

## WELCOME BACK

Once again, as the challenges of a difficult economy weigh on all our decisions, the Maryland Science Center is pleased to announce that **ALL MARYLAND SCHOOLS VISITING THE MARYLAND SCIENCE CENTER ON FIELD TRIPS ARE ADMITTED FOR FREE.** The Maryland Science Center recognizes the partnership that schools, educators, and administrators have in ensuring that all of our students have access to the unique, hands-on, signature style of learning that only a field trip to the Maryland Science Center can ensure. At its core, the mission of the Maryland Science Center is to foster and increase science literacy among all Marylanders, but especially school children. **ALL MARYLAND SCHOOL STUDENTS AND CHAPERONES WILL BE ADMITTED TO THE EXHIBIT HALLS FREE OF CHARGE THROUGHOUT THE 2011-2012 SCHOOL YEAR** (teachers are always free). **WE ENCOURAGE YOU TO BOOK YOUR FIELD TRIP EARLY NO MATTER WHEN YOU PLAN TO VISIT OVER THE COURSE OF THE SCHOOL YEAR** to take advantage of our free admission policy and ensure that there is space for your group on the day you plan to visit.

This latest edition of our annual Field Trip and Traveling Science Program catalog is packed full of interesting, exciting, curriculum-based programming that is organized by discipline. It's a comprehensive overview of the many varied options we offer when planning a visit to the Science Center or a visit from the Traveling Science Program.

As always, the Maryland Academy of Sciences is committed to offering a wide range of



programming at the Maryland Science Center or in your classroom through the Traveling Science Program that:

- enhances classroom instruction
- meets statewide and national performance goals
- provides multiple interactive learning experiences
- inspires (STEM): science, technology, engineering and math innovation

Whether you come to the Maryland Science Center or invite the Maryland Science Center to come to you, we promise a stimulating assortment of lively educational activities. We look forward to working with you in the months ahead and wish you a productive, challenging and rewarding school year.

## FREE—MARYLAND SCIENCE CENTER FIELD TRIPS ARE FREE FOR ALL MARYLAND STUDENTS AND CHAPERONES

All Maryland students and chaperones visiting as a school group are admitted free to the Science Center's exhibit halls. Explore earth science and paleontology in Dinosaur Mysteries and TerraLink. Examine the principles of physics in Newton's Alley. Journey to the planets and learn about astronomy in Our Place in Space, SpaceLink and Science On a Sphere. Connect the systems of the human body in Your Body: The Inside Story and Cells: The Universe Inside Us. And Follow The

Blue Crab to learn more about the Chesapeake Bay and its importance as a natural resource. And it's all free if you are a Maryland school. Enhance your visit with low-cost add-ons from our extensive menu of enrichment experiences, IMAX films, Planetarium shows and more. Be sure to see the program grids on pages 16 through 18 to discover what programs are offered on the day you plan to visit and see the program descriptions listed by subject area throughout the catalog.

## EDUCATION STANDARDS

The programs, classes, workshops and educational presentations of the Maryland Academy of Sciences are developed and delivered at the Maryland Science Center within the context of current national science and mathematics education reforms. The influence of the Benchmarks for Science Literacy published by the American Academy for the Achievement of Science as part of Project 2061, the National Science Education Standards prepared under the auspices of the National Research Council, and the Principles and Standards for School Mathematics is resident in every activity. These are the same documents applied as resources or templates in curriculum development across the nation.

The Maryland Academy of Sciences is also committed to working with educators in Maryland to ensure that all of our programming delivered at the Maryland Science Center is relevant to Maryland schools. The Voluntary Statewide Curriculum and its Core Learning Goals are reflected in every activity. The Maryland Academy of Sciences remains actively committed to presenting science, technology, engineering, and math instruction at the Maryland Science Center that is relevant to all students even as local, state, and national reforms continue to evolve.

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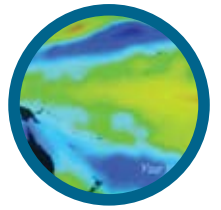
## OPPORTUNITIES

A Resource Guide for Teachers 2011-2012

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## THE MARYLAND ACADEMY OF SCIENCES AND THE MARYLAND SCIENCE CENTER

The Maryland Academy of Sciences is Maryland's oldest scientific institution and one of the oldest such institutions in the entire nation.

At its inception in 1797, the Academy was an amateur scientific society—members met to discuss papers on astronomy, botany, zoology, and other subjects then known as the “natural sciences.” Rembrandt and Raphael Peale, sons of painter and scientist Charles Willson Peale, were among the distinguished early members.

### The Early Years

During the early years, the organization was quite informal. Meetings were held in the small museum operated on South Charles Street. In 1826, the organization incorporated under the name of The Maryland Academy of Science and Literature. In 1897, the organization was re-incorporated under its present title, The Maryland Academy of Sciences, and new quarters were opened on Mulberry Street a few years later. Members of the Academy during this period represented some of the most distinguished families of Baltimore: Gilmor, Howard, Hayden, Maulsby, Ellicott, Poultney, Pattison, Fisher, Donaldson, Tyson, and Pennington. In notes taken from old records are the names of Charles Carroll of Carrollton (“Our honored member and advisor”) and J.H.B. Latrobe, son of the famous architect.

The early years of the 20th century saw an unprecedented expansion in scientific and technical knowledge and the Academy responded to this by adopting the role of interpreter of science and technology to the public. Credit for this new direction goes to Herbert A. Wagner, long-time president of the Baltimore Gas & Electric Company and Chairman of the Board of Trustees and President of the Academy. Under Wagner's

leadership, less emphasis was placed on static collections; instead, working exhibits were designed to illustrate fundamental scientific principles or industrial processes. An observatory and a weekly lecture series were added, and membership substantially expanded. The Academy moved first to Franklin Street and later to North Charles Street.

### Moving On

Near the end of World War II, the Academy relocated to the third floor of the Enoch Pratt Library; but space limitations were severe and a new home was definitely needed. The long-time dream of the Board of Trustees and staff was to operate a “Science Center” that was more a display of hands-on science and interactive exhibits than static displays and collections of rocks and fossils. The dream was realized with the opening of the Maryland Science Center at Baltimore's Inner Harbor in 1976. Interactive exhibits combined with the state-of-the-art Davis Planetarium opened to the public in June of that year. The addition of a new atrium lobby in 1986, and the very successful IMAX Theater in 1987, stimulated annual attendance. A major renovation in 2004 more than doubled the size of the institution, refreshed and replaced almost all core exhibits, and added over 7,000 square feet of dedicated space for national touring exhibitions.

### The Best is Yet to Come

Today and in the future, as it has been in the past, the exhibits and programs at the Maryland Science Center continue to focus on remaining a vital community resources and economic development engine. The Science Center is a place dedicated to the pursuit of science exploration for people of all ages, especially school children and teachers, under the auspices of the Maryland Academy of Sciences.

## ACKNOWLEDGEMENT OF FUNDERS & PARTNERS

The Maryland Academy of Sciences gratefully acknowledges the support of the following funders and partners who subsidize school group admissions and the Traveling Science Program and help underwrite educational programming and experiences for students and educators:

- State of Maryland – Maryland State Department of Education State-Aided Educational Institution Grant
- Baltimore County Commission on Arts & Sciences
- Howard County Government – Howard County Arts Council
- T. Rowe Price Foundation, Inc.
- Greif Family Fund
- AEGON Transamerica Foundation
- Family League of Baltimore City
- Maryland Space Grant Consortium
- Lockeed Martin
- HMS Insurance Associates, Inc.
- Kelly & Associates Insurance Group, Inc.
- Joseph and Harvey Meyerhoff Family Charitable Funds

## MSC ON THE WEB

### Visit our website

[www.marylandsciencecenter.org](http://www.marylandsciencecenter.org)

## MSC BY E-MAIL

### Ask About Camp-In

[dbellomo@marylandsciencecenter.org](mailto:dbellomo@marylandsciencecenter.org)

### Ask About Kids Room

[kidsroom@marylandsciencecenter.org](mailto:kidsroom@marylandsciencecenter.org)

### Ask About Enrichment Experiences

[talktoateacher@marylandsciencecenter.org](mailto:talktoateacher@marylandsciencecenter.org)

### Ask About Observatory Programs

[observatory@marylandsciencecenter.org](mailto:observatory@marylandsciencecenter.org)

### Talk-to-a-Teacher

[talktoateacher@marylandsciencecenter.org](mailto:talktoateacher@marylandsciencecenter.org)

### Ask About Traveling Science Programs

[outreach@marylandsciencecenter.org](mailto:outreach@marylandsciencecenter.org)

## STAY CONNECTED



[youtube.com/user/MDSScienceCenter](https://www.youtube.com/user/MDSScienceCenter)



[facebook.com/MarylandScienceCenter](https://www.facebook.com/MarylandScienceCenter)



[twitter.com/MDSScienceCenter](https://twitter.com/MDSScienceCenter)

## IMPORTANT PHONE NUMBERS

Additional Brochure Copies: 410-545-5890

Camp-In Programs: 410-545-5955

Enrichment Experience Questions: 410-545-5890

Field Trip Reservations: 410-545-5929

Kids Room: 410-779-1616

Observatory: 410-545-2999

Talk-to-a-Teacher: 410-545-5890

The Science Store: 410-545-5924

Traveling Science Program: 410-545-5968

# About Your Visit



## What you need to know before you make your reservation

- All reservations must be made at least **four** weeks in advance to receive group rates
- You must have 15 people or more per program
- Choose **three** dates that work for you
- Check your school calendar first
- You must have **one** teacher/chaperone for every ten students
- Group rates are valid weekdays only October 4th – June 15th except major holidays
- You will need to give an estimate of students, teachers and chaperones
- Please familiarize yourself with our program grade levels and capacities
- Please inform us of anyone with special needs or disabilities

## Cancellations

If you must cancel your field trip, please call the Science Center Reservationists at least one full

calendar week before your scheduled visit. Those who fail to provide a week's advance notice are charged a late cancellation fee of \$75 or 25% of the total reservation, whichever is higher.

## Inclement Weather

In the event of severe weather, the Maryland Science Center may close. Watch WBAL TV for weather-related closings. To verify we are open in case of inclement weather, please phone the 24 hour information line after 7am on the day of your visit; 410-685-2370. Following a weather emergency, call the Science Center Reservationist to reschedule.

## Frequently Asked Questions

### Do you provide guided tours?

No, all tours are self guided. We offer structured educational programs.

### Can teachers preview the museum before their group visits?

Yes, all Maryland Teachers are admitted free to the exhibit halls, with your school ID or pay stub.

### Is there a deposit required? What are the payment methods? Who should I make the check out to?

No deposits are needed. All payments are due on the date of arrival. Payments can be made in the form of cash, credit (Visa, MasterCard, or American Express) or check made out to the Maryland Science Center.

### What happens if my numbers decrease or increase the day of visit?

You will need to pay for the actual attendees; if you have optional programs that are limited by capacity, we will do our best to accommodate everyone.

### How long does it usually take to go through the general exhibits?

Two hours on average.

## TRIP TIPS

### Before your visit, the Maryland Science Center invites you to:

- Prepare an activity sheet for your students to complete while they visit the Science Center. To download the Maryland Science Center Scavenger Hunt go to our website, [www.marylandsciencecenter.org](http://www.marylandsciencecenter.org). From the homepage go to the Programs tab at the top of the page, and select Educators from the drop down menu. Once you are on the Educators page click on Resources located in the left and right navigation. Once on the Resources page, the link to the Scavenger Hunt and the key can be found in the right-hand navigation. Click on the link to download. If students do use activity sheets, please include clipboards with pencils attached.

- Provide several "challenges" for students to meet during their visit. Devise questions that require students to read, manipulate, observe, and interact with exhibits.
- Prepare your chaperones with trip information, agendas, schedules, and duplicate the Maryland Science Center Chaperone Guide for a Successful Field Trip.
- For the safety and benefit of all our visitors, school groups without the proper number of chaperones are not admitted to the Maryland Science Center. Chaperones and teachers are responsible for students' behavior. Groups behaving improperly or disrupting other visitors will be asked to leave the Maryland Science Center without a refund.

### Pre-trip preparation for your students can include:

- A schedule of the day's activities, including when and where lunch is to be eaten and any special programming that is scheduled to take place.
- A reminder that each student is a representative of the school, and needs to behave appropriately while visiting the Science Center.
- A reminder that each student must stay with their chaperone at all times.

## CAMP-IN FOR SCHOOL GROUPS

If you are a teacher of fourth and/or fifth grade students and are looking for a unique way to present science topics to your students, come to the Maryland Science Center to experience Camp-In.

During this overnight informal science education event, campers participate in three theme-based, hands-on workshops, view a Planetarium show, see an IMAX film, explore three levels of interactive exhibits, and - of course - spend a night at the museum.

To obtain additional program information, registration forms, or to be placed on a mailing list, please contact the Camp-In programs supervisor year-round by phoning 410-545-5955 or email [dbellomo@marylandsciencecenter.org](mailto:dbellomo@marylandsciencecenter.org).

## THE SCIENCE STORE

Our store offers a wide selection of items that complement our programs and exhibits. Kits, games, teaching aids, resource books, gifts and souvenirs are all available for purchase. The Science Store is open during Science Center hours. We offer educators a 10% discount with proper I.D.

For groups that don't have time to shop during a visit, pre-packaged Science Sacks are available for advance purchase. Please order at least two weeks prior to your visit. Call us at 410-545-5924.

# Teacher News and Resources

## EDUCATOR PROFESSIONAL DEVELOPMENT

### Life Beyond Earth

Saturday, November 12, 2011

Discover the latest findings in our quest for life beyond Earth. What are the possibilities for life on other worlds in our solar system? How do extreme forms of life here on Earth help us understand environments where life could arise? What is the status of our search for other worlds beyond the solar system?

The workshop includes presentations from researchers working in the field of astrobiology, activities for the classroom, lunch and a \$100 stipend for each participating teacher. The Maryland Science Center is embarking upon the development of an exhibit and a Davis Planetarium program on the topic of life on other worlds and looks forward to your input as part of this workshop.



Made possible by a grant from NASA.

### Pluto and the Outer Solar System

Saturday, February 11, 2012

Explore the outer regions of our solar system, including the "dwarf planet" Pluto and the icy Kuiper Belt beyond. Follow the journey of the New Horizons spacecraft, on its way to Pluto and slated for a 2015 arrival, and hear from NASA New Horizons mission personnel.

The day includes a presentation from a member of the New Horizons team, a Science On a Sphere program about the solar system, demonstrations of activities for the classroom, lunch and a \$100 stipend for each participating teacher.



Made possible by The Johns Hopkins University Applied Physics Laboratory, manager of the New Horizons mission for NASA.

### Flight of the Monarch Butterflies

Saturday, March 31, 2012

View an early version of the upcoming IMAX film **Flight of the Butterflies**, slated for release later in spring 2012. Explore classroom activities about the Monarch's amazing migration across North America, their habitats and life cycle, and hear about how you and your students can become involved in citizen science projects to help the Monarchs from experts in the field of Monarch study. Offered in conjunction with Monarchs in the Classroom at the University of Minnesota.



Made possible through a grant from the National Science Foundation.



## STAY CONNECTED

For information on teacher workshops, including registration, visit our website at [www.marylandsciencecenter.org](http://www.marylandsciencecenter.org). Sign up to receive information updates via email from the link off of our homepage.

### Start With Free Admission For Teachers

The Maryland Science Center offers **FREE ADMISSION** to our exhibit halls to all Maryland teachers, throughout the year. Upon arrival, present your educator identification (school I.D., payroll receipt, etc.) to our ticket agent. Teachers are admitted free when not visiting with a group.

### Talk-to-a-Teacher

Talk-to-a-Teacher, our educators' consultation line, allows us to answer your education-related questions about program and exhibit content and your special group needs.

Your call is answered by voice mail, so leave a message, your phone number, and the time of day during business hours when you may be reached. A School Programs staff member will contact you.

The Talk-to-a-Teacher line cannot be used to make school group reservations.

To Talk-to-a-Teacher: phone 410-545-5890, or e-mail us at [talktoateacher@marylandsciencecenter.org](mailto:talktoateacher@marylandsciencecenter.org)



## SCAVENGER HUNT

To download the Maryland Science Center Scavenger Hunt go to our website, [www.marylandsciencecenter.org](http://www.marylandsciencecenter.org). From the homepage go to the Programs tab at the top of the page, and select Educators from the drop down menu. Once you are on the Educators page click on Resources located in the left and right navigation. Once on the Resources page, the link to the Scavenger Hunt and the key can be found in the right-hand navigation. Click on the link to download. If students do use activity sheets, please include clipboards with pencils attached.

# Earth and Nature



## CORE EXHIBITS

These core exhibits are the centerpiece of our Earth Science initiatives and form the foundation for our Earth Science programming.

### Dinosaur Mysteries

Follow the trail of giant dinosaurs from dig site to field laboratory and beyond. Work together to unearth dinosaur bones at the dig site. Examine a 70 million-year-old dinosaur embryo. Get up close and personal with T. rex and over a dozen other full size dinosaurs throughout 10,000 square feet of soaring exhibit space—all in a hands-on environment.

### TerraLink

Catch late-breaking news about Earth Science in a high-tech, high touch, multidimensional environment. Learn how air, water and land affect each other and how global events are affecting the Chesapeake Bay. Get up-to-the-minute information from around the world about Earth Science events like earthquakes, tornadoes and hurricanes.

### Follow the Blue Crab

Follow the path of the blue crab in its life journey through the Chesapeake Bay. Along the way meet live blue crabs in all life stages and diamondback terrapins. Learn about crab mating, molting and anatomy. Stop by to meet our giant mechanical blue crab in its watery home.

## ENRICHMENT EXPERIENCES

Enrichment Experiences are small group, classroom-style programs designed to enhance our core exhibits by offering students more in-depth content and more hands-on examples of learning by doing.

### Paleo Detectives

Grades: K-3 Capacity: 30 students  
Time: 45 minutes

Dinosaurs and their modern day relatives are fascinating. By observing fossils and live specimens, as well as participating in hands-on activities, students will learn how scientists research about prehistoric animals.

### Dinosaur Field Trip

Grades: 2-6 Capacity: 60 students  
Time: 45 minutes

Join us in Dinosaur Mysteries for an up-close and personal experience. Students will dig into dinosaurs like they never have before, as well as get an interactive, behind the scenes look at the exhibit.

### The Incredible Insect Investigation

Grades: 2-3, 4-6 Capacity: 30 students  
Time: 45 minutes

Insects are incredible, so join us for a hands-on investigation into their world. Students will compare and contrast the unique characteristics and adaptations of various insect groups and learn to separate fact from fiction about insects. Fourth through sixth grade will take a closer look at insect diversity, form and function, and food webs.

### Go Green

Grades: 4-8 Capacity: 30 students  
Time: 45 minutes

What's a tree doing atop a city rooftop? Green roofs keep their cool and help watersheds. Students turn their magnifiers on Chesapeake Bay health as they explore the role of plants and soil in water quality. The Maryland Science Center's own green machine is highlighted in this program atop our green roof. Groups with over 22 students will be split into two simultaneous programs. The program will be moved to TerraLink in the event of rain, high winds, or threat of severe weather.

### Solar Power

Grades: 4-8 Capacity: 30 students  
Time: 45 minutes

Warm up to renewable energy and explore the applications of solar power beyond the toy solar car. Through dynamic demonstrations and a hands-on photovoltaic activity, students are enlightened to how the Sun's rays can generate both heat and electricity. Sunshine helpful, but not necessary.

## TOURING EXHIBIT

Touring Exhibits are limited engagement runs of the best hands-on, participatory exhibits currently on tour across North America. Check to see which exhibits are on display during your visit.

FREE WITH YOUR VISIT

### Harry's Big Adventure—My Bug World February 4-April 29

Harry's Big Adventure: My Bug World is hosted by Harry, a Chinese praying mantis, and his insect friends. It features live bugs, video, audio, games and more and is designed to give students an up-close view of nature and a new perspective on the role insects play in our environment. The exhibit has three goals: to foster a sense of wonder and fascination for the natural world and its bugs, to highlight the many different habitats and behaviors of bugs, and to inspire outdoor play and discovery. Many live species are on display including butterflies, ladybugs, Emperor scorpions, tarantulas, cockroaches, millipedes, crawfish, aphids, water striders, water beetles, click beetles, dung beetles, ants and more. Bugs infest all nine interactive modules and hands-on activities.

Pre and post visit activities including curriculum, lesson plans, and show and tell are available at [Harry'sBigAdventure.com](http://Harry'sBigAdventure.com). NSTA has approved Harry'sBigAdventure.com as part of the NSTA SciLinks program, which provides and recommends educational resources for teachers and students.



Phone a reservationist 410.545.5929

# Health & the Human Body



## CORE EXHIBITS

These core exhibits are the centerpiece of our Health Science initiatives and form the foundation for our Health Science and Biotechnology programming.

### Cells: The Universe Inside Us

Walk through a giant maze to find out how proteins are made. Fly through a virtual cell. Zoom into a projected image of yourself to see brain, heart, and muscle cells. Participate in a special MSC version of Dance, Dance Revolution to find out how exercise helps our bones, brain and heart.

Made possible through a Science Education Partnership award from the National Center for Research Resources, National Institutes of Health, and support from the Baltimore City Health Department.

MetLife Foundation National Sponsor

### Your Body: The Inside Story

Discover the extraordinarily cool, (and sometimes gross) things your body does every day. Find out what's happening inside as you wake up, exercise, and fight off germs. Lie down on a bed of nails. Walk into a giant, beating human heart. Squeeze a large intestine and hear some interesting digestive sounds. Test your balance, chart your reaction to stress and calculate your body's health age.

### BodyLink and Wet Lab

This Health Science Update Center features a multimedia environment designed to keep you current on the latest medical and health news. Become a laboratory scientist in our Wet Lab as you perform real experiments to identify mystery powders, test the best germ-killing products, and collect DNA from plant cells.

Supporting sponsor  
CareFirst BlueCross BlueShield

Presenting sponsor

Wet Lab sponsor

## ENRICHMENT EXPERIENCES

Enrichment Experiences are small group, classroom-style programs designed to enhance our core exhibits by offering students more in-depth content and more hands-on examples of learning by doing.

### DNA Discovery

Grades: 6-8 Capacity: 30 students  
Time: 50 minutes

Using laboratory procedures, students will extract DNA to see what it looks like up close and in person. The basics of hereditary traits and how genes are decoded will also be explored.

### NanoMedicine

Grades: 9-12 Capacity: 30 students  
Time: 50 minutes

Nanotechnology is the newest frontier of medicine. Working in small groups, students will use hands-on activities to learn what nano is, why it's special, and what it could do for human health.

### Eye Anatomy

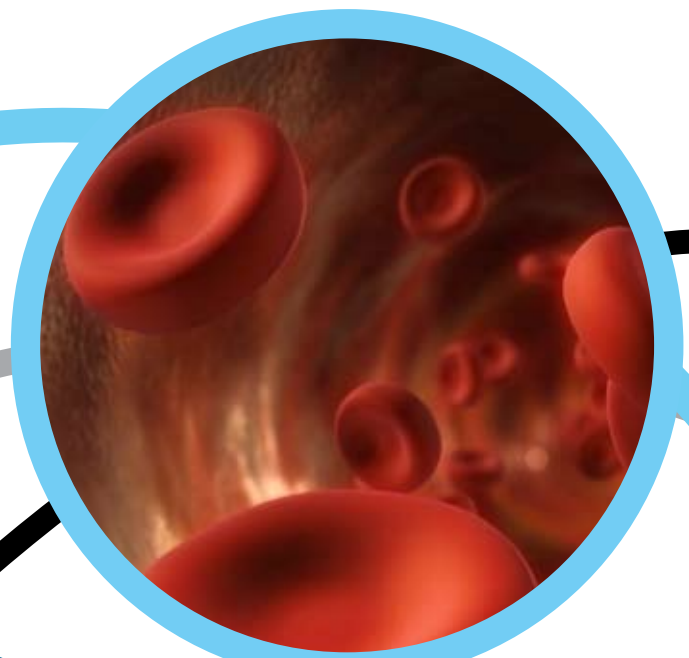
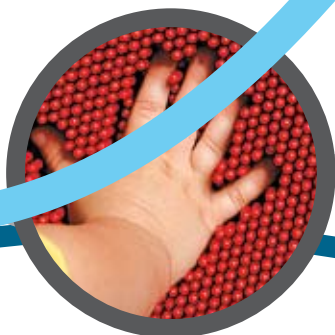
Grades: 9-12 Capacity: 20 students  
Time: 50 minutes

Students will dissect animal eyes to learn about the anatomy of optics. They will also put their own eyes to the test and learn about the process of vision, from light to lens to brain lobes.

### Membrane Mysteries

Grades: 6-8 Capacity: 30 students  
Time: 50 minutes

By investigating membranes, students will gain new insights into cells. Students will examine various types of membranes in action, determine how molecules move through them, and use chemicals to create their own model of a cell with a working semipermeable membrane.



# Early Childhood



## CORE EXHIBITS

This core exhibit is the centerpiece of our Early Childhood initiatives and forms the foundation for our Early Childhood programming.

### The Kids Room

The Kids Room is a sensory adventure for our early childhood visitors, from birth to eight years of age. Dive into the waterplay where hand pumps, fountains, dams, river channels, and nozzles keep hands and minds in motion. Send a message racing across the room in a pneumatic tube or create a building to withstand our earthquake table. Our youngest visitors from birth-24 months of age can explore Room to Grow, a special sensory-rich zone where the pace and activity level is scaled appropriately to baby and toddler

development. In the Kids Room, children can experiment with cause and effect relationships, discover the forces of gravity and magnetism, explore the natural world and exercise their imaginations.

The Learning Lab is a resource room for parents and educators of young children, and is filled with print resources, activity ideas, book lists, and other take-home materials.

The Kids Room is designed as a child-led discovery space. Adult chaperones must

accompany and remain in the room with children at all times. School groups are encouraged to divide into age groups as follows, so that a safe and age appropriate experience takes place: birth to five years (Pre-K and K) and six to eight years (1st, 2nd, and 3rd grades).

**School groups must make a reservation to visit the Kids Room.**

Capacity: 50 students  
Time: 50 minutes

## ENRICHMENT EXPERIENCES

Enrichment Experiences are small group, classroom-style programs designed to enhance our core exhibits by offering students more in-depth content and more hands-on examples of learning by doing.

### Cool Tools

Grades: 1-3 Capacity: 28 students  
Time: 45 minutes

Maximize your senses when you use these tools. Students will use scientific tools such as microscopes, thermometers, measuring instruments, and balances to uncover clues that will help them solve a science mystery.

### Speaking for the Trees

Grades: Pre-K-2 Capacity: 28 students  
Time: 45 minutes

Join us as we explore the lessons of Dr. Seuss and **The Lorax**. Learn about pollution, ecosystems, and resources. Students will use experiments and cooperative activities to discover how changing one part of an ecosystem can influence the functioning of the whole system. Discuss what it takes to be a true caretaker of the environment, and envision new ways to protect and sustain our natural world.

### Rain, Rain, Go Away

Grades: K-2 Capacity: 28 students  
Time: 45 minutes

Discover how the sun and the Earth influence seasons, temperature, and wind. Put down your umbrella and pick up your anemometer as we learn how storms are formed and experiment our way around the water cycle. As a young meteorologist, you'll learn how to observe, measure, and predict the weather. Reporting live from the Maryland Science Center, the forecast for this program is educational with a 100% chance of fun!

### Matter of Fact

Grades: 1-3 Capacity: 28 students  
Time: 45 minutes

Let balls, balloons, and magnets introduce your young scientists to basic physics. Roll up your sleeves and explore the differences and similarities between everyday objects and discuss their properties from shape to weight. Learn about solids, liquids, and gases as we conduct experiments and record our findings the way scientists do.

### Bug Bytes

Grades: Pre-K-1 Capacity: 28 students  
Time: 45 minutes

They fly, they hop and they crawl. Bugs can be the most fascinating creatures of all. Participants will classify these little helpers, identify interesting insects, and examine real specimen as we follow a bug's journey from egg to adult. The classroom will be buzzing after this science adventure.



# Physics, Forensics & Phenomena



## CORE EXHIBITS

These core exhibits are the centerpiece of our Physics, Forensics, and Phenomena initiatives and form the foundation for our programming.

### Newton's Alley

Explore sight, sound, transfer of energy, magnetism, light, and simple machines in this hands-on physics exhibit. Pull yourself to the stars in a pulley chair, play beautiful music on an invisible laser harp and learn about physical forces by competing in a giant lever tug-of-war.

### Demonstration Stage

Science is an explosive, chilling, electrifying, bubbling experience on the Maryland Science Center's Demonstration Stage. Get in on the action with hands-on audience participation. Presentations are offered daily on a variety of topics. Our Static Electricity show is always a

hair-raising experience. Optical Illusions? You won't believe your eyes. Demonstrations are offered hourly from 11:20 to 1:20. A variety of demonstration topics change daily and no reservations are necessary.

## ENRICHMENT EXPERIENCES

Enrichment Experiences are small group, classroom-style programs designed to enhance our core exhibits by offering students more in-depth content and more hands-on examples of learning by doing.

### Dry Ice: How Cool is That

Grades: 4-8 Capacity: 30 students  
Time: 45 minutes

It's all about Carbon Dioxide ( $\text{CO}_2$ ). Using dry ice, students will explore some of its special properties, and reveal phenomena related to density and states of matter. Students will learn how a fire extinguisher works, freeze bubbles and look at how this common substance occurs in our environment. Students in grades 6-8 will try acid base reactions with  $\text{CO}_2$ .

are transformed during this activity. Students in seventh and eighth grade will explore mass conservation by balancing the reactants and products.

will work together to make hypotheses, devise experiments, and offer explanations about the phenomena encountered.

### Ziplock Chemistry

Grades: 4-8 Capacity: 30 students  
Time: 45 minutes

Students will conduct their own chemical reaction experiments inside plastic bags, then record and share results to uncover how matter and energy

### Math Matters

Grades: 4-8 Capacity: 30 students  
Time: 45 minutes

From bubbles to flowers, science makes math come to life. Investigating mathematics using nature, mirrors, soap films and more, students will discover how important math is to science.

## THEATER PROGRAM

### Light and Shadow

Grades: 3-10 Capacity: 140 people  
Time: 45 minutes

An engaging theater-style program for large groups. Volunteers from the audience will assist in demonstrations to highlight the nature of visible light, color perception, UV light, and remarkable aspects of shadows.

### Water Wonders

Grades: 4-5 Capacity: 30 students  
Time: 50 minutes

Through the process of scientific inquiry, students will get their hands wet and investigate the special properties of water. Small groups of students

Touring Exhibits are limited engagement runs of the best hands-on, participatory exhibits currently on tour across North America. Check to see which exhibits are on display during your visit.

FREE WITH  
YOUR VISIT

### Math Midway

Opens May 26th

To sum it all up—math is a three ring circus of fun. Math Midway features a range of unique exhibits, from square-wheeled tricycles that ride smoothly on a circular track of catenary arcs, to a plane of laser light that you can pass plastic polyhedra through to find their surprising cross sections. Students can create unique pen and ink drawings to take home using

the mechanical harmonograph, or play with the "organ function grinder" in which students input a number, set a function, and turn the hand crank to generate both a numerical output and a unique calliope tune which is transformed according to their function. At the Math Midway your students can ride a trike with square wheels down a "staircase," spin to win as they learn about probability theory on the Wheel of Chance, assemble the giant Monkey Mat puzzle, illuminate laser shapes-within-shapes in the Ring of Fire, and so much more. Math Midway is a carnival of exploration.

Educator Guide, and classroom activities are available at [MathMidway.org](http://MathMidway.org).



# Space & Aerospace Science



## CORE EXHIBITS

These core exhibits are the centerpiece of our Space and Aerospace Science initiatives and forms the foundation for our Space and Aerospace Science programming.

### Our Place in Space

Take a look at Earth both as our home planet and its place in our solar system and beyond. Journey to all our neighboring planets out to the "dwarf planet" Pluto.

### SpaceLink

Witness the latest and greatest in aerospace and space science findings in SpaceLink, a multimedia update center. Try on a flight suit and take a picture of yourself in space. Learn about the latest news from NASA, human space travel, and planetary exploration.

### Davis Planetarium

The night sky shines with over 8,500 stars under the dome of the Davis Planetarium, making every presentation an out-of-this-world experience. An Education Packet for teachers, containing age appropriate activities, is provided on the day of your visit. Planetarium programming for school groups is by reservation only.

### Science On a Sphere

Science On a Sphere is a large visualization system that uses computers and video projectors to display scientific images and animations onto

the outside of a sphere. The globe appears as if suspended in air and shows dynamic images of the atmosphere, oceans, and land of a planet. Science On a Sphere presentations occur throughout the day on a variety of topics, and by reservation by school groups.

Sponsored by the US Department of Commerce National Oceanic and Atmospheric Administration (NOAA)

Questions about Science On a Sphere? Contact our Talk-to-a-Teacher line at 410-545-5890 or [talktoateacher@marylandsciencecenter.org](mailto:talktoateacher@marylandsciencecenter.org)

## ENRICHMENT EXPERIENCES

Enrichment Experiences are small group, classroom-style programs designed to enhance our core exhibits by offering students more in-depth content and more hands-on examples of learning by doing.

### The Life of a Star

Grades: 6-12 Capacity: 30 students  
Time: 50 minutes

Explore the life stages of stars. Learn how a star is born and how a star dies. Students will explore the mass, brightness, and temperature of stars, and investigate how they help determine the fate of a star.

### Seasons in Motion

Grades: 3-8 Capacity: 30 students  
Time: 50 minutes

Turn, tilt, and orbit! Learn all about the locations and interactions between the Sun, Earth, and the Moon. Students will explore many stations that allow them to work in teams to discover these movements.

### Observing and Imaging Light

Grades: 3-8 Capacity: 30 students  
Time: 50 minutes

Investigate optics and the electromagnetic spectrum of light and how they relate to observing within and beyond our power of vision. Discover the use of color filters and why we use different camera filters to look at objects in different wavelengths. Use technology as a tool to discover these phenomena.

## SCIENCE ON A SPHERE PROGRAMS

### The Magnetic Earth

Grades: 6-12 Capacity: 32 students  
Time: 50 minutes

Solar wind and solar weather interacts in dynamic ways with Earth's magnetic field. How does this magnetic field work? Is there magnetism in other parts of the solar system? Students will use magnetic demonstrations along with graphical and satellite visualizations to learn key concepts related to magnetism and apply them to solar weather.

### Life Beyond Earth – New This Year

Grades: 3-12 Capacity: 40 students  
Time: 30 minutes

New discoveries about the hardiness of life here on Earth suggest other places in our solar system where life may have arisen. Past lakes and seas of water on Mars may have once hosted life.

Jupiter's moon Europa may hide an underground ocean where life could exist. And recent discoveries on other distant moons hint at conditions possibly suitable for life – now or in the future. See the latest NASA images of these worlds on Science On a Sphere, a six-foot suspended globe.

### Sun, Moons and Planets

Grades: 3-12 Capacity: 40 students  
Time: 30 minutes

Get an up-close look at the variety of objects in our solar system displayed on a six-foot diameter sphere. Explore flares and sunspots on the Sun, the surfaces of the Moon and Mars, the dramatic cloud belts of Jupiter, distant icy Pluto, and some of the many varied moons of our solar system, all employing the latest images from NASA space probes.

### Earth Alive

Grades: 3-12 Capacity: 40 students  
Time: 30 minutes

Explore the dynamic planet we live on and what's occurring on Earth the day of your visit. Near real-time images updated daily project onto a six-foot diameter sphere. Examine recent natural and human-caused forces that shape our planet and affect our lives, including the Japanese earthquake and tsunami, the Gulf of Mexico oil spill, El Nino, and recent severe storms and earthquakes.

## OBSERVATORY PROGRAMS

Observatory programs utilize our rooftop telescope and computer controlled programming to bring the Sun, Moon, planets, and stars up close for viewers.

### Our Star, the Sun

Grades: 3-12 Capacity: 25 students  
Time: 45 minutes

Discover the Sun's secrets while exploring sunspots, prominences, the Sun's layers, solar flares and solar wind. Students will use the Observatory telescope to safely view the Sun, if the sky is clear. The Observatory is open to the outdoors, so dress according to the day's weather.

### Night Under the Stars

Available: Sundays through Thursdays at dusk, weather permitting.  
Grades: 3-12 Capacity: 25 students  
Time: 2 hours

Treat your students, teachers and families to views of the Moon, planets and stars of the season. Contact the Observatory Manager, who can help identify nights for best viewing, at least two weeks

ahead of time at 410-545-2985 or [observatory@marylandsciencecenter.org](mailto:observatory@marylandsciencecenter.org). This evening program is weather dependent, and we will arrange rain dates, if necessary.

# Theater Experiences

A list of all IMAX and Planetarium Presentations

## CLASSIC IMAX FILMS

IMAX films offer an immersive, larger-than-life exploration of key topics directly related to our core programs. Please note: capacity for standard films is 400 people, while capacity for 3D films is 340 people.

### Ring of Fire

Grades: 3-12 Time: 40 minutes

Travel the great circle of seismic activity ringing the Pacific Ocean that is home to half a billion people and three quarters of the world's 600 active volcanoes. Explore Mount St. Helens, Japan's Mt. Sakurajima and the aftermath of the 1989 San Francisco earthquake. See how local populations living in the shadow of potential destruction cope with the imminent danger.

### Dinosaurs Alive! 3D

Grades: 3-12 Time: 40 minutes

Travel with scientists to the remote Gobi Desert and the deserts of New Mexico to discover fossils of ancient dinosaurs and see them come alive in IMAX 3D. Watch paleontologists unearth fossils and see how these ancient bones reveal the lives and deaths of these remarkable creatures.

### Forces of Nature

Grades: 3-12 Time: 40 minutes

Watch first hand as volcanoes erupt, earthquakes tremble and tornadoes lash the sky, and explore the origins and effects of these fascinating natural forces. A National Geographic production.

### Africa the Serengeti

Grades: 3-12 Time: 40 minutes

Witness the great migration of 1.5 million animals across 500 miles of the vast Serengeti in Tanzania and Kenya. Follow wildebeest, zebra and gazelle herds as lions, cheetahs and crocodiles lurk in pursuit. Stunning close-ups of these majestic animals chronicle life in this unique wildlife habitat.

Explore Hubble's discoveries with spectacular 3D images, flying through stellar birthplaces and fields of distant galaxies, and discover how Hubble has revolutionized our view of the universe.

### To the Limit

Grades: 3-12 Time: 40 minutes

Discover how some humans push their bodies to the limit—a rock climber scaling sheer cliffs, a skier racing down steep slopes, and a ballerina performing incredible feats on stage. Then go inside the body to fly through the lungs, the heart, and the blood vessels.

### The Human Body

Grades: 5-12 Time: 45 minutes

Witness the many hidden miracles that happen every day inside the male and female body, using remarkable inner body photography.

### Beavers

Grades: Pre-K – 8 Time: 35 minutes

Trek through the Canadian Rockies with a family of beavers as they fell trees, construct their lodge, evade the forest's predators and transform their environment.

## NEW THIS YEAR

### Rocky Mountain Express

Grades: 5-12 Time: 40 minutes

Experience a journey on a stunningly restored steam train through the Rocky Mountains revealing the heroic human drama and epic engineering involved in shaping a nearly impossible transcontinental railway link.

### Wild Ocean 3D

Grades: 3-12 Time: 45 minutes

Each year in the oceans off the coast of South Africa a great feeding frenzy takes place as billions of sardines migrate up the coast. The migration provides an annual food source for both life in the sea and the people living along the African shores. The film follows breaching whales, feeding sharks and diving gannets as it demonstrates how business, government and the local people join forces to protect this valuable ecological resource.

### Sea Rex 3D: Journey To A Prehistoric World

Grades: 3-12 Time: 40 minutes

Available: March 2, 2012

Immerse yourself in a lost age, 200 million years back in time, and meet the T-Rex of the seas. Explore an amazing underwater universe inhabited by larger-than-life creatures — powerful Lioplurodon, long-necked Elamosaurus and gigantic Shonisaurus — who ruled the seas in Earth's prehistoric past, when our planet was very different from the world we know today.

## IMAX FILM FESTIVAL

All films available January 3 – March 1, 2012

### Bears

Grades: 5-12 Time: 40 minutes

This portrait of one of Earth's most misunderstood creatures recounts the story of the bear in mythology and history along with a wealth of enlightening footage of bears in their natural habitat, including polar bears in the arctic tundra to grizzlies in Alaska and black bears in Montana. Learn about the challenges facing each and why protecting them benefits wildlife and people everywhere. Produced by the National Wildlife Federation.

### Cirque du Soleil: Journey of Man 3D

Grades: 5-12 Time: 40 minutes

This visual and musical celebration of life features the unique performers of Montreal's Cirque du Soleil and follows a mystical journey through the stages of life from birth to maturity. Shot in spectacular natural locales around the world – an ocean, a redwood forest, a desert, a jungle and a palatial estate – the film incorporates elements of a live show in the music, the acts and the atmosphere as only Cirque can.

### The Magic of Flight

Grades: 4-12 Time: 40 minutes

Experience the thrill of a Blue Angels air show while learning the science and history of flight. With dramatic aerial photography, the film tells the story of human potential, training and performance. The film explores birds' innate ease at flight, relives the Wright Brothers first flights and examines the variety and versatility of today's flying machines, including those of naval aviators, who fly at 1,300 mph and precisely land on an aircraft carrier, the most difficult maneuver in all of aviation.



## PLANETARIUM PROGRAMS

The night sky shines with over 8,500 stars under the dome of the Davis Planetarium, making every presentation an out-of-this-world experience. Teachers receive an Education Packet, containing age-appropriate classroom activities, on the day of your visit. Planetarium admission for school groups requires advance reservation.

**Programs Presented Live:** Tailored to your group's level and interests and aligned with Maryland State standards, live programs include interactive presentations. Question/answer session after each program is available as time permits. Length of program varies depending on audience size.

**Recorded Programs:** Question/answer session after each program with Davis Planetarium staff is available as time permits.

### Special Engagement

(available thru Dec 23, 2011)

#### Legend of the Night Sky – Orion

Grades: 3-5 Time: 40 minutes Capacity:140

Enjoy the legend of Orion the hunter portrayed in laser light followed by a review of where and when to find the stars of Orion in the winter sky.

#### The Sky Tonight **L**

Grades: 2-5 Time: 40 minutes Capacity:140

Explore the current night sky, highlighting the Moon, planets and stars as well as their motions around the Sun and in the sky. Students receive a STARMAP for use in the Planetarium and at home.

#### Planets **L**

Grades: 3-5 Time: 45 minutes Capacity:140

Travel the Solar System as we leave Earth and see planets close-up. Explore planets and their orbits around the Sun while discovering the order of the Solar System.

#### Seasons in the Sky **L**

Grades: 6-8 Time: 45 minutes Capacity:140

Identify what's in the current night sky while exploring phases of the Moon and seasonal sky changes. Students receive a STARMAP for use in the Planetarium and at home.

#### Surveying Stars **L**

Grades: 9-12 Time: 45 minutes Capacity:140

Find the stars, planets and Moon in the current night sky with special attention to star color and brightness, including our Sun as a star in the Milky Way Galaxy. Students receive a STARMAP for use in the Planetarium and at home.

#### One World One Sky: Big Bird's **R**

##### Adventure

Grades: Pre-K-2 Time: 35 minutes

Capacity:140

Visit Sesame Street and sing along with Big Bird, Elmo and his friend Hu Hu Zhu from China. Together they find the Big Dipper and the North Star and even use their imagination to travel to the Moon. Back on Earth, the trio realizes that even though they live in two different countries, they still share the same sky. Made possible by PNC Financial Services.

#### Black Holes: Journey into the Unknown **R**

Grades: 5-12 Time: 35 minutes

Capacity:140

From theory to discovery learn how black holes are formed and how they affect the space around them. Presenting the latest scientific information, this planetarium show brings to life all that is fascinating and extreme when it comes to black holes.

#### Pulse: A Stomp Odyssey

Grades: 4-12 Time: 40 minutes

Explore rhythm, song and dance around the world in a vibrant toe-tapping experience with **Stomp**, the acclaimed group of percussive performers. Travel to New York City, the American Southwest, Africa, South America and Europe and meet gumboot dancers, taiko drummers, diembe players, bell ringers, flamenco dancers, marching bands and street performers.

#### The Secret of Life on Earth

Grades: 5-12 Time: 45 minutes

Go on a breathtaking adventure through time and across five continents revealing nature's most vital secret. Climb into the jaws of insect-eating plants, watch a flying fox gorge itself on a midnight snack of figs, and witness a mantis disguised as a flower petal lure its prey. The film also explores human-caused devastation and efforts to restore the natural balance we have disturbed.

#### Shackleton's Antarctic Adventure

Grades: 5-12 Time: 40 minutes

Follow the extraordinary true story of polar explorer Sir Ernest Shackleton's Trans-Antarctic Expedition. All 28 of Shackleton's men survived nearly two years in the frigid Antarctic when their ship *Endurance* was caught in pack ice and eventually crushed. The film includes original still photography and 35mm motion-picture footage from the expedition, and features three of the world's most-accomplished mountaineers, who retrace Shackleton's steps across the mountains and glaciers of South Georgia Island.



# Traveling Science Program



## LET THE MARYLAND SCIENCE CENTER COME TO YOU!

The excitement of science happens not only in the classroom or in the lab – with the Maryland Science Center’s Traveling Science Program, it happens in the assembly hall, the auditorium, or the gymnasium.

Each year the Traveling Science Program’s vans travel the entire Mid-Atlantic region logging over 100,000 miles and bringing programming to over 70,000 students and adults.

**Starlab** portable planetarium programs offer a look at the night sky from inside your gymnasium. When class-sized groups enter our inflatable planetarium they marvel at stars, constellations, and planets without ever leaving the school.

**Classroom** programs offer solid science instruction and content through engaging, entertaining, and exhilarating experiments. Designed for smaller groups, these hands-on programs bring science excitement into your classroom.

**Assembly** programs turn the entire school on to science! These fast-paced, high-energy presentations designed to motivate and complement science curriculum are perfect for larger audiences.

Programs are available to students ranging from kindergarten through high school. Presented by trained Science Center educators, all of our programs are highlighted by exciting activities and audience participation.

## HOW DO I BRING THE TRAVELING SCIENCE PROGRAM TO MY SCHOOL?

Here is information that can help you plan a successful visit from the Maryland Science Center’s Traveling Science Program. Our Traveling Science vans fan out across the state and beyond beginning September 27, 2011.

### How do I arrange for the Traveling Science Program to visit my school?

Bookings are accepted on a first-come, first-served basis. Call us at 410-545-5968, or e-mail us at [outreach@marylandsciencecenter.org](mailto:outreach@marylandsciencecenter.org). We can answer your questions, offer scheduling suggestions, go over costs, and book the date you’ve selected for the Traveling Science Program to visit your school.

### When should I call the Traveling Science Program office?

Be sure to call during office hours, Monday through Friday, from 9:00am until 4:00pm. Certain months fill up quickly, so to be assured of the date and show of your choice, and call early.

### Are there any special guidelines?

Yes. To observe all safety requirements issued by professional associations and to assure a quality experience for everyone, we limit the audience number to 250 students per assembly show, 125 students per Dinosaur! show, and 30 students per Starlab and classroom program.

### How do Traveling Science shows align with the Maryland Voluntary State Curriculum?

Detailed information can be obtained from our Reservationist by phoning 410-545-5968 or by visiting our website at [www.marylandsciencecenter.org/programs/educators/tsp.html](http://www.marylandsciencecenter.org/programs/educators/tsp.html).

### A Note for Pre-Kindergarten Teachers:

The length and content of our programs are not suited for Pre-Kindergarten classes. We believe these young children learn best when given the opportunity to have playful interactions with objects and people. These interactions should occur in an environment that is meaningful in the context of the child’s development and experience. We encourage you to wait.



## STARLAB PROGRAMS

**Starlab Note:** The Starlab is an enclosed space that will only accommodate 30 students with their teacher. Please be advised that entrance into the Starlab is through a dimly-lit tunnel. Accommodations can be made for wheelchair-bound students. Due to the size of the Starlab dome, these programs are best suited for a gymnasium.

### Sunny Day, Starry Night

Grades: K-2 Capacity: 30 students  
Time: 50 minutes

Introduce your young scientists to astronomy. Learn why we have day and night, and how we know that the Earth moves. The concepts of Earth motion, stars, and constellations are explored in this interactive and engaging look at space.

### Seasonal Stars of the Mid-Atlantic

Grades: 2-6 Capacity: 30 students  
Time: 50 minutes

This seasonally specific program highlights the stars, the Moon, and other astronomical bodies visible in the Mid-Atlantic sky. Learn why different constellations appear at different times of year and what is visible in the sky tonight.



## CLASSROOM PROGRAMS

### Slime Time

Grades: K-2 Capacity: 30 students

Time: 50 minutes

Who says science can't be messy? Students will engage in facilitated and self-guided observation of the states of matter while creating their own slime. This is a thrilling introduction to the process of scientific investigation.

### Waves of Change: The Science of Saving the Bay

Grades: 3-5 Capacity: 30 students

Time: 50 minutes

The Chesapeake Bay is a major natural resource for those living in the Mid-Atlantic region. Using models and engaging activities, students explore

the past pollution of the bay and learn how their own actions can influence the future of the largest estuary in the United States.

### Brainstorm in a Bucket

Grades: 4-8 Capacity: 30 students

Time: 50 minutes

Uncover the potential for creativity in science while devising a solution to a physical problem, using only imagination and items found in a bucket. Brainstorming, design, and teamwork are all emphasized in this lively, group-focused experience.

### It's Cool In Your School

Grades: 7-12 Capacity: 30 students

Time: 50 minutes

What happens to nitrogen gas when it is chilled to 320 degrees below zero Fahrenheit? Liquid nitrogen is the dramatic substance that allows investigation of the super cold. While observing the properties of cryogenic materials, students explore how a variety of industries make use of them.



## ASSEMBLY PROGRAMS

### Dinosaur!

Grades: K-2 Capacity: 125 students

Time: 35 minutes

How do scientists know that dinosaurs ever roamed the Earth? Puppets, fossils, and large interactive props demonstrate to younger students how rocks, bones, and tracks help scientists search for answers about these ancient reptiles.

### Science To Amaze & Intrigue

Grades: K-5 Capacity: 250 students

Time: 60 minutes

Witness a potpourri of chemistry, biology, and physics. Find out what sound looks like and what happens to matter at 320 degrees below zero. Engaging demonstrations on sound, human senses, chemical reactions, cold, heat, and combustion are guaranteed to both amaze and intrigue.

### Brain Benders

Grades: K-5 Capacity: 250 students

Time: 60 minutes

Can you walk through a piece of paper? Are you stronger than air? It's true that some things that may look like magic are actually science. Observe mind-boggling demonstrations with unexpected outcomes. Students will be surprised as they start looking at everyday events through scientific eyes.

### Play Ball: Super Sports Science

Grades: K-5 Capacity: 250 students

Time: 60 minutes

Science and sports team up to explore the biology, physics, and chemistry behind athletics.

Discover how a football is like a figure skater and uncover why each sport has unique equipment that utilizes leverage and compression to its advantage. Reveal the science in sports while putting real sports equipment to the test.

### The Wright Stuff

Grades: K-5 Capacity: 250 students

Time: 60 minutes

From the hot air balloon to the rocket, witness the ways in which scientific inventions have given us the ability to fly. Learn about the scientific principles used to enable flight, including the properties of air, lift, weight, thrust, and drag.

### What's the Matter? Chemistry with Fizz, Foam & Flash

Grades: K-8 Capacity: 250 students

Time: 60 minutes

How can you tell when chemistry is happening? What's the difference between matter and energy? This show explores the states of matter, physical changes, and chemical reactions through loud, bright, and visually thrilling experiments. Watch as flash dazzles, foam oozes, and fizz flows.

### Arcs and Sparks

Grades: 3-8 Capacity: 250 students

Time: 60 minutes

How is electricity created and controlled? Learn the shocking truth about the nature of insulators, conductors, direct current, and alternating current.

Construct a model of how electrons move through a wire, take part in a hair-raising experience with a 125,000-volt electrostatic generator, and learn about the importance of using electricity safely.

### The Light Fantastic

Grades: 4-8 Capacity: 250 students

Time: 60 minutes

From fire to lasers, explore the evolution of light and observe its ability to bounce and bend. Travel along the electromagnetic spectrum, and witness the spectacular properties of ultraviolet, visible, and infrared light while discovering how it is produced and used. Note: The Traveling Science staff must be able to control the lighting of the performance space, including rendering complete darkness.

TRAVELING  
SCIENCE PROGRAM  
PRICING  
ON PAGE 15



Phone a reservationist 410.545.5968

# Easy Reservation/Trip Checklist

## To make your reservation:

- Choose three dates for your trip (your first choice may already be full).
- Check your school calendar for any conflicts.
- Have an estimate of how many people will attend (include students, teachers, and chaperones).
- Do you have transportation?
- Do you want to order lunches from Beakers Café? (See Page 19)

## One week before your trip:

- Do you have your confirmation packet from us?
- Did you read the information in your confirmation packet?
- Did you check the prices?
- Do you have all permission slips signed?
- Do you have enough chaperones? (1 for every 10 students)
- How are you going to pay for your trip? Cash, check, or credit card.
- Did you make copies of the Map Guide for your chaperones?
- What arrangements have you made for lunch?

## Teacher's Tips for a successful Trip:

- Choose your chaperones wisely. Good chaperones make for a great trip.
- Chaperones must stay with the students at all times, even high school students.
- Choose another teacher/chaperone to help you.
- All parents of students must be included in your chaperone count even if they did not accompany you on the bus.
- If you can, have your students wear the same color shirts. There can be hundreds of students attending the center. Make your students easily identifiable to your chaperones and our staff. Logo schools shirts are the best.

## The day of your trip:

- Do a head count twice.
- What is your head count?  
# of students: \_\_\_\_\_ # of teachers: \_\_\_\_\_ # of chaperones: \_\_\_\_\_
- Do you have your confirmation packet?
- Assign a teacher/chaperone to be in charge of each bus.
- Do you have the payment? Cash, check, or credit card.

**\*When you arrive, leave your students on the bus while you check in the group. Bring in your helper. Our bus greeters will welcome your group. You will be issued a sticker for every student, teacher and chaperone. Once everyone is accounted for, please enter the Maryland Science Center and enjoy your day.**

TEACHERS, PLEASE DUPLICATE THIS SHEET FOR EACH OF YOUR FIELD TRIP CHAPERONES.

## Maryland Science Center Guide for a Successful Field Trip

### Helpful information to have BEFORE ARRIVING AT THE MARYLAND SCIENCE CENTER

#### Ways YOU can help students OBSERVE and LEARN

- How many students are in your group?
- What is the NAME of each and every student in your group?
- Has the teacher done pre-visit planning with the students?
- Do the students know where they are going/what they will see?
- What are the teacher's goals for the group's visit?

### Two important SCIENCE CENTER POLICIES you need to know:

- Chaperones are required to remain with their students AT ALL TIMES. Groups of students are not permitted to visit the Science Center without an adult chaperone.
- Chaperones are responsible for APPROPRIATE BEHAVIOR of all students in their group. Groups exhibiting inappropriate behavior will be asked to leave the Science Center without a refund.

You've accepted a challenging and rewarding job as a school group chaperone. The Maryland Science Center offers you some useful suggestions to make your visit an enjoyable and educational experience.


As you walk through exhibits, challenge your students to think about what they are seeing by asking thoughtful questions that explore the HOW, WHAT, WHEN, WHERE, and WHY of science. Remember to avoid questions that may be answered with a simple "YES" or "NO".

You can download a scavenger hunt to use during your visit from [www.marylandsciencecenter.com](http://www.marylandsciencecenter.com). To download the Maryland Science Center Scavenger Hunt go to our website, [www.marylandsciencecenter.org](http://www.marylandsciencecenter.org). From the homepage go to the Programs tab at the top of the page, and select Educators from the drop down menu. Once you are on the Educators page click on Resources located in the left and right navigation. Once on the Resources page, the link to the Scavenger Hunt and the key can be found in the right-hand navigation. Click on the link to download. If students do use activity sheets, please include clipboards with pencils attached. Challenge your students to find specific items.

### CHAPERONE TIPS

- #1 Know how many students are in your group and do a head count from time to time—particularly when moving from one level to another in the building.
- #2 Plan your group's visit to The Science Store for the END of your trip.

# Traveling Science & Field Trip Program Rates

 **MARYLAND SCHOOL GROUPS** The Maryland Science Center welcomes all MARYLAND Students and Chaperones reserving as a group to its exhibit halls FREE of charge. Plan your visit early and make your reservation today.



## MARYLAND SCHOOL GROUPS ONLY PRICES VALID WEEKDAYS ONLY October 4-June 15 (excluding major holidays)

	Basic Admission (Exhibits Only)	Enrichment Experiences and Observatory	Davis Planetarium	St. John Properties IMAX Theater	Kids Room	Night Under The Stars
ALL MARYLAND Students, Teachers & Chaperones	<b>FREE!</b>	Students: \$5.00 Teachers: FREE Chaperones: FREE	Students: \$5.50 Teachers: \$5.50 Chaperones: \$5.50	Students: \$6.75 Teachers: \$6.75 Chaperones: \$6.75	Students: \$1.50 Teachers: FREE Chaperones: FREE	Students: \$10.00 Teachers: \$10.00 Chaperones: \$10.00


Please note all prices are per program per person.



## SCHOOL GROUPS OUTSIDE OF MARYLAND PRICES VALID WEEKDAYS ONLY October 4-June 15 (excluding major holidays)

	Basic Admission Exhibits Only	Enrichment Experiences and Observatory	Davis Planetarium	St. John Properties IMAX Theater	Kids Room	Night Under The Stars
ALL NON MARYLAND Students, Teachers & Chaperones	Students: \$7.50 Teachers: FREE Chaperones: \$3.00	Students: \$5.00 Teachers: FREE Chaperones: FREE	Students: \$5.50 Teachers: \$5.50 Chaperones: \$5.50	Students: \$6.75 Teachers: \$6.75 Chaperones: \$6.75	Students: \$1.50 Teachers: FREE Chaperones: FREE	Students: \$10.00 Teachers: \$10.00 Chaperones: \$10.00

Please note all prices are per program per person.

 Phone a reservationist 410.545.5929



## TRAVELING SCIENCE PROGRAM PRICING

	Up to 250 participants \$575	251 to 500 participants \$1050	-
Assembly Programs			
STARLAB Programs	Up to 120 participants \$575	121 to 240 participants \$1050	-
Classroom Programs	Up to 90 participants \$435	91 to 120 participants \$535	121 to 150 participants \$635
DINOSAUR! Assembly Programs	Up to 125 participants \$525	126-250 participants \$575	-

All pricing is based on same day/same title, an additional fee is required for same day/different titles. Travel time to a location of more than 2.5 hours will be charged a \$180 overnight fee. Evening and Saturday presentations are an additional \$70.

 Phone a reservationist 410.545.5968

# IMAX & Observatory

## DECEMBER - MARCH

Time	Location		Tuesday	Wednesday	Thursday	Friday
10am	IMAX	Oct 4-21	To the Limit	To the Limit	To the Limit	To the Limit
		Oct 25-Dec 30	Wild Ocean 3D	Wild Ocean 3D	Wild Ocean 3D	Wild Ocean 3D
		Jan-Feb	The Secret of Life on Earth	The Magic of Flight	The Secret of Life on Earth	The Magic of Flight
		March	Sea Rex 3D	Sea Rex 3D	Sea Rex 3D	Sea Rex 3D
	Observatory		Our Star, the Sun	Our Star, the Sun	Our Star, the Sun	
11am	IMAX	Oct 4-21	Forces of Nature	Forces of Nature	Forces of Nature	Forces of Nature
		Oct 25-Nov 10	To the Limit	To the Limit	To the Limit	To the Limit
		Nov 11-Dec 30	Rocky Mountain Express	Beavers	To the Limit	Africa the Serengeti
		Jan-Feb	Shackleton's Antarctic Adventure	Cirque du Soleil 3D	Shackleton's Antarctic Adventure	Cirque du Soleil 3D
	March	Africa the Serengeti	Beavers	To the Limit	Africa the Serengeti	
Observatory		Our Star, the Sun	Our Star, the Sun			
12pm	IMAX	Oct 4-21	Africa the Serengeti	Africa the Serengeti	Africa the Serengeti	Africa the Serengeti
		Oct 25-Nov 10	Wild Ocean 3D	Dinosaurs Alive 3D	Wild Ocean 3D	Dinosaurs Alive 3D
		Nov 11-Dec 30	Wild Ocean 3D	Wild Ocean 3D	Wild Ocean 3D	Wild Ocean 3D
		Jan-Feb	Bears	Pulse: A Stomp Odyssey	Bears	Pulse: A Stomp Odyssey
		March	Sea Rex 3D	Sea Rex 3D	Sea Rex 3D	Sea Rex 3D
1pm	IMAX	Oct 4-Nov 10	Ring of Fire	Ring of Fire	Ring of Fire	Ring of Fire
		Nov 11-Dec 30	Ring of Fire	The Human Body	Forces of Nature	Ring of Fire
		Jan-Feb	The Magic of Flight	Shackleton's Antarctic Adventure	The Magic of Flight	Shackleton's Antarctic Adventure
		March	Ring of Fire	The Human Body	Forces of Nature	Ring of Fire

## APRIL - JUNE

Time	Location		Monday	Tuesday	Wednesday	Thursday	Friday
10am	IMAX		Sea Rex 3D	Sea Rex 3D	Sea Rex 3D	Sea Rex 3D	Sea Rex 3D
	Observatory		Our Star, the Sun	Our Star, the Sun	Our Star, the Sun	Our Star, the Sun	
11am	IMAX		To the Limit	Africa the Serengeti	Beavers	To the Limit	Africa the Serengeti
	Observatory		Our Star, the Sun		Our Star, the Sun	Our Star, the Sun	
12pm	IMAX		Sea Rex 3D	Sea Rex 3D	Sea Rex 3D	Sea Rex 3D	Sea Rex 3D
1pm	IMAX		Forces of Nature	Ring of Fire	The Human Body	Forces of Nature	Ring of Fire

# Planetarium

## DECEMBER - MARCH

Time	Dates	Tuesday	Wednesday	Thursday	Friday
10am	Dec 5– Dec 9	Legend of the Night Sky	Legend of the Night Sky	One World, One Sky	The Sky Tonight
	Dec 12– Dec 16	Black Holes	Legend of the Night Sky	One World, One Sky	The Sky Tonight
	Dec 19– Dec 23	Legend of the Night Sky	TBD	One World, One Sky	The Sky Tonight
	Jan 3– Jan 20	Black Holes	One World, One Sky	One World, One Sky	The Sky Tonight
	Jan 30– Feb 3			One World, One Sky	The Sky Tonight
	Feb 6– March 30	One World, One Sky	One World, One Sky	The Sky Tonight	TBD
11am	Dec 5– Dec 9	One World, One Sky	Black Holes	Black Holes	Planets
	Dec 12– Dec 23	One World, One Sky	Black Holes	Legend of the Night Sky	Planets
	Jan 3– Jan 20	One World, One Sky	Black Holes	The Sky Tonight	Planets
	Jan 30– Feb 3			The Sky Tonight	Planets
	Feb 6– March 30	Planets	The Sky Tonight	TBD	Seasons in the Sky
12pm	Dec 5– Dec 9	Seasons in the Sky	The Sky Tonight	Planets	The Sky Tonight
	Dec 12– Dec 16	Seasons in the Sky	The Sky Tonight	Black Holes	The Sky Tonight
	Dec 19– Dec 23	Seasons in the Sky		Planets	Surveying the Stars
	Jan 3– Jan 6	Seasons in the Sky	The Sky Tonight	Planets	Surveying the Stars
	Jan 9– Jan 13	Seasons in the Sky	The Sky Tonight	Planets	The Sky Tonight
	Jan 16– Jan 20	Seasons in the Sky	The Sky Tonight	Planets	Surveying the Stars
	Jan 30– Feb 3			Planets	Surveying the Stars
	Feb 6– March 30	Seasons in the Sky	The Sky Tonight	Planets	Surveying the Stars
2pm	Dec 5– Jan 20	Black Holes	Surveying the Stars	Black Holes	Black Holes
	Jan 30– Feb 3			Black Holes	Black Holes
	Feb 6– March 30	Black Holes	Surveying the Stars	Black Holes	Black Holes

## APRIL - JUNE

Time	Monday	Tuesday	Wednesday	Thursday	Friday
10am	One World, One Sky	TBD	One World, One Sky	TBD	The Sky Tonight
11am	One World, One Sky	One World, One Sky	Planets	Black Holes	TBD
12pm	Planets	Seasons in the Sky	TBD	Planets	Planets
2pm	Black Holes	Surveying the Stars	Black Holes	Black Holes	Black Holes



# Enrichment Programs

## OCTOBER - MARCH

Time	Location		Tuesday	Wednesday	Thursday	Friday
10am 11am 12pm	BodyLink		Membrane Mysteries	Nano Medicine	DNA Discovery	Water Wonders
10am 11am 12pm	TerraLink	October	Go Green		Go Green	Go Green
		Nov-March	Solar Power		Solar Power	Solar Power
10am 11am 12pm 1pm	SciZone 1	Oct 4-Nov 4	Dry Ice	The Life of a Star*	Seasons in Motion*	Dry Ice
		Nov 8-Dec 16	Paleo Detectives	The Life of a Star*	Seasons in Motion*	Paleo Detectives
		Dec 20-Jan 27	Ziplock Chemistry	The Life of a Star*	Seasons in Motion*	Ziplock Chemistry
		Jan 31-March 30	The Incredible Insect Investigation	The Life of a Star*	Seasons in Motion*	The Incredible Insect Investigation
10am 11am 12pm 1pm	SciZone 2	Oct 4-Nov 4	Dry Ice	Dry Ice	Dry Ice	Dry Ice
		Nov 8-Dec 16	Paleo Detectives	Paleo Detectives	Paleo Detectives	Paleo Detectives
		Dec 20-Jan 27	Ziplock Chemistry	Ziplock Chemistry	Ziplock Chemistry	Ziplock Chemistry
		Jan 31-March 30	The Incredible Insect Investigation	The Incredible Insect Investigation	The Incredible Insect Investigation	The Incredible Insect Investigation
10am 11am 12pm	SciZone 3	Oct-Jan	Speaking for the Trees	Matter of Fact	Rain, Rain, Go Away	Cool Tools
		Feb-March	Speaking for the Trees	Matter of Fact	Bug Bytes	Cool Tools
10am 11am	SOS		The Magnetic Earth	Life Beyond Earth	Sun, Moons and Planets	Earth Alive
10am	Dino Hall			Dinosaur Field Trip		
10am 11am 12pm 1pm	Kids Room		Discovery Space	Discovery Space	Discovery Space**	Discovery Space
10am 11am 12pm	MSC Theater					Observing and Imaging Light*

## APRIL - JUNE

Time	Location		Monday	Tuesday	Wednesday	Thursday	Friday
10am 11am 12pm	BodyLink		Eye Anatomy	Nano Medicine	Membrane Mysteries	Water Wonders	DNA Discovery
10am 11am 12pm	TerraLink	April Only	Solar Power	Solar Power		Solar Power	Solar Power
		May-June	Go Green	Go Green		Go Green	Go Green
10am 11am 12pm 1pm	Sci Zone 1	Apr 2- Apr 27	The Incredible Insect Investigation	The Incredible Insect Investigation	The Life of a Star*	Seasons in Motion*	The Incredible Insect Investigation
		April 30-June	Math Matters	Math Matters	The Life of a Star*	Seasons in Motion*	Math Matters
10am 11am 12pm 1pm	Sci Zone 2	Apr 2-Apr 27	The Incredible Insect Investigation	The Incredible Insect Investigation	The Incredible Insect Investigation	The Incredible Insect Investigation	The Incredible Insect Investigation
		April 30-June	Math Matters	Math Matters	Math Matters	Math Matters	Math Matters
10am 11am 12pm	Sci Zone 3			Cool Tools	Speaking for the Trees	Bug Bytes	Matter of Fact
10am 11am	SOS		Life Beyond Earth	The Magnetic Earth	Sun, Moons and Planets	Earth Alive	Life Beyond Earth
10am 11am 12pm 1pm	Kids Room		Discovery Space	Discovery Space	Discovery Space	Discovery Space**	Discovery Space
10am 11am 12pm 1pm	MSC Theater		Light and Shadow	Light and Shadow	Light and Shadow	Light and Shadow	Observing and Imaging Light*

\*1pm not available \*\* 10am not available

# Reservation Guide

The following steps are designed to help you prepare the information you'll need to arrange your group's visit to the Maryland Science Center. Since programs are scheduled on a first-come, first-served basis, please call early to be sure your activities and visit date are available.

**Decide what you want to do.** Review this booklet to choose the programs you'd like your students to participate in.

	THE TITLE OF THE PROGRAM
Participate in an Enrichment Experience	_____
Visit the Davis Planetarium	_____
See an IMAX film	_____
Visit the Kids Room	_____
Visit the Observatory	_____

\* Please have alternate program choices in mind in the event that your first choice is not available.

**Determine the number of chaperones** you need to accompany you and your group to the Science Center. Remember, you need one chaperone for every ten students – two chaperones for every ten students is preferred.

**Calculate the fees** each student and chaperone will need to pay in order to participate in the activities you have selected. See page 15 for fees.

	STUDENT	TEACHER & CHAPERONE
Admission	_____	_____
Enrichment Experience	_____	FREE
Davis Planetarium	_____	_____
IMAX Theater	_____	_____
Kids Room	_____	FREE
Observatory	_____	_____
Touring Exhibit Gallery	_____	_____
Total fee per student	_____	_____
Total fee per teacher/chaperone		_____



**Prepare the remaining registration information**  
**SCHOOL INFORMATION**

School name \_\_\_\_\_

School address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

School telephone number \_\_\_\_\_

**GROUP INFORMATION**

Grade level \_\_\_\_\_

Number of students in group \_\_\_\_\_

Number of teachers and chaperones \_\_\_\_\_

Teacher in charge during visit \_\_\_\_\_

**VISIT INFORMATION\***

Date of visit \_\_\_\_\_

Time of arrival \_\_\_\_\_

\*Please have a second date in mind in the event that your first choice is not available.

**Now, call the Maryland Science Center Reservationist**

Telephone us Monday-Friday, between 9am and 4pm at 410-545-5929 for Field Trips or 410-545-5968 for Traveling Science.

**IMPORTANT**

Reservations are accepted by telephone only and must be made at least FOUR WEEKS before your visit. The Maryland Science Center does not admit school groups without reservations.

**NOTE:** The count you give us upon reservation is how we calculate the amount you owe upon arrival. If your count changes, you must notify us at least two weeks prior to your visit or you will be responsible for the full amount at the time of the reservation.

**Reservation Confirmation**

A reservation confirmation is mailed to you TWO WEEKS before your scheduled visit.

**Payment Policy**

Pay upon arrival with cash, check or credit card. Make check payable to the Maryland Science Center. We accept Visa, MasterCard and American Express.



# How About Some Lunch?

The Maryland Science Center offers several meal options for your group's needs. Our restaurant facility, Beaker's Café, has a full menu available for purchase with a wide variety of healthy food choices. We apologize for the inconvenience, but outside food is not permitted in the café. However, the Maryland Science Center offers an area for groups to consume outside food, the Brown Bag Zone, which is located in the Key Highway Lobby by Security.

Use the order form below to complete your lunch order. Please be sure to include the correct quantity of sandwiches and drinks being ordered for your group, as well as what time(s) your group will be eating so we can ensure your lunches are ready when you are.

\*Please allow 30 minutes per group when planning your meal break. Maximum 50 people per group, per period.

## ORDER FORM

Date of Visit: \_\_\_\_\_  
Organization/School: \_\_\_\_\_ Group Leader: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Total # of Lunches: \_\_\_\_\_  
Lunch Time(s): \_\_\_\_\_  
\_\_\_\_\_

### Sandwiches

Peanut Butter & Jelly  
\$4.75 per person  
Quantity: \_\_\_\_\_

Ham N' Cheese  
\$6.75 per person  
Quantity: \_\_\_\_\_

Turkey N' Cheese  
\$6.75 per person  
Quantity: \_\_\_\_\_

Tuna  
\$6.75 per person  
Quantity: \_\_\_\_\_

### Salads

Caesar Salad  
\$6.50 per person  
Quantity: \_\_\_\_\_

Chicken Caesar Salad  
\$7.50 per person  
Quantity: \_\_\_\_\_

Fresh Fruit Salad  
\$5.50 per person  
Quantity: \_\_\_\_\_

### Drinks

Milk  
Quantity: \_\_\_\_\_

Juice Box  
Quantity: \_\_\_\_\_

Soda  
Quantity: \_\_\_\_\_

### Add-Ons

Fresh Fruit  
\$1.00 per person  
Quantity: \_\_\_\_\_

Bottled Water  
\$1.50 per person  
Quantity: \_\_\_\_\_

Meals include  
animal cookies,  
chips and a drink

Bag lunches must be pre-ordered at least seven (7) days prior to your visit. All lunch orders must be paid by the date of your visit. A minimum of ten (10) bag lunches are required per order.

### PAYMENT INFORMATION:

If your organization is tax-exempt, you must submit a copy of your Tax Exempt Certificate with payment.

Please provide your number here: \_\_\_\_\_

Sales tax will be added to all non-tax-exempt orders.

To receive a 10% military discount, please include a copy of your military ID when submitting your order.

Order Confirmation #: \_\_\_\_\_

Group Leader: \_\_\_\_\_  
Printed Name Signature

### CONTACT US

Fax  
410-625-9669  
E-mail  
Lacotti-young-donna@aramark.com  
or  
Purcell-derrick@aramark.com