

20th Annual Kansas City Regional MATHEMATICS TECHNOLOGY EXPO

Schedule of Events and Abstracts

University of Missouri – Kansas City, Kansas City, MO
Friday and Saturday, October 1 and 2, 2010

Login Account Names and Passwords for EXPO 2010 will be available at the EXPO.

Registration in the 3rd floor lobby of Haag Hall: Friday, 8:00 am – 2:00 pm, and Saturday, 8:00 am – 11:00 am

Complimentary Continental Breakfasts: Continental breakfasts are available Friday and Saturday mornings in the registration area

Lunches: The Friday EXPO Lunch Buffet is \$7.00 a person (thanks to FaCET) and the Saturday EXPO Lunch Buffet is \$10.00 each. Lunches were ordered with pre-registration, but there may be some available for purchase at the EXPO registration table.

Textbook, Hardware, and Software Exhibitors: Friday, 8:00 am – 2:45 pm; Saturday, 8:00 am – 1:00 pm

Door Prizes: Door prizes will be given away following the Keynote Address and the Invited Address

Earn 1 hour of graduate credit through the UMKC School of Education Continuing Education. Sign up at the EXPO Registration Table.

FRIDAY, October 1, 2010

Welcome and Introductions

Friday, 8:30 am

Haag 301

Introductions: Joe Yanik, 2010 EXPO Group Chair, Emporia State University, Emporia, KS

SESSION 1 – Keynote Address

Friday, 8:30 am – 9:50 am

Haag 301

Inquiry-based Learning in Freshman and Sophomore Mathematics Courses

Wade Ellis

Senior Mathematics Advisor for Texas Instruments, TX
(and Retired professor from West Valley College, Saratoga, CA)

Students have used mathematical software on calculators and computers for over a generation in numerical, symbolic and graphic mathematical computations. More recently students have begun to use mathematical software applets to explore mathematical concepts. This presentation will look at ways mathematics faculty can create inquiry questions to enhance student use of applets. Examples of applets and their associated inquiry questions will be given. In addition, guidelines for creating software-based environments including inquiry questions and their applets that promote student reflection, sense-making and understanding will be presented.

Door prizes will be awarded directly following this address.

SESSION 2 – Friday, 10:00 am

- 2A. ***Calculus Animations with Geogebra***
10:00 – 10:45 am **Kevin Hopkins, Southwest Baptist University, Bolivar, MO**
Geogebra is a free, web-based software that does dynamic geometry and graphing. The dynamic feature of the software allows for animations that can illustrate a variety of topics in Calculus. This talk will show some of the animations the speaker has used in Calculus, but also feature some instruction on how to create such animations. So, come with ideas about what kind of dynamic illustration you would like to see and perhaps we can create it together.
- 2B. ***Using Online Systems for Mastery Learning in Beginning Algebra: Some Results***
10:00 – 10:45 am **Ken Eichman, Metropolitan Community College – Longview, Lee's Summit, MO**
Over the course of a few semesters I taught several sections of beginning algebra where students were required to get a score of at least 85% on 6 quizzes covering the topics of fractions, order of operations, solving linear equations, graphing linear equations in 2 variables, laws of exponents, and factoring polynomials. An online homework system was used to manage this since the students were allowed to take the quizzes as many times as they needed. A common assessment was used for these classes and for classes where students were only required to pass the regular exams. So how did these students measure up? How successful were these students in the next course? What improvements could be made?
- 2C. ***Visualizing Lagrange Multiplier Optimization Using CalcPlot3D***
10:00 – 10:45 am **(NOTE that this session was erroneously placed in the 8F time slot in the Preliminary Program.)**
Paul Seeburger, Monroe Community College, Rochester, NY
As we introduce Lagrange multipliers in our multivariable calculus courses, many of us use some form of visual presentation to help students understand how we develop the Lagrange multiplier

equation, (i.e. $\text{grad } f(x,y) = L[\text{grad } g(x,y)]$). Using a freely available online multivariable calculus applet called CalcPlot3D, instructors can give a dynamic demonstration of the visual nature of Lagrange multiplier optimization during class. After class, students can complete a guided exploration of this topic using the same applet. This activity includes a pre-test, exploration questions, and a post-test. The pre- and post-tests measure what improvement occurs in their conceptual understanding of the geometric nature of Lagrange multiplier optimization by completing the visual exploration. This exploration is part of a larger collection being developed for an NSF-funded grant project titled Dynamic Visualization Tools for Multivariable Calculus (DUE-CCLI#0736968). See <http://web.monroecc.edu/calcNSF/>. Other topics will be demonstrated as time allows.

2D.
10:00 – 10:45 am

WORKSHOP: Sketching Cycloids with Geometer's Sketchpad
Nora Strasser, Friends University, Wichita, KS

An activity using Geometer's Sketchpad to demonstrate a wheel rolling along the ground using a marked point to trace a cycloid will be presented. Students are given instructions to create a cycloid using Geometer's Sketchpad. The object will be animated and the students are asked to extend the exercise by investigating different types of cycloids. The types of cycloids investigated include hypocycloids, epicycloids, curtate cycloids, and prolate cycloids. This is an activity that is used in Calculus during the sections where the parametric equations of cycloids are studied. Students are better able to understand and visualize cycloids after participating in this activity. The step-by-step instructions for the students will be available. No prior knowledge of Geometer's Sketchpad is required.

2E.
10:00 – 10:45 am

COMMERCIAL DEMO: All Math Software is Not Created Equal: What's the Difference?
Lisa Rickel, Hawkes Learning Systems, NC

The use of technology has become increasingly prevalent in mathematics courses, but what makes one software system different from another? Hawkes Learning Systems (HLS) is a unique program that is proven to be more effective in improving student performance. Discover how HLS's differences make it the perfect solution for student success.

SESSION 3 — Friday, 10:45 am

Haag 2nd and 3rd
floor Lobbies
10:45 – 11:30 am

This time is provided especially for EXPO participants to visit the Exhibitors and the MAA book sale. The Exhibitors Area will also be open at other times during the EXPO.

SESSION 4 — Friday, 11:30 am

4A.
Haag 2nd floor
Lobby is the
meeting place
11:30 am –
12:15 pm

View Rare and Historical Books in Linda Hall Library
Bruce Bradley, Librarian for History of Science, Linda Hall Library

This is one of two separate opportunities for hands-on viewing of over a dozen books. It is not a tour. Examples: the 1482 first printed copy of Euclid's *Elements*, a 1637 copy of Descartes' *Discours*, the 1696 first calculus textbook of L'Hopital, books by Newton, Agnesi, Galileo, and more. The session will be offered again today, Session PS A, at 3:30 pm.

4B.
11:30 am –
12:15 pm

How to Use Mathematics to Defend Your Castle from Marauding Hordes
Chris Pettit, Joe Yanik, and Betsy Yanik, Emporia State University, Emporia, KS

We are in the first year of an NSF-supported project to develop a virtual modeling environment to be used in the teaching of mathematics and science. One early example of this is a model for the trebuchet, a catapult-type device that was used as a weapon in the middle ages. The virtual model will allow the students to experiment with different specifications for the trebuchet and develop the mathematics to hit a specific target or to maximize the range. We will report on the progress of the software development and describe how it can be used in the classroom at all levels.

- 4C. ***Google Forms for Data Collection***
Rob Grondahl, Johnson County Community College, Overland Park, KS
 11:30 am – 12:15 pm
 This is a look at using the Forms functionality in Google Docs in an Introductory Statistics class. Past experiences of using Forms to collect data from students will be discussed. The possibility of students using Forms to collect data from friends will be discussed. A demonstration of setting up a spreadsheet and form in Google docs will be given.
- 4D. ***Brainstorming Session: Moving Students from “Gaming the System” to Motivation to Understand***
“Will this be on the test?” “What do I have to do to get a B?” “Is there any extra credit?”
 11:30 am – 12:15 pm
 Students asking these types of questions are frequently playing some version of the “grade game”, trying to determine what hoops to jump through to achieve a grade. This brainstorming session will focus on approaches which will move students away from a “gaming” mentality, and instead focus their motivation on the learning of material. No idea is too extreme. Come prepared to share!
Moderators – EXPO Planning Group Members: Gavin Waters and Libby Corrison
- 4E. ***Create Video Tutorials and Place Them on Your Own Website at Virtually No Cost***
Daniel Kopsas, Ozarks Technical Community College, Springfield, MO
 11:30 am – 12:15 pm
 This talk is meant to give an alternative to using the expensive combination of Camtasia and a tablet PC to create math tutorial videos. The total cost of Camtasia and the tablet PC is well over \$1000. We will start by creating a free website using Google Sites. Then using free software, Jarnal and Jing, along with hardware, a Wacom tablet and a USB microphone, costing approximately \$100, we will create videos and link to them from our website.
- 4F. ***COMMERCIAL DEMO: Engaging Developmental Math Students with Technology***
Rochelle Beatty, Cengage Faculty Learning Programs, KS
 11:30 am – 12:15 pm
 Mathematical understanding and retention increase when students are engaged in the content they are learning. During this workshop, we will experience and reflect on technologies options that are available to facilitate the engagement of students in the learning process

LUNCH

Friday, 12:15 pm – 1:30 pm

SESSION 5 — Friday, 1:30 pm

- 5A. ***Playing to Learn Math***
 1:30 – 2:15 pm
Maria Andersen, Muskegon Community College, Muskegon, MI
 Current technology gives us systems that teach students algebra using mastery and flexible pacing, but they just mimic the process of working through a textbook. To better engage today’s students, we should leverage technology and research about learning to use games and play as a method for learning math.
- 5B. ***P^6: Personalized PowerPoints to Promote Pupil Participation***
 1:30 – 2:15 pm
Scott Keltner, Johnson County Community College, Overland Park, KS, and Eudora High School, Eudora, KS
 The presenter works to bring together a number of technologies in his lesson presentations. From TI-SmartView to PowerPoint to SMART Notebook, he works to make a presentation that is truly unique for his students to experience. Join along and see how you can start with a blank PowerPoint template and create a document that can keep students engaged and able to follow along step-by-step, whether you teach face-to-face, hybrid, or online courses.

- 5C.
1:30 – 2:15 pm
- A Wolfram Demonstrations Project Mathematics Teaching Circle***
Richard Delaware, University of Missouri – Kansas City, Kansas City, MO
 There are over 6000 free, open source, interactive, visualization applets on the Wolfram Demonstrations Project website <http://demonstrations.wolfram.com> and they require only the use of the free Mathematica Player. Most are in mathematics. Anyone knowing Mathematica can modify these demos or write new ones and submit those back. In this talk, we'll examine some of these demos, and discuss how they might be useful as in-class full-class demos and/or inquiry and discussion, in-class individual student or student group inquiry and discussion, or outside-class teacher preparation, including lesson plans if appropriate. The speaker will propose the formation of a local teaching circle to continue this process every month, and store the work electronically for the free use of mathematics teachers at all levels from middle school to college. No expertise in Mathematica is required.
- 5D.
1:30 – 2:15 pm
- Free Software to Make Learning Fun***
Matt Harris, Ozarks Technical Community College, Springfield, MO
 Free software that captures handwritten text can be used to create a digital whiteboard for delivering notes. These notes can be converted to PDF documents. Screen-capturing software (Jing) can be used to create simple video tutorials. A variety of other free (and easy to use) software package will be mentioned and/or discussed. The ways in which these software packages can be used is endless! The only equipment needed (for certain software packages) is a pen tablet (\$20 - \$70) and a microphone (\$10 - \$40). The software is completely free and can dramatically enhance the way you teach any mathematics class. No experience with any of the software packages is expected.
- 5E.
1:30 – 3:15 pm
- WORKSHOP: How to Create Mathematical "Clicker" Slides Using Turning Point***
Nancy Carpenter, Johnson County Community College, Overland Park, KS
 Are you ready to try "clickers" in your classroom, but aren't quite sure how to create the slides? This workshop will take you through the process of creating question and answer slides to use in your math classes, complete with mathematical notation and graphs! The Microsoft® Equation Editor, Winplot, PowerPoint®, and Turning Point will be combined to give your slides a professional look! Bring your flash drive as you will want to take your creations home with you. (Winplot and Turning Point software are free!)
- 5F.
1:30 – 3:15 pm
- WORKSHOP: Developing Computer Skills in BioCalculus Courses Using Maple and Excel***
Timothy Comar, Benedictine University, Lisle, IL
 Biocalculus courses are designed to provide quantitative techniques and approaches that will be useful to students majoring in the biological and health sciences in their future coursework and careers. We use a three-fold approach integrating mathematics, biology, and the use of computational software to investigate biologically oriented problems. This presentation focuses on computational software used throughout the courses. We give examples of short activities and longer, more involved projects designed to help students become comfortable using computational software to address quantitative, biologically oriented problems.
- SESSION 6 — Friday, 2:30 pm**
- 6A.
2:30 – 3:15 pm
- Beyond Winplot: A Survey of Free Mathematics Software Offered by Peanut***
Richard Gill, Blue Valley High School, Stilwell, KS
 Rick Parris (Exeter Academy, NH) has developed freeware programs for several math topics that include geometry (Winggeom), statistics (Winstat), linear algebra (Winmat), discrete mathematics (Windisc), fractals (Winfeed), primes (Wincalc), and algebra (Winplot), not to mention games (Winarc) and word puzzles (Winwordy). As indicated in the title, this talk will focus on math programs other than Winplot. Basic aspects of each program will be presented during the talk. Participants can decide afterwards if further investigation would be worthwhile.

6B.
2:30 – 3:15 pm

Using VenSim to Teach an Introductory Calculus Course

Brian Birgen, Warburg College, Waverly, IA

At Wartburg College, rather than a traditional Calculus I and II sequence, our Calculus sequence starts off with teaching the students elementary modeling with differential equations by using a numerical solver program called VenSim. In this talk, I will show how concepts are developed and how the software is used to help students develop an understanding of Calculus. We will demonstrate models of free-fall, air-resistance, springs, bungee jumping, and model rockets.

6C.
2:30 – 3:15 pm

COMMERCIAL DEMO: Using WileyPlus to Teach More Effectively

Brad Franklin, Wiley Publishing, NE

WileyPLUS is a web-based learning platform that provides virtual unlimited practice on text and non-text problems, with math-smart grading driven by Maple. Features of WileyPLUS include support for student self-study, timed assignments, hints and worked solutions, a media-rich version of the text, and much more. Come join us as we delve into the latest version of WileyPLUS and explore many ways to help your students – and you – to succeed.

6D.
2:30 – 3:15 pm

The History of Using Technology to Do and Teach Mathematics Prior to the Computer

Andy Bennett, Kansas State University, Manhattan, KS

In looking at how new technologies may change the future, it may be helpful to look at how technological changes have affected past practices. Tools such as blackboards, textbooks, graph paper, and the pencil were all new at one time (often more recently than realized). This talk will discuss how new tools have changed mathematical practice and pedagogy through the ages.

POST-SESSIONS — Friday, 3:30 pm

Friday, 3:30 pm

P-S A.
**Haag 2nd floor
Lobby is the
meeting place**
3:30 pm

Rare and Historical Mathematical Books at Linda Hall Library

Bruce Bradley, Librarian for History of Science, Linda Hall Library

This is the 2nd of two separate opportunities for hands-on viewing of over a dozen books; it is not a tour. Examples: the 1482 first printed copy of Euclid's *Elements*, a 1637 copy of Descartes' *Discours*, the 1696 first calculus textbook of L'Hopital, books by Newton, Agnesi, Galileo, and more.

P-S B .
3:30 pm

MOMATYC Meeting

(Interested KAMATYC and MOMATYC participants will go to supper together after the meetings.)

P-S C.
3:30 pm

KAMATYC Meeting

(Interested KAMATYC and MOMATYC participants will go to supper together after the meetings.)

SATURDAY, October 3, 2009

Welcome and Introductions

Saturday, 8:30 am

Haag 301

Joe Yanik, 2010 EXPO Group Chair, Emporia State University, Emporia, KS

SESSION 7 – Invited Address

Saturday, 8:30 am – 9:50 am

Haag 301

Learning is the Future of Math

Maria Andersen

Muskegon Community College, Muskegon, MI

Students face a future in which they will likely have several very different careers. At the same time, technology proliferates and evolves at a pace faster than anyone can keep up. How do we teach students to direct their own learning? We need to design curricula and instruction that reinforces the ability to learn deeply, think creatively, and quickly retrieve past learning. See what a math class looks like when you redesign it around two goals: to empower students to learn how to learn, and to prepare students for a technology-rich future.

Door prizes will be awarded directly following this address.

SESSION 8 – Saturday, 10:00 am

- 8A. ***Using Data-Mining to Classify Student Behaviors***
10:00 – 10:45 am **Rachel Manspeaker, Kansas State University, Manhattan, KS**
At KSU we used data-mining to identify clusters of students who behave similarly in College Algebra. We then interviewed representative students to discover how they felt about mathematics and how they learn. Based on this we have been able to classify 5 typical sorts of students in College Algebra, with techniques to identify them early in the course. We are now testing interventions to help students succeed.
- 8B. ***Hybrid Courses – How the Heck Do I Teach These Things?***
10:00 – 10:45 am **Jason Pallet, Metropolitan Community College – Longview, Lee’s Summit, MO**
In the spring of 2004, the presenter taught his first hybrid (or web-assisted) course. Since then, he has experimented with different approaches for teaching hybrid classes. On paper, a hybrid course appears to combine the best aspects of online courses and regular on-site courses. However, the presenter continually struggles to know exactly what to do during class time and what to have the students do online. The presenter will begin by explaining some of the different approaches he has used, and from that he hopes to generate a fruitful discussion from which everyone can take new ideas to apply in the hybrid courses they teach.
- 8C. ***FLIP Video Math Shorts: A Fresh Archive of Students Teaching Students [the next step following the 2009 similar talk]***
10:00 – 10:45 am **Halley Chapman, Southwest Early College Campus, Kansas City, MO; and Richard Delaware, University of Missouri – Kansas City, Kansas City, MO**
We build on our novice 2009 EXPO talk. Since then we have won a small grant from PREP-KC to fund making more such video shorts (usually less than 4 minutes in length) using the FLIP

camcorder. Participants both on and off camera were Southwest Early College Campus teachers and students grades 6, 7, 9 and 10, as well as Dr. Delaware from UMKC, and some additional mathematical guests. We'll describe picking a mathematical idea, teaching tip, and so on, to illustrate visually. We'll detail drafting a script, provide FLIP video recording tips, and show how to design a movie on a digital storyboard with the free program Windows Movie maker. We'll show several completed video shorts from 2010, now part of an electronic archive for mathematics teaching at Southwest, and indicate some longer videos we made, mostly for teachers, documenting the actual (rough) process "behind the scenes."

8D. **COMMERCIAL DEMO: What's new at Texas Instruments?**

10:00 – 10:45 am **Mike Koehler, Blue Valley North High School, Overland Park, KS**

Participants will learn about the latest technology from Texas Instruments. Free resources, activities and much more. Focus will be on the TI-Nspire and the new TI-Nspire Navigator.

8E. **WORKSHOP: Motion Analysis in Sports Using the Ariel Performance Analysis System (APAS)**

10:00 – 11:45 am

Tom Cairns and Al Finch, University of Tulsa, Tulsa, OK

The first half will be a hands-on introduction to APAS, walking through the process, including an understanding of the modular design of APAS. Participants will use the trimmer on legacy data that we will furnish, followed by a brief hands-on introduction to the digitizing process. Then they'll apply the direct linear transformation as implemented in APAS Transform followed by quintic spline smoothing using APAS Filter. Participants will decide what features might be important to graph and will carry that out in APAS Display. We'll demonstrate the use of the 3-D Renderer. Dr. Finch will talk about the ways that APAS is implemented in a biomechanics curriculum and Dr. Cairns will describe his general education sport science course and the use of APAS in it. This introduction is for the purpose of precipitating a lively discussion on how and where APAS might be used to facilitate science and math education at all levels using motion analysis, particularly motion analysis of sports skills.

8F. **WORKSHOP: Creating Visual Explorations for Multivariable Calculus using CalcPlot3D (NOTE that this session was erroneously placed in the 2C time slot in the Preliminary Program.)**

10:00 – 11:45 am

Paul Seeburger, Monroe Community College, Rochester, NY

This workshop explores ways to visualize multivariable calculus using CalcPlot3D, a versatile new applet developed by the presenter through NSF-DUE-0736968. In addition to learning how to use this applet in their teaching, participants will learn how to customize this applet to create demonstrations and guided exploration activities for student use. Images created in this applet can be pasted into documents. See <http://web.monroecc.edu/calcNSF/>. Some experience with HTML is helpful. 3D glasses will be provided that give an impressively realistic 3D effect when the applet is in one of the appropriate 3D modes.

SESSION 9 – Saturday, 11:00 am

9A. **Modeling the Spread of a Rumor**

11:00 – 11:45 am

Wade Ellis, Senior Mathematics Advisor, TI; retired from West Valley College, Saratoga, CA

This presentation will use TI-Nspire CAS software to explore ways of modeling the spread of a rumor. The presentations will include collecting data from a simulation and then modeling data. The data will be modeled using regression, difference equations, and differential equations. The three modeling processes will include graphing from elementary algebra, quadratic equations from intermediate algebra, the modeling equation from precalculus, and a rate of change from calculus.

9B. **Revamping the Online College Algebra**

11:00 – 11:45 am **Susan Adam and Qiang Shi, Emporia State University, Emporia, KS**
Since Fall 2002, the ESU math department switched from the traditional classroom method to solely using online courseware for its developmental and college algebra courses. These courses were held in a large computer lab that could accommodate up to 100 students. The courseware included a video lecture component, illustrated concepts and examples along with online homework and quizzes, and the ability to give online exams. After a few years of experience, the department decided to make improvements to the online algebra program.

In this presentation, we will review the history of college algebra at ESU, introduce how we revamped the online homework and quizzes to improve student learning, and how to design and organize successful online tests. It has been a challenge for us and we would like to share our experiences and lessons learned. The results of assessment will also be discussed.

9C. ***A Video Classroom: Being a Virtual Substitute for Your Own Classes***

11:00 – 11:45 am **Greg Owsley, Rockhurst High School, Kansas City, MO**

It is very difficult to maintain continuity in a math class when the teacher is not present. Greg Owsley will share his explorations with using video to maintain focus in his math classes. Mr. Owsley will demonstrate how he used pre-taped videos with a FlipCam to teach his class virtually. In addition, Mr. Owsley uses the Smart Board in the video in order to save the notes as a pdf. In that way, the students can print out the physical notes, helping them follow along with the video. Mr. Owsley will also contribute his ideas about how teaching a class virtually sheds light about teaching classes in person.

9D. ***Spirals, Labyrinths, Polar Coordinates, and Geogebra***

11:00 – 11:45 am **Elizabeth Appelbaum, Blue Valley School District, Overland Park, KS**

Labyrinths are intricate pathways, usually made of spirals. All over the world, for thousands of years, people have admired them as a tool for meditation and enlightenment. One equation whose graph is a spiral is $r = kt$, where r is radius and t is angle (polar coordinates). I show a Geogebra graph of a spiral and another of a labyrinth, made with two spirals. Each is animated; a moving dot traces the path. The material is suitable for mathematics classes, grades 4 through 12, and calculus. With calculus, we calculate the velocity and speed of the moving point and integrate to get arc length of the spiral. No technical expertise is assumed.

LUNCH

Saturday, 11:45 am – 1:00 pm

SESSION 10 – Saturday, 1:00 pm

10A. ***Playing Jeopardy in the Math Classroom!***

1:00 – 1:45 pm **Libby Corriston, Johnson County Community College, Overland Park, KS**

In this session, we will have fun playing Jeopardy, for math! The Jeopardy template for our fun at the EXPO is courtesy of Anne and David Dudley, whom many of us know from AMATYC. We will play a 6 category game with questions tailored to fit the EXPO, just as you will tailor it if you use Jeopardy in your own classroom. I use versions of this game with both my Math Resource Center tutors in inservice sessions and in the classroom on our final review day. You will receive hints on how to make and operate the Jeopardy game. At the end of the EXPO session, you can copy the template to your flash drive, or I will be happy to e-mail it to you after the EXPO.

10B. ***WORKSHOP: Using the TI-Nspire CAS to Teach and Understand Calculus***

1:00 – 2:30 pm **Mike Koehler, Blue Valley North High School, Overland Park, KS**

This workshop will give teachers the opportunity to have hands-on experience with the dynamic capabilities of TI-Nspire technology. This session will cover activities on the Nspire that can be used with students to further their understanding of Calculus. Activities are appropriate for

student use with handheld calculators or as a demonstration for teachers using Nspire Teacher Edition Software.

10C.

1:00 – 2:30 pm

WORKSHOP: Getting Started with Geogebra

Richard Gill, Blue Valley High School, Stilwell, KS

Geogebra is a free software package that provides a dynamic geometry/algebra tool for investigation, graphs, solutions, etc. Participants will be given step by step instructions to guide them through many of the basic tools available in the software. Participants can choose to explore the software on their own or choose from several projects available for the geometry or algebra classroom. Previous experience with graphing and/or dynamic geometry software is not required.

10D.

1:00 – 1:45 pm

Brainstorming Session: Moving Students from “Gaming the System” to Motivation to Understand (repeat of Friday 4D)

"Will this be on the test?" "What do I have to do to get a B?" "Is there any extra credit?"

Students asking these types of questions are frequently playing some version of the "grade game", trying to determine what hoops to jump through to achieve a grade. This brainstorming session will focus on approaches which will move students away from a "gaming" mentality, and instead focus their motivation on the learning of material. No idea is too extreme. Come prepared to share!

Moderators: EXPO Planning Group Members Richard Delaware and Ken Eichman

www.kcmathtechexpo.org

The 2010 EXPO Group:

- **Joe Yanik** (2010 and 2009 EXPO Chair), hyanik@emporia.edu, Emporia State University, Emporia, KS
- **Andy Bennett**, bennett@math.ksu.edu, Kansas State University, Manhattan, KS
- **Libby Corrison** (Publications; EXPO Chair 1995 and 1996), libbyc@jccc.edu Johnson County Community College, Overland Park, KS
- **Richard Delaware** (Financial Secretary, Site Coordinator; EXPO Chair 1993 and 1994), delawarer@umkc.edu, University of Missouri – Kansas City, Kansas City, MO
- **Mayumi S. Derendinger** (Exhibitors), may130972@gmail.com, University of Saint Mary
- **Ken Eichman** (Registration, EXPO Chair 1997 and 1998), Ken.Eichman@mcckc.edu Metropolitan Community College – Longview, Lee’s Summit, MO
- **David Ewing** (Special Speaker Contact) ewing@ucmo.edu, University of Central Missouri, Warrensburg, MO
- **Richard Gill** (Publicity; EXPO Chair 2004, 2005, 2006, 2007, and 2008), rgill@bluevalleyk12.org, Blue Valley High School, Stilwell, KS
- **Brian Hollenbeck** (Recording Secretary), bhollenb@emporia.edu, Emporia State University, Emporia, KS
- **Tamatha Leuschen** (Webmaster), Formerly of Pembroke Upper School, and Center High School, Kansas City, MO
- **Marian VanVleet** (Presiders; EXPO Chair 1999, 2000, 2001, 2002, and 2003), mvanvleet@everestkc.net , Retired from the University of Saint Mary, Leavenworth, KS
- **Gavin Waters** (Local transportation), gwaters@missouriwestern.edu, Missouri Western State University, St. Joseph, MO

Events/Activities in Kansas City: www.kansascity.com