



“An expert problem solver must be endowed with two incompatible qualities, a restless imagination and a patient pertinacity.”

- Howard W. Eves



“Every new body of discovery is mathematical in form, because there is no other guidance we can have.”

- Charles Darwin



The Upper East Tennessee Council of Teachers of Mathematics will host its fourth meeting of the 2004-2005 school year on Tuesday, February 8th at

Dobyns-Bennett High School. Refreshments will be served from 4:00 – 4:30, providing a chance to mix and mingle with local math teachers. A short business meeting begins at 4:30, followed by a session on “Cabri Jr. Applications” (7 – 12 group) given by Floyd Brown and “TI-83 calculator” (K – 8 band) given by Micheal Carter. Micheal Carter will be in charge of the meeting.

2004-2005 Meetings

February 8, 2005
Dobyns-Bennett High School

March 8, 2005
Elizabethton High School

May 3, 2005
Cookout at Eastman Lodge

Directions: From Johnson City: From Interstate I-181, going towards Kingsport, take the Wilcox Drive exit. Go straight through the light at the end of the exit ramp. Continue past Meadowview on left, Tennessee Eastman(both sides of road), go through railroad underpass, continue until you reach Center Street. Turn right onto Center Street and veer right at the fork onto Fort Henry Drive. Turn left onto Legion Drive into Dobyns-Bennett parking lot.

Officers of UETCTM for 2004-2005

President: Micheal Carter
Kingsport City Schools, retired
183 Carden Drive
Elizabethton, TN 37643
Phone: (423)543-5083
Email: mtcarter@chartertn.net

President-Elect: Tara Peters
Sullivan South High School
1236 Moreland Drive
Kingsport, TN 37664
Phone: (423)239-1348
Email: gregtara@comcast.net

Past-President Anant Godbole
ETSU Math Dept, Box 70663
Johnson City TN 37614
Phone: (423)439-5359
Email: godbolea@etsu.edu

Secretary: Linda Waldron
Vance Middle School
816 Edgemont Avenue
Bristol, TN 37620
Phone: (423)652-9449
Email: waldronls@btcs.org

Treasurer: Floyd Brown
Science Hill High School
1509 John Exum Parkway
Johnson City, TN 37604
Phone: (423)232-2190
Email: fbrown@xtn.net

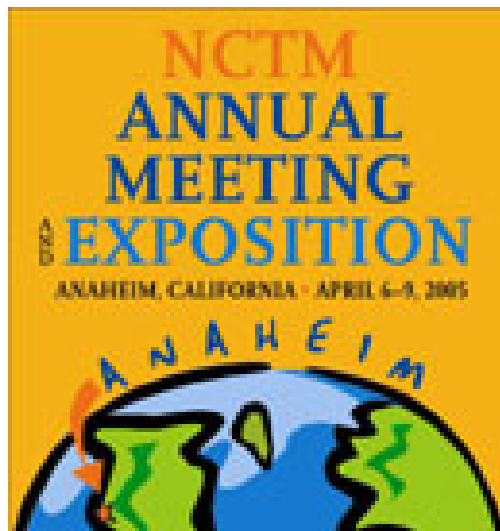
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Editorial Assistant:
Dayna Smithers
East Tennessee State University
Box 70663 – Mathematics Department
Johnson City, TN 37614
Email: zdrb20@imail.etsu.edu



Information regarding Mathcounts coming soon!

Middle School Math Day

Information regarding Middle School Math Day coming soon!



NCTM – National Meeting

The National Council of Teachers of Mathematics (NCTM) will hold its National meeting in Anaheim, CA on April 6-9, 2005. The theme for this year's meeting will be, "Embracing Mathematical Diversity." The conferences will be held at the Anaheim Convention Center, Anaheim Marriott Hotel, and the Hilton Anaheim Hotel. NCTM members will receive full registration for \$180. Highlights on presentations will be available online in November. For additional information, please visit their website at <http://www.nctm.org/meetings/anaheim/index.htm>. This is a great opportunity for everyone!

Special Message from NCTM's President

January 2005



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Who's Doing the Talking?

By Cathy L. Seeley
President, National Council of Teachers of Mathematics

In the November 2004 President's Message for the *NCTM News Bulletin* (available at www.nctm.org/news/president), I suggested that the most important factor in a student's mathematics learning (after teacher expectations) is the student's active engagement in the learning process. One clue to whether students are engaged in learning can be found by looking into classrooms and noticing who is doing the most talking—the teacher or the students.

Most of us learned to teach the same way we ourselves were taught. Often, the classrooms we experienced as learners were teacher-centered, with students expected to listen, take notes, do homework, and answer test questions based on what was presented to us by the teacher. Along the way, there may have been a few absolutely wonderful teachers who drew us into their teaching through entertaining and nonroutine variations

on the traditional lecture model. Other times we suffered through boring mathematics presentations where we were not engaged in our own learning. Fortunately, many of us were successful as students in this type of lecture-based classroom, and we may even have become somewhat proficient using a similar model of teaching ourselves. While we were learning, however, many other students were never engaged in mathematics through lectures, even with the most energetic teacher.

Today we are called to teach challenging mathematics to a much wider range of students than ever before. Teachers tell me that fewer and fewer of even their more successful students respond positively to teacher-centered, lecture-based teaching. In recent curriculum projects based on NCTM's *Principles and Standards for School Mathematics*, a different teaching model is emerging. Often, students are expected to work in small groups around engaging tasks, either in real settings or in interesting mathematical contexts. Although it is possible to use these excellent materials in a teacher-centered classroom, far greater gains are found when the teacher gives students a greater role in the learning process.

The teachers who are most effective with these materials offer guidance and probing questions instead of telling students all the things they are supposed to learn. In this kind of student-centered classroom, the teacher's role is to set the stage, organize the task, ask good questions, and help students connect their experience to the mathematics being addressed. Much of this work happens with the class as a whole, but there is usually a period of intense student activity where students interact around the mathematics in pairs or small groups. This new teacher role calls for sophisticated knowledge of both mathematics and learning, and it takes at least as much preparation as a good lecture or content presentation. But the payoff is immense. When students have the opportunity to figure out an approach to a problem; discuss, argue, and justify their ideas; and wrestle with challenging mathematics, they are truly engaged in their learning. They are hooked into the mathematics. They are much more likely to be able to remember what they learn and apply it to other situations than they would if they were simply told how to solve a particular type of problem.

To determine how engaged your own students are, take an objective look at your classroom and ask yourself who's doing the talking. If the teacher's voice is the voice usually heard, how engaged are students? If the classroom is largely quiet, how engaged are students? If only short fill-in-the-blank kinds of responses are expected from students, how engaged are students? Even if students are heard, if only a few students have the opportunity to make comments or offer possible answers to the teacher's questions, how engaged are the rest of the students?

Shifting the focus of the classroom to include more student engagement does create a noisier classroom. In fact, it may appear to be less structured or orderly than a teacher-directed classroom. After all, this type of learning environment involves lots of students talking, often at the same time, as they work in small groups. Learning to see the benefits of this apparent disorder is an important step for a teacher shifting toward more student engagement. Noise and student involvement do not have to turn into chaos or lack of structure. On the contrary, effective teachers learn to manage such classrooms with clearly spelled-out expectations for student behavior and student participation. Students have well-defined roles in their groups, and the teacher serves as an organized facilitator. The result is that students learn with real understanding.

If you are accustomed to teaching in a teacher-directed classroom, it may be challenging to shift to a more student-centered style. You will likely need to go through appropriate professional development that will ideally include some kind of long-term support. But the payoff for you and your students will be tremendous as you hear a higher level of mathematics conversation and as you see for yourself a higher level of student learning.

Cathy Seeley is president of the National Council of Teachers of Mathematics (NCTM). This article is provided as a service to Affiliates of NCTM.

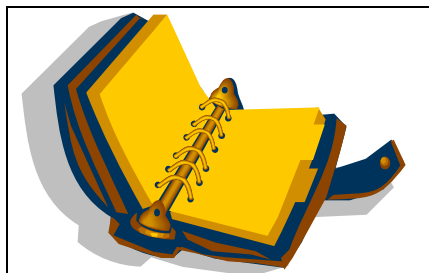
UETCTM Scheduled Meetings

The following is a schedule of the upcoming UETCTM scheduled meeting dates along with the speakers for each meeting.

February 8, 2005 Dobyns-Bennett High School
Speakers: Floyd Brown on “Cabri Jr. Applications” (7 – 12 group)
and Micheal Carter on “TI-83 calculator” (K – 8 band)
Micheal Carter will be in charge of the meeting.

March 8, 2005 Elizabethton High School
Speaker: Three sessions on Reading in Math, Biology and Math, and
State Department Issues. Kathe Rainwater will be in charge
of the meeting.

May 3, 2005 Cookout at Eastman Lodge
Speaker: “Reminiscing-Type” presentations by several long-time
UETCTM members



**MARK
YOUR
CALENDAR!**

April 6 – 9, 2005

NCTM National Meeting

Anaheim, CA

Theme: “Embracing Mathematical
Diversity”

Theme: “Defining Mathematics for
All”

Membership Application

Complete & return to Floyd Brown with a check for \$10 made payable to UETCTM. Completed Application and check may be mailed to Floyd Brown, Science Hill High School, Mathematics Dept., 1509 John Exum Parkway, Johnson City, TN 37604

Name: _____

Home Address: _____

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UETCTM News

Floyd Brown, Treasurer- UETCTM
1509 John Exum Parkway
Johnson City, TN 37604

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