



DA VINCI  
**SCIENCE**  
CENTER®

# Field Trip Planning Guide

2016-2017 School Year



# What Educators Say About Da Vinci Science Center



**"It was a great educational experience."**

Kathy Hontz, Sixth Grade Teacher, Plumstead Christian School, Plumsteadville, Pa.

**"The Live Science Show was awesome! The children were engaged. We were really pleased with our experience this year."**

Norine Milewski, Third Grade Teacher, Jefferson Elementary School, Jefferson Township, Pa.

**"Our students loved the outreach program and the educator had a wonderful style in his presenting! The hands-on activities were exciting. The educator also really was helpful in including special needs students and the program kept everyone's interests."**

Joanne McCluskey, Math and Science Teacher, Lester D. Wilson Elementary School, Pittstown, N.J.

**"The experience was wonderful. The students loved the first- and second-floor exhibits, the Crime Solvers workshop, and show. The second-floor exhibits tied in particularly well with our STEM curriculum. Thank you."**

Donna Moser, Third Grade Teacher, Notre Dame School of Bethlehem, Pa.

**"Everyone here has been very helpful and great with the kids."**

Laura Jordan, Fourth Grade Teacher, Farmersville Elementary School, Easton, Pa.

**"Best place yet for a field trip"**

Denise Hall, Fourth Grade Teacher, Bridge Valley Elementary School, Furlong, Pa.



**Field Trip Reservations**  
Open Monday-Friday 9 a.m.-5 p.m.

-  610.841.1875
-  [davincisciencecenter.org/fieldtrips](http://davincisciencecenter.org/fieldtrips)
-  [ask@davincisciencecenter.org](mailto:ask@davincisciencecenter.org)



**Outreach Program Reservations**  
Open Monday-Friday 9 a.m.-5 p.m.

-  484.664.1002, Ext. 119, or Ext. 114
-  [davincisciencecenter.org/outreach](http://davincisciencecenter.org/outreach)
-  [outreach@davincisciencecenter.org](mailto:outreach@davincisciencecenter.org)



**Professional Development Reservations**  
Open Monday-Friday 9 a.m.-5 p.m.

-  484.664.1002, Ext. 108
-  [davincisciencecenter.org/educators](http://davincisciencecenter.org/educators)
-  [ask@davincisciencecenter.org](mailto:ask@davincisciencecenter.org)



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# Math Midway 2 Go

Appearing Sept. 14, 2016-Jan. 2, 2017

Make math fun this year with six hands-on mathematics exhibits designed by the National Museum of Mathematics (MoMath).

Sponsored in Part by



**FREE**  
with Group  
Admission



## Funny Face

A photo booth that allows kids to use a simple math equation to distort a picture of their face, similar to the math behind a computer's photo editing software.



## Number Line Tightrope

Students play with number families and decipher what prime numbers, Fibonacci numbers, and pizza numbers have in common.



## Roller Graphicoaster

Students build a roller coaster and then a computer measures how fast a coaster car zips across their creation.



## Organ Function Grinder

Students insert a number ticket, set three dials, and crank to make music and see how the function changes their number.



## Miles of Tiles

Students place tiles in a variety of shapes on a magnetic wall to create eye-catching patterns and tessellations.



## Ring of Fire

Students place solid objects in the path of invisible lasers to reveal beautiful shapes.

Grade or Subject	Focus Exhibit	Common Core Standards
K	Miles of Tiles	Explore shapes and counting
1	Number Line Tightrope	Explore number patterns and families
2	Roller Graphicoaster	Explore measurement of length (both straight lines and curves) and measurement of time
3	Miles of Tiles	Explore fractions and shapes
4	Miles of Tiles	Explore shapes and symmetry, with a focus on tessellations
5	Organ Function Grinder	Explore rules and operations, preparing for later study of functions
6	Number Line Tightrope	Explore number groups, including prime numbers, squares and cubes, and more unusual number families, such as pizza and Fibonacci numbers
7	Ring of Fire	Explore the relationship between two-dimensional and three-dimensional shapes, with a focus on cross-sections
8	Organ Function Grinder	Explore inputs, outputs, and functions in a hands-on format, including a preview of nested functions
Algebra	Number Line Tightrope	Explore sets and recursive functions through the study of number families
Geometry	Miles of Tiles	Explore geometric constructions and proofs with a focus on why shapes do or do not tessellate the plane.

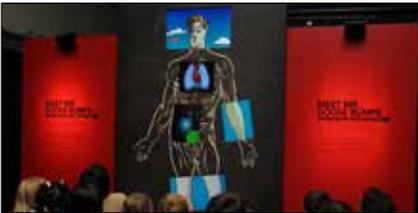
Math Midway 2 Go is a production of the National Museum of Mathematics, America's only museum dedicated to the wonders of mathematics. Please visit [momath.org](http://momath.org) for more information.

# Goose Bumps! The Science of Fear

Appearing Jan. 21-Sept. 4, 2017

Examine the physiological, neurobiological, and sociological aspects of fear in the safe and enjoyable environment of Goose Bumps! The Science of Fear.

Sponsored Locally by **AIR PRODUCTS**



## Fear Lab

Meet Mr. Goose Bumps, a larger-than-life figure that uses playful animations to show how the brain and body work together to respond to danger.



## Fear Challenge Course

Get your heart pumping and your palms sweaty as you face some common fears, such as the Fear of Animals, the Fear of Electric Shock, and the Fear of Falling.



## Fear in the Wild

Play the "Freeze Game," an immersive interactive video installation, and learn how animals survive in their natural environments.



## Fear Lab

Interactive experiences help students delve deeper into the brain systems and pathways activated by fear, and graphic panels profile scientists doing cutting-edge emotion research.



## Faces of Emotion

Explore the facial expressions of fear and other emotions and interact with an experimental software program that tries to analyze and identify your facial expressions.

Come see biology as you have never seen it before



**goose**  
the science of fear  
**bumps!**

**FREE**  
with Group  
Admission

# Exhibit Highlights



## Physics Playground

Students play with a plethora of hands-on exhibits designed to reinforce their understanding of momentum, gravity, friction, simple machines, and several more physical concepts that govern our universe.

**Exhibits to Explore:** Newton Chairs, Friction Wheels, Pulley Power, Giant Lever, KEVA Build It Up!, and many more

## Earth, Wind, and Water

Students explore the science behind the world's elements as they manipulate the flow of water, dig for fossils, and learn to forecast the weather with Ed Hanna, Chief Meteorologist for WFMZ 69 News and the Accuweather Channel.

**Exhibits to Explore:** Water Table, Dino Dig Pit, Be a Weather Forecaster, and B104 Honeybee Hive

## Today's Tech

Students look at the world from various scales to uncover the hidden secrets behind the technologies they use every single day and the ways in which nanotechnology will influence the future of science and society.

**Exhibits to Explore:** Pin Wall, Scopes on Ropes, Watch Water Freeze, and Carbon Nanotube Tower

## Innovation and Invention

Students develop the mindset of being an inventor as they tackle various design challenges and gather inspiration from some of the greatest innovators in the Lehigh Valley region.

**Exhibits to Explore:** High Flyer, Mack Truck Exhibits, Innovation Square, Hydraulic T-Rex, Animation Station, and Paper Airplanes

## Science In the Dark

Students become the subject of their own scientific investigations in our two Science In the Dark experiences that are sure to de-light visitors of all ages!

**Exhibits to Explore:** Darkened Tunnel\* and Shadow Room

*\* Each group is assigned their own 10-minute time to maximize their experience*

## Aquatic Adventures

Students are immersed in the marine sciences and explore the depths of the ocean from the safety and security of dry land. Educators are available regularly to take students through hands-on experiences to augment a marine tank full of live plants and animals.

**Exhibits to Explore:** Marine Tank

# Live Science Shows

Grades Pre-K-12 | 25 Minutes | All shows can be tailored to your students' grade level

## September through March

School groups visiting from Sept. 2016 through March 2017 may substitute a free live science show for a hands-on workshop or add a live science show for \$2.00 per student.

### Dr. Watts

Offered in September and October

The Dr. Watts Live Science Show introduces students to the excitement and wonder of high-energy physics. Students learn to identify different types of electricity and its applications in the real world. Students create a cloud in a bottle, have a hair-raising experience with a Van de Graaff generator, illuminate light bulbs in their bare hands, and enjoy other electrifying activities that help them discover what electricity is and how it travels.

*Standards: PDE Science S4.A.2.1.1, S4.C.2.1.1, S4.C.2.1.2, S4.C.2.1.3, S8.C.2.1.1*

### SuperCoolness

Offered from November through January

The SuperCoolness Live Science Show is the COOLEst show ever. Educators help students have fun with one of the coldest chemicals in the known universe - liquid nitrogen. Where does it come from? What happens to water and other substances when they touch it? Why does it seem to disappear when you pour it out? Students will "oooooh" and "ahhhh" when they learn the answers to these questions and reveal the basic science behind these awesome effects.

### Grossology

Offered in February and March

The Grossology Live Science Show is based on the popular children's book by Sylvia Branzei and is all about the impolite science of the human body. While some may think it is gross, kids love it. This program takes viewers on a tour of the digestive system from beginning to end ... No Grossology show would be complete without learning about peristalsis, stomach acid, and, of course, poop! Grossology™ is a registered trademark of Price Stern Sloan, a division of Penguin Group.

*Standards: NGSS Standards PS1.A: 5-PS1-1; LS1.A: MS-LS1-1; LS1.A: MS-LS1-2; LS1.A: MS-LS1-3; LS1.C: MS-LS1-7; LS1.D: MS-LS1-8; Crosscutting Concepts MS-ETS1-1*



## April through June

School groups visiting from April through June 2017 may enjoy a free live science show presented by a professional educator.

### Chemical Chaos

**NEW**

Offered from April through June

The Chemical Chaos Live Science Show gets reactions out of students as educators demonstrate some of the crazy things that can be done with certain chemicals - creating instant smoke, making a giant foamy fountain, growing an extra hand to help clean things up, and unlocking the secrets of color-changing chemistry with a special fireworks demonstration.

# Hands-on Workshops

30 Minutes | Free from September through March | \$2.00 per student from April through June

Workshop	Grade(s)
See Like a Bee	Pre-K-2
Dig Into Dinos	Pre-K-4
Sound Sensations	Pre-K-4
KEVA Construction	Pre-K-8
Slime Science	K-8
Ed Hanna's Weather	2-6
Crime Solvers	3-12
Roller Coaster Engineer	3-12
Shock and Awesome	3-12
Chemical Concoctions	5-12
Healthy Hearts	5-12

## See Like a Bee

**Grades** Pre-K-2  
**Day(s)** Monday, Tuesday, Friday

Students investigate what all the BUZZ is about in the busy world of bees. As its name suggests, this workshop is all about exploring bees' sense of sight - how it is the same as our own and how it is very different.

*Standards: PDE Science S4.B.1.1.2, S4.B.2.1.2, S4.C.2.1.2*

## Dig Into Dinos

**Grades** Pre-K-4  
**Day(s)** Wednesday, Thursday

Pint-sized paleontologists visit several stations to practice digging for fossils, hypothesizing what they may have been, and learning what makes dinosaurs different from modern animals. As a special bonus, student also feel our very own fossilized dino poop!

## Sound Sensations

**Grades** Pre-K-4  
**Day(s)** Wednesday, Thursday

Students see sound waves and examine how they change with pitch, volume, and other good vibrations as they experiment with a tone generator and oscilloscope. After they investigate, the mini musicians explore various instruments and the sounds they make.

*Standards: PDE Science S4.A.2.1.1, S4.A.2.1.2, S4.A.2.2.1, S4.A.2.1.2, S4.A.2.1.4, S4.C.2.1.4*

## KEVA Construction **NEW**

**Grades** Pre-K-8  
**Day(s)** Monday, Tuesday, Friday

Based on the incredibly popular exhibit, this workshop is all about encouraging curiosity and embracing the arts in STEAM education. Students are tasked with completing fun building challenges designed to unlock their creative juices and think outside the box.

*Standards: PDE Science S4.A.3.2.2, S4.A.3.2.3, S4.A.2.1.1*

## Slime Science **MOST POPULAR**

**Grades** K-8  
**Day(s)** Monday, Tuesday, Friday

This workshop all about ooey, gooey, sticky slime is one of the our most popular experiences. Students compare and measure the properties of some of our pre-made slimes followed by manipulating variables to make two different slimes to take back to their classrooms!

*Standards: PDE Science S4.C.1.1.1, S4.C.1.1.2, S4.A.2.1.1, S4.A.2.1.2, S4.A.2.1.4; PDE Math M5.E.1.1.1, M5.E.3.1.1*

## Crime Solvers

**Grades** 3-12  
**Day(s)** Monday, Tuesday, Friday

A kooky criminal is on the loose at the Center and it's your students' job to catch 'em! This silly whodunit-style workshop introduces students to the forensic sciences and encourages them to hone their investigative skills to help narrow down the suspects.

*Standards: PDE Science S4.A.1.1.2, S4.A.2.1.4, S4.A.2.2.1, S8.A.1.1.4, S8.A.3.3.2*

## Ed Hanna's Weather, News & You

**Grades** 2-6  
**Day(s)** As Announced

What is weather? What creates it? What does a TV meteorologist do? Students find out during this fun and energetic presentation by Ed Hanna, Chief Meteorologist for WFMZ 69 News and The AccuWeather Channel. Each program can fit up to 90 students as space allows.

*Standards: PDE Science S4.A.3.2.2, S4.A.3.3.1, S4.A.3.3.2, S8.A.3.2.1*



### Available exclusively on these dates from 11 a.m.-12 p.m.

Tuesday, Oct. 11, 2016	Wednesday, Feb. 15, 2017
Tuesday, Oct. 18, 2016	Wednesday, Feb. 22, 2017
Tuesday, Oct. 25, 2016	Wednesday, March 1, 2017
Tuesday, Nov. 1, 2016	Wednesday, March 8, 2017
Tuesday, Nov. 8, 2016	Wednesday, March 15, 2017
Tuesday, Nov. 15, 2016	Wednesday, March 22, 2017
Tuesday, Nov. 22, 2016	Wednesday, March 29, 2017
Tuesday, Nov. 29, 2016	
Tuesday, Dec. 6, 2016	
Tuesday, Dec. 13, 2016	
Tuesday, Dec. 20, 2016	

# Hands-on Workshops

## Roller Coaster Engineer

**Grades** 3-12  
**Day(s)** Wednesday, Thursday

What better way to test the laws of motion, conservation of energy, and many more physical concepts than by building your very own roller coaster? Students work in small groups to design a reliable coaster, complete with flips, dips, and thrills.

*Standards: PDE Science S4.B.1.1.2, S4.B.2.1.2, S4.C.2.1.2*

## Shock and Awesome **NEW**

**Grades** 3-12  
**Day(s)** Monday, Tuesday, Friday

This updated workshop invites students to explore the fundamentals of electricity by completing design challenges posed by our educator. The coolest part is that there is never just one solution to any problem, and what you learn may just shock you!

*Standards: PDE Science S4.C.2.1.2, S4.C.2.1.3*

## Chemical Concoctions

**Grades** 5-12  
**Day(s)** Monday, Tuesday, Friday

Enter our laboratory for an in-depth look at color-changing chemicals; chemicals that bubble, gurgle, and burp; and even some that disappear. Students discover the basic chemistry behind many things they may encounter in their daily lives and the applications of scientific exploration.

*Standards: PDE Science S8.A.1.1.3, S8.A.2.1.3, S8.A.2.1.4, S8.A.2.1.5*

## Healthy Hearts **NEW**

**Grades** 5-12  
**Day(s)** Monday

Have you ever wondered: "What's so cool about your heart?" This workshop is all about this awesome muscle: what it does, how it works, and what we can do to keep it healthy - each and every day. *This program is supported by Bob and Sandy Lovett and created in partnership with Lehigh Valley Health Network.*



## Teacher Rewards Program

Join the Da Vinci Science Center Teacher Rewards Program and enjoy these great benefits:

- Special offers on field trips and educational programs delivered through the Teacher Rewards e-mail newsletter
- \$20 savings off a Da Vinci Science Center membership
- General admission tickets to the Center at the school group rate when you present your Teacher Rewards card at the Welcome Center
- A 10% discount on store purchases when you present your Teacher Rewards card at checkout
- Updates on professional development opportunities



[davincisciencecenter.org/teacherrewards](http://davincisciencecenter.org/teacherrewards)

## Teachers' Open House

Bring science to life for your students. The Da Vinci Science Center invites all teachers to its 2016 open house.

**Date** Tuesday, Oct. 4, 2016

**Time** 3-8 p.m.

**Location** Da Vinci Science Center

- Meet our staff
- Preview our workshops and outreach programs
- Take a tour of the exhibits to learn how to get your students interested in the exhibit floor during your field trip
- Learn about professional development programs
- Enjoy free refreshments

# Plan a Field Trip

<b>Field Trip Pricing</b>	September-March	April-June
Group Admission <sup>1</sup>	\$9.50	\$9.50
Hands-on Workshop	Free	\$2.00
Live Science Shows	\$2.00	Free
Math Midway 2 Go <sup>2</sup>	Free	--
Goose Bumps! <sup>3</sup>	Free	Free

1. A school field trip must consist of 15 or more students

2. Math Midway 2 Go presented Sept. 14, 2016-Jan. 2, 2017

3. Goose Bumps! The Science of Fear presented Jan. 21-Sept. 4, 2017

4. An additional workshop or live science show is available for \$2.00 per student until March 31, 2017



## Field Trip Contact Information

Reservations Office

Open Monday-Friday 9 a.m.-5 p.m.

 610.841.1875

 [davincisciencecenter.org/fieldtrips](http://davincisciencecenter.org/fieldtrips)

 [ask@davincisciencecenter.org](mailto:ask@davincisciencecenter.org)

## Lunch Options

We offer a free 30-minute reservation in our café for your group to enjoy one of these lunch options.

- **Pizza from Domino's:** Large plain or one-topping pizza - \$10.00\* per pizza (two pizza minimum). Your order must be placed in advance through our reservations office. We place the order with Domino's and coordinate delivery for your scheduled lunch time. Bottled beverages available at an additional cost.
- **Chick-fil-A Boxed Lunches:** Sandwich or Nuggets with fruit salad and drink - \$7.00\* per lunch (minimum 10 lunches). Your order must be placed in advance through our reservations office. We place the order with Chick-fil-A and coordinate delivery for your scheduled lunch time.
- **Bring Your Own:** We will store your packed lunches for you until your scheduled lunch period.



\* Lunch prices subject to sales tax

Allergy Issues: While the Da Vinci Science Center is not an allergy-free space, we will make every effort to accommodate your special need if you notify us in advance.

## Curiosity Shop

To help prevent overcrowding for schools choosing to visit the Curiosity Shop, we schedule time for your students to make store purchases. We will be happy to bag and box up all of your purchases and hold onto them until your group is ready to return to school. You are free to distribute the individually-named bags to students either at the Center, while on the bus ride home, or when you return to school. The store stocks a selection of high-quality books, science activity kits, souvenirs, and branded school supplies. For a list of popular items, please visit [davincisciencecenter.org/store](http://davincisciencecenter.org/store).

\* Teachers enrolled in the Teacher Rewards Program receive 10% off their own individual purchases.

## Chaperone Policies

- One free chaperone is required for every five students in Pre-K through second grade
- One free chaperone is required for every ten students in grades 3 and up
- Additional chaperones - \$9.50 per person
- Bus drivers receive free admission

## Additional Policies

- **Payment Policy:** A \$50 non-refundable deposit is required upon confirmation of your reservation. Purchase orders are accepted in advance only and will not be accepted on the day of your visit. Full payment is required either in advance or upon arrival on the day of your visit. Payments must be made in a single transaction. Group participants may not pay separately.
- **Changes in Group Size:** If your group size changes after you make your reservation, please notify us as soon as possible, but no later than 5 p.m. on the day before your visit. Any additions are subject to availability and are not guaranteed access to workshops, shows, or other programs.
- **Rescheduling and Cancellation:** Please call us immediately if you need to reschedule. We will make every effort to accommodate your request. If you need to cancel your visit, please contact us at least two weeks in advance. A \$25.00 fee will be assessed for rescheduling.
- **Accessibility:** Please let us know if your group has any special needs when you make your reservation and we will make every effort to accommodate you.
- **Parking:** Parking is free. The main parking lot at the Center can accommodate school buses as well as cars for chaperones and teachers.



# Make a Reservation



## 4 Easy Ways to Make a Reservation

- ☎ **Call 610.841.1875 Monday through Friday from 9 a.m.-5 p.m. to reserve by phone**
- 🌐 **Request a reservation online at [davincisciencecenter.org/fieldtrips](http://davincisciencecenter.org/fieldtrips)**
- ✉ **Send an e-mail to [ask@davincisciencecenter.org](mailto:ask@davincisciencecenter.org) with your contact information and the best time to reach you**
- 📍 **Schedule a meeting with a reservations coordinator and visit the Center**

Please prepare the following information to make the reservation process quick and easy:

- Arrival date and time - both your first and second choices
- Attendance numbers for students and adults
- Grade level(s) of students
- Workshop and Live Science Show selection
- Lunch plans
- Group leader's name, phone number, and e-mail address

## Best Time to Visit: September to March

Field trip space is always limited in April and May - which fill to capacity quickly. Book your school's field trip between September and March to take advantage of:

- A free hands-on workshop for every student
- Special offers for members of the Teacher Rewards program
- Less crowded exhibit floor
- More quality time with our knowledgeable and fun staff

## Special Field Trip Offer Save \$100

**Mention promo code FALL100** when you book a group of 50 or more students visiting prior to Jan. 18, 2017. Save \$50 on groups of 25 or more students with this promo code.

\* Visit must take place prior to Jan. 18, 2017



## Savings and Scholarships



### Free Hands-on Workshops

Free hands-on workshops are available for all students from September through March - a savings of \$2.00 per student.

### Teacher Rewards Special Offers

Members of the Teacher Rewards program can combine their free workshop with special offers for additional savings.

### Science Inquiry Fund

The Da Vinci Science Center's Science Inquiry Fund provides need- and interest-based scholarships to students for School Field Trips, Outreach Programs, Summer Camp, and other experiences. Schools qualifying for Science Inquiry Fund support serve student bodies in which at least 50 percent of its students qualify for free or reduced-price meals. Qualifying child care centers serve student bodies in which more than 50 percent of children qualify for a Pennsylvania Child Care Works (CCW) subsidy. School field trips supported by the Science Inquiry Fund must take place between Sept. 1 and March 31. Additional details and applications are available on the web at [davincisciencecenter.org/inquiryfund](http://davincisciencecenter.org/inquiryfund).

### Additional Scholarship Opportunities

Visit our website for additional scholarship opportunities.

 [davincisciencecenter.org/scholarships](http://davincisciencecenter.org/scholarships)

## Women in Science and Engineering (WISE) Forum

Feb. 9, 2017 at Lafayette College

The Da Vinci Science Center's WISE Forum for high school and college students includes a networking reception and dinner followed by a discussion program with panel of highly-accomplished female STEM professionals.

Presented by



Daiichi-Sankyo

## Women in Science and Engineering (WISE) Academy

March 21, 2017 at Da Vinci Science Center  
School Groups Welcome

The Da Vinci Science Center's WISE Academy is a day of special workshop programs and activities presented by female STEM professionals, college faculty members, and college students from the Lehigh Valley area.

 [davincisciencecenter.org/WISE](http://davincisciencecenter.org/WISE)



# Be Somebody

Some people make a difference. They change the world and make their mark on history.

These people invent things and solve big problems. They go places no one has gone before.

Who invented the Internet?

Who split the atom?

Who climbed into a rocket and switched on 7.5 million pounds of thrust to escape the Earth's gravity and walk on the moon?

These people solve crimes, save lives, and protect the Earth.

Without them you don't text, tweet, or talk to Mom on the phone.

Without them you're walking to where you're going, you're rubbing two sticks together to prepare your food.

Who made flight possible?

Who mapped the human genome?

Who gave a blind man sight?

Who are we talking about?

Who?

Scientists. That's who.

Be somebody. Be a Scientist.



DA VINCI  
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Open for Exsciting Possibilities™



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[davincisciencecenter.org](http://davincisciencecenter.org)

Open for Ex<sup>sc</sup>iting Possibilities™

