North 20th Street
Presented by The Baldwin School

Teach Students Protein Synthesis Using a Hands-On Activity
For middle and high school educators and college instructors
Use laminated paper, wires, beads, and key rings to effectively demonstrate how the cell synthesizes and processes proteins. Build a protein model and leave with the files, supply list, and instructions for performing this demonstration in your own classroom.

Monday, April 27, 4:00–5:30 pm
University of the Sciences | McNeil Science & Technology Center, Room 101
3rd and Woodland Streets
Presented by University of the Sciences

Inquiry Based Learning in the K–12 Classroom
For middle and high school educators
School District of Philadelphia middle and high school science educators are invited to attend and learn how to do inquiry-based STEM activities in their own classrooms, specifically lessons in line with the NGSS that connect engineering with middle and high school curriculum.

Monday, April 27, 5:00–7:00 pm
Drexel University, Bossone Research Enterprise Center, 3rd Floor Atrium
3120-40 Market Street
Presented by Drexel University – NSF STEM GK-12 and DragonsTeach

Using Genomic Data to Save Lives
For middle and high school educators
Discover how genomic data can be used to save lives, fight infections, and understand genetic diseases. Gain a deeper understanding of bioinformatics, the practice that combines computer science, statistics, mathematics, and engineering to study and process biological data, and how to use it in your classroom. Participants should bring a device to access the web via wireless connection (e.g., tablet, laptop, smart phone).

Monday, April 27, 5:00–7:00 pm
University of Pennsylvania, Carolyn Lynch Laboratory, 433 South University Avenue
Presented by University of Penn Nano/Bio Interface Center

Hands-On Standards-Based Activities for K–5 Science and Math Classrooms
For Kindergarten through grade 5 educators
Participate in hands-on activities appropriate for the elementary grades from a variety of disciplines.

Tuesday, April 28, 8:30 am–1:30 pm
Rowan University, Robinson Hall, Room 212 | 201 Mullica Hill Road, Glassboro, NJ
Presented by College of Science & Mathematics STEM Center/McSiip of Rowan University
Rethinking Row Homes  
For preK, elementary, and middle school educators  
How can we build better row homes to protect our cities against storm water and increasingly hotter summers? Join educators from GreenTreks Network and The Franklin Institute to discover how rain barrels and rain gardens along with green infrastructure can be used to manage water and increased heat in our cities.  
**Tuesday, April 28, 3:30–6:30 pm**  
The Franklin Institute, 5th Floor Conference Center | 222 North 20th Street  
Presented by GreenTreks Network and The Franklin Institute

To Get to the Other Side: Designing Bridges  
For Kindergarten through grade 3 educators  
Inspire your future engineers! Teach your students about balance and force with experiments using beams, arches, and suspension bridges. Civil engineering comes alive in your classroom as students plan, build, and test their very own bridges.  
**Tuesday, April 28, 4:00–6:00 pm**  
The Franklin Institute, 4th Floor Harcourt Room | 222 North 20th Street  
Presented by Professional Development Dimensions

Incorporating History into STEM  
For grades 3 through 12 educators  
It wasn’t just men that were shaping scientific practices in the 19th century; women had a big impact, too! Discover how these savvy ladies’ handmade herbaria and school books influenced scientific thinking over a hundred years ago. Learn new ways to replicate their experiments and see some unique items from the Historical Society’s collections.  
**Tuesday, April 28, 4:30–6:30 pm**  
The Historical Society of Pennsylvania | 1300 Locust Street  
Presented by the Historic Society of Pennsylvania

Putting the Play in STEAM  
For preK through grade 2 educators  
Did you know that your brain actually changes when you play? Learn how to help young children absorb STEAM (Science, Technology, Engineering, Arts, and Mathematics) information, gain guidance in creating effective and comprehensive play-based STEAM activities, and observe STEAM experiences and programming.  
**Wednesday, April 29, 9:00 am–1:00 pm**  
Please Touch Museum | 4231 Avenue of the Republic  
Presented by the Please Touch Museum, Temple University’s Spatial Intelligence Center, and Smith Playground

Classroom CSI: Fingerprinting and Forensics  
For middle and high school educators  
Spark your students’ interest in forensics! Go beyond arches, loops, and whorls to discover how and why fingerprints form and what makes them unique. Test different fingerprint dusting, developing, and lifting methods and learn about techniques and supplies to use in your classroom.  
**Wednesday, April 29, 10:00 am–12:00 pm**  
The Franklin Institute, 5th Floor Conference Center | 222 North 20th Street  
Presented by the Center for Forensic Science Research and Education

Classroom CSI: Forensic Ecology  
For middle and high school educators  
How can clues from the environment help us catch criminals? Forensic ecology involves the analysis of plants, insects, soil, and other particulates from crime scenes to help solve crimes. Learn more about these techniques and receive lesson plans that you can adapt for your classroom.  
**Wednesday, April 29, 1:30–3:30 pm**  
The Franklin Institute, 5th Floor Conference Center | 222 North 20th Street  
Presented by the Center for Forensic Science Research and Education

Classroom CSI: Science Sleuths  
For middle and high school educators  
Show your students how scientists use forensic science to catch criminals. Learn how to perform some easy classroom exercises like fingerprinting, evidence collection, and DNA profiling. Leave with a PowerPoint presentation, instructions, and handouts that you can use to inspire the next generation of science sleuths in your classroom!  
**Wednesday, April 29, 4:00–6:00 pm**  
The Franklin Institute, 5th Floor Conference Center | 222 North 20th Street  
Presented by the Center for Forensic Science Research and Education
PROFESSIONAL DEVELOPMENT WORKSHOPS

Preparing for the AP Computer Science Principles Course and Exam
For high school educators
Spark your students’ interest in computer science! Learn basic computational thinking practices, receive sample materials and participate in activities to prepare students for the new AP Computer Science Principles course and exam. Expose your students to a skill that they can use to obtain exciting careers in technology.

Wednesday, April 29, 4:00–7:00 pm
Drexel University, MacAlister Hall, Room 2019 | 3250 Chestnut Street
Presented by REThink CS @ Drexel

Teaching with Technology for the Global Educator
For elementary, middle, and high school educators
Learn tech-savvy strategies to build a creative, collaborative, and globally-connected classroom! Explore the tools and apps that nurture student interest and learning about world regions and cultures.

Wednesday, April 29, 4:30–6:00 pm
Annenberg School at the University of Pennsylvania, Room 111
3620 Walnut Street
Presented by the University of Pennsylvania South Asia Center

Hands-On Standards-Based Activities for Grades 6–12
For grades 6 through 12 educators
Participate in hands-on activities appropriate for the middle and high school from a variety of disciplines.

Thursday, April 30, 8:30 am–1:30 pm
Rowan University, Robinson Hall, Room 212 | 201 Mullica Hill Road, Glassboro, NJ
Presented by College of Science & Mathematics STEM Center/McSiip of Rowan University

How People Learn: Understanding the Brain and STEM Learning
For elementary, middle, and high school educators
Become a learning scientist at The Franklin Institute! Explore the Your Brain exhibit and discover key ideas from cognitive science that apply directly to teaching and learning. Work with cognitive scientists to learn about recent research supporting the importance of spatial thinking in STEM learning. A complimentary lunch will be provided, courtesy of National Institutes of Health.

Thursday, April 30, 9:00 am–3:00 pm
The Franklin Institute, 5th Floor Conference Center | 222 North 20th St
Presented by The Franklin Institute & Temple University’s Spatial Intelligence Center
Supported in part by a grant from the National Institute of Health

Educate to Innovate
For elementary, middle, and high school educators and out-of-school time educators
The STEM/STEAM/Maker education movement is gaining traction and has such a strong following throughout the U.S. that the White House has challenged educators to “Educate to Innovate.” Sounds inspiring, but what does that mean for your youth programs? In this workshop, you’ll gain access to the resources you’ll need to shift your teaching programs and set your students up for success.

Thursday, April 30, 4:00–6:30 pm
University City Science Center, Department of Making + Doing
3711 Market Street
Presented by the University City Science Center

Paleontology in the Classroom
For elementary and middle school educators
Dinosaurs continue to inspire awe, but what exactly classifies an animal as a dinosaur? Examine fossils, artifacts, and museum specimens, and learn how to create a fun and exciting paleontology experience in your own classroom. Improve your understanding of science content while exploring new ways to engage students.

Thursday, April 30, 5:00–7:00 pm
Academy of Natural Sciences of Drexel University
1900 Benjamin Franklin Parkway, enter on 19th Street
Presented by The Academy of Natural Sciences of Drexel University
DISCOVER MORE ABOUT THE PHILADELPHIA SCIENCE FESTIVAL!

TICKETING
Many PSF events sell out and tickets may not be available at the door once an event is filled to capacity. Advanced registration is strongly recommended.
Purchase tickets online at www.PhilaScienceFestival.org.

ACCESS
Most venues are wheelchair accessible. Sign Language Interpreters are available for most Festival events when requested at least one week in advance.
To request a Sign Language Interpreter, or for more information on accessibility:
Email philadelphiasciencefestival@fi.edu or call Ellen Trappey, Community Programming Specialist, at 215.448.1346.

TICKET PRICES
To ensure that everyone can enjoy the Festival, ticket prices are kept as low as possible. More than 85% of events are free and nearly all of those ticketed are offered at a low cost. When there is a charge, the fees cover the costs associated with running the event.

CONNECT
Join the conversation and tell us about your Philadelphia Science Festival experience! Share your feedback, post pictures and invite your friends to Festival events. #GetNerdyPHL

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The College of Physicians of Philadelphia
Drexel University
Fairmount Water Works
The Franklin Institute
The Free Library of Philadelphia
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La Salle University
Monell Chemical Senses Center
The Nature Conservancy
Philadelphia Center for Arts and Technology
Philadelphia University
Philadelphia Zoo
Please Touch Museum
Riverbend Environmental Education Center
The School District of Philadelphia
The Schuylkill Center
Smith Playground
Temple University
University City Science Center
University of Pennsylvania
University of Pennsylvania Museum of Archaeology and Anthropology
University of the Sciences
The Wagner Free Institute of Science

www.PhilaScienceFestival.org

Please note: Information contained in this Program Guide is correct as of March 16, 2015. However, the Festival reserves the right to change events or information in the event of unforeseen circumstances. Event changes will be listed on the website, so please check www.PhilaScienceFestival.org before heading to an event.
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