

Mathematics & Science Education Center

2009 DATES TO REMEMBER

Feb. 24, March 17, March 26, April 2, April 6: Concluding Darwin Bicentennial Lectures at ASU

Feb. 21: NCCTM Western Regional Math Conference, Jacobs Fork Middle School, Newton

March 19-22: NSTA National Conference in New Orleans

March 28: Western Region Math Fair, Plemmons Student Union, ASU

April 22-25: NCTM Annual Meeting and Exposition in Washington, D.C.

June 15-19: NC-MSEN SITE: 6-8 Science; SITE: Geometry (MELT); Integrated Math (MELT)

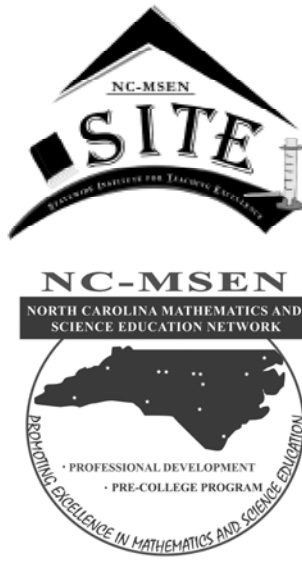
June 22-26: NC-MSEN SITE: 3-5 Science; SITE: AFM; SITE: Algebra (Pilot)

July 13-17: Integrating Middle School Mathematics (MELT); Purposeful Pedagogy (MELT)

July 20-24: NC-MSEN SITE: Biology; Exploring Mathematics with the TI-Nspire

October 29-30: NCCTM State Math Conference, Greensboro

November 19-20: NCSTA Annual Professional Development Institute, Greensboro



- Visit our website at www.msec.appstate.edu -

Math & Science Education Center: Phone: 828/262-3185, Fax: 828/265-8677, Email: johnsnpe@appstate.edu

MSEC Staff: Phillip Johnson, Director; Betty Long, Assistant Director;

Lori Tyler, Summer Ventures in Science and Mathematics Director; Vickey Isaacs, Administrative Assistant

Editor: Phillip Johnson; Assistant Editors: Vickey Isaacs, Betty Long and Lori Tyler

Appalachian
STATE UNIVERSITY

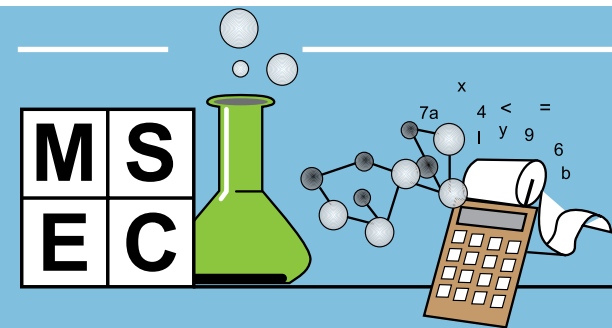
Mathematics and Science Education Center

Walker Hall, Room 222

P.O. Box 32091

Boone, North Carolina 28608-2091

U.S. POSTAGE
PERMIT NO. 36
PAID
NON-PROFIT ORG.
BOONE, NC



SPRING 2009

Appalachian State University MATHEMATICS & SCIENCE EDUCATION CENTER

SUMMER 2009 PROFESSIONAL DEVELOPMENT OPPORTUNITIES

NC-MSEN SITE Program

The North Carolina Mathematics and Science Education Network Statewide Institute for Teaching Excellence (NC-MSEN SITE) Program will offer three mathematics institutes and three science institutes on the ASU campus during summer 2009. The SITE math courses are offered in cooperation with Appalachian's Mathematics Education Leadership Training (MELT) Program. Contact Ms. Vickey Isaacs (isaacsve@appstate.edu) or visit www.msec.appstate.edu for further information and registration forms for the science programs or Ms. Diana Ward (828.262.2360 or www.melt.appstate.edu) for the math programs. For all the science programs, funding is available to allow a second teacher from a school system to attend free after payment for one teacher. The funding has the dual purpose of encouraging teams of teachers from school systems and of making professional development more affordable.

SITE: 3-5 Science is a two-week institute, one week in summer 2009 and one week in summer 2010, that will focus on four major science themes (**Rock Cycle, Ecology, Energy/Forces, Weather and Climate**) that cut across the *North Carolina Standard Course of Study for Science*, Grades 3-5. **2009 Dates:** June 22-26; **Location:** Room 070, Rankin Science West; **License Renewal Credits:** 6.0; **Fee:** \$300 each summer; **Instructors:** Lou Moore and Judy Sink.

SITE: 6-8 Science is a two-week institute, one week in summer 2009 and one week in summer 2010, that focuses on major themes that cut across the *North Carolina Standard Course of Study for Science*, Grades 6-8. The institute is designed to deepen participants' science content knowledge and to strengthen their ability to teach science through inquiry. Emphasis is placed on the integration of literacy, mathematics, and technology into the science curriculum and on the use of authentic assessments. Institute topics are **Life Systems** (human body, microbiology, pandemics) and **Earth Systems** (hydrosphere, lithosphere, and population dynamics). **2009 Dates:** June 15-19; **Location:** Room 070, Rankin Science West; **License Renewal Credits:** 6.0; **Fee:** \$300 each summer; **Instructors:** Jeff Goodman and Leslie Bradbury.

SITE: Biology will help teachers more effectively implement the *North Carolina Standard Course of Study* for high school biology. Content material and pedagogical strategies will focus on respiration, photosynthesis, energy transfer in ecosystems, gene regulation, evolution, adaptation and unity and diversity of life. Content misconceptions, concept mapping and reading strategies will also be covered. **Dates:** July 20-24; **Location:** Room 177, Rankin Science West; **License Renewal Credits:** 3.0; **Fee:** \$300; **Instructors:** Max Dass and Amy Bradley.



Mathematics Education Leadership Training (MELT)
Seven MELT Institutes will be held during summer 2009:

- June 15-19: SITE: Geometry; Integrated Math
- June 22-26: SITE: Advanced Functions and Modeling; SITE: Algebra (Pilot)
- July 13-17: Integrating Middle School Mathematics; Purposeful Pedagogy
- July 20-24: Exploring Mathematics with the TI-Nspire

The MELT Institutes are open to all high school mathematics teachers and two-year college mathematics faculty and to middle school mathematics teachers who have a strong background in mathematics. **Location:** Walker Hall; **Credits:** 3 license renewal credits or, for an additional fee, 2 graduate credits; **Fee:** \$330. Dr. Doug Jones (jonesd@appstate.edu), distinguished professor of mathematics education, directs the MELT program and Ms. Diana Ward (wardrd@appstate.edu) is the program's administrative assistant.

Middle School Teachers:
For a special week-end program in science, see page 3 of this newsletter.

DARWIN BICENTENNIAL

The events of the Darwin bicentennial celebration have drawn large and enthusiastic crowds all year. If you have not been attending these programs, we encourage you to come and join the rest of us for any or all of the remaining lectures in 2009:

- Feb. 24: Sean Carroll of the University of Wisconsin (Farthing Auditorium)
- March 17: Paul Ewald of the University of Louisville (Powers Hall, Broyhill Inn and Conference Center)
- March 26: Jonathan Weiner of Columbia University (Blue Ridge Ballroom, Plemmons Student Union)
- April 2: Elisabeth Lloyd of Indiana University (Blue Ridge Ballroom)
- April 6: Niles Eldredge of the American Museum of Natural History (Farthing)

All talks are presented at 8:00 p.m. and are free and open to the public. Teachers may earn license renewal credits for attending these and affiliated events. For more information on the speakers and their topics, along with other activities related to the bicentennial celebration, visit <http://universityforum.appstate.edu>. For information concerning receiving license renewal credits, contact johnsnpe@appstate.edu.

NC-MSEN Celebrates 25 Years

The North Carolina Mathematics and Science Education Network (NC-MSEN) is 25 years old. In addition to statewide events to mark this milestone, celebrations are planned at the eleven UNC centers that comprise the Network. From its beginning, NC-MSEN has provided high quality professional development programs for K-12 mathematics and science teachers.



Most centers also have a Pre-College Program that provides math and science enrichment programs for students from grades 6-12. In addition to providing math and science workshops, institutes, and seminars, the ASU center maintains well-stocked resource rooms and a math education library from which teachers may check out materials and books to aid their teaching. We subscribe to journals related to teaching math and science and furnish free copies of any articles from them. Also available are various science posters that could be used to advantage in a classroom. As part of our twenty-fifth anniversary celebration and to show off what we have available at the ASU center, we are planning an open house with refreshments later in the spring; watch for the announcement of details on our website at www.msec.appstate.edu. We hope you will join us in celebrating our 25 years.

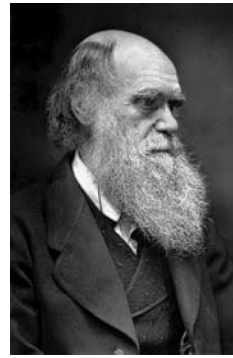
USING SCIENCE NOTEBOOKS IN ELEMENTARY SCHOOL

Keeping science notebooks can be effective in helping students learn science. The series of three workshops that were jointly sponsored by NC State University and Appalachian State University in the past will hopefully be repeated in fall of 2009. Budgetary constraints and staffing problems made impossible the offering of the workshops this spring as we had hoped to do. Watch our website www.msec.appstate.edu for dates, syllabus, and registration form. Some details of what to expect in the workshops:

- Learn to Use, Assess and Evaluate Science Notebooks
- Research-based Inquiry Approach
- Classroom Proven to Improve Student Performance
- Ready for Immediate Classroom Use
- 3 License Renewal Credits in Reading or Science for completion of all three workshops and two classroom projects
- Low Cost: \$200 for the series of three workshops. No partial attendance; no refunds

ASU MATH CAMP

The twelfth annual ASU Math Camp for rising sixth to twelfth graders, sponsored by the Department of Mathematical Sciences and the Mathematics and Science Education Center, will take place July 13-16. Camp instructors are ASU math professors. Math Camp is from 6:00-9:00 p.m. each of the four evenings. Some of the activities include hands-on work with graphing calculators and computers, competitions, group interaction, prizes, snacks, fire-side chats (without the fire), and magic tricks that introduce algebra word problems. Real-world problems will answer the question, "What is math good for?" The cost of the camp is \$120 per student which includes instruction for 12 hours, limited accident illness insurance, certificates, awards, trophies, and snacks. For program information, contact Dr. Anita Kitchens (director) at (828)264-0181/262-2368.



NEW: EXTEND YOUR EXCITEMENT With *Extended Math Camp!* Can't get enough? Think you might want to teach? *Extended Math Camp* is for you! With the help of the Burroughs Wellcome Fund, ASU is offering its second *Extended Math Camp* for rising 9th-12th graders. From 1:00-5:00 during the week of Math Camp (July 13-17) twelve Math Camp participants who are selected to participate in *Extended Math Camp* will work on developing richer understandings of mathematics and of the teaching field. Important core mathematics concepts will be explored with other students from Summer Ventures in Science and Mathematics and with selected Mathematics Teachers who are dedicated to improving their own teaching and helping to develop the next generation of teachers. Activities begin during the week of Math Camp and continue with monthly problem solving contests that extend the concepts of the week. All students will be given the opportunity to attend the North Carolina Council of Teachers of Mathematics annual meeting in Greensboro in October, 2009 and the year will culminate with a final problem solving contest on the ASU campus in April, 2010. In exchange for their participation through the year, *Extended Math* campers will be paid a stipend of \$500, half of which is paid in October and the other half in April. Applications are being accepted now. Applicants must have an aptitude in mathematics and be considering becoming a mathematics teacher. All applicants must obtain a letter of recommendation from a math teacher who knows their work. Selection of participants will be made in April.

MSEC PROGRAMS FOR K-12 STUDENTS

The Math and Science Education Center is always pleased to arrange math or science programs for visiting students. We have had large numbers of middle school students, mostly from the **GEAR UP** program, enjoying special science presentations arranged by the MSEC. In March, we will have the first high school group from the GEAR UP program visiting the campus. GEAR UP is a federally-funded program to increase academic ability and college preparation of middle and high school students from low-income schools. We are happy to arrange math or science programs for any student groups that are visiting campus.

Family Math and Family Science nights in elementary and middle schools involve students and their parents exploring together interesting facets of mathematics and science. Family Math and Family Science nights are fully subscribed for this semester, but will be available again in the fall. Also popular are presentations for grades 3-9 classes on rocks, minerals, North Carolina geology, the Blackbeard shipwreck, geo-archaeology project or other geology topics. The MSEC is pleased to offer these programs at no cost to the schools. Contact Ms. Vickey Isaacs at isaacsve@appstate.edu for further information on these or other programs.

Special opportunity for Middle School Teachers:

Would you like to spend two weekends in Boone virtually free and earn license renewal credits? The Water Resources Planning Committee on campus has received a grant from the National Fish and Wildlife Foundation to host a stream ecology/stream rehabilitation workshop for fifteen (15) middle school teachers. The workshop will consist of two Saturday-Sunday sessions on June 6-7 and June 13-14, and will earn 2.4 license renewal credits. Paid for by the grant are lodging (for early registrants), mileage reimbursement, lunches/snacks, and all materials. The workshop will run each day from 9:00-4:30. Teachers from far away may qualify for two nights' lodging in order to make the 9:00 a.m. start time manageable. Register by April 15 if you desire lodging.

NOTES FROM THE DIRECTOR

School systems and universities are facing reversions that severely restrict what we are able to do in education. The MSEC continues to work to find ways to reduce the cost to school systems for mathematics and science professional development. We have been able to get funds to support a second teacher from a school system for each paid registration for any of the summer science programs, thus helping with costs and also encouraging team participation. The MELT program has a Math and Science Partnership (MSP) grant that supports math teachers from the counties that are participants in the grant. We participate in two other MSP grants and one National Science Foundation grant that are a boon to the school systems that are involved. Another grant mentioned on page three of the newsletter will support fifteen middle school teachers in a two-weekend workshop on stream ecology/stream rehabilitation. We will continue to offer the seminar series at no cost and will continue to investigate grant possibilities to make quality math and science professional development opportunities available at minimal cost to school systems. We hope that you will be able to take advantage of these opportunities.

Students do not often see our newsletter, so we need your help in alerting them to opportunities such as the Math Camp and *Extended Math Camp* that are described on page 2. If you bring students for a campus visit, we are always happy to arrange math or science programs for them. We are delighted with the positive response to our Family Math and Family Science nights and the geology in the schools program. Visit us at any time to get materials from our resource rooms or bring a bucket and take back samples from the fossiliferous grit pile that is located behind the Broyhill Inn and Conference Center; you may be surprised at the high quality fossils that you will find. Please continue to let us know of any special math or science professional development needs that you have in your local school systems.

Phil Johnson