



Outdoor Learning Symposium Greening STEM

October 3-5, 2014
Chattahoochee Nature Center, Roswell

SCHEDULE

FRIDAY, OCTOBER 3 - The Symposium

- | | |
|---------------|---|
| 8:30 - 9:00 | Registration |
| 9:00 - 10:10 | Opening Remarks: Welcome and Keynote by Dr. Juan-Carlos Aguilar, Georgia Department of Education |
| 10:20 - 12:00 | AM Concurrent Sessions |
| 12:00 - 1:30 | Lunch
Buzzard Hike
Explore the Our Shared Forest Science Night Kit at the Brady Lakeside Pavilion |
| 1:30 - 3:10 | PM Concurrent Sessions |
| 3:20 - 4:00 | Closing Remarks: Jerry Hightower, United States National Park Service |

SATURDAY, OCTOBER 4 - Optional PLU workshops

- | | |
|--------------|--|
| 9:00 - 12:00 | Growing Up Wild Workshop for Early Childhood Educators (Earn 1 PLU!)
at the Chattahoochee Nature Center, Roswell |
| 9:30 - 4:30 | Wonder of Wetlands Workshop - Day 1 (Earn 2 PLUs!)
at the Chattahoochee River Environmental Education Center, Johns Creek |

SUNDAY, OCTOBER 5 - Optional PLU workshops

- | | |
|-------------|--|
| 9:30 - 4:30 | Wonder of Wetlands Workshop - Day 2
Chattahoochee River National Recreation Area - Johnson Ferry Unit, Marietta |
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ABOUT THE KEYNOTE SPEAKER

Dr. Juan-Carlos Aguilar is the Georgia Department of Education Science Program Manager and President of the Council of State Science Supervisors, an organization composed of science education specialists who serve at the state level. He oversees state policy in the area of science education, coordinates K-12 science curriculum development, co-directs Georgia's K-12 STEM initiative, supervises the alignment of the state assessments with the Georgia Performance Standards for science and serves as liaison between the GaDOE and different science organizations across the state and the University System of Georgia. In addition, Aguilar was the principal investigator on the Georgians Experience Astronomy Research in the Classroom grant (\$1.3 million) funded by NASA.

THREE TRACKS:

- | | |
|--|------------------------------|
|  | Engineering Design Challenge |
|  | Citizen Science |
|  | Outdoor Learning Resources |

GRADE LEVEL:

- | | |
|------------|------------------|
| PK2 | Pre-K through 2 |
| UE | Upper Elementary |
| MS | Middle School |
| HS | High School |
| AA | All Ages |

**THE COUNCIL OF OUTDOOR LEARNING IS A COMMITTEE OF
THE ENVIRONMENTAL EDUCATION ALLIANCE OF GEORGIA**



MS

MARINE TECHNOLOGY IN OCEAN EXPLORATION*Jody Patterson, Gray's Reef National Marine Sanctuary*10:20-11:05
OUTDOORS:
KINGFISHER
HALLRAIN PLAN:
CLASSROOM
3

Learning about our natural resources can be a difficult task when those resources are submerged below rivers, lakes, and oceans. Resource managers are dependent on new technology to support a better understanding of our aquatic ecosystems, habitats, and maritime history. Learn about marine technologies used in the research and exploration of our national marine sanctuaries and explore solutions for implementing STEAM activities in the classroom. Gray's Reef National Marine Sanctuary supports the Southeast region for the MATE (Marine Advanced Technology Education Center) ROV Competition and provides professional development, classroom materials, and links to resources for imagining, designing, and engineering the future of underwater robotics. A MATE Triggerfish kit ROV will be available for piloting after the presentation.

UE

OUR SHARED FOREST*Mike Kahle, Cobb County Watershed Stewardship Program
Heather Fleming, Gwinnett Environmental and Heritage Center*10:20-11:05
CLASSROOM
1

Need science resources? Our Shared Forests is a multicultural, environmental education project that connects local education to global conservation. It includes standards-based instructional units, and science night activities. Attendees in this session will participate in a selection of the program's 25 hands-on stations and learn about OSF lesson plans and activities, as well as how to obtain the kit and bring this curricula to their school or community.

AA

GREENING STEM PANEL DISCUSSION*Catherine Padgett, Ford Elementary School
Additional Panel Speakers TBA*10:20-11:05
AUDITORIUM

Join classroom teachers who have implemented successful environmental education programs at their schools for an open discussion on how to incorporate STEM and EE in your curriculum.

AA

GEORGIA ADOPT-A-STREAM*Anne Stahley, Georgia Adopt-A-Stream*10:20-12:00
OUTDOORS:
BRADY
LAKESIDE
PAVILION

Come outside to learn more about how you can participate in the Georgia Adopt-A-Stream program and join hundreds of volunteers who monitor the health of their local waterways. Find out how to take the program into your classroom! While AAS is largely a citizen-based science program, teachers throughout the state have found ways to incorporate the material into their classrooms. Attendees will participate by conducting water quality tests outdoors.

AA

THE NATURALIST'S JOURNAL: A TEACHING TOOL TO STUDY STEAM*Tom Howick, Chattahoochee Nature Center*10:20-12:00
OUTDOORS:
KINGFISHER
HALL

This hands-on session will demonstrate how to use a journal as a teaching tool in an outdoor classroom. Increase your students' powers of observation and improve their retention of experiences. Noss (1996) states that scientific abstraction and fancy technologies are no substitutes for the wisdom that springs from knowing the world and its creatures in intimate, loving detail. Documenting observations for future reference provides the opportunity to be creative and use skills from other disciplines. Keeping a journal fosters a variety of skills including observation, critical and creative reasoning, communication and drawing. It provides an opportunity to synthesize your observations and to integrate them with your knowledge of biology other disciplines.

AA

McSTReAM! INTEGRATING PROJECT WET, MAGIC, READING, AND THE ARTS WITH STEM EDUCATION*Jo Adang, Georgia Project WET*10:20-12:00
PLAZA
CONFERENCE
ROOM

Learn to create a rigorous and relevant Project WET experience using STEM, reading and art. Then bring fun and joy by adding magic! We will explore the many opportunities to connect seamlessly to the various disciplines, making learning fun and joyful with a new set of WET Magic Tricks to share with you! You do not need to be WET certified to attend. Take home your own set of magic materials for just \$10!

AA

BEST PRACTICES IN ENVIRONMENTAL STEWARDSHIP AND PROJECT BASED LEARNING*Karan Wood, Captain Planet Foundation*10:20-12:00
DOUBLE
CLASSROOM

This hands-on workshop will offer tips and techniques for managing students outdoors; share strategies for facilitating environmental stewardship; and present best practices for facilitating project-based learning: a key component of any effective STEM program. Participants will try out hands-on activities, watch short film clips of teachers leading exemplary projects, and take home DVDs with lesson plans for easily-replicated stewardship projects that make science relevant and exciting.

AA

PLANTS OF THE MUCK & MIRE*Jerry Hightower, United States National Park Service*10:20-12:00
CLASSROOM
2

Participants will investigate and identify common wetland plants, then take it a step further by dissecting and examining them under magnification, as well as sketching them in their journals. Discussion will include historic uses as medicine, dye, food, and fiber. The natural structures of the plants will be compared to human structures such as bridges, buildings, and plumbing. Using the fine-grained wetland muck as paint, the participants will create wetland journal covers by painting designs inspired by African mud painting.

AA

GRANTSEEKING FOR ENVIRONMENTAL PROGRAMS*Rochelle Dennis, Beak Consulting*11:15-12:00
AUDITORIUM

Grant writing is a specialized skill that can supplement and enhance projects and programming. This workshop is designed to provide basic information and skills in grant writing, with an emphasis on prospecting tips to help identify foundations, corporation and government grant programs, and how to approach different kinds of grant makers. Participants will learn how to avoid common mistakes applicants make, and develop realistic objectives, activities and budgets.

AA

GROWING TOWARDS THE FUTURE*Catherine Padgett, Ford Elementary School*11:15-12:00
CLASSROOM
1

Ford Elementary, a recipient of the 2013 National Green Ribbon School Award, will be sharing their 20 year journey towards project-based, place-based learning through environmental education. Integrated EE curriculum will focus on the Math Garden, the Victory Garden Project, Evening in the Garden, and the new Social Studies Word Garden. Teacher developed STEM curriculum will link outdoor learning to the content. The projects will be shared through videos, lesson plans, resources and Q&A.

AA

BIRDS, BUTTERFLIES, BOOKS, AND STEM*Steve Rich, Georgia Youth Science and Technology Center*11:15-12:00
CLASSROOM
3

Learn how a former First Lady planned a series of butterfly gardens and discover the skills needed to engineer a bird nest. Use related children's literature to share these projects with students. This session will provide STEM resources for environmental educators through the use of natural materials such as bird nests and animal artifacts, as well as a variety of children's books and smart phone apps.

MS

**GEORGIA MODEL WATER TOWER COMPETITION -
AN INTRODUCTION TO WATER ENGINEERING**

Stephen Hogan, Keisha Thorpe, and Amy Warnock, Georgia Association of Water Professionals

1:30-2:15
AUDITORIUM

The Georgia Model Water Tower Competition is a fun-filled, science-oriented contest that introduces middle school students to engineering and the water profession. It challenges students to develop an idea into a functioning water tower, much like water professionals do in the real world. Students must design and build a working tower that is structurally and hydraulically efficient based on engineering concepts and formulas. Currently held in Henry County, the goal is to expand to other counties in the future. This session will give an in depth overview of the competition and demonstrate how engineering can be incorporated into the middle school curriculum. Attendees will have an opportunity to observe the operation of a model water tower and engage in discussion on how this concept can be integrated in the classroom.

AA

EVALUATING YOUR OUTDOOR PROGRAM

Heather Brasell, Advanced Training for Environmental Education in Georgia (ATEEG)

1:30-2:15
CLASSROOM
3

How do you know if your outdoor program is effective? Participants will examine varied strategies for evaluating the effectiveness of their outdoor programs. Brainstorm ways to collect and analyze qualitative and quantitative evidence to assess the impact of a program on students' knowledge, attitudes and intended behaviors. Discussion will include practical and theoretical considerations when designing assessments.

AA

ENGINEERING RAIN BARRELS

Kathleen Lemley, Cobb County Watershed Stewardship Program

1:30-3:10
OUTDOORS:
KINGFISHER
HALL

In this engineering design challenge, participants will brainstorm, design, and build a rain barrel and learn how to incorporate this challenge into the classroom. Discussion will include the benefits of rain barrels in preventing stormwater pollution and erosion. Participants will receive a rain barrel to take home. This session requires the use of power tools. All rules and safety guidelines for using the power tools will be discussed prior to the start of the challenge.

AA

EXOTIC INVASIVE SPECIES: THE GUESTS THAT WON'T GO HOME

Kim Bailey, Georgia Department of Natural Resources - Land Protection Branch

1:30-3:10
PLAZA
CONFERENCE
ROOM

Teaching about Invasive Species is an upcoming book from Green Teachers and is designed as a tool kit that teaches about invasive species. Whether working indoors or out, youth educators will find the innovative perspectives, program ideas, games and activities that they need to engage young people from 6-19 years of age in this challenging topic. Participants will model several activities from the book.

AA

ENGAGING STUDENTS IN CITIZEN SCIENCE PROJECTS

Donna Barrett, Metro RESA

1:30-3:10
DOUBLE
CLASSROOM

Get your students engaged in projects that collect and report real data to scientists. You are encouraged to bring a smart phone, tablet or computer, and be prepared to go outdoors! This session will include a variety of citizen science apps and websites relating to earth, life and physical sciences. The goals of the session are to 1) Connect citizen science projects to STEM and GPS; 2) Experience a variety of projects; 3) Discuss ways these projects can be integrated into the curriculum.

PM CONCURRENT SESSIONS

SESSION DESCRIPTIONS

AA

THE VANISHING FIREFLY PROJECT: ENGAGING CITIZEN SCIENTISTS IN ENVIRONMENTAL SCIENCE RESEARCH

Renee Lyons and Michelle Cook, Clemson University

2:25-3:10
AUDITORIUM

Are fireflies disappearing? If so, why? Join Clemson's Vanishing Firefly Project as we showcase a mobile app and other educational resources that everyone - from children to seniors - can use to measure firefly populations in their local communities.

UE

ENVIRONMENTAL INTEGRATED STEM PROJECTS

Hannah Maharaj, DeKalb County School District

2:25-3:10
CLASSROOM
3

Participants will engage in interactive STEM Projects that are correlated to CCGPS and GPS standards. The interactive STEM projects will focus on environmental concepts and skills that aim to make STEM an everyday, integrated activity. Participants will also receive tips on how to successfully incorporate STEM into the classroom.

PLU WORKSHOPS

WORKSHOP DESCRIPTIONS

PK2

GROWING UP WILD

Amanda DePriest, Museum of Arts and Sciences

SATURDAY
OCTOBER 4
9:00-12:00
CNC
AUDITORIUM

Growing Up WILD is an early childhood education program that builds on children's sense of wonder about nature and invites them to explore wildlife and the world around them. Through a wide range of activities and experiences, Growing Up WILD provides an early foundation for developing positive impressions about the natural world and lifelong social and academic skills. The curriculum guide is written especially for early childhood educators of children ages 3-7 and features 27 field-tested, hands-on, nature based, ready-made thematic units. Participants will earn **1 PLU** for attending the workshop in addition to the Symposium. **COST: \$20**

AA

WOW! WONDERS OF WETLANDS

Jerry Hightower, United States National Park Service

SATURDAY
OCTOBER 4
& SUNDAY
OCTOBER 5
9:30-4:30
CHATTAHOOCHEE
RIVER
ENVIRONMENTAL
EDUCATION
CENTER (10/4) &
CHATTAHOOCHEE
RIVER NATIONAL
RECREATION AREA
JOHNSON FERRY
UNIT (10/5)

Join us for hands-on instruction in successful investigations and learning activities for upper elementary through high school students. This workshop will include exciting teaching techniques and strategies for interdisciplinary learning utilizing wetlands. Educators will dissect, investigate, and sketch wetland plants and their structures; learn to differentiate between reeds, rushes, sedges, and other common wetland plants; discover human usages for cordage, food, and medicine; create a wetland plant identification wheel and soils color chart; and learn the mechanisms and benefits of Georgia's wetland habitats. Day 2 will be spent conducting field study investigations of three different wetland types. The discovery activities, journaling, and field investigations are designed to enhance your classroom curriculum in all subjects. All Participants will receive the new and revised 340 page Wonders of Wetlands Curriculum Activity Guide (correlated to GPS), resource materials, and classroom teaching aids. Dress for outdoor activity and wear comfortable shoes. Some activities require some physical exertion. Please bring your lunch each day. Participants will earn **2 PLUs** for attending both days of the workshop in addition to the Symposium OR **1 PLU** for attending both days of the workshop without attending the Symposium. **COST: \$21**

For more information or to register for these workshops, visit

www.eealliance.org/outdoor-learning-symposium. Registration deadline is Friday, September 26.

	OUTDOORS: BRADY LAKESIDE PAVILION	OUTDOORS: MEET AT KINGFISHER HALL	OUTDOORS: MEET AT KINGFISHER HALL	PLAZA CONFERENCE ROOM	AUDITORIUM	DOUBLE CLASSROOM	CLASSROOM 1	CLASSROOM 2	CLASSROOM 3
8:30-9:00	Registration Open								
9:00-10:10	Opening Remarks & Keynote								
10:10-10:20	Transition								
10:20-11:05	Georgia Adopt -A- Stream	The Naturalist's Journal: A Teaching Tool to Study STEAM	Marine Technology in Ocean Exploration	McSTrEaM! Integrating Project WET with STEM	Greening STEM Panel Discussion Grant Seeking for Environmental Programs	Best Practices in Environmental Stewardship & Project Based Learning	Our Shared Forest Growing Towards the Future	Plants of the Muck and Mire	Birds, Butterflies, Books, and STEM
11:15-12:00									
12:00-1:30	Lunch, Buzzard Hike, and Explore the Our Shared Forests Science Night Kit at the Brady Lakeside Pavilion								
1:30-2:15		Engineering Rain Barrels		Exotic Invasive Species: The Guests That Won't Go Home	Georgia Model Water Tower Competition The Vanishing Firefly Project	Engaging Students in Citizen Science Projects			Evaluating Your Outdoor Program Environmental Integrated STEM Projects
2:25-3:10									
3:10-3:20	Transition								
3:20-4:00	Closing Remarks								