



UNCW Science and Mathematics Education Center

CENTER NEWS

a constituent member of the North Carolina Mathematics and Science Education Network

Grant Projects Extend the Center's Reach

In 2009, Dr. Sonja Pyott, UNCW Department of Biology and Marine Biology and Ms. Karen Shafer, Science and Mathematics Education Director, were awarded funding by the North Carolina Biotechnology Center to conduct a Marine Biotechnology workshop. This workshop was filled with teachers from 11 different North Carolina Schools districts and had a waiting list! Teachers studied biodiversity aboard the UNCW R/V (Research Vessel) Cape Fear, toured Brunswick Community College's Aquaculture facility and conducted labs related to developing biofuels from ocean organisms, learned about marine pharmacology in the lecture "Brevetoxin: from Red Tides to Cystic Fibrosis" and proposed the development of new products through application of biomimicry principles.

The Center's recent engagement with local school districts has focused on partnering on math/science partnership grants. The goal of math/science partnerships is to "improve the mathematics and science knowledge of North Carolina students in high-need school districts by providing professional-development activities to their mathematics and science

teachers." (MSP RFP, page 2) The Center has partnered with excellent content professors to fulfill the requirement of MSP projects that faculty in STEM departments directly lead professional development sessions. Below are updates on our three MSP projects, PIMUST, MAST and Bridges.

The Columbus County School district is in year 3 of the PIMUST project, Partnership for Improving Mathematical Understanding of Students and Teachers. Carol Midgett and Eleanor Pusey serve as math content coaches for elementary and secondary math teachers respectively. Dr. Dargan Frierson and Dr. Gabriel Lugo, UNCW Department of Mathematics and Statistics, team with Ms. Midgett and Ms. Pusey in planning and delivery of the summer workshops. Dr. Laurie Patterson, UNCW Department of Computer Science, oversees the development and production of podcasts from the professional development sessions which are posted for review and instruction to all Columbus County teachers.

Brunswick County Schools are in year 1 of the MAST project, Math

Achievement Success Today. Cindy Gullledge is the district and project coach for MAST with a content focus on secondary math. Working with Ms. Gullledge, Dr. Ginger Rhodes and Dr. Gabriel Lugo, UNCW Department of Mathematics and Statistics, planned and delivered the first year content course titled Algebraic Reasoning. Ms. Diane Calhoun, UNCW Watson School of Education, led Lesson Study training for the participants during the school year. Planning for year 2 workshops is underway with a content focus on geometry and reading strategy training through SITE CARSAM (Content Area Reading in Science and Math).

The Bridges project, a collaboration between Onslow County Schools and Carteret County Schools, is in year 1. This K-5 math project is led by Mr. Michael Elder, Onslow County Schools. UNCW Mathematics and Statistics faculty members Dr. Ginger Rhodes and Dr. Gabriel Lugo have been joined by Dr. Shelby Morge, UNCW Watson School of Education, in the planning and delivery of the content professional development to 90 teachers.

Southeast Regional Science Fair

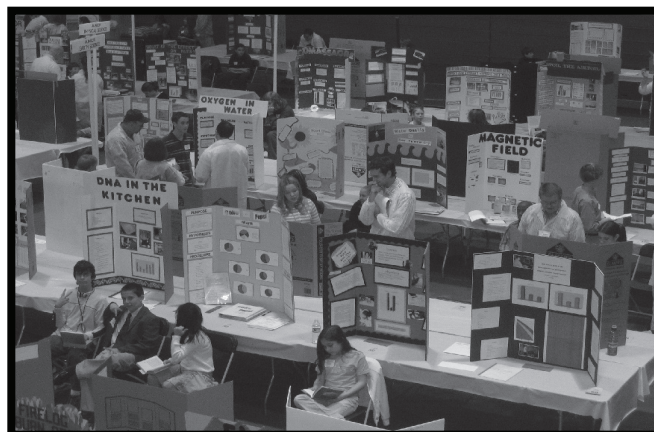
This spring, the Center will host the Southeast Regional Science Fair for students from 10 counties in our service area. The Southeast Regional Science Fair will be held Saturday, February 20, 2010 in Hanover Gymnasium on the UNCW campus. If you have questions about the fair in your area, please contact your county science fair representative:

Brunswick County	Amanda Richardson	910.253.2961	arichardson@bcswan.net
Clinton City	Nancy Dillman	910.592.3132, x1102	ndillman@clinton.k12.nc.us
Craven County	Stephany Del Re'	252.675.2323	stephany.johnson@craven.k12.nc.us
Jones County	Rene Gaskins Jeannie Smith	252.224.8070 252.224.8071	rene.gaskins@jonesnc.net jeannie.smith@jonesnc.net
Lenoir County	Dorothy Stroud	252.525.0012	dstroud@lenoir.k12.nc.us
New Hanover County	Karen Greene	910.254.4335	kgreene@nhcs.net
Onslow County	Michele Halley	910.455.2211, x20214	michelehalley@onslow.k12.nc.us
Pender County	Molly White	910.259.2187	molly_white@pender.k12.nc.us
	Michelle Hafey	910.285.2761	michellehafey@pender.k12.nc.us
Sampson County	Bryon Bass	910.592.1401	byronb@sampson.k12.nc.us
	Becky Jackson	910.532.1401	bjackson@sampson.k12.nc.us
Sampson Early College	Linda Jewell-Carr		ljewell-carr@sampsoncc.edu
Wayne County	Ralph Smith	919.705.6193	ralphsmith@wcps.org
Arapahoe Charter School	Gale Sensenig	252.249.2599, x1130	gale.sensenig@arapahoe.charter.k12.nc.us
Cape Fear Center for Inquiry	Indira Grimes	910.362.0000	igrimes@cfci.net
Classical Conversations of Wilmington	Melba Lingenfelter	910.602.1344	alingenfelter@ec.rr.com
Coastal Christian High	Krysten Scott Rivenbark	910.395.9995	scottk@coastalchristian.net
Crystal Coast Classical Conversations	Lisa Roska	910.325.7208	lisaroska@ec.rr.com
Infant of Prague	Father William Learn Wuan	910.787.6712	friars1@ec.rr.com
St. Mark Catholic School	Donna Frazelle	910.392.0720, x230	dfrazelle@stmarkcatholicsschool.org
St. Mary Catholic School	Karen Brown	910.762.5491, x34	kbrown@ec.rr.com
Wilmington Christian Academy	Edith Marsh	910.791.4248, x328	emarsh@wilmingtonchristian.com

Additional information about the fair, as well as science fair resources, can be accessed online at:

<http://www.uncw.edu/smec/sciencefair.html>

Eligible winners from the Regional Science Fair will be invited to compete at the State Science Fair held March 26 - 27, 2010 at Meredith College in Raleigh. For more information visit the NCSTA website: <http://www.ncsta.org/sciencefair>.



Competitions

SCIENCE

Regional Science Fair	February 20	UNC Wilmington
Regional Science Olympiad (Wilmington)	March 13	UNC Wilmington
Regional Science Olympiad (Kinston)	March 20	Lenoir Community College, Kinston
State Science Fair	March 26-27	Meredith College, Raleigh
State Science Olympiad Tournament	April 23-24	NC State University, Raleigh
Intel International Science and Engineering Fair (ISEF)	May 9-14	San Jose, California
National Science Olympiad Tournament	May 21-22	Urbana-Champaign, Illinois
Young Scientist Challenge	Late Fall	Washington, D.C

MATHEMATICS

Wilmington Chapter MATHCOUNTS Competition	February 27	Cape Fear Community College
NCCTM Eastern Regional Math Fair	March 12	East Carolina University
State MATHCOUNTS Competition	March 19	NC School of Science and Math, Durham
UNCW High School Math Contest	March 23	UNC Wilmington
National MATHCOUNTS Competition	May 6-90	Orlando, Florida

* For more information on MATHCOUNTS, please visit www.mathcounts.org.

* For more information on the UNCW High School Math Contest or the NCCTM Eastern Regional Math Fair, please visit www.ncctm.org and click on Math Fairs.

Science and Math Organizations

National Lab Day is more than just a day. It's a nationwide initiative to build local communities of support that will foster ongoing collaborations among volunteers, students and educators. Volunteers, including university students, scientists, engineers, other STEM professionals and community members, will work together with educators and students to improve labs and discovery-based science experiences for students in grades K-12. During the first week of May 2010, National Lab Day activities will be competed across the country. Visit National Lab Day and read more at <http://www.nationallabday.org>.

The North Carolina Council of Teachers of Mathematics (NCCTM) is a professional organization that supports mathematics teachers and professionals across North Carolina. NCCTM membership benefits include conferences, access to mathematics publications, activity resource manuals, awards and recognition, as well as leadership development and networking opportunities. For more information about NCCTM and to download a membership form, visit their website www.ncctm.org.

The North Carolina Science Teachers Association (NCSTA) is a professional educational organization that is designed to provide support for science educators across North Carolina. NCSTA membership benefits include leadership and professional development opportunities, awards and recognition for outstanding service, an active grant program and annual state conference with workshops, presentations and time to network with other professionals. For more information about NCSTA and to obtain a membership form, visit their website www.ncsta.org.

The North Carolina Science Leadership Association (NCSLA) is affiliated with the National Science Education Leadership Association and the North Carolina Science Teachers Association (NCSTA). NCSLA provides opportunities for science educators at all levels to exchange ideas, promote the cause of quality science instruction, and influence the creation of policies and legislation. For more information about NCSLA and to download a membership form, visit their website www.ncsla.net.



UNCW hosts one of six Summer Ventures in Science and Mathematics (SVSM) programs administered by the North Carolina School of Science and Mathematics. SVSM is a cost-free, state-funded program for academically talented high-school students who may pursue careers based in science and mathematics. The program brings rising juniors and seniors together in residential settings for four weeks of intensive study on a university campus (Appalachian State University, East Carolina University, North Carolina Central University, University of North Carolina Charlotte, University of North Carolina Wilmington or Western Carolina University).

UNCW's 2009 student population of 48 rising high school juniors and seniors consisted of 32 females and 16 males representing 44 different high schools in 29 counties. Our Summer Ventures students had an average GPA of 3.86 and 14 of them carried a 4.0 GPA.

The program's success reflects the collaborative efforts of many university personnel. Dr. Gabriel Lugo, Mathematics and Statistics, coordinated high quality instruction provided by UNCW College of Arts and Sciences faculty. This is a major factor contributing to the program's exemplary reputation. The 2009 instructors were: Dr. Doug Gamble, Geography and Geology; Dr. Gabriel Lugo, Mathematics and Statistics; Dr. Scott Simmons, Anthropology; and Dr. Michael Smith, Geography and Geology.

Special instructional seminars were given by Dr. Timothy Ballard, Biology and Marine Biology; Dr. Kenneth Diehl, Watson School of Education; Dr. James Reeves, Chemistry; and Dr. Ronald Vetter, Computer Science.

Master level high school instructors also assisted in course instruction and included Mr. Gary Cavender, South Brunswick High School; Mr. Steve Clark, South Brunswick

High School; Ms. Jessica Croson, Heide Trask High School; and Mr. Craig Rankin, New Hanover High School.

Ms. Kim Cavender, Residence Hall Administrator, coordinated and facilitated the residence life program.

Students were assigned to one of 4 courses: Arachaeology in the Cape Fear, Coastal Geology, Coastal Physical Geography and Computer Applications in Physics.

Each fall, the State SVSM Coordinator's Office sends brochures and applications to the guidance counselor's office in every North Carolina high school. Please encourage your students to check out the information in the brochure or on the Summer Ventures' website at <http://www.summerventures.org>. The application is also available online at this website. Remember the deadline for submitting applications to the North Carolina School of Science and Mathematics is January 31st, 2010.

Summer Ventures Catalyst Award Winners

The culmination of the SVSM program is student presentations on their research focus. These presentations are conducted in the style of a professional scientific meeting. Up to two projects per campus are recognized each summer in a program that is known as the SVSM Catalyst Awards.

Students representing all six of the SVSM campuses present mathematics/technology research at the North Carolina Council of Teachers of Mathematics' October state meeting. Award winners for research in science present at the North

Carolina Science Teachers Association's November meeting. The SVSM's State Coordinator's Office coordinates these presentations and collects, publishes and disseminates selected research papers.

The SVSM Catalyst Awards represent an important paper presentation experience for selected students and has been well received by the educators attending the professional meetings. This year's presentation was titled "A Study of Light Diffraction and Applications in

Spectroscopy" and its presenters were Kathryn Driest of North Mecklenburg High School and Morgan Welch of Jimmy C. Draughn High School.

Dr. Gabriel Lugo, Mathematics and Statistics, was the faculty instructor for this year's winners of the SVSM Catalyst Awards for UNC Wilmington.



2009 Summer Workshop Participants

Thanks to all of our participants for making our 2009 workshops a great success!

Marine Biotechnology

Instructors: Dr. Sonja Pyott, Dr. Tim Henkel, and Ms. Zoe Welsh

- Kimberly Etheridge, Mecklenburg
- Dori Hess, Cumberland
- Robert Howell, Mecklenburg
- Carrie Jones, Wake
- John MacNair, Mecklenburg
- Rita Moffett, Brunswick
- Christine Mullins, Rowan
- Marilyn Pendley, Catawba
- Justyn Phelps, Vance
- David Pizzolato, Buncombe
- Sharon Roseman, Catawba
- Claudia Salazar, Catawba
- Frances Thomas, Brunswick
- Tangela Wallace, Guilford
- Lisa Wear, Rowan
- Anthony Williams, Wayne

BRIDGES K-5 Algebraic Reasoning

Instructors: Dr. Shelby Morge and Dr. Ginger Rhodes

- Michelle Alford, Onslow
- Dawn Allan, Carteret
- Jason Barnes, Onslow
- Jeanne Brown, Carteret
- Cristy Carpenter, Carteret
- Dora Edwards, Carteret
- Kristin Everett, Carteret
- Merrie Funtal, Carteret
- Renée Gilpin, Carteret
- Suzanne Gordon, Onslow
- Pam Horne, Onslow
- Kimberly Hughes, Carteret
- Shelley King-Newsome, Onslow
- Ashley Knauff, Carteret
- Susan Krieger, Onslow

- Talley Long, Carteret
- David Marriott, Onslow
- Elizabeth McCallister, Onslow
- Connie Oliver, Onslow
- Matt Scheuering, Onslow
- Gwen Shaw, Onslow
- Diana Seufer, Onslow
- Sherry Simmons, Carteret
- Barbara Tamberlin, Carteret
- June Vanne, Carteret
- Dana Walker, Onslow
- Stacy Williams-Pant, Onslow
- Alexandra Williamson, Carteret

SMEC: 3-5 Science Workshop

Instructors: Dr. Dennis Kubasko and Ms. Beth Brampton

- Lisa Andrews, Brunswick
- Phyllis Chisholm, Brunswick
- Michelle Davis, Brunswick
- Michael Gifford, Brunswick
- Marie Hostetter, New Hanover
- Ginny Pridgen, Brunswick
- Priscilla Prince, Brunswick
- Hollie Pritchard, Brunswick
- Frances Standaert, Brunswick

SMEC: K-2 Science Workshop

Instructors: Mr. Brian Brinkley and Ms. Ambie Hower

- Candace Hart, Brunswick
- Maria Hill, Brunswick
- Robin Gaskins, Brunswick
- Kathy Keifer, Brunswick
- Wanda McLamb, Brunswick
- Maggie Reed, Brunswick
- Holly Sellers, Brunswick
- Bonnie Stanley-Verzella, Brunswick
- Jodie Yantachka, Brunswick

MAST 6-12 Algebraic Reasoning

Instructors: Dr. Gabriel Lugo, Dr. Ginger Rhodes and Ms. Cindy Gullede

- John Ball, Brunswick
- Amber Bollinger, Brunswick
- Ben Chapman, Brunswick
- Lindsay Christensen, Brunswick
- Rhonda Crute, Brunswick
- Wilma Dale, Brunswick
- Karen Deibel, Brunswick
- Kathy Evans, Brunswick
- Michael Garrette, Brunswick
- Thess Graham, Brunswick
- Bryan Hayes, Brunswick
- Jerome Hoskins, Brunswick
- Michael Kah, Brunswick
- Dave Kesler, Brunswick
- Jamie Madren, Brunswick
- Kim McCuiston, Brunswick
- Robin McEnaney, Brunswick
- Donna McLveen, Brunswick
- Ashley Nanney, Brunswick
- Judy Petersen, Brunswick
- Jennifer Piatak, Brunswick
- Kim Robbins, Brunswick
- Maggie Rollison, Brunswick
- Rae Salargo, Brunswick
- Alexis Saunders, Brunswick
- Kelly Slade, Brunswick
- Katherine Smith, Brunswick
- Tiffany Surles, Brunswick
- Sheila Swain, Brunswick
- Ken Tucker, Brunswick
- Laura Tumminello, Brunswick
- Karen Walker, Brunswick
- Jennifer Williams, Brunswick
- Brandie Wilson, Brunswick
- Randy Young, Brunswick

Welcome Rick Demolina, Assistant Director of SMEC!

Welcome to the Spring edition of the SMEC Center News. When we first started discussing this issue and its contents, I realized that despite having joined the SMEC team 10 months ago, I have not had the opportunity to introduce myself to many of you. With that in mind, I thought I would write a brief introduction.

My career started after college working as a project manager for a design/build industrial construction company. In that time I studied and learned much about engineering and honed the math skills I would later rely on to teach high school students. The experience was valuable not only for learning math, but also for giving me a foundation on real world applications of many of the concepts that I would be teaching, experience which I was able to bring to my students.

After 12 years in private industry I was ready for a change and decided to pursue my interest in math and working with kids. I started out teaching 5 periods a day of 7th grade pre-algebra in a school whose student population was 90% English



Language Learners and 90% free and reduced lunch. What an eye opening experience! The students had incredible potential and desire but were faced with every day challenges that most of us cannot even imagine. I continued to enjoy teaching in the same district to the same student population at the middle and high school for four years prior to coming Wilmington.

Arriving in Wilmington I went to teach high school in Pender County where I taught everything from Algebra to AP Calculus. Now in my new role as Assistant

Director of SMEC, I hope to draw on my past professional experience to represent the voice of teachers here at our local center as well as at the state network in developing programs which will meet their needs and those of their students.

As a first generation Cuban-American who grew up in two cultures speaking two languages, I also feel a connection to the English Language Learners in our system. I will try to bring focus to their unique circumstances and leverage the resources available at our center to improve their education. Finally, I hope to hear from you, the teachers, administrators, faculty and staff, who work tirelessly every day to deliver and improve education. I would like to hear your thoughts and ideas on how we can serve education and together ignite the interest in science and math in students.

Rick Demolina,
Assistant Director
demolinar@uncw.edu

Teacher Resources

Intermediate Math Kits:

Reinforce critical math concepts and build problem solving skills with ETA Cuisenaire Intermediate Math Manipulative Kits. SMEC currently has three sets of these kits available to teachers for check out via the Technology Loan Program.

Kits include:

- Base 10 Blocks
- Tangrams
- Mirrors
- Tape Measures
- Fraction Tiles
- Number Tiles
- Hundred Boards
- Dice
- Geoboards
- Trundle Wheels
- Safety Compasses
- Wooden Geometric Solids
- Big Thermometers
- Protractors
- Super Bucket Balances
- SuperSource Books and CDs

Interested in checking out these kits? Please contact SMEC at 910.962.3168 for loan availability.

Free Online Resources:

- Interactives: Provides educators and students with strategies, content and activities that can improve students' skills in math and science. www.learner.org/interactives
- National Library of Virtual Manipulatives: Library of interactive, web-based virtual manipulatives related to the NCTM standards for each age group. Each activity includes instructions, the related NCTM standard, and a detailed lesson plan. <http://nlvm.usu.edu/en/nav/vlibrary.html>
- NOAA's National Ocean Service Discovery Kits: Describe the scientific principles underlying the applied science and activities of NOAA's National Ocean Service. The tutorials, roadmaps, and lesson plans within them are designed to work together, but are comprehensive enough to be used on their own. <http://oceanservice.noaa.gov/education/welcome.html>

Mathematics

1) A hunter walks a mile south, a mile east and a mile north and finds himself back at the starting point. A bear walks by. What color is the bear?

2) Assuming a spherical Earth, how many places on Earth could a man walk a mile north, a mile west and a mile south and find himself at his starting point?

Answers below.

1) Answer: White. The North Pole would be the only place on Earth where a person could do this so the bear would have to be a Polar Bear.
2) Answer: Infinite. He walks a mile north toward the North Pole. Now if he is on a circle centered at the pole with circumference of 1 mile, he will walk the entire circle when he goes west and arrive back to where he is, hence walking south 1 mile to where he started. Of course, two navigations of the circle will work too, and 3, 4, 5, etc. If r is the radius of the circle then the circumference of the circle is $2\pi r$ and we want $2\pi r = 1$ mile where n is the number of circumnavigations he takes. So $r = 1/(2\pi n)$, where n is any natural number.

Science

If you're looking for interesting explanation for how things work and fun quizzes to test your knowledge visit <http://www.howstuffworks.com/>, a Discovery Company site.

The site has categories covering Adventures, Animals, Auto, Communication, Computer, Electronics, Entertainment, Food, Geography, Health, History, Home & Garden, Money, People, and Science. You can visit the Science link and put together an electronic jigsaw puzzle of the Eskimo Nebula or the Animals link and read why frogs may be on their way to extinction. Want to know more about light, check out <http://science.howstuffworks.com/light2.htm>.



NEWS FLASH...

SMEC has moved on-campus!

We are now located in King Hall in Room 206.
Our mailing address and contact numbers have not changed.
Please see below for information on how to contact us!

*601 South College Road
Wilmington, NC 28403-5976*

*(800) 258-2629 toll-free
(910) 962-3168 by phone
(910) 962-4000 by fax*

*<http://www.uncw.edu/smec>
smec@uncw.edu*