

NOTES FROM THE DIRECTOR

Despite the continuing economic slump and its negative impact on education, the Mathematics and Science Education Center serves many needs of math and science teachers by supplying resources and professional development opportunities. Mathematics and Science Partnership grants have been helpful in maintaining a full offering in the MELT program and in offering workshops for large numbers of K-5 mathematics teachers and middle school science teachers. Other sources of income helped defray the expenses to school systems of last summer's SITE: Biology; essentially, we were able to offer the institute at half the usual cost. The NSF grant for Project SMILE will enable 20 science and math teachers to receive high quality professional development without a financial sacrifice on the part of the teachers. We will continue to look for ways to support professional development opportunities in math and science. The North Carolina Biotechnology Center supports introductory biotechnology workshops for high school science teachers, and we are hopeful of having one of these at Appalachian. The Thursday night science seminars have started and are drawing good crowds. We have quite a bit going on and the promise of a full program of professional development opportunities in the summer. Check our website for updates. Always available for teachers' use are well-stocked math and science resource rooms and the fossiliferous grit pile behind the Broyhill Inn and Conference Center. Let us know if you would like a family math or family science night or a geology program for your class; we are still able to offer these without a cost to the school. We always welcome your visits to the Center and look forward to helping with your school's needs in math and science in any way that we can.

Phil Johnson

2010 DATES TO REMEMBER

February 27–
NCCTM Spring Math Conference
Asheville High School

March 20–
NCCTM Western Region Math Fair
Plemmons Student Union, ASU

March 18-21–
NSTA National Conference
Philadelphia, PA

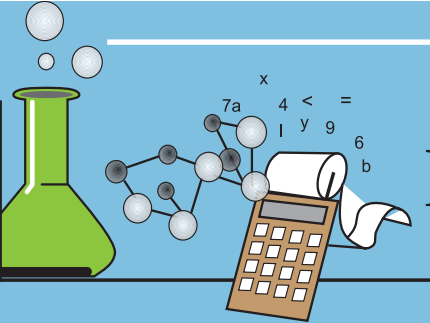
March 30–
NC High School Math Contest
Plemmons Student Union, ASU

April 21-24–
NCTM Annual Meeting & Exposition
San Diego, CA

May 6, 13, 20–
Spring Astronomy Seminars, ASU

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MSEC



FALL 2009

Appalachian State University

MATHEMATICS & SCIENCE
EDUCATION CENTER

SCIENCE SEMINARS

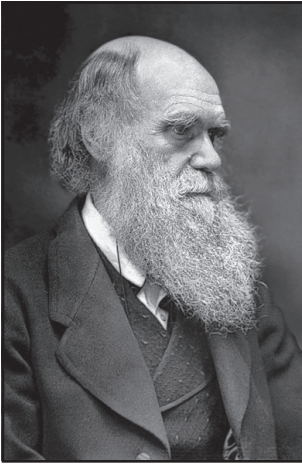
The MSEC has started another interesting fall series of Thursday night science seminars on the theme Revolutions in Science, a series devoted largely to some of the great theories of science that have changed our understanding of how certain aspects of the universe work. Science educator Jeff Goodman got the series off to a great start on October 22 with his seminar on “Scientific Revolutions and Societal Change.” On November 5, biologist Eva Gonzales conducted a seminar on Mendel’s Peas, and on November 12, gologist Steve Hageman conducted a seminar on Plate Tectonics. Last year’s Darwin Bicentennial Celebration took the place of our usual seminars and the many outstanding talks by internationally prominent experts in evolution were attended by large numbers of people from the community. We are pleased that our seminars have drawn increasing interest from members of the community at large as well as teachers and we cordially invite everyone to attend the seminars. Come to all the seminars or choose particular ones that interest you. The seminars are free and parking is free after 5:00 P.M. in any legal spaces (excluding handicapped and reserved). Teachers may earn up to 1.6 recertification credits for attending (each seminar earns 0.2 credit). For more information, visit www.msec.appstate.edu and click on seminars.

All fall seminars are in 105 Walker Hall from 6:00-8:00 P.M. with refreshments from 6:00-6:30.

December 3, 2009: Evolution in Historical Context, Gary Walker (Biologist)

December 10, 2009: Forensic Science, Libby Puckett (Chemist)

In the spring, we will have a three-part series on Astronomy with astronomer Jon Saken of the Department of Physics and Astronomy. The spring seminars will be later than normal in order to take advantage of what should be better viewing conditions by then. The astronomy series will be on May 6, 13 & 20, 2010 from 8:00-10:00 P.M. in the Rankin Science South Observatory. The Rankin Observatory has a new, powerful telescope that will allow for excellent viewing of the sky.



FINAL EVENT OF THE
DARWIN BICENTENNIAL CELEBRATION

There was a panel discussion, “On the Sesquicentennial of the Publication of On the Origin of Species: Celebrating 150 Years of Evolutionary Thought,” on Thursday, November 19, 2009 from 2:00 pm to 5:00 pm in the Blue Ridge Ballroom in Plemmons Student Union. The panel featured ASU faculty members from a variety of departments and special guest panelist Jim Costa, author of the new Annotated Origin from Harvard University Press. Howie Neufeld moderated the panel discussion, which was free and open to the public. The MSEC piggybacked on the events of the Darwin Bicentennial Celebration last year rather than have a separate Thursday night science seminar series. We are indebted to Howie and his committee for arranging such an outstanding program.

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SUMMER 2009 RECAP

Although North Carolina's budget crisis has negatively impacted professional development activities across the state, Appalachian's MSEC was able to successfully run eight week-long institutes serving 166 teachers. Most of this activity was in cooperation with the Mathematics Education Leadership Training (MELT) Program that is directed by Distinguished Mathematics Education Professor Doug Jones. In the Statewide Institute for Teaching Excellence (SITE) program, Advanced Functions and Modeling and Geometry have been offered at Appalachian since being initiated. This summer the MSEC, in cooperation with MELT, instituted a pilot in SITE: Algebra that drew more applicants than could be accommodated; twenty six teachers participated in the program. SITE: Biology was one of three biology institutes in the state and had eleven participants from a wide geographic area. Grant funds from the Mathematics and Science Partnership (MSP) program and Burroughs Wellcome provided financial assistance to teachers attending some of the institutes. Two workshops, one in K-5 mathematics and one in middle school science, were funded by MSP grants and served more than 300 teachers; both workshops are in the third year of a three-year grant. The Water Resources Planning Committee on campus received a grant from the National Fish and Wildlife Foundation to host a stream ecology/stream rehabilitation



workshop on two weekends for nine middle school teachers; the grant paid for lodging, lunches/snacks, and all materials. Institute participants typically earned license renewal or graduate credits, but a few were working on lateral entry. In addition to professional development for teachers, the Center provided significant support for programs for a large number of students, most notably Summer Ventures in Science and Mathematics, Math Camp for rising sixth through twelfth graders, and science programs for visiting GEAR UP students.

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

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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

SUMMER 2010 OUTLOOK

The MSEC in cooperation with MELT anticipates another full offering in mathematics in 2010. The SITE: Algebra that was piloted last summer has interest from several centers around the state and will probably be offered at several sites. Since school systems have lower than usual budgets, funding professional development is difficult. The Center will attempt to get grants so that interested teachers will be able to attend institutes and workshops without undue hardship on their personal budgets. Congratulations go to

Principal Investigator Max Dass for his work on a proposal that earned an NSF three-year grant of just under \$450,000 that will pay for 20 middle school teachers to attend three-week institutes for three summers. The project, "Science and Mathematics Integration for Literacy Enhancement" (SMILE), is directed at helping middle school teachers learn how to



best use technological tools to integrate teaching scientific inquiry with mathematical problem solving. Tracy Goodson-Espy (co-PI), John Spagnolo, Gene Moore and Phil Johnson are assisting Max with the project. Other grant possibilities are being investigated. The groups that wrote the proposals for the present MSP grants that expire after this year are writing proposals for new grants. If the proposals are successful in getting grant funds, some workshop possibilities are K-8 Physical Science and SITE: Biology. The MSEC will apply for funding from the North Carolina Biotechnology Center for an Introductory Biotechnology Workshop for High School Teachers. Participant support for the biotechnology workshop includes \$50 per diem stipend, housing, two meals, and morning and afternoon break refreshments for the week. Hopefully, some of these grant proposals will be successful so that teachers may have a variety of professional development options from which to choose. The spring newsletter will have more information on these possibilities and updates will be posted on our website.

ACADEMIC YEAR 2009-2010 ACTIVITIES

While professional development activities take place primarily in the summer, the busiest time for the math and science resource rooms is the academic year as both pre-service and in-service teachers find much that is useful there. In addition to the resource room materials that can be checked out, free items that are available are posters, teaching aids, and fossils from the fossil dirt pile behind the Broyhill Inn and Conference Center. The Thursday night science seminars provide professional development for teachers as well as giving the community at large an opportunity to engage with our science faculty.

The MSEC is happy to arrange a number of student programs that teachers may request at no cost to the schools:

- Math or science presentations for visiting school groups
- Family Math Night
- Geology in the Schools

The Family Math & Family Science Nights

involve students and their parents in math or science activities that are educational while being interesting and fun to do. The Family Math Nights are conducted by retired math professor Bill McGalliard assisted by his wife Birgitta. Judy Sink and Gail Bastarache, who teach science methods courses, conduct the Family Science Nights. The "geology in the schools" program is conducted by retired geology professor Jack Callahan. For more information on these programs and to arrange for them at your school, contact isaacsve@appstate.edu.



Spring Math Conference

The NCCTM Spring Math Conference will be held on Saturday, February 27, 2010 at Asheville High School from 10:00 a.m. to 2:00 p.m. Dr. Kathy Jaqua (kjaqua@email.wcu.edu) is the program chair. Please contact her if you have any questions about the meeting.



Western Region Math Fair

The NCCTM Western Region Math Fair will be held on Saturday, March 20, 2010 at the Plemmons Student Union on the ASU campus. Projects may be entered in the following categories: Grades K-2, 3-5, 6-8, 9-12. All projects must be pre-registered by February 24, 2010 and no late registrations will be accepted. The registration fee is \$7.00 per student. There is a limit of 6 projects per category per school. (Notice that this is a change from last year.) More details and the registration form can be found online at ncctm.org. If you have questions about the math fair, contact Dr. Betty B. Long at longbb@appstate.edu or 828-262-2372.

Summer Ventures in Science & Math

Applications for the 2010 Summer Ventures in Science & Math (SVSM) program are now available for students to pick up from their guidance counselor or download from www.summerventures.org. SVSM is a cost-free, state-funded program for academically talented NC residents who may pursue careers based in science and mathematics. The program brings rising high school juniors and seniors together in residential settings for four weeks of intensive study. Dates in 2010 will be June 20-July 17 or June 27-July 24. Ms. Lori Tyler, ASU SVSM Director, is available to visit your school and/or classroom to present an overview of the program as well as help students complete the application process. We also have a 12-minute video which can be shown to classes that provides an excellent overview of the academic and residential components of the program. To schedule a visit, please contact Lori at tylerle@appstate.edu.



NC High School Math Contest

The Appalachian State University Department of Mathematical Sciences will host the Algebra I and Comprehensive high school math contests on Tuesday, March 30, 2010. We welcome schools to bring teams of 8 students for this exciting day of mathematical challenge! Information and registration forms are available on the website: <http://www.mathsci.appstate.edu/Events/HighSchoolMathContest/> or contact Lori Tyler: tylerle@appstate.edu.

