RAINFOREST ADVENTURE

Inspiring Wonder for the Natural World

MAY 4TH - SEPTEMBER 4TH, 2019

Field Trip Guide

SOUTH FLORIDA SCIENCE CENTER AND AQUARIUM
Field Trip Guide

Fellow Educators,

Thank you for your interest in the South Florida Science Center and Aquarium (SFSCA). We look forward to meeting with you and your classes while you explore our exciting new exhibition "Rainforest Adventure".

This Field Trip Guide is designed to enhance your Science Center experience by helping you and your students prepare for your visit. This guide will answer questions such as: how long you can expect to spend at the science center and where you can eat your lunch. As you know, by preparing students in advance for their trip, they will better focus on the science content.

Additionally, our Education Team has created pre- and post-visit activities perfect for use in the classroom to introduce the content they will experience at the Science Center, and then follow-up their experience in hopes of enhancing retention. These activities are contained in this guide. Have additional questions? Please call our Group Sales office at (561) 832-2026. It is our sincere hope that your experience embodies our mission to “Open Every Mind to Science.” We’ll see you at the Science Center!

Sincerely,

The Education Team
South Florida Science Center and Aquarium
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Field Trip Planner

If you would like to schedule a trip to the South Florida Science Center and Aquarium, please call our Group Sales Office at 561-832-2026. Field trips may be scheduled at any time during the year. Also, when you call be sure to ask how you can order WT Cafe lunches for your group, including a sandwich, juice, and chips for only $5.00!

Pricing

Pricing for groups scheduled in advance

<table>
<thead>
<tr>
<th>Service</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boxed lunch from WT Cafe per student</td>
<td>$5.00</td>
</tr>
<tr>
<td>Self-guided visit admission per student</td>
<td>$7.00</td>
</tr>
<tr>
<td>Visit plus an additional demo/show program per student</td>
<td>$10.00</td>
</tr>
<tr>
<td>Visit plus a laboratory program per student</td>
<td>$5.00-8.00</td>
</tr>
<tr>
<td>Mini Golf on the Conservation Course add-on ticket</td>
<td>$2.00</td>
</tr>
</tbody>
</table>

*One chaperone is required per 10 students at $8.00 per chaperone.

Policies

- Final payment must be made by the day of your scheduled visit.
- If final payment has not been received by the day of your visit, reservations are subject to cancellation.
  NO REFUNDS WILL BE GRANTED.
- On the day of your scheduled visit, check in your group at the Front Desk under your group/contact name. Additional tickets may be purchased at the group rate, on the day of your scheduled visit, providing space is available.
- Increase in headcount should be called in as soon as possible to ensure availability.
- Acceptable forms of payment are check, money order, or credit card (Visa and Master Card).
- Please make checks or money orders payable to the South Florida Science Center and Aquarium and mail to:
  
  South Florida Science Center and Aquarium
  4801 Dreher Trail North
  West Palm Beach, FL 33405
  Attention: Group Sales

- Surcharges may apply for special event days and holidays.
- Science center memberships, coupons and other discounts are not applicable with school group rates.
- Teacher Members receive $25.00 off first program booked
Directions and Map
The South Florida Science Center is located at:
4801 Dreher Trail North,
West Palm Beach, FL 33405.
Phone: (561) 832-1988

From the Florida Turnpike:
Take the Southern Boulevard exit 97 east, and continue just past I-95. Make a right into Dreher Park. Follow Dreher Trail to the South Florida Science Center.

From I-95, heading south:
Take exit 68, Southern Boulevard and head east. Immediately over the I-95 bridge, make a right into Dreher Park. Follow Dreher Trail to the South Florida Science Center.

From I-95, heading north:
Take exit 68, Forest Hill Boulevard east to Parker Avenue. Turn left on Parker Avenue (north) to Summit Boulevard. Turn right on Summit (west). At the first light (Dreher Trail North), turn right and continue around to the South Florida Science Center.
Science Center Manners

PLEASE REVIEW THESE GUIDELINES WITH YOUR STUDENTS BEFORE YOU ARRIVE AT THE SCIENCE CENTER.

Please walk, do not run, while in the Science Center. This is for your safety, as well as the safety of other visitors. Please do not touch the glass on any exhibits, including the aquarium, as fingerprints and smudges can make it hard for everyone to see. Please enjoy yourselves and the hands-on exhibits, but leave them the way you found them. Please keep eating and drinking to the WT Cafe dining area (for WT Café customers only) and outdoors only. Please have students remain with their chaperone at all times. Chaperones, please refrain from using your phones while supervising students at the Science Center. Violation of the rules could result in your group being asked to leave the Science Center. No refunds will be given.

Science Center Store Rules

Please do not allow more than 5 children per chaperone in the store at one time. All sales are final, so please choose carefully.

Most importantly, enjoy your visit!
What to Do at the Science Center

Arrival
Welcome! Once you arrive at the science center, have students either remain on the bus or line up on the patio space leading up to the front doors. Have your group leader check in at the front desk and get directions on where to go first. One of our SFSCA staff members will welcome and orient your group as a whole.

Programs
Favorite programs such as planetarium shows, Nitromania, or Touch Tanks can be scheduled for a small fee to be added in with your field trip. Call (561) 832-2026 in advance to schedule.

Lunch
Make lunch easy, fresh, and healthy for your students by ordering WT Cafe boxed lunches in advance. This $5 boxed lunch includes one sandwich, juice, and chips. Call (561) 370-7741 to order your WT Cafe boxed lunches. You could also pack a lunch and store it on the bus until you are ready to eat. Picnic tables are available on the Science Trail or you can eat within Dreher Park, surrounding the Science Center.

Exhibits
There are many exciting exhibits to explore at the SFSCA:

NEW Fisher Family Science Trail!
The upgraded quarter-mile trail connects 15 new exhibits, including a Physics Forest, interactive splash pad, gem panning station, dinosaur walk, and more in the Science Center’s beautiful backyard.

Aquariums of the Atlantic
See marine life from around the world in over 10,000 gallons of salt and fresh water aquariums. A living coral reef, sharks, eels, the invasive lion fish and a "touch tank" create this wonderful undersea exhibit hall. Travel through Florida’s diverse ecosystems of Everglades, Coral Reefs, Gulf Stream, and Open Ocean, home to the most beautiful native fish such as queen angels, lookdowns, moray eels, stingrays, seahorses and many more.

The Hidden World of the Everglades
Experience the Florida Everglades ecosystem and listen to sounds of Florida’s wildlife in their natural habitat in this interactive exhibit about America’s only sub-tropical wilderness.

River of Grass
Find out where our water comes from as you follow a drop of water from the Everglades to your faucet in this interactive display.

Florida Conservation Station
This learning station brings to life the immense variety of life in Florida and the complex relationships among living things. Visitors become real world biologists at these learning stations that include hands-on experiments and research activities.
Frozen Shadows
Lights, Action! ‘Freeze’ your shadow on the wall while you experience the effects of phosphorescence.

Marvin Dekelboum Planetarium
Palm Beach County’s only public planetarium features a full-dome, newly renovated digital projection system. Sit back and be transported through the Universe with daily star shows, interactive astronomy presentations and other immersive science adventures. It’s only $3.00 more per adult/child visitor to book as a group.

Discovery Center Powered by PNC Grow Up Great
Children 6 years and younger can play and discover in their very own space! The Center’s features include a giant 16 x 5-foot water table, a wall-sized Lite Brite play area, lounge area for parents, story time area with bookshelves, a dress-up area and more.

Nano Exhibit
Nano is an interactive exhibition that engages family audiences in nanoscale science, engineering, and technology. Visitors will be able to build a giant model of a carbon nanotube, explore progressively smaller magnetic materials, and explore the relative effects of static electricity and gravity using the Static vs. Gravity discs.

Hands and Minds on Science
Explore the basic principles of science with hands-on displays representing the states of matter, including solid, liquid, gas, and plasma displays. Continue through the gallery for more basic principles of electricity revealed through conversion machines and Jacob’s Ladder.

Out of This World
Part of the Ambassadors of Space Exploration, the Science Center was honored by Apollo 14 Astronaut Dr. Edgar Mitchell with a long-term loan of an authentic Moon rock collected during the Fra Mauro expedition. This exhibit also features a Mars rock found in Nigeria in 1962, a 232 pound meteorite. Mitchell was the Lunar Module Pilot on NASA’s 3rd Moon expedition where Mitchell became the 6th man to walk on the Moon. Authentic mission footage accompanies this rare display.

Brainy Acts
Exercise your mind with puzzling challenges for all ages!

Journey through the Human Brain
The South Florida Science Center in collaboration with the FAU Brain Institute is advancing a transformative project to inspire a new generation of scientists, technologists, and medical professionals. The Journey Through the Human Brain permanent exhibit opens March 13th, 2019 and features the latest research and innovations in neuroscience.

Conservation Golf Course
Enjoy our brand-new 18-hole miniature golf course focused on Florida native plant and animal conservation and designed by Jim Fazio and Gary Nicklaus. Set within a giant butterfly garden and a series of babbling
brooks, this educational mini golf experience is sure to be unlike any other. **Price is 2.00 per students for groups only.**

**Hurricane Simulator**
Have you ever experienced hurricane force winds? In our Discovery Hall, dial up the winds of a Category 1 Hurricane and see the 78 mph wind make your skin crawl! Visitors can also learn how to better protect their lives and property, and what to do once the storm has passed. The booth uses video, audio and high wind speed to make you feel like you are right in the storm!

**Science On A Sphere**
Science on a Sphere (SOS) is a room-sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science on a Sphere as an educational tool to help illustrate Earth system science to people of all ages.
Amazing Rainforest Exhibit

What is there to see and do? Rainforest Adventure sends visitors on a quest to explore four Experience Galleries: Emergent, Canopy, Understory and Forest Floor. Each gallery introduces visitors to interactive opportunities to mimic the animals and plants indigenous to each layer as they wind their way throughout the exhibit, answering questions as they go – incorrect answers lead to dead-ends while correct answers lead the explorers deeper into the maze. Visitors experiment with physical and mental challenges as they descend through the four layers of rainforest. By the time visitors reach the forest floor, they are better equipped with an understanding of how humans impact this diverse yet fragile forest, and how they can make a difference. Visitors learn not only how the rainforest impacts their lives, but also how they can positively impact the rainforest.

WELCOME TRAVELER - Join us on a Rainforest Adventure and explore one of the most diverse and endangered ecosystems on our planet.

- **Question/Answer** – How do you get from A-Z? With Q&A, of course! Navigate the maze through a series of challenging mental puzzles designed to improve your understanding of rainforest preservation.
- **Rain Stick Wheel** – Create the sounds of the rainforest in the palms of your hands and learn how the rain of the rainforest impacts its inhabitants.
- **Wet City** – How much rain falls in your city? You might be surprised. Compare and contrast your understanding of precipitation.

EMERGENT - With trees reaching over 200 feet tall, the emergent layer towers over everything in the rainforest.

- **Migratory Bird Magnet Maze** – Help migratory birds make the incredible journey from winter resting grounds to summer nesting grounds. But watch out for hazards along the way!

CANOPY - The roof of the forest, the canopy is a tangled green layer of leaves, vines, fruits and colorful flowering plants. This dense layer allows little light to penetrate to the forest floor.

- **Brachiation Station** – Get into the swing of things! Do you have the strength, grace and timing to swing like a spider monkey and other primates? We think you do!
- **Spider Web Climb** – Spiders are a vital part of the rainforest food chain, feeding birds and other animals. Get a spider’s eye view of a wicked web you don’t want to get tangled up in or, DO you?

UNDERSTORY - In the understory, smaller trees compete with each other for the little sunlight that filters through the thick green roof of the canopy.

- **Butterfly Zip Slide** – Spread your wings and sail 10 feet through the understory as a butterfly.
- **Butterfly Camouflage Mural** – See if you can find these cleverly disguised creatures in all four stages of their development: egg, larvae, chrysalis, and adult.
- **Hanging Vines** – Descend deeper through the Understory on hanging vines, getting ever closer to the Forest Floor.

FOREST FLOOR - With a tangle of large roots and very little light, the Forest Floor is filled with plants specially adapted to low light and high moisture.

- **Architecture by Nature** – Witness the engineering genius of nature by seeing how a 100-foot tall tree can stand in 18 inches of soil. Learn how buttress roots make all the difference by building your own.
- **Frog Jump** – Frogs can jump over 10x their body length. How far can you jump? Check your height and see if you can go the distance.

DIVERSITY DETOUR - You may have reached the Forest Floor, but can you remember everything you’ve seen? Show what you’ve learned by revisiting the layers, and find new plants and animals through two special games.

- **Species Diversity Puzzle** – Help these creatures find their home! Solve the puzzle by placing the 16 species in their correct habitat strata on the rainforest mural.
- **Species Scavenger Hunt** – Wind your way back into the maze on a rainforest quest! Look for animals hidden throughout the maze and save some twists and turns by remembering where each animal lives.
RAINFOREST CONNECTION - Although the rainforest may seem very far away, the Rainforest Connection interactive room shows visitors the interconnected relationship between humans and the rainforest. Every day, people around the world use and benefit from rainforest resources, such as food and life saving medicine. The Rainforest Connection provides visitors with daily choices to preserve and improve their relationship with the forest.

- **Squeeze & Sniff** – Many everyday products come from the rainforest. Can you tell these rainforest products by smell? Find out if your nose knows.
- **Take the Pledge, Take Action!** – Rainforests may be thousands of miles away, but your actions at home, work, and at school make a difference. Take the pledge, write it down, and post it at home.
- **Donation Station** – Drop a coin into the machine and it becomes a raindrop trying to reach the forest floor. If it makes it, you get your coin back – but if it doesn’t, like most water in the rainforest, your coin becomes a donation that supports rainforest conservation.

**Related Books and Websites for Rainforest**

**Books**

**Primary grades**

Davies, Monika. *How High in the Rainforest?: Rainforest Animal Habitats (Animals Measure Up).* Publisher: Amicus Ink (August 28, 2018) Explore the layers of the rainforest biome and the animals that live there, from the dark forest floor through the understory, canopy, up to the emergent layer. Comparisons to familiar objects give perspective and illustrated rulers show numeric distances. Includes a map, glossary, and further resources. Age Range: 7 - 12 years, Grade Level: 1 – 3, Lexile Measure: 520L

Jackson, Tom. *Magic School Bus Presents: The Rainforest: A Nonfiction Companion to the Original Magic School Bus Series.* Publisher: Amicus Ink (August 28, 2018). Expands upon the original titles with fresh and updated content about all of the incredible plants and animals that live in the world’s rainforests. With vivid full-color photographs on each page as well as illustrations of the beloved Ms. Frizzle and her students, the Magic School Bus Presents series will enthrall a whole new generation of Magic School Bus readers. Age Range: 6 - 8 years, Grade Level: 1 – 3, Lexile Measure: NC840L

Mitchell, Susan. *The Rainforest Grew All Around.* Publisher Arbordale Publishing (April 20, 2007) From the forest floor, up through the canopy and back down again; follow the circle of life in this clever adaptation of the song *The Green Grass Grew All Around*. Children learn about a wide variety of the animals (jaguars, emerald tree boas, leafcutter ants, sloths, poison dart frogs, toucans, and bats) and plants (kapok trees, liana vines, and bromeliads) living in the lush Amazon rainforest. Search each page to find the hidden rainforest bugs and butterflies. **Age Range:** 5 - 8 years, **Grade Level:** K –2, Lexile Measure: NC820L

Rice, Howard. *Step into the Rainforest (TIME FOR KIDS® Nonfiction Readers) 2nd Edition.* Publisher: Teacher Created Materials; 2nd edition (December 1, 2011). Maps, charts, and intriguing facts in conjunction with vibrant images and informational text help early elementary readers explore the lush rainforests of the world – from forest floor to canopy! Age Range: 6 - 10 years, Grade Level: 2 and up, Lexile Measure: 540L

Vogt, Richard. *Rain Forests (Insiders).* Publisher: Simon & Schuster Books for Young Readers (March 10, 2009). Insiders brings rain forests to life; the most up-to-date information and state-of-the-art 3-D illustrations that practically leap off every page, stimulates minds and imaginations. Age Range: 8 - 12 years, Grade Level: 3 – 7.

Worth, Bonnie. *If I Ran the Rainforest: All About the Tropical Rainforest (The Cat in the Hat Learning Library).* Publisher: Random House Books for Young Readers; First Edition (April 22, 2003). The Cat in the Hat takes Sally and Dick for an “umbrella-vator” ride through the understory, canopy, and emergent layers of a tropical rain forest, encountering a host of plants, animals, and native peoples along the way. Age Range: 4 - 8 years, Grades PreK-3, Lexile: 600.
Intermediate Grades
Aspen-Baxter, Linda. *Rainforests*. Weigl Publishers, Inc. New York, NY 2012. In this volume, the author presents a vivid description of the climate, seasons, and life in rainforests. The geographic location is presented with maps, and a description is given of the ecosystem throughout the world. In addition, the author discusses the effect of climate change on this ecosystem, how to protect the ecosystem, and scientists who work in rainforests. Vibrant visuals utilized the book further describe and explain how the rainforest works. “Eco Facts” are added on each page to further support content and vocabulary. There is a simple experiment, graphic organizers that include a food web and timeline, a glossary, and an “Eco Challenge” with a question-and-answer review of the book’s content. Grades 5-8.


Castner, James. *Deep in the Amazon: Rainforest Researchers*. Benchmark Books Tarrytown, NY 2001. Vivid descriptions of the research and working conditions of real scientists. “Bat Man” Don Wilson catches chiropterans in a mist net of controlled poison to study the way they spread fruit seeds and pollinate flowers. Jim Duke is a guitar-strumming botanist who specializes in medicinal plants. Duke helped establish the ReNuPeRu Garden in Peru to study potentially valuable herbs, such as cat’s claw and coca leaves. Based on his study of gap ecology, Gary Hartshorn has developed an environmentally promising technique for harvesting timber from strips of land. Terry Erwin has done groundbreaking work with canopy fogging techniques for collecting insects. Paul Donohue and Teresa Wood, trained ornithologists, have helped with the building of canopy walkways that bring researchers and visitors 36 meters up into the trees. The photographs in this book are outstanding and so detailed that the reader can see the blood vessels in the wings of a fruit bat. Captions repeat the information in the text to support hesitant readers. A glossary, references of additional books, websites, organizations, and a brief index are located in the back of the book.

Hildebrandt, Ziporah. *Marina Silva: Defending Rainforest Communities in Brazil (Women Changing the World)*. Publisher: The Feminist Press at CUNY; 1 edition (August 1, 2001). Since her girlhood as a poor rubber-tapper’s daughter in Amazonia, Marina Silva has understood that bulldozing the rainforest for development hurts not only the indigenous peoples living there, but destroys natural resources needed by Brazil and the whole world. She joined the reform party of Chico Mendes and demonstrated against deforestation. Elected to Brazil’s Senate, the “miracle of Acre” successfully legislated rainforest preservation, defending her people against poverty and protecting their 36 meters up into the trees. The photographs in this book are outstanding and so detailed that the reader can see the blood vessels in the wings of a fruit bat. Captions repeat the information in the text to support hesitant readers. A glossary, references of additional books, websites, organizations, and a brief index are located in the back of the book.

Lasky, Kathryn. *The Most Beautiful Roof in the World: Exploring the Rainforest Canopy*. Publisher: HMH Books for Young Readers; First edition (May 27, 2014). Journey along with Dr. Meg Lowman, a scientist who, with the help of slings, suspended walkways, and mountain-climbing equipment, has managed to ascend into one of our planet’s least accessible and most fascinating ecosystems—the rain-forest canopy. “Fresh in outlook and intriguing in details, this book will strengthen any library collection on the rainforest.” Grades 5-8.
Internet Resources and Classroom Activities

Explore these links to learn more about amazing rainforests:

https://drive.google.com/drive/folders/1OgRDK06thoZ_DW03A4uucE_96mN4fQwo

Hands – on cross curriculum, kids corner, and much more!

https://www.rainforest-alliance.org/kids/rainforest-visits
Make a virtual visit to rainforests around the world.

https://www.enchantedlearning.com/subjects/rainforest/
Intro facts, Strata and Layers, Where are the Rainforests, Animals of the Rainforest, Glossary, Printables: worksheets and activities.

https://www.rainforest-alliance.org/kids/rainforest-stories
Read kids’ stories about the rainforests.

https://www.nationalgeographic.org/encyclopedia/rain-forest/
General information, facts about the rainforest.

Amazonia – the Human Impact. Grades 6-8
- https://www.nationalgeographic.org/activity/protecting-biodiversity-amazon-rain-forest/
  Protecting Biodiversity in the Amazon Rainforest
  Taking a position on Human Activity in the Amazon
  Relationship Between Human Activity and Habitat Loss
  Local and Global Effects of Deforestation in the Amazon Rainforest

https://kids.mongabay.com/
Rainforest Information, Animals photos and descriptions, People of the Rainforest, Importance of the Rainforest, Disappearance of the Rainforest, How Can We Save the Rainforest, Pictures, and Teacher Resources, Lesson Plans, Book suggestions.

https://www.rainforest-alliance.org/pictures/9-rainforest-facts-everyone-should-know
Beautiful pictures presented with facts about rainforest.

https://www.rainforest-alliance.org/kids/coloring-pages
Beautiful coloring page templates of animals of the rainforest.
Sunshine State Standards

SUNSHINE STATE STANDARDS: Grades K-2

- SC.K.L.14.3 – Observe plants and animals. Describe how they are alike and how they are different, in the way they look and in the things they do.
- SC.K.N.1.1 – Collaborate with a partner to collect information.
- SC.K.N.1.2 – Make observations of the natural world using the five senses.
- SC.K.N.1.3 – Keep records as appropriate. Such as pictorial records of investigations.
- SC.1.L.14.1 – Make observations of living things and their environment using the five senses.
- SC.2.L.17.2 – Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.
- SC.3.L.15.1: Classify animals into major groups according to their physical characteristics and behaviors.
- SC.3.N.1.1: Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations and generate appropriate explanations based on those explorations.

SUNSHINE STATE STANDARDS: Grades 3-5

- SC.4.L.17.4 – Recognize ways plants and animals, including humans, can impact the environment.
- SC.5.L.14.2 – Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support – some with internal skeletons others with exoskeletons – while some plants have stems for support.
- SC.5.L.17.1 – Compare adaptations displayed by animals and plants that enable them to survive in different environments such as life cycle variations, animal behaviors, and physical characteristics.
- SC.6.L.15.1: Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains.
- SC.7.L.17.1: Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.
- SC.7.L.17.2: Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.

SUNSHINE STATE STANDARDS: Grades 6-8

- SC.7.L.15.2: Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity.
- SC.7.L.15.3: Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to extinction of that species.
- SC.6.N.3.4: Identify the role of models in the context of the sixth grade science benchmarks.
- SC.8.N.4.1: Explain that science is one of the processes that can be used to inform decision making at the community, state, and international level.
- MAFS.6.SP.2.5: Summarize numerical data sets in relation to their context by representing the number of observations, etc.
- MAFS.6.SP.2.4: Display numerical data in plots including histograms.