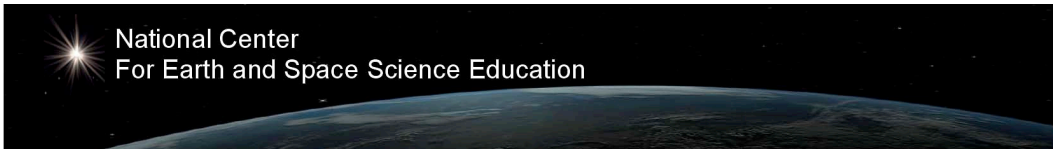


Family Science Night at the Smithsonian's National Air and Space Museum
sponsored by the
National Center for Earth and Space Science Education
and the
Smithsonian's National Air and Space Museum

January 11, 2013

Dear Educator:

Have you ever been on a school field trip designed for family science learning? Have we got a program for you!

The National Center for Earth and Space Science Education (NCESSE; http://ncesse.org) and the Smithsonian's National Air and Space Museum would like to invite you to participate in the *Family Science Night* Program for the 2012-13 academic year.

Family Science Night (FSN) fosters wonderful opportunities for parents and their children to talk about science, our world, and the cosmos—it helps launch family learning. The program takes place at the most visited museum on the planet. Millions of visitors a year come to the National Air and Space Museum to see the machines that gave life to human dreams of flight in air and space.

FSN provides a school field trip designed for families to the Smithsonian's National Air and Space Museum on the National Mall in Washington, DC. The program takes place after the close of normal Museum hours for up to 480 parents, students, and educators from area schools. It's a family learning experience on space science subjects that are taught in the classroom. Adults do not participate as chaperones, but as parents, grandparents, aunts, uncles, and big brothers and sisters to the children. It is a chance for a shared, cross-generational learning experience in space science education. We encourage you to invite students, their extended families, and your colleagues and their families.

The centerpiece of the program is a presentation by a space science researcher who is passionate about the frontiers of exploration, and gifted at conveying that passion to audiences of all ages. The experience provides a window on the nature of science and the lives of modern-day explorers, with special emphasis on not just what is known about the Universe but *how* it has come to be known. This approach serves to reveal the very personal means by which researchers ask questions of the world, empower themselves to create a pathway to an answer, and hopefully bear witness to something wholly new to the human race. It is an approach that gets young and old alike excited about science, and helps to inspire the next generation of scientists and engineers.

A *Family Science Night* starts at 6:45 pm with guests entering the Museum in the *Milestones of Flight* gallery where some of the most remarkable flying machines ever constructed are on display, including: the Spirit of St. Louis, the Bell X-1, an X-15, the early rockets of Robert Goddard, Sputnik, Friendship 7 (John Glenn's Mercury capsule), and the Apollo 11 Command Module. Guests will also have access to the interactive gallery *How Things Fly*. At 7:15 pm the program moves to the Lockheed Martin IMAX® Theater for a 35-minute presentation by a NCESSE space scientist followed by an IMAX® film. Schools can choose from 9 presentations and 9 IMAX® films. The large number of choices allows educators to integrate the program into the curriculum. The program is over by 8:50 pm.

With the curricular connection, the program provides parents a window on the education of their children; schools a way to build bridges to the community; the Museum a chance to augment the classroom experience with their unique collections, exhibits, films, and educational programs; and researchers an opportunity to share what it's like to work on the great frontiers.

- Since it began 19 years ago in 1993, 149 programs have been held at the Museum, reaching 51,000 parents, students, and educators from 189 schools representing 13 area school districts.
- For the 2012-2013 academic year, there are only 7 *Family Science Nights* scheduled. They are assigned on a first-come-first-served basis. 50% of the evenings are reserved for schools with a high proportion of low income or minority populations.
- The program is suitable for 4th grade and up, runs 6:45-8:50 pm, and is free to schools. **[Busing is required, and is the responsibility of the participating schools.]**
- We require a minimum of 400 attendees. However, there are only 480 seats available. Only applications that reflect an ability to meet this requirement will be considered. Typically, schools apply as a cluster or in partnership. **NOTE: if you choose a 3D IMAX® film, we require a minimum of 350 attendees, and there are only 400 seats suitable for the 3D effect.**
- To minimize the cost of the program, only a limited number of museum galleries will be open. This allows us to offer the program free to participating schools. We hope that *Family Science Night* inspires families to return to the Museum during normal hours.

Enclosed you will find all materials needed to request a *Family Science Night*. There is also a sample invitation to parents that we'll be happy to customize for your school and send to you. If you request an invitation, you'll receive a master copy, you can copy it, and send it home with your students.

Some very useful resources on the web:

LOTS OF GREAT CONTENT to explore in class and as a family at Blog on the Universe:
http://ncesse.org/content/engaging-reading/

An overview of the Family Science Night Program:
http://ncesse.org/programs/family-science-night/

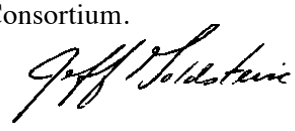
The philosophy behind our family programs:
http://journeythroughtheuniverse.org/program_overview/po_fpp.html

Assessment data for our family programs:
http://journeythroughtheuniverse.org/program_overview/po_as_fapp.html

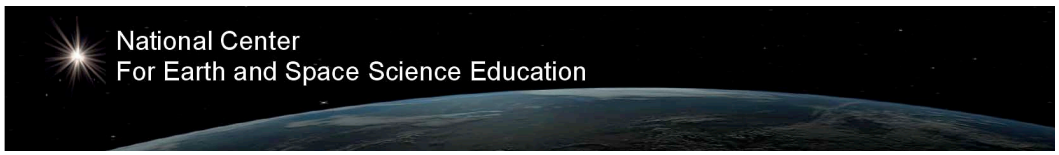
Something teachers of science might read regarding the power of models in the science classroom. Modeling is a core tool for all our programming:
http://www.voyagesolarsystem.org/DC/DC_models_power.html

Symphony of Science music video for parents and teachers:
http://www.youtube.com/watch?v=haUj3qUncOs

Family Science Night is made possible by the Carnegie Institution of Washington in support of NASA's MESSENGER mission to the planet Mercury; and by a grant from the District of Columbia Space Grant Consortium.



Sincerely,
Dr. Jeff Goldstein, Center Director
National Center for Earth and Space Science Education (NCESSE)
jeffgoldstein@ncesse.org



Family Science Night at the Smithsonian's National Air and Space Museum
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and the
Smithsonian's National Air and Space Museum

JUST THE FACTS

Questions? Contact: Stacy Hamel, FSN Program Manager
434-465-8449, stacyhamel@ncesse.org

Requirements for Participation:
The *Family Science Night* Program is open to area elementary/middle schools. 50% of the evenings are reserved for schools with a high proportion of minority (greater than 40% of student body), and/or low income (greater than 40% of students on reduced or free lunch) populations.

We request a minimum participation of 400. Note that IMAX Theaters has a capacity of 480. Given observed attrition rates, a 400 minimum attendance typically requires 480 signed up.

If you choose a 3D IMAX® film, we require a minimum of 350 attendees, and there are only 400 seats suitable for the 3D effect. In this case, we suggest a sign up target of 400 to ensure the minimum requirement.

If you feel that your school community alone will not be able to meet the sign-up target (historically very difficult for an individual school), here are some suggestions:
- partner with a sister school(s)
- enlist help from your district science office to find other potential partner schools
- contact us at stacyhamel@ncesse.org or 434-465-8449 with the total attendance you expect and we might be able to partner you with a school that is in a similar situation

While the program is free, participants are responsible for transportation, and busing is required. If a letter or phone call from NCESSE to, *e.g.*, the district science office or the superintendent of schools would help make transport costs available, by all means give us a call.

A single Program Liaison must be designated by the schools applying for a FSN program. The Program Liaison is responsible for all coordination efforts at the participating schools and is the point of contact for the FSN Program Manager at NCESSE. The Program Liaison must be a salaried employee of the School District (*e.g.*, a PTA President or parent is <u>not</u> eligible for this position).

Submitting an Application and Reserving an Evening:
- Use the enclosed Program Calendar to choose a date.

- Choose a 30 minute presentation by a scientist and an IMAX® film using the attached List of Available Presentations and Films.

- <u>Completely</u> fill out the enclosed Reservation Form.

- Please note that a Sample Invitation is enclosed with this packet. We would be happy to provide you with a customized version that you can copy and send home with the students. A formal invitation from NCESSE and your school is a nice touch, and it might save you some time in creating a flyer. Note that on the Sample Invitation anything that is specific to your school, or is chosen by your school (*e.g.* the movie) is underlined. If you would like an invitation, simply supply the appropriate information on the Reservation Form.

- Electronically fill out the MS Word format Reservation Form, or scan a completed hardcopy, and send **via email** to:
  Stacy Hamel, Family Science Night Program Manager
  NCESSE
  stacyhamel@ncesse.org

  IF YOU DO NOT RECEIVE E-MAIL CONFIRMATION THAT YOUR RESERVATION FORM WAS RECEIVED, PLEASE CALL: 434-465-8449

Program Timeline:

1. Soon after receipt of the Reservation Form, NCESSE will call the designated Program Liaison and discuss their Application in detail. If all is in order, a confirmation letter will then be sent to the Program Liaison.

2. One month in advance of the program, NCESSE will send the Program Liaison a customized invitation if you've requested one.

3. Three weeks in advance of the program, the Museum will lock in the program date, and the Program Liaison will be given the go ahead by NCESSE to advertise to the school community.

4. Two weeks in advance of the program, NCESSE will call the Program Liaison to obtain a preliminary count of those signed up**. A formal sign-up procedure implemented by the school(s) for family members, students, and educators is REQUIRED. We reserve the right to cancel a program based on low attendance projections.**

5. One week in advance of the program, NCESSE will call the Program Liaison for a count of people signed up, and make a final decision on whether to move forward with the program.

6. A few days in advance of the program, NCESSE will call the Program Liaison to get final attendance projections, and to go over any last minute details.

Program Restrictions:

- Please note that *Family Science Nights* are assigned on a first-come, first-served basis.

- The Museum reserves the right to change the program date up to 3 weeks in advance of the evening. Within 3 weeks of the program the Museum will guarantee the program date. It is therefore important not to advertise the program until within 3 weeks of the event.

Who Can You Invite:

You can invite the extended families of your students, and of the entire teaching staff. Please remember, though, that the program is deemed suitable for 4th grade and above.

We understand that educators are going far beyond the call of duty these days, and a *Family Science Night* at the Museum is yet another program to attend. On the other hand, it's important that members of the teaching

staff attend the evening so that the experience can be linked back to the classroom. To help enlist educators, remind them that they'll have a fun time too! Tell them to bring a friend, a date, a spouse—the kids!

If you know of educators in other schools, or community leaders, that might be interested in future *Family Science Night* programming, please invite them together with their extended families.

If you feel it appropriate, invite the bus drivers into the Museum.

If you and your colleagues would like to see a *Family Science Night* before you decide on organizing a program for your school, just contact us at stacyhamel@ncesse.org or 434-465-8449. We typically hold 30 VIP seats per evening for this purpose.

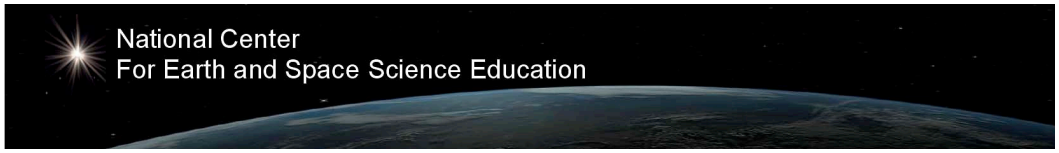
The Evening Program:

Evening Schedule:

6:45-7:15 pm	Arrival at Museum; explore open galleries
7:15-7:25	Entry to IMAX® Theater
7:25-8:00	Presentation by a way cool space scientist
8:00-8:45	IMAX® Film
8:50-9:00	Board Buses

Entry to Museum:

Attendees need to enter and exit the Museum on Independence Avenue. Once unloaded on Independence Ave., buses can park along Jefferson Drive (the National Mall side of the Museum). Doors open at 6:45 pm. In case of early arrival in inclement weather, folks should remain on the buses until the 6:45 pm opening.



Family Science Night at the Smithsonian's National Air and Space Museum
sponsored by the
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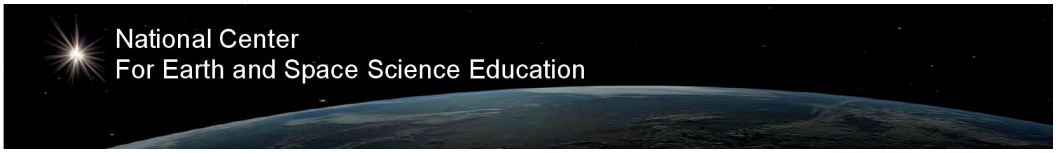
and the
Smithsonian's National Air and Space Museum

2012-13 PROGRAM CALENDAR

7 Family Science evenings will be scheduled for 2012-13 academic year. You can select from the dates currently available below.

Tuesday	February 12, 2013
Tuesday	February 19, 2013
Thursday	February 21, 2013
Tuesday	February 26, 2013
Thursday	February 28, 2013
Tuesday	March 5, 2013
Wednesday	March 6, 2013



Family Science Night at the Smithsonian's National Air and Space Museum
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List of Available Presentations and Films, 2012-13 Academic Year

Presentations that Engage:

These 30 minute presentations by a space scientist—whose hallmark is audience participation—are meant to develop a conceptual understanding of the universe around us in children 4th grade and above. It is a journey, in fact, that parents and children can take together. The approach is to build bridges to the familiar using the power of models (see: http://www.voyagesolarsystem.org/DC/DC_models_power.html)

At the end of each presentation's description below are the films (in abbreviated form) that are well matched, and the curricular focus.

A Voyage that Will Forever Change Your Perspective of Home
How would you like to go to Pluto and back in an hour? You can even stop along the way at the dry riverbeds on Mars, ride a comet around the Sun, and see a hurricane on Jupiter that can swallow two Earths. Just because you live on Earth, doesn't mean you've seen it all. So let us take you on voyage that will forever change your perspective of home!
Focus: understanding the solar system using models; planetary comparisons
Relevant Films: [MD, CV, BP, DiS, H, 3DS]

A Picture's Worth a Thousand Words
Did you ever wonder how a camera creates a photograph? Did you ever stop to think about how much information a photograph contains? For instance, the sizes, shapes, and colors of an object in an image can tell us a lot about its composition, even its origin. We can even take pictures in flavors of light that our eyes cannot see! We explore our entire universe through images. We've even sent cameras to other planets. We'll use images of the planets through history to explore what we can learn through imaging science.
Focus: imaging technology used for scientific research
Relevant Films: [MD, CV, BP, H, 3DS]

The Art of Science
A personal look at how scientists question the world of phenomena around us, frame experiments to uncover an understanding of these phenomena in the context of natural law, and what it feels like to see something nobody's ever seen before. The presentation will explore the process of science—how it is an extension of innate human curiosity, and how the scientist empowers her or himself through inquiry-based, "senses-on" interaction with the world. Some tools of the trade—a coupling of critical thinking with conceptual understanding, and being able to distinguish between fact and interpretation. Science! It's not just a knowledge base it's an art. And it's way cool.
Focus: the process of science
Relevant Films: [CV, DiS, H]

Human Exploration - The Journey Continues is a wondrous look at who we are as a species and what drives us to the great frontiers. Standing on the shoulders of past generations, we have done remarkable things in our time. On July 20, 1969, we walked on the Moon. Today, peoples of the world are working together to build a space station—a research laboratory placed 200 miles above the surface of our world.

Through the eyes of robots we've seen sunset on Mars, volcanoes erupting on a moon of Jupiter, and the awesome majesty of Saturn's rings. With telescopes on the ground and in space, we have seen the birth of other suns, found solar systems beyond our own, and have traveled back in time to see the universe as it was billions of years ago. We humans have even sent four spacecraft beyond Pluto en route to the stars with greetings from Earth aboard. See how far we've come and what awaits the next generation.
Focus: the nature of human exploration
Relevant Films: [MD, CV, TF, DiA, DiS, H, SS, 3DS]

How Big is Big?
It's a big, often intimidating universe out there. How do we even begin to fathom objects and distances that dwarf anything we've ever experienced? Earth's place in space *is* knowable. The secret is placing the universe in a context that is *familiar*. Take a magical journey from spaceship Earth to points unknown.
Focus: understanding the universe using models
Relevant Films: [MD, CV, BP, DiS, H, 3DS]

ASTEROID! Look up in the sky–it's a bird, it's a plane–why no it's a rock. A big rock! And wasn't that a snowball the size of city that just flew by? Visit some of the asteroids and comets in the solar system, and see how these objects have affected life on Earth.
Focus: small bodies of the solar system
Relevant Films: [BP, DiS, SJ]

Fifty of Your Very Own
Look up on a starry night far from city lights. What you're seeing is but a tiny portion of the Milky Way, our home galaxy. Our Milky Way is a vast and swirling mass of 300,000,000,000 suns, enough to give 50 to every person on Earth! Come explore the different neighborhoods of the Milky Way, and get an understanding of our home world's location among the stars.
Focus: the universe beyond the solar system.
Relevant Films: [CV, DiS, H, 3DS]

Saying Hi to E.T. on a Planet Far, Far Away
Wouldn't it be cool to talk to an alien? It's not as far out as you might think. Right now a radio signal with 'hello' from E.T. may be passing through your body. We might just need to point an antenna in the right direction, tune to the right channel, and listen in! That's exactly what's we're doing around the world.
Focus: astrobiology, communication
Relevant Films: [CV, DiS]

An Expedition to the Top of the World
See what it's like to be a scientist on a research expedition to the top of the world in the pacific. It's about an expedition to one of the largest telescopes on Earth, atop 14,000 ft Mauna Kea, on the island of Hawaii. The mission: measure winds on other worlds!
Focus: the nature of scientific research
Relevant Films: [DiA, BP, DiS]

IMAX® Films:

The following 10 films are available.

Magnificent Desolation: Walking on the Moon 3D [MD]
Only 12 have walked on the Moon. You're next! Exploring the Moon was humankind's most incredible journey. Now through the magic of IMAX® 3D, you can take that giant leap yourself. The movie will transport you to the lunar surface to walk alongside the 12 extraordinary astronauts who have been there to experience what they saw, heard, felt, thought, and did. Narration is by Tom Hanks. [Premiered 2005]

Blue Planet [BP]
A breathtaking view of our home world through the eyes of IMAX® cameras aboard the Space Shuttle and on the ground. The film explores the natural and human forces that shape and stress the delicate environmental balance on Earth. Blue Planet does an excellent job of placing familiar local environments and habitats in a global context. [Premiered 1990]

To Fly! [TF]
Experience the aerial tour of a lifetime—from a balloon ascension in the 1800's to a flight into space. You'll roar over the Arizona landscape with the U.S. Navy's Blue Angels, soar with a hang glider off the coast of Hawaii, and blast into space with a Saturn rocket. [Premiered 1976]

The Dream Is Alive [DiA]
A film that conveys in spectacular IMAX® format what we have been able to accomplish as a nation of spacefarers. "Shot on location" by the astronauts, the film provides a spectacular view of life aboard the space shuttle, documents the first spacewalk by an American woman, and captures astronauts in action as they rescue a crippled satellite. [Premiered 1985]

Destiny In Space [DiS]
A film revealing how today's space program is extending our vision to other worlds in the solar system and beyond. Journey to the broiling landscape of Venus and the vast canyons of Mars through breathtaking scenes of "virtual reality" created from the observations of robotic explorers. Experience the exciting launch, repair and redeployment of the Hubble Space Telescope. [Premiered 1994]

Hubble 3D [H]
Hubble 3D takes audiences on the amazing journey into space to experience the Hubble Space Telescope missions. Viewers will accompany astronauts on space walks as they attempt some of the most difficult tasks ever undertaken in NASA's history and will experience the amazing power of space launches, project setbacks and the dramatic rescues in this powerful and inspiring story surrounding the most important scientific instrument since Galileo's original telescope. [Premiered 2010]

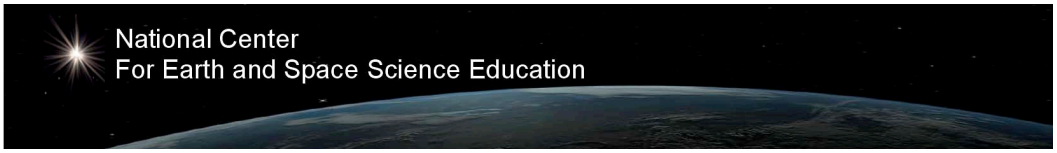
Cosmic Voyage [CV]
An Academy Award nominated IMAX® film which gives audiences the unique opportunity to experience the wonders of the cosmos and explore humanity's true place in the vast continuum of nature—from the tiniest building blocks of matter to super-clusters of galaxies in outer space. [Premiered 1996]

Space Station 3D [SS]
As the first-ever IMAX® 3D space film, *Space Station 3D* transports audiences to the International Space Station to experience life in space. Floating alongside the first men and women to inhabit the new station, audiences literally feel a part of the mission taking place 220 miles above Earth. Space Station 3D is the

story of a unique partnership between 16 nations building a laboratory in outer space. Directed and filmed in space by the Astronauts. Narration is by Tom Cruise. [Premiered 2002]

3D Sun [3DS]
This film premiered in IMAX theaters beginning with the Smithsonian's National Air and Space Museum in March 2008. *3D Sun* gives audiences the chance, for the first time ever, to see the Sun up close in dazzling, high-definition 3D. Leading NASA scientists from the mission unveil these images and take you behind the scenes to tell the story of the Sun and why a greater understanding of this dynamic star is of crucial importance to us all. [Premiered 2008]

Space Junk 3D [short 23-minute film; SJ]
What goes up doesn't always come down. Fifty years after launching our dreams into space, we're left with a troubling legacy—a growing field of debris that threatens the safety of the orbital space that surrounds the Earth. [Premiered 2012]



Family Science Night at the Smithsonian's National Air and Space Museum

sponsored by the
National Center for Earth and Space Science Education
and the
Smithsonian's National Air and Space Museum

Sample Invitation

January 22, 2013

Dear parents and students of Sarah Jones Middle School:

Principal Joseph Smith, Science Department Chair Joan Grant, and I would like to invite you and your family to a very special evening at the National Air and Space Museum, the most visited museum on the planet. On Thursday, February 12, 2013 the National Center for Earth and Space Science Education (NCESSE; http://ncesse.org) and the Smithsonian's National Air and Space Museum will be holding a *Family Science Night*. It is a school field trip to the Museum for families, after the close of normal hours, just for the parents, students, and educators from Sarah Jones Middle School. The idea is to provide a family learning experience in the space sciences that are taught in the classroom. Adults do not participate as chaperons, but as parents, grandparents, aunts, uncles, and big brothers and sisters, to the children. It is a chance for a shared, cross-generational learning experience in a wonderfully exciting subject. We encourage you to invite your extended families. The program is suitable for 4th grade and up, and is free.

A *Family Science Night* starts at 6:45 pm with guests entering the Museum in *the Milestones of Flight* gallery where some of the most remarkable flying machines ever constructed are on display, including: the Spirit of St. Louis, the Bell X-1, an X-15, the early rockets of Robert Goddard, Sputnik, Friendship 7 (John Glenn's Mercury capsule), and the Apollo 11 Command Module. Guests will be able to mill about in various Museum galleries for 30 minutes, including the interactive gallery *How Things Fly*. At 7:15 pm the program moves to the IMAX Theater for a 35-minute presentation by a space scientist *An Expedition to the Top of the World* followed by the IMAX film *Magnificent Desolation*. The program concludes by 8:50 pm.

Please note, though, that only a limited number of Museum galleries will be open. This allows us to keep program costs down, and provide the program free to participating schools.

Family Science Night is made possible by the Carnegie Institution of Washington in support of NASA's MESSENGER mission to the planet Mercury; and by a grant from the District of Columbia Space Grant Consortium.

With best wishes for a wonderful evening,

Jeff Goldstein

Dr. Jeff Goldstein
Center Director
National Center for Earth and Space Science Education (NCESSE) http://ncesse.org
jeffgoldstein@ncesse.org

The Evening Program:
Guests should enter and exit the Museum on Independence Avenue. Doors open at 6:45 pm.

Schedule:

6:45-7:15 pm	Arrival at Museum and exploration of open galleries
7:15-7:25	Entry to IMAX® Theater
7:25-8:00	Welcome and Presentation: *An Expedition to the Top of the World*
8:00-8:45	IMAX® Film: *Magnificent Desolation 3D*
8:50-9:00	Board Buses

IMAX® Film:
Magnificent Desolation: Walking on the Moon 3D
Only 12 have walked on the Moon. You're next! Exploring the Moon was humankind's most incredible journey. Now through the magic of IMAX® 3D, you can take that giant leap yourself. The movie will transport you to the lunar surface to walk alongside the 12 extraordinary astronauts who have been there to experience what they saw, heard, felt, thought, and did. Narration is by Tom Hanks. [Premiered 2005]

Presentation by a Space Scientist:
An Expedition to the Top of the World
See what it's like to be a scientist on a research expedition to the top of the world in the pacific. It's about an expedition to one of the largest telescopes on Earth, atop 14,000 ft Mauna Kea, on the island of Hawaii. The mission: measure winds on other worlds!

To attend the Science Night at the National Air and Space Museum, please fill this out, detach, and return to school by TUESDAY, January 29, 2013.

Student's Name:_____

Teacher's Name:_____

Total family members attending:_____