



SCIENCE AND ENVIRONMENT COUNCIL OF SARASOTA COUNTY

Teacher Workshop, In-class Careers Visit, and Science Field Trips

Teachers of 8th, 9th, and 10th grade science are invited to bring their on-level students on a series of 3 or 6 science field trips. School bus funding is provided and each organization is offering a deep discount on the cost of admission for the field trip.

In addition, a science professional will visit your class in advance of the first field trip in the series to provide a brief overview of the field trip program and discuss careers in the sciences with your students.

A teacher training workshop will help you prepare for the field trips, provide information about field trip topics and activities, give suggestions for related in-class activities, supply resource material on water-related topics, and give you an opportunity to ask questions.

To participate in the series of field trips, the teacher must attend a teacher-training workshop on Friday March 26, 2010 from 12:00 – 3:00 pm at Historic Spanish Point in Osprey.

- The School Board of Sarasota County will provide **four hours in-service credit** for participating in the training session. Each teacher will receive an **additional two hours in-service and a \$50 stipend** once the field trips are concluded and all required materials turned in (see Required Materials below).
- The school is responsible for the cost of substitutes if needed on the day of the field trip.
- The program is available to the first 20 teachers who commit to a minimum of three field trips.
- *The workshop is available only to those who have registered for three or six field trips.*

Required Materials – Teachers Agree To:

- Participate in a pre- and post-assessment at the beginning of the workshop and after the last field trip.
- Respond to a survey at the end of the workshop.
- Conduct a pre- and post-assessment with students before the first and after the last field trip.
- Ask students to respond to a short survey at the end of each field trip.
- Reinforce the messages presented through the in-class visit and through the field trips in appropriate ways during class lessons. Minimum of one classroom lesson related to the program is required.
- Provide information to the Science and Environment Council of Sarasota County (SEC) about lessons taught in the classroom related to the in-class visit and to the field trips.



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Instructions

- Choose a series of 3 or 6 field trips for each class. A description of field trips offered is provided below. All field trips take place in spring 2010. **You must register for field trips by March 23, 2010.**
- Email the contact person for each organization where you would like to schedule a field trip, giving your requested date and time. Contact information and scheduling availability follows each description below.
- Fill out the Registration Form (last page of this packet) and send to Rogene Patterson at Rogene@SpringuelConsulting.com

Field Trip Descriptions

Choose any combination of 3 or 6

Crowley Museum and Nature Center

Understanding Your Watershed

A demonstration of how watersheds work introduces students to basic concepts, such as how land pollution affects water supply and quality. Groups of students walk through different habitats on Crowley's 190-acre site and collect water samples from the creek, swamp, and well. Each group tests water samples and records data. Findings are discussed and interpreted in regard to the local ecosystem.

- Importance of water quality for people and ecosystems.
- Hydrologic Cycle.
- How pollutants enter the watershed and what their effects may be.
- How wetlands habitats at Crowley are linked to the water cycle.
- What is a watershed and how do they work.
- Ways in which land pollution effects water supply.
- Difference between surface water (marsh, swamp) and ground water (spring, well).
- Cleanliness of surface vs. ground water and reasons (filtration).
- Quality of water depends on use (drinking, wildlife, swimming pool).

Cost per student \$7.00 (regularly \$10.00).

To schedule this field trip, contact Mollie Holland by email molsholl@mailmt.com

Historic Spanish Point

Archimedes Principle

During the classroom pre-visit, students are instructed to use scientific research to design a model boat that can carry the heaviest load. For a homework assignment, material is provided to make three model boats to load test with pennies. During the field trip to Historic Spanish Point, each team recreates their best-designed boat, based on their experiments and tests in the water. They learn the historic role of waterways in transportation and settlement of their community,



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understanding that before roads and railroads, much transportation was on the water. Science principles include:

- Archimedes principle
- Principles of water: why do things float, no matter how heavy?
- Does salt water, as opposed to fresh water, affect buoyancy?
- Water transportation

Cost per student \$7.00 (regularly \$10.00). Minimum 20 students.

This is a 3 hour field trip available on limited weekdays (determined on a case by case basis).

To schedule this field trip, contact Mike Sprout by email mike@historicspanishpoint.org

Selby Botanical Gardens

The Role of Mangroves in Our Ecosystem

A tour of the extensive mangroves surrounding Selby Botanical Gardens highlights the important role these tropical trees play in the ecosystem.

- Florida's mangroves, along with salt marshes and seagrasses, are largely responsible for the abundance of fish and shellfish in our bays and coastal waters.
- The decomposing leaf litter of mangroves provides an enormous amount of food for marine life.
- Mangroves filter sediments and pollution and help protect shorelines from erosion.
- Students will create a field guide to identify black, red and white mangroves.

Cost per student \$7.00 (regularly \$10.00)

This is a 3.5 hour field trip available Monday – Friday.

To schedule this field trip, contact Sue King at sking@selby.org

New College

Importance of Microbes in Coastal Wetlands and Waters

During a visit to New College's Pritzker Marine Biology Research Center, students tour an artificial wetland and discuss the function of wetlands and the different plants found in them. Students observe organisms from the shallow intertidal while on a bay walk and bring water samples back to the lab for viewing and photographing with a video microscope. Samples are placed on petrifilm to allow students to return to their school and review the material for E. coli.

- Function of natural and artificial wetlands.
 - Benefits of wetlands and why they need to be preserved/restored.
 - Microbes found in these habitats.
- Importance of captured environments (aquaria) in understanding how systems function—nitrogen cycle and other micronutrients.
- Comparison of bacterial counts from different habitats.
- Understanding marine microbes and how they are being used in modern medicine.

The New College field trip can be conducted off-site or as an on-site field trip if there is an accessible retention pond.



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Cost per student \$9.50 (regularly \$10.00)

This is a 2-3 hour field trip available on Wednesday or Friday.

To schedule this field trip, contact Sandra Gilchrist by email gilchrist@ncf.edu

G.WIZ

Water Workshop

Students will participate in several water activities, including a bay walk, observation, collecting and testing water samples, learning microscope protocols and lab protocols.

- Students will become familiar with the needs and dangers of water.
- Experience the chemical and physical properties of water.
- Understand how the natural water cycle keeps our water usable.
- Understand the food chain and its relationship to ecosystems.
- Learn what affects the color of the water.
- Learn what a coastal zone is.
- Learn where the pollution in Sarasota Bay comes from.
- Model various point and non-point sources of pollution in a watershed.
- Model the effects of ordinary and extraordinary rainfall on the watershed pollution flow into the coastal waters of Sarasota Bay and the Gulf of Mexico.

Cost per student \$9.25 (regularly \$18.50)

This is a 3 hour field trip available Tuesday – Friday, 10:00 am – 1:00 pm.

To schedule this field trip, contact Aleks Spalvins by email alekss@gwiz.org

Aquarian Quest

Fresh Water Sources at Sea

Sail aboard Aquarian Quest's "floating classroom," a 40 passenger catamaran sailing vessel, where students learn the differences between fresh and salt water. A hands-on group project involving sampling water with a TDS meter, and an onboard desalination machine demonstrates one option for producing fresh water. Implications of desalination are discussed. Students will also investigate plankton, fish species and determine the dissolved oxygen in the water they are sailing on. Music and ecology-based sea chanteys conclude the field trip.

- Hydrologic cycle.
- Significance of water as one of the elements essential to life on earth.
- Help students understand how little potable, fresh water exists on earth at any given time.
- How students can contribute to sustaining and raising the quality of fresh water, locally and globally.
- Importance of fresh drinking water and some of the ways it is created.
 - Desalination and the implications of large-scale desalination plants.
- The food web – plankton and fish
- Current water quality



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Cost per student \$20.00 (regularly \$24.00). Minimum 25 students, maximum 34.

This is a 3 hour field trip available Monday – Friday 10:00 am – 1:00 pm.

To schedule this field trip, contact Robert Killian by email info@aquarianquest.org

Mote

Estuaries: Cradles of the Sea

Students begin to discuss the topic of estuaries and their importance while standing on the shore of Sarasota Bay. Seine nets, dip nets, core samplers, sand sifters, Petri dishes, and buckets are used to sample the water and later fill out “Environmental Assessment” data sheets.

- Students will learn how ecosystems are all interconnected.
- The importance of estuaries and coastal areas to many marine animals.
- The need for protection of the natural systems on earth.
- Understanding the consequences of using limited natural resources.

Cost per student \$6.00 (regularly \$20.00). Minimum 25 students.

This is a 1.5 hour field trip available Monday – Friday, anytime between 10:00 am – 1:00 pm.

To schedule this field trip, contact Debbie Tidwell by email Debbie@mote.org

Sarasota County Natural Resources

Create Your Own City

This program uses a simplified version of the "charette" model, a public-engagement process planners and governments use to literally build cities that are sustainable, environmental, promote social interaction, community health, and use resources more efficiently. Experts will first lead students on a set of interactive discussions on the general guidelines governing development concepts and planning, transportation and infrastructure needs, and the critical role of parks, water, trees, and walkable communities. Armed with guidelines and their own ideas, the class will be divided into small groups. Each group will design their own community using overhead plats of an actual 14-acre pristine coastal site that has been identified for development.

Cost per student – free

This field trip is available mid to late April

To schedule this field trip, contact Demetra McBride by email dmcbride@scgov.net

Sarasota Bay Estuary Program & Around the Bend Nature Tours

Understanding Low Impact Development

Students will discover the principals of Low Impact Development (LID). Using a local water body and maps students determine the flow of water through the watershed and ultimately to Sarasota Bay and the Gulf of Mexico. This field trip can be conducted on-site at their school pond or retention area, or at Oscar Scherer State Park.

- Students will understand the concept of a watershed.



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- Students will document and understand the distinction between native and non-native plants.
- Students will understand that non-point source pollution can be mitigated by LID principles. Examples include:
 - Bio retention and native plant buffers
 - Rain gardens
 - Cisterns
 - Green roofs

This field trip can be conducted off-site at Oscar Scherer State Park or as an on-site field trip if there is an accessible retention pond.

Cost per student \$7.00 (regularly \$10.00)

This is a 2.5 hour field trip available Monday – Friday, 9:30 – noon (can be flexible according to school hours).

To schedule this field trip, contact Karen Fraley by email Karen@aroundbend.com

If you have questions about the program please contact Rogene@SpringuelConsulting.com.

This program is made possible through the generous support of the field trip sites, the Science and Environment Council of Sarasota County, and the Southwest Florida Water Management District.

Sponsored by a grant from the
Manasota Basin Board of the

Southwest Florida
Water Management District

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Registration Form Science Field Trips and Workshop Program

Please complete this form and return to Rogene Patterson at Rogene@SpringuelConsulting.com

Today's Date:

Name:

Phone Number:

Email Address:

School:

Number of Students Participating in Each Field Trip:

Grade Level(s) You Teach:

Field Trips Scheduled (*provide name of organization and date and time scheduled*):

- 1)
- 2)
- 3)
- 4)
- 5)
- 6)

For informational purposes, please indicate below the funding source(s) for admission to each field trip site (i.e. PTO, school funds, or directly from students).