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For more information, please visit our
Conference Website

<http://math.utm.edu/tmta/>

or our main website

<https://tmta.wildapricot.org/>



Cover art by Amanda Niedzialomski
Logo by Chris Caldwell

Conference Registration and Vendor Exhibits

Friday, September 29, 1:30 p.m. – 5:45 p.m.

Saturday, September 30, 7:45 a.m. – 12:00 p.m.

**Conference Registration: Watkins Auditorium Lobby, University Center
University of Tennessee at Martin**

**THANK YOU to our VENDORS
for their generous contributions to the TMTA Conference.
Please visit them in the University Center 206 A-B-C.**

*Diamond Exhibitors
(Providing Refreshments and Supporting Student Award Winners):*

**Fluency Games
Geyer Instructional Products
Imagine Math**

Silver Exhibitors:

**Casio
Box Cars and One-Eyed Jacks
Outstanding Mastery Guides
CPM
Teachers ‘N Tools, Inc.
UMathX by Neufeld**

Provided Bookmarks:

NASA Space Place

Schedule At A Glance

<i>Friday, September 29</i>	
9:00 a.m. – 12:30 p.m.	TAMTE Preconference (requires separate registration)—University Center 111
<i>11:00 a.m. – 1:00 p.m.</i>	<i>TMTA Executive Board Meeting (members of the Executive Board only)—University Center 229</i>
<i>12:00 – 1:30 p.m.</i>	<i>Exhibit Set-Up (not open to TMTA participants)—University Center 206 A-B-C</i>
1:30 – 5:45 p.m.	Registration Open—University Center Watkins Auditorium Lobby
1:30 – 5:45 p.m.	Exhibits Open—University Center 206 A-B-C
3:00 – 3:45 p.m.	SESSION 1 (various locations—see detailed schedule)
4:00 – 4:45 p.m.	SESSION 2 (various locations—see detailed schedule)
5:00 – 5:45 p.m.	SESSION 3 (various locations—see detailed schedule)
6:00 – 8:00 p.m.	TMTA Awards Banquet—University Center Ballroom (2 nd Floor) <i>Speaker: Trent Okerson, Meteorologist, WPSD</i> <i>Student Award Winners sponsored by:</i> <i>Fluency Games</i> <i>Geyer Instructional Products</i> <i>Imagine Math</i>
<i>Saturday, September 30</i>	
7:45 a.m. – 8:45 a.m.	Continental Breakfast—University Center 206 A-B-C
7:45 a.m. – 12:00 p.m.	Registration Open—University Center Watkins Auditorium Lobby
7:45 a.m. – 12:00 p.m.	Exhibits Open—University Center 206 A-B-C
9:00 – 9:45 a.m.	SESSION 4 (various locations—see detailed schedule)
10:00 – 10:45 a.m.	SESSION 5 (various locations—see detailed schedule)
11:00 – 11:45 a.m.	SESSION 6 (various locations—see detailed schedule)
12:00 – 12:45 p.m.	Lunch and Affiliate Meetings <i>Pick up boxed lunches in University Center Ballroom</i> CAMTA: Chattanooga Area Mathematics Teachers' Association—UC 230-A SM ² EA: Smoky Mountain Mathematics Educators' Association—UC 230-B MACOTOM: Memphis Area Council of Teachers of Mathematics—UC 229 TMATYC: Tennessee Mathematics Association for Two Year Colleges—UC 230-C MT ² NW: Mathematics Teachers of Tennessee, Northwest—UC Ballroom UETCTM: Upper East Tennessee Council of Teachers of Mathematics—UC 231 (MT) ² : Middle Tennessee Mathematics Teachers—UC 111 TAMTE: Tennessee Association of Mathematics Teacher Educators—UC Ballroom
<i>12:00 – 1:30 p.m.</i>	<i>Exhibit Take-Down (not open to TMTA participants)—University Center 206 A-B-C</i>
1:00 – 2:15 p.m.	FINAL SESSION: Updates from Tennessee Department of Education, TMTA Business Meeting, Door Prizes—University Center Watkins Auditorium

Just for Fun

The Sun produces about 400,000,000,000,000,000,000,000 watts of power. The Earth is about 150 billion meters from the Sun, and the Earth has radius of about 6000 kilometers. All humans on Earth consume a total of about 1,000,000,000,000 watts (averaged over the day). What is the approximate ratio of the total amount of solar power hitting Earth over the total amount consumed by humans?

Source: Expii, <https://www.expii.com/solve/69/2>

My Schedule

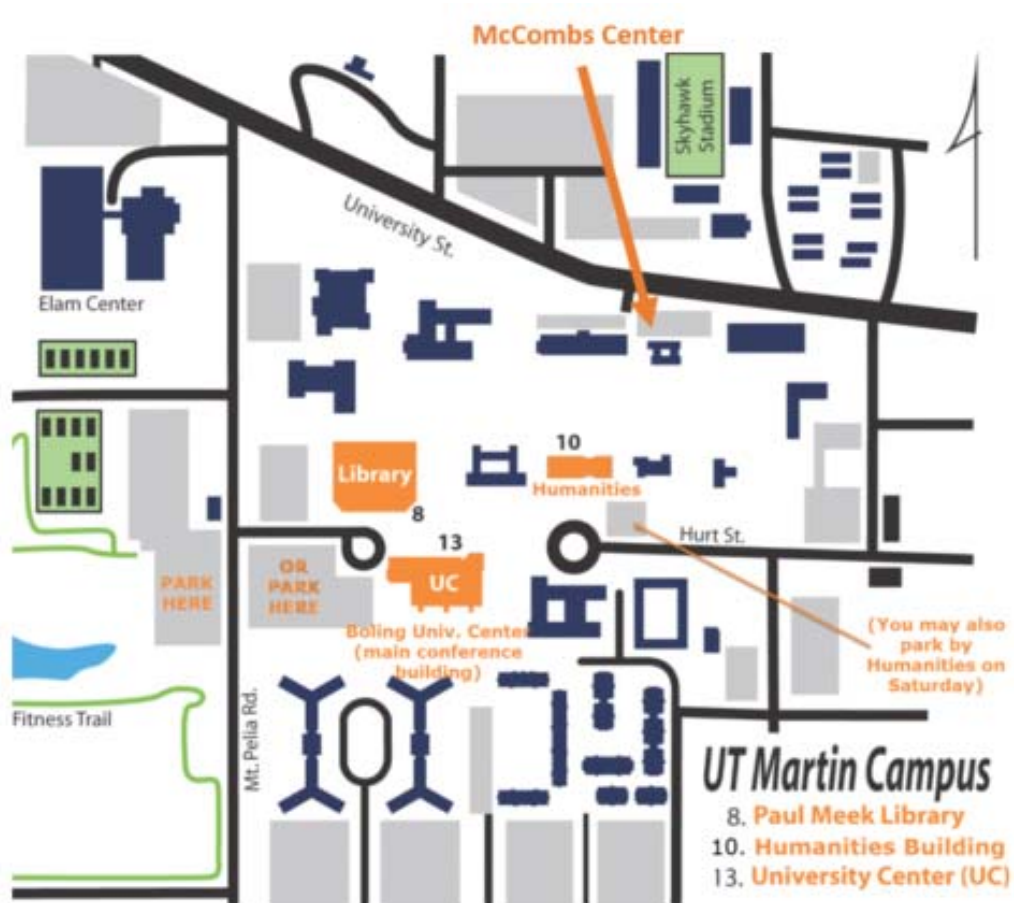
Day/Time	Session	Location

My Contacts

Name	Email/Phone	Why?

BUILDING ABBREVIATIONS AND CAMPUS MAP

UC – University Center HU – Humanities LIB – Paul Meek Library



Just for Fun

You are recycling water bottles for Earth Day. You can recycle any 2 bottles to get a new bottle. You start with 2017 bottles. How many new bottles can you make by starting from these 2017 bottles and recycling?

Source: Expii, <https://www.expii.com/solve/69/3>

FRIDAY SESSION 1: 3:00-3:45

<i>Friday, September 29, 2017</i>		<i>Session 1: 3:00-3:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
K-2, 3-5	<p>PowerPlay-Math Games for Place Value & More! (part 1)</p> <p>Stephanie Bainbridge steph@boxcarsandoneeyedjacks.com</p> <p>Come prepared to play games with cards, place value dice, number lines that teach: ordering, comparing, naming numbers, expanding, rounding numbers, decimals. Game boards, journal ideas & student samples provided.</p> <p style="text-align: center;"><i>THIS IS A TWO HOUR PRESENTATION.</i></p>	<p>Number and Operation, Mathematical Processes, Mathematical Modeling</p>	UC 230-A
K-2, 3-5, Pre-service, General	<p>Multisensory Strategies for Students with Dyscalculia</p> <p>Melissa Burnside mburnside119@gmail.com Lenore Turner lenoreses1@hotmail.com</p> <p>This session will equip participants with information about dyscalculia. Multi-sensory strategies will be taught to help students with disabilities.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED SATURDAY 9 AM</i></p>	<p>Number and Operation, Data Analysis, Statistics, Probability, Mathematical Processes, General Activities, Teacher of Teachers, Mathematical Modeling</p>	HU 416
3-5, Middle, Pre-service, General	<p>Counting Down to Number Sense and Flexible Strategies</p> <p>Ryan Fox ryan.fox@belmont.edu Whitney Spain Whitney.spain@mnps.org</p> <p>Demonstration of a game, modified from a European gameshow, focused on reaching a target number using a mix of basic arithmetic operation.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	<p>Number and Operation, Mathematical Processes</p>	HU 412
3-5, Middle, High	<p style="text-align: center;">Create an OMG!</p> <p>Rhonda K. Davis Rkdmath@gmail.com</p> <p>Create an OMG! – a collection of graphic organizers tailored for each grade 2 – Algebra 2.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	<p>Use of Vocabulary and Graphic Organizers</p>	UC 230-C

<i>Friday, September 29, 2017</i>		<i>Session 1: 3:00-3:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
Middle, High, Pre- service	<p>Creatively Assessing Students in AP/Honors Math Classes</p> <p>Sister Cecilia Anne Wanner, OP</p> <p>When given the privilege of a room full of students who love math and sincerely enjoy learning, assessment can go beyond standard tests. Gain a few new assessment ideas while also sharing reflections on tried-and-true methods.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	Algebra, Mathematical Processes, Mathematical Modeling, Calculus, Teacher of Teachers	HU 407
Middle, High, Pre- service	<p>Is it a FUNction?</p> <p>Theresa Hopkins thopkins@utk.edu Ashley Brown Abrow147@vols.utk.edu</p> <p>Do your students struggle with determining if a relation is a function? Let's look at how family pets can help decide if a relation is a function!</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	Algebra, Mathematical Processes	UC 231
Middle, High	<p>Can DESMOS Replace the Graphing Calculator?</p> <p>Liz Quinn-Stine lquinnstine@sasweb.org</p> <p>DESMOS is a powerful, free, online graphing program that I use more and more in the classroom. Can it replace expensive TI-calculators? Come and see what you can do with DESMOS.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	Algebra, Data Analysis, Statistics, Probability, Mathematical Modeling	HU 414
Middle	<p>Proportional Reasoning-Deepen Your Understanding Through Multiple Representations</p> <p>Christi Sampson csampson@carenegielearning.com</p> <p>Broaden your understanding of proportional relationships by experiencing tasks from a student's perspective by using double number lines, graphs, tape diagrams, and tables to make connections.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	Mathematical Modeling	UC 230-B
Middle, High	<p>Exploring Geometry Through Hands-on Learning</p> <p>Kimberly G. Williams kwill126@utm.edu Rachelle Reid, Jennifer Kaneer</p> <p>Participants will experience a variety of hands-on activities that can be used in the secondary mathematics classrooms to engage students in geometry.</p>	Geometry, Measurement	UC 229

<i>Friday, September 29, 2017</i>		<i>Session 1: 3:00-3:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
Middle, High College	<p>Fibonacci Sequences and Golden Rectangles-- Connections?</p> <p>Carroll G. Wells carroll.wells@lipscomb.edu</p> <p>How many ways can you climb a staircase taking one or two steps at a time? What is a golden rectangle? Are there connections?</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 5 PM</i></p>	General Activities	HU 405
Middle, High	<p>Strategies Used to Promote Discourse in Mathematics Classrooms</p> <p>Gerry Long gerrylong@cpm.org</p> <p>Participants will learn about and practice many study team teaching strategies. These strategies will help teachers facilitate and structure effective collaboration among their students.</p>	Mathematical Modeling	HU 408
High, College	<p>Practical Activities for your Statistics Class</p> <p>James N. Adair adair@dsc.edu</p> <p>Participants will complete the activities that are used to help statistics students understand probability distributions, sampling distributions, the Central Limit Theorem, correlation, regression and Goodness of Fit.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	Data Analysis, Statistics, Probability	HU 310

Just for Fun

You have two buckets, one holds exactly 24 cups of liquid and one holds exactly 15 cups. What is the smallest nonzero volume of water that you can measure out exactly using the two containers?

Source: Expii, <https://www.expii.com/solve/67/2>

Just for Fun

While you and your friend are having a picnic in the park, you notice that when you put your thumb against the ground, there are 5 blades of grass lined up from the tip of your thumb to its first joint, which is a distance of 2.5 cm (about 1 inch). About how many blades of grass are there in a square meter (about 1 square yard)?

Source: Expii, <https://www.expii.com/solve/65/2>

FRIDAY SESSION 2: 4:00-4:45

<i>Friday, September 29, 2017</i>		<i>Session 2: 4:00-4:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
K-2, 3-5	<p style="text-align: center;"><i>Continued:</i></p> <p>PowerPlay-Math Games for Place Value & More! (part 2)</p> <p>Stephanie Bainbridge steph@boxcarsandoneeyedjacks.com</p> <p>Come prepared to play games with cards, place value dice, number lines that teach: ordering, comparing, naming numbers, expanding, rounding numbers, decimals. Game boards, journal ideas & student samples provided.</p> <p style="text-align: center;"><i>THIS SESSION IS CONTINUED FROM 3:00</i></p>	Number and Operation, Mathematical Processes, Mathematical Modeling	UC 230-A
K-2, 3-5, Middle, High, College, Pre-service	<p>STEM on the Road: Mobile Renewable Energy Education</p> <p style="text-align: center;">Paula Gale pgale@utm.edu John Cole jcole42@utm.edu Rachna Tewari rtewari@utm.edu</p> <p>Our mobile renewable energy classroom contains educational demonstrations and activities that describe how energy is produced, what we use it for and how it can be conserved.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	General Activities, STEM	PARKING LOT OUTSIDE HU
3-5, Middle, Pre-service, General	<p style="text-align: center;">Flipping Out Over Factors and Remainders</p> <p style="text-align: center;">Ryan Fox ryan.fox@belmont.edu Cearra Logan cearra.logan@pop.belmont.edu</p> <p>How adapting a coin-flipping activity teaches Middle school students about factors and remainders while developing pre-service teachers' mathematical knowledge for teaching.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	Mathematical Modeling, Number and Operation, Mathematical Processes	HU 412
3-5, Middle, High	<p style="text-align: center;">Create an OMG!</p> <p style="text-align: center;">Rhonda K. Davis Rkdmath@gmail.com</p> <p>Create an OMG! – a collection of graphic organizers tailored for each grade 2 – Algebra 2.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	Use of vocabulary and Graphic Organizers	UC 230-C
Middle, High	<p style="text-align: center;">Can DESMOS Replace the Graphing Calculator?</p> <p style="text-align: center;">Liz Quinn-Stine lquinnstine@sasweb.org</p> <p>DESMOS is a powerful, free, on-line graphing program that I use more and more in the classroom. Can it replace expensive TI-calculators? Come and see what you can do with DESMOS.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	Algebra, Data Analysis, Statistics, Probability, Mathematical Modeling	HU 414

Friday, September 29, 2017

Session 2: 4:00-4:45

GRADE	PRESENTATION	STRAND	ROOM
Middle, High	<p align="center">Slope and Linear Relations – Modelling Makes Thinking Visible</p> <p>Rudy Neufeld RNeufeld@UMathX.com Darlene Lovingood lovingoodb@monroe.k12.tn.us</p> <p>Session will model blended learning in diverse learning environments, discuss pedagogy, choose appropriate lessons to “grapple” problems and “see” solutions in Linear Relations and Slope.</p> <p align="center"><i>THIS SESSION IS REPEATED SATURDAY AT 11 AM</i></p>	Mathematical Modeling	HU 118
Middle, High, Pre-service	<p align="center">Is it a FUNction?</p> <p>Theresa Hopkins thopkins@utk.edu Ashley Brown Abrow147@vols.utk.edu</p> <p>Do your students struggle with determining if a relation is a function? Let’s look at how family pets can help decide if a relation is a function.</p> <p align="center"><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	Algebra, Mathematical Processes	UC 231
Middle	<p align="center">Paper Quilts with Area!</p> <p>Melinda Hopkins Melinda.hopkins@knoxschools.org</p> <p>Engaging students in an art project that involves calculating area, finding patterns, and discussing important mathematical skills.</p> <p align="center"><i>THIS SESSION IS REPEATED FRIDAY AT 5 PM</i></p>	Geometry, Measurement	HU 405
Middle	<p align="center">Proportional Reasoning-Deepen Your Understanding Through Multiple Representations</p> <p>Christi Sampson csampson@carenegielearning.com</p> <p>Broaden your understanding of proportional relationships by experiencing tasks from a student's perspective by using double number lines, graphs, tape diagrams, and tables to make connections.</p> <p align="center"><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	Mathematical Modeling	UC 230-B
Middle, High, Pre-service	<p align="center">Creatively Assessing Students in AP/Honors Math Classes</p> <p>Sister Cecilia Anne Wanner, OP</p> <p>When given the privilege of a room full of students who love math and sincerely enjoy learning, assessment can go beyond standard tests. Gain a few new assessment ideas while also sharing reflections on tried-and-true methods.</p> <p align="center"><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	Algebra, Mathematical Processes, Mathematical Modeling, Calculus, Teacher of Teachers	HU 407

<i>Friday, September 29, 2017</i>		<i>Session 2: 4:00-4:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
High, College, General	<p>Why MUST a Soccer Ball Have Exactly Twelve Pentagons</p> <p>Steve Gadbois, steve.gadbois@musowls.org</p> <p>Euler's formula from graph theory applies to solid polyhedra, which then immediately translates to many areas, from sports (soccer balls) to chemistry (buckminsterfullerenes).</p> <p><i>THIS SESSION WILL BE REPEATED FRIDAY AT 5 PM</i></p>	General Activities	HU 416
High, College	<p>Practical Activities for your Statistics Class</p> <p>James N. Adair adair@dsc.edu</p> <p>Participants will complete the activities that are used to help statistics students understand probability distributions, sampling distributions, the Central Limit Theorem, correlation, regression and Goodness of Fit.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	Data Analysis, Statistics, Probability	HU 310
High, College	<p>Solve Free Response Questions in AP Calculus AB and BC Exam (part 1)</p> <p>Yanli Cui cuiy@scsk12.org</p> <p>Free Response Questions are challenging concepts in AP Calculus AB and BC exams. It requires the transition from purely procedural knowledge to development of conceptual understanding of the important ideas in calculus. We will work through the released FRQ questions step by step to understand how to tackle these types of questions.</p> <p><i>THIS IS A TWO HOUR SESSION.</i></p>	Mathematical Processes, Teacher of Teachers, Mathematical Modeling, STEM	HU 408
K-2, 3-5	<p>An Introduction to the Revised Tennessee Math Standards</p> <p>Eddie Keel keelmath@bellsouth.net Stacy Ussery Stacy.Ussery@tn.gov</p> <p>What has been revised, refined, dropped, or added to the revised math standards? Come to this session to learn what you need to know about the standards. We will also spend time discussing how rigor is an integral part of the instructional shifts in mathematics.</p>	General Activities	UC 229
General	<p>The Apollo Missions-One Flight Controller's Story (part 1)</p> <p>W.G. "Bill" Weppner wweppner@southwest.tn.edu</p> <p>A look back at my experiences as the Apollo Program celebrates 50 years.</p> <p><i>THIS IS A TWO HOUR SESSION.</i> <i>THIS SESSION WILL BE REPEATED SATURDAY 10 AM</i></p>	STEM, History	UC 111

FRIDAY SESSION 3: 5:00-5:45

<i>Friday, September 29, 2017</i>		<i>Session 3: 5:00-5:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
K-2	<p style="text-align: center;">Rolling into Math-Primary Math Games</p> <p>Stephanie Bainbridge steph@boxcarsandoneeyedjacks.com</p> <p>Come prepared to play games that use cards, dice, multi-sided dice that teach: operational fluency, number sense and more. Strategies, game boards, journal writing ideas provided!</p>	Number and Operation, Mathematical Processes	UC 230-A
K-2, 3-5, Middle, High, Pre-Service	<p style="text-align: center;">The UTM STEM Center for Teaching and Learning</p> <p style="text-align: center;">Elliott S. Elliott selliott@utm.edu</p> <p>Walk across the beautiful UTM campus to visit the STEM Center, learn about workshops and view center resources.</p> <p><i>THIS SESSION WILL BE REPEATED SATURDAY AT 10 AM</i></p>	STEM	MCCOMBS CENTER
3-5	<p style="text-align: center;">Equivalent, Fraction Multiplication, Partial Products – Model to “SEE”</p> <p style="text-align: center;">Rudy Neufeld RNeufeld@UMathX.com David Carlisle dctrek47@yahoo.com</p> <p>Session will model blended learning in diverse learning environments, discuss pedagogy, choose appropriate lessons to “grapple” problems and “see” solutions in Fractions and Partial Products.</p>	Mathematical Modeling	HU 118
3-5, Middle	<p style="text-align: center;">Dirty Math – An exploration of soil texture and the soil textural triangle</p> <p style="text-align: center;">Paula Gale pgale@utm.edu</p> <p>Soil texture is the relative percentages of sand, silt and clay sized particles. This activity uses soil samples to explore percentages, measurement, estimation, size and volume.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 11 AM</i></p>	Algebra, Geometry, Measurement, Data Analysis, Statistics, Probability, General Activities, STEM	PARKING LOT OUTSIDE HU
Middle, High College	<p style="text-align: center;">Fibonacci Sequences and Golden Rectangles-- Connections?</p> <p style="text-align: center;">Carroll G. Wells carroll.wells@lipscomb.edu</p> <p>How many ways can you climb a staircase taking one or two steps at a time? What is a golden rectangle? Are there connections?</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	General Activities	HU 407

<i>Friday, September 29, 2017</i>		<i>Session 3: 5:00-5:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
Middle	<p>Paper Quilts with Area!</p> <p>Melinda Hopkins Melinda.hopkins@knoxschools.org</p> <p>Engaging students in an art project that involves calculating area, finding patterns, and discussing important mathematical skills.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	Geometry, Measurement	HU 405
High	<p>Technology Resources for the High School Classroom</p> <p>Kimberly G. Williams kwill126@utm.edu Kade Larson, Andrea Austin, Nickolas Cobb</p> <p>This session will provide participants with free technology resources that can be used in the high school classroom to engage and challenge students.</p>	Technology	UC 229
High, College	<p>Investigation with Right Triangles</p> <p>Holly Anthony hanthony@tntech.edu Jackie Vogel vogelj@apsu.edu Stephanie Kolitsch styler@utm.edu</p> <p>Right triangles offer opportunities for in-depth exploration of geometry and algebra content. We share our recent investigations and offer suggestions for engaging high school students.</p>	Geometry, Measurement	UC 230-B
High, College, General	<p>Why MUST a Soccer Ball Have Exactly Twelve Pentagons</p> <p>Steve Gadbois steve.gadbois@musowls.org</p> <p>Euler's formula from graph theory applies to solid polyhedra, which then immediately translates to many areas, from sports (soccer balls) to chemistry (buckminsterfullerenes).</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	General Activities	HU 416
High, College	<p><i>Continued:</i></p> <p>Solve Free Response Questions in AP Calculus AB and BC Exam (part 2)</p> <p>Yanli Cui cuiy@scsk12.org</p> <p>Free Response Questions are challenging concepts in AP Calculus AB and BC exams. It requires the transition from purely procedural knowledge to development of conceptual understanding of the important ideas in calculus. We will work through the released FRQ questions step by step to understand how to tackle these types of questions.</p>	Mathematical Processes, Teacher of Teachers, Mathematical Modeling, STEM	HU 408

<i>Friday, September 29, 2017</i>		<i>Session 3: 5:00-5:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
High	<p>Open Season with Circle Equations</p> <p>Carey Wilson cwilson@yaidragons.com</p> <p>Students will need to be able to write the circle equation in standard form, and graph it to know if they have had a successful hunt.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 11 AM</i></p>	Geometry, Measurement	UC 230-C
General	<p><i>Continued:</i></p> <p>The Apollo Missions-One Flight Controller's Story (part 2)</p> <p>W.G. "Bill" Weppner wweppner@southwest.tn.edu</p> <p>A look back at my experiences as the Apollo Program celebrates 50 years.</p>	STEM, History	UC 111

6:00 P.M.
UNIVERSITY CENTER BALLROOM

TMTA BANQUET

Featuring Guest Speaker
Trent Okerson
WPSD Paducah Meteorologist

and celebrating

The 2017 TMTA High School Math Contests
Award Winners and Teachers

SATURDAY SESSION 4: 9:00-9:45

<i>Saturday, September 30, 2017</i>		<i>Session 4: 9:00-9:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
K-2, 3-5, Middle, High	<p>When Your Classroom Management Strategies Don't Add Up</p> <p>Peter Vajda pvajda@truenorthpartnering.com</p> <p>Learn "8:00 Monday morning" research-based strategies of a fair and simple classroom management system that will eliminate unwanted behaviors by 70% or more.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	General Activities, Teacher of Teachers, Classroom Management	HU 412
K-2, 3-5, Pre-service	<p>Using Contextual Problems to Differentiate Instruction on Operations</p> <p>Audrey Bullock bullocka@apsu.edu</p> <p>Participants will learn to create and use different types of contextual problems with the four operations as well as a variation dealing with elapsed time.</p>	Number and Operation	UC 229
K-2, 3-5, Middle, High, College, Pre-service	<p>Using the Socratic Method to Teach Mathematics</p> <p>Tammie T. Patterson tpatterson@utm.edu</p> <p>Math lectures are flat-lining our students' brains and we must engage them in open-ended questioning in order to change their minds about STEM/STEAM careers. We will look at how to teach math using the Socratic Method.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	Mathematical Processes, Teacher of Teachers, Mathematical Modeling, STEM	HU 414
K-2, 3-5, Middle, High, College, Pre-service	<p>Establishing a Growth Mindset in the Mathematics Classroom</p> <p>Jaelle Johnson jaelle.johnson@wcs.edu</p> <p>Learn how to create a classroom culture that embraces failure, celebrates mistakes, and focuses on the belief that all students can achieve great success in math.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	Growth Mindset	HU 416
K-2, 3-5, Middle, High, College, Pre-service	<p>STEM on the Road: Mobile Renewable Energy Education</p> <p>Paula Gale pgale@utm.edu John Cole jcole42@utm.edu Rachna Tewari rtewari@utm.edu</p> <p>Our mobile renewable energy classroom contains educational demonstrations and activities that describe how energy is produced, what we use it for and how it can be conserved.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	General Activities, STEM	PARKING LOT OUTSIDE HU

<i>Saturday, September 30, 2017</i>		<i>Session 4: 9:00-9:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
K-2, 3-5, Pre-service, General	<p>Multisensory Strategies for Students with Dyscalculia</p> <p>Melissa Burnside mburnside119@gmail.com Lenore Turner lenoreses1@hotmail.com</p> <p>This session will equip participants with information about dyscalculia. Multi-sensory strategies will be taught to help students with disabilities.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 3 PM</i></p>	Number and Operation, Data Analysis, Statistics, Probability, Mathematical Processes, General Activities, Teacher of Teachers, Mathematical Modeling	UC 231
3-5, Middle, High	<p>Math Norms to Empower and Engage ALL Students</p> <p>Gail D. Boyd gail.boyd@cityschools.net</p> <p>Participants will walk away with 7 math norms to cultivate a learning environment that empowers all students to increase their self-efficacy in mathematics.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	General Activities	UC 230-A
3-5, Middle, High	<p>One and Done!.....Now Teaching is Fun</p> <p>David Frongillo davidfrongillo@yahoo.com</p> <p>Disruptive students dominate your attention and time. Imagine speaking to your troublesome student(s) just once, and it ends there. It can happen and it does!</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	Teacher of Teachers, General Activities, Classroom Management	UC 230-B
Middle, High, College, Pre-service	<p>Let's Get Physical! Physics Activities for Math Classrooms</p> <p>Jeneva Clark dr.jenevaclark@utk.edu</p> <p>THEC-funded teacher workshop provided physics lab equipment and lesson plans for teaching mathematics through hands-on physics activities. Workshop directors will share some examples.</p>	Mathematical Modeling	UC 111
Middle, High	<p>A Potpourri of Activities (part 1)</p> <p>Betty Mayberry Betty.mayberry@jp2hs.org Amanda Peper Amanda.peper@jp2hs.org and Mathematics Department at JP2</p> <p>A combination of activities that include lessons and ideas for Algebra through Calculus will be shared with all participants. Participants will be encouraged to share ways to expand and use these activities.</p> <p><i>THIS IS A TWO HOUR SESSION.</i></p>	Number and Operation, Algebra, Geometry, Measurement, Data Analysis, Statistics, Probability, General Activities	HU 408

<i>Saturday, September 30, 2017</i>		<i>Session 4: 9:00-9:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
Middle	<p>I am Floored by this Activity!</p> <p>Christina Ploeckelman Christina.ploeckelman@cmcss.net Jennifer Yantz yantzj@apsu.edu</p> <p>Experience a hands-on, real-world activity that encompasses 5+ seventh grade standards and is easily differentiated. Materials will be shared.</p>	Geometry, Measurement, Ratio, Proportion, Percent, and Scale	HU 407
High	<p>Divide & Conquer in a Mathematics Course</p> <p>Amy Rigsby rigsbya@wcde.org Kristina Hill hillt@wcde.org</p> <p>Cooperative grouping using the Divide & Conquer technique: Create and Collaborate, Tech it Out, and You & Me (direct instruction with small group discussion).</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	General Teaching Strategy	UC 230-C
High, College, Pre-service, General	<p>Teaching Career Skills Through Mathematical Content</p> <p>Caroline Maher-Boulis cmaherboulis@leeuniversity.edu Jason Robinson jrobinson@leeuniversity.edu Bryan Poole bpooles@leeuniversity.edu</p> <p>We will share ideas from CATCH Math², a workshop that aims at emphasizing mathematical skills in careers, with focus on the Statistics and Functions domain.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	Data Analysis, Statistics, Probability, Algebra, Functions	HU 310
High	<p>Similar Tastes for Similar Triangles</p> <p>Kimberly Troutman Ktroutm4@vols.utk.edu Theresa M. Hopkins thopkins@utk.edu</p> <p>This presentation will preview a menu activity designed for high school geometry with a discussion following on what other subject areas would be practical. Participants will get to order a menu item and complete the activity.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	Geometry, Measurement, General Activities	HU 405

Just for Fun



SATURDAY SESSION 5: 10:00-10:45

<i>Saturday, September 30, 2017</i>		<i>Session 5: 10:00-10:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
K-2, 3-5, Middle, High, College, Pre-service	<p style="text-align: center;">Using the Socratic Method to Teach Mathematics</p> <p style="text-align: center;">Tammie T. Patterson tpatterson@utm.edu</p> <p>Math lectures are flat-lining our students' brains and we must engage them in open-ended questioning in order to change their minds about STEM/STEAM careers. We will look at how to teach math using the Socratic Method.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	Mathematical Processes, Teacher of Teachers, Mathematical Modeling, STEM	HU 414
K-2, 3-5, Middle, High, College, Pre-service	<p style="text-align: center;">Establishing a Growth Mindset in the Mathematics Classroom</p> <p style="text-align: center;">Jaelle Johnson jaelle.johnson@wcs.edu</p> <p>Learn how to create a classroom culture that embraces failure, celebrates mistakes, and focuses on the belief that all students can achieve great success in math.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	Growth Mindset	HU 416
K-2, 3-5, Middle, High, Pre-Service	<p style="text-align: center;">The UTM STEM Center for Teaching and Learning</p> <p style="text-align: center;">Elliott S. Elliott selliott@utm.edu</p> <p>Walk across the beautiful UTM campus to visit the STEM Center, learn about workshops and view center resources.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED FRIDAY AT 5 PM</i></p>	STEM	MCCOMBS CENTER
K-2, 3-5, Middle, High	<p style="text-align: center;">When Your Classroom Management Strategies Don't Add Up</p> <p style="text-align: center;">Peter Vajda pvajda@truenorthpartnering.com</p> <p>Learn "8:00 Monday morning" research-based strategies of a fair and simple classroom management system that will eliminate unwanted behaviors by 70% or more.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	General Activities, Teacher of Teachers, Classroom Management	HU 412

<i>Saturday, September 30, 2017</i>		<i>Session 5: 10:00-10:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
3-5, Middle	<p align="center">Number Line to 10,000,000 and Other Math Manipulatives (part 1)</p> <p align="center">Jim Franklin Slide-A-Round@comcast.net Susan Franklin sfranklin@floydboe.net</p> <p>Join us for a differentiation of instruction demonstration with a number line to 10,000,000 and learn strategies to add/subtract mixed number fractions with different denominators without paper and pencil.</p> <p align="center"><i>THIS IS A TWO HOUR SESSION.</i></p>	Number and Operation, Mathematical Processes, Mathematical Modeling, STEM	HU 407
3-5, Middle, High	<p align="center">Using Multiple Representations to Promote Conceptual Understanding</p> <p align="center">Margaret Garwood margaret.garwood@cmcss.net</p> <p>When presented with multiple representations, students are empowered to meaningfully engage with content and make connections between topics.</p> <p align="center"><i>THIS SESSION IS REPEATED SATURDAY AT 11 AM</i></p>	Mathematical Modeling	UC 229
3-5	<p align="center">Multiply Fractions, Partial Products – Model Visible Thinking</p> <p align="center">Rudy Neufeld RNeufeld@UMathX.com David Carlisle dctrek47@yahoo.com</p> <p>“Build-Talk-Own” to address topic. Give access to lessons and computer program to empower students to “grapple” and “see” solutions through simulations and manipulatives.</p>	Mathematical Modeling	HU 118
3-5	<p align="center">Millions, Billions, and Double Trouble</p> <p align="center">Patricia Hewitt phewitt@utm.edu</p> <p>Discover games and simulations to teach about very large numbers and the effects of doubling using real-world data on the environment and society.</p>	Number and Operation, Mathematical Modeling, STEM	HU 409
3-5, Middle, High	<p align="center">Math Norms to Empower and Engage ALL Students</p> <p align="center">Gail D. Boyd gail.boyd@cityschools.net</p> <p>Participants will walk away with 7 math norms to cultivate a learning environment that empowers all students to increase their self-efficacy in mathematics.</p> <p align="center"><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	General Activities	UC 230-A

<i>Saturday, September 30, 2017</i>		<i>Session 5: 10:00-10:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
3-5, Middle, High	<p align="center">Inspiring STEM Students through Sports, Careers and Money</p> <p align="center">Stephanie Holzwarth sholzwarth@everfi.com</p> <p>Join us for hands-on exploration of five FREE EverFi digital resources. Obtain access to engaging and self-assessing programs, TN standards-alignment guides, supplemental resources, and more.</p> <p align="center"><i>THIS SESSION IS REPEATED SATURDAY AT 11 AM</i></p>	Algebra, Geometry, Measurement, Data Analysis, Mathematical Processes, General Activities, STEM	LIB 215
3-5, Middle, High	<p align="center">One and Done!Now Teaching is Fun</p> <p align="center">David Frongillo davidfrongillo@yahoo.com</p> <p>Disruptive students dominate your attention and time. Imagine speaking to your troublesome student(s) just once, and it ends there. It can happen and it does!</p> <p align="center"><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	Teacher of Teachers, General Activities, Classroom Management	UC 230-B
Middle	<p align="center">Math Stations</p> <p align="center">Deana Secrest Deana.secrest@cityschools.net</p> <p>The 2016-2017 Grant Recipient will demonstrate how she uses Math Station Manipulatives in the 6th grade classroom.</p>		HU 314
Middle, High, College, General	<p align="center">Using Geogebra for Graphs, Animations, and Geometry (part 1)</p> <p align="center">Tommy Elliott belliot@tntech.edu Sam Narimetla snarimetla@tntech.edu</p> <p>To help students gain mastery over the learning outcomes involving Graphs or Geometry, use Geogebra. In two one-hour, hands-on sessions, we will show you how.</p> <p align="center"><i>THIS IS A TWO HOUR SESSION.</i></p>	Geometry/ Measurement, Data Analysis, Statistics, Mathematical Modeling, Probability	HU 415
Middle, High	<p align="center">The Effects of Frequent Quizzing</p> <p align="center">Nicole L. Hardison nhardison@clarksvilleacademy.com Jennifer Yantz yantzj@apsu.edu</p> <p>We will discuss recent research where students were given quizzes and we will discuss the effects on students and the teacher.</p>	Research	HU 312
Middle, High, College, Pre-service, General	<p align="center">Problem Solving in Mathematics</p> <p align="center">John Garwood garwoodj@apsu.edu</p> <p>This session will focus on the importance of communication and perseverance in solving mathematical problems.</p>	Number and Operation, Mathematical Processes, Mathematical Modeling	HU 307

Saturday, September 30, 2017

Session 5: 10:00-10:45

GRADE	PRESENTATION	STRAND	ROOM
Middle	<p>TGIF! Middle Years Math Games (part 1)</p> <p>Stephanie Bainbridge steph@boxcarsandoneeyedjacks.com</p> <p>Engage your students with games using dice, cards. Concepts include: rebuilding fact fluency, integers, linear equations, probability & more. Game boards provided. Come prepared to play!</p> <p><i>THIS IS A TWO HOUR SESSION.</i></p>	Algebra, Data Analysis, Statistics, Probability, Mathematical Modeling	UC 231
Middle, High	<p><i>Continued:</i></p> <p>A Potpourri of Activities (part 2)</p> <p>Betty Mayberry Betty.mayberry@jp2hs.org Amanda Peper Amanda.peper@jp2hs.org and Mathematics Department at JP2</p> <p>A combination of activities that include lessons and ideas for Algebra through Calculus will be shared with all participants. Participants will be encouraged to share ways to expand and use these activities.</p>	Number and Operation, Algebra, Geometry, Measurement, Data Analysis, Statistics, Probability, General Activities	HU 408
High	<p>Similar Tastes for Similar Triangles</p> <p>Kimberly Troutman Ktroutm4@vols.utk.edu Theresa M. Hopkins thopkins@utk.edu</p> <p>This presentation will preview a menu activity designed for high school geometry with a discussion following on what other subject areas would be practical. Participants will get to order a menu item and complete the activity.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	Geometry/ Measurement, General Activities	HU 405
High, College, Pre-service, General	<p>Teaching Career Skills Through Mathematical Content</p> <p>Caroline Maher-Boulis cmaherboulis@leeuniversity.edu Jason Robinson jrobinson@leeuniversity.edu Bryan Poole bpooles@leeuniversity.edu</p> <p>We will share ideas from CATCH Math², a workshop that aims at emphasizing mathematical skills in careers, with focus on the Statistics and Functions domains.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	Data Analysis, Statistics, Probability, Algebra, Functions	HU 310

Saturday, September 30, 2017

Session 5: 10:00-10:45

GRADE	PRESENTATION	STRAND	ROOM
High	<p>Math as a Language: Comprehensible Input with Mathematics</p> <p>Nicholas King sking@cakmail.org</p> <p>Using cross-curricular teaching strategies with world language education, MovieTalk and edPuzzle formatively assess student comprehension through dialogue and flipped classroom methodology.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 11 AM</i></p>	General Activities	HU 308
High	<p>The Math Behind Music</p> <p>Sister Cecilia Anne Wanner, OP</p> <p>Math can be seen – and heard! – in the world around us. Did you know that geometric and algebraic translations can be found everywhere in music? From classifying pitches through exponential functions, to using trigonometry to determine what music “sounds good,” learn how math and music are intimately connected.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 11 AM</i></p>	Algebra, Mathematical Processes, Mathematical Modeling, Geometry, Measurement, Trigonometry	HU 306
High	<p>Divide & Conquer in a Mathematics Course</p> <p>Amy Rigsby rigsbya@wcde.org Kristina Hill hillt@wcde.org</p> <p>Cooperative grouping using the Divide & Conquer technique: Create and Collaborate, Tech it Out, and You & Me (direct instruction with small group discussion).</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 9 AM</i></p>	General Teaching Strategy	UC 230-C
General	<p>The Apollo Missions-One Flight Controller's Story (part 1)</p> <p>W.G. "Bill" Weppner wweppner@southwest.tn.edu</p> <p>A look back at my experiences as the Apollo Program celebrates 50 years.</p> <p><i>THIS IS A TWO HOUR SESSION.</i></p>	STEM, History	UC 111

SATURDAY SESSION 6: 11:00-11:45

<i>Saturday, September 30, 2017</i>		<i>Session 6: 11:00-11:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
3-5, Middle	<p style="text-align: center;"><i>Continued:</i></p> <p style="text-align: center;">Number Line to 10,000,000 and Other Math Manipulatives (part 2)</p> <p style="text-align: center;">Jim Franklin Slide-A-Round@comcast.net Susan Franklin sfranklin@floydboe.net</p> <p>Join us for a differentiation of instruction demonstration with a number line to 10,000,000 and learn strategies to add/ subtract mixed number fractions with different denominators without paper and pencil.</p>	Number and Operation, Mathematical Processes, Mathematical Modeling, STEM	HU 407
3-5, Middle, High	<p style="text-align: center;">Using Multiple Representations to Promote Conceptual Understanding</p> <p style="text-align: center;">Margaret Garwood margaret.garwood@cmcss.net</p> <p>When presented with multiple representations, students are empowered to meaningfully engage with content and make connections between topics.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	Mathematical Modeling	UC 229
3-5, Middle	<p style="text-align: center;">Dirty Math – An Exploration of Soil Texture and the Soil Textural Triangle</p> <p style="text-align: center;">Paula Gale pgale@utm.edu</p> <p>Soil texture is the relative percentages of sand, silt and clay sized particles. This activity uses soil samples to explore percentages, measurement, estimation, size and volume.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED FRIDAY AT 5 PM</i></p>	Algebra, Geometry/ Measurement, Data Analysis, Statistics, Probability, General Activities, STEM	PARKING LOT OUTSIDE HU
3-5, Middle, High	<p style="text-align: center;">Inspiring STEM Students through Sports, Careers and Money</p> <p style="text-align: center;">Stephanie Holzwarth sholzwarth@everfi.com</p> <p>Join us for hands-on exploration of five FREE EverFi digital resources. Obtain access to engaging and self-assessing programs, TN standards-alignment guides, supplemental resources, and more.</p> <p style="text-align: center;"><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	Algebra, Geometry, Measurement, Data Analysis, Mathematical Processes, General Activities, STEM	LIB 215

Saturday, September 30, 2017

Session 6: 11:00-11:45

GRADE	PRESENTATION	STRAND	ROOM
Middle, High	<p>Slope and Linear Relations - Modelling Makes Thinking Visible</p> <p>Rudy Neufeld RNeufeld@UMathX.com Darlene Lovingood lovingoodb@monroe.k12.tn.us</p> <p>Session will model blended learning in diverse learning environments, discuss pedagogy, choose appropriate lessons to “grapple” problems and “see” solutions in Linear Relations and Slope.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 4 PM</i></p>	Mathematical Modeling	HU 118
Middle	<p><i>Continued:</i></p> <p>TGIF! Middle Years Math Games (part 2)</p> <p>Stephanie Bainbridge steph@boxcarsandoneeyedjacks.com</p> <p>Engage your students with games using dice, cards. Concepts include: rebuilding fact fluency, integers, linear equations, probability & more. Game boards provided. Come prepared to play!</p>	Algebra, Data Analysis, Statistics, Probability, Mathematical Modeling	UC 231
High	<p>The Math Behind Music</p> <p>Sister Cecilia Anne Wanner, OP</p> <p>Math can be seen – and heard! – in the world around us. Did you know that geometric and algebraic translations can be found everywhere in music? From classifying pitches through exponential functions, to using trigonometry to determine what music “sounds good,” learn how math and music are intimately connected.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	Algebra, Mathematical Processes, Mathematical Modeling, Geometry, Measurement, Trigonometry	HU 306
High	<p>Open Season with Circle Equations</p> <p>Carey Wilson cwilson@yaidragons.com</p> <p>Students will need to be able to write the circle equation in standard form, and graph it to know if they have had a successful hunt.</p> <p><i>THIS SESSION IS REPEATED FRIDAY AT 5 PM</i></p>	Geometry, Measurement	HU 412
High	<p>Math as a Language: Comprehensible Input with Mathematics</p> <p>Nicholas King sking@cakmail.org</p> <p>Using cross-curricular teaching strategies with world language education, MovieTalk and edPuzzle formatively assess student comprehension through dialogue and flipped classroom methodology.</p> <p><i>THIS SESSION IS REPEATED SATURDAY AT 10 AM</i></p>	General Activities	HU 308

<i>Saturday, September 30, 2017</i>		<i>Session 6: 11:00-11:45</i>	
GRADE	PRESENTATION	STRAND	ROOM
General	<p>Gaming 2.0: Utilizing Technology!</p> <p>Kimberly G. Williams kwill126@utm.edu</p> <p>This session will provide participants with free web-based resources to immediately incorporate gaming into your mathematics classroom.</p>	General Activities	HU 416
Middle, High, College, General	<p><i>Continued:</i></p> <p>Using Geogebra for Graphs, Animations, and Geometry (part 2)</p> <p>Tommy Elliott belliott@tntech.edu Sam Narimetla snarimetla@tntech.edu</p> <p>To help students gain mastery over the learning outcomes involving Graphs or Geometry, use Geogebra. In two one-hour, hands-on sessions, we will show you how.</p>	Geometry, Measurement, Data Analysis, Statistics, Mathematical Modeling, Probability	HU 415
General	<p><i>Continued:</i></p> <p>The Apollo Missions-One Flight Controller's Story (part 2)</p> <p>W.G. "Bill" Weppner wweppner@southwest.tn.edu</p> <p>A look back at my experiences as the Apollo Program celebrates 50 years.</p>	STEM, History	UC 111
<i>SPECIAL SESSIONS WITH UNDERGRADUATE PRESENTERS</i>			
11:00-11:20			
Middle	<p>Mathematics Response to Intervention and Middle School Students</p> <p>APSU Pre-service Teachers darroughr@apsu.edu</p> <p>This presentation describes our experiences in a Middle school mathematics RTI classroom and activities that worked and didn't work.</p>	Number and Operation	HU 414
11:25-11:45			
High, College	<p>Undergraduate Students Presentations Simplified Chain Rule in Calculus using Back Substitution</p> <p>Linh Do ldo@my.apsu.edu Daniel Mayo</p> <p>Introducing a simplified method for teaching the Chain Rule in Introductory Calculus that uses function decomposition with back substitution.</p>	Mathematical Processes	HU 414

1:00 p.m.
Watkins Auditorium
University Center

FINAL SESSION

featuring

Updates from the Tennessee Department of Education

TMTA Business Meeting

Door Prizes
(must be present to win)

Just for Fun

Have you ever been walking down the street on a cold day when suddenly a gust of wind makes you feel even colder? The wind chill can make the coldest days of winter even colder with just the slightest wind speed. The National Weather Service uses the formula:

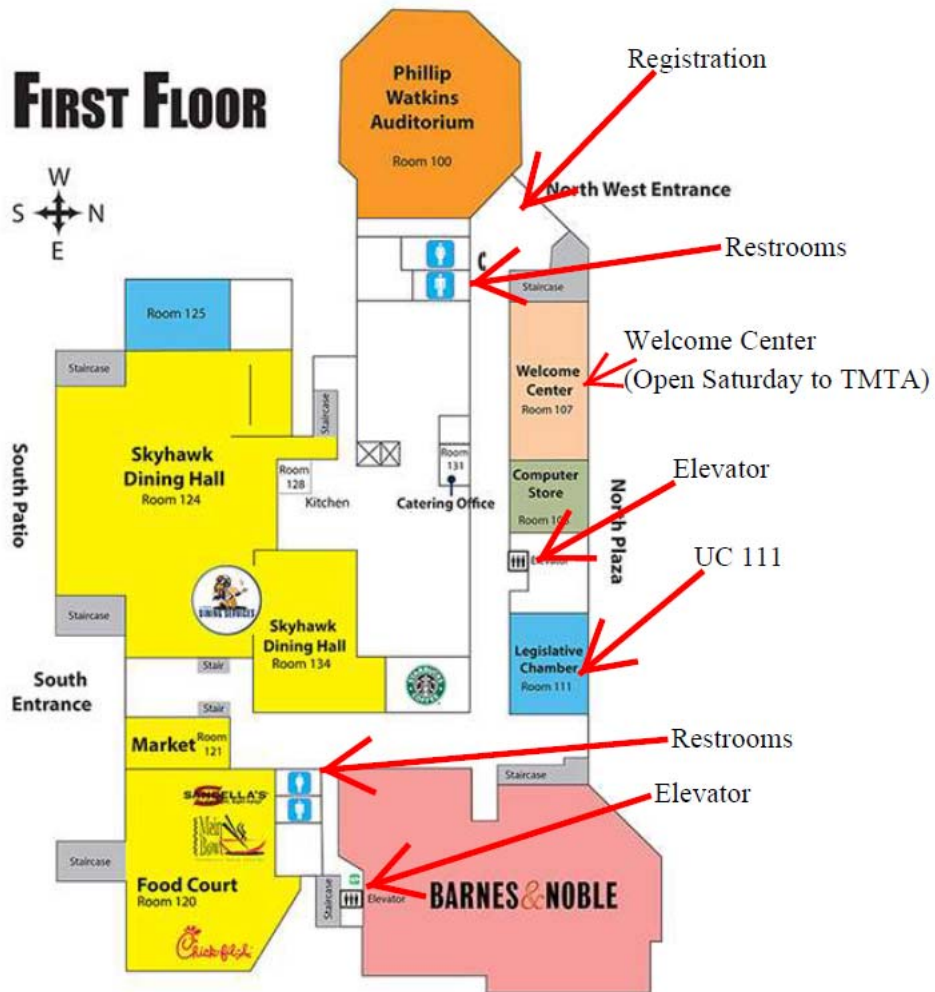
$$35.74 + 0.6215 T - 35.75 V^{0.16} + 0.4275 T V^{0.16}$$

to estimate what temperature it feels like when the wind is blowing at V miles per hour, and the air temperature is T degrees Fahrenheit. The formula requires a wind speed of at least 3 miles per hour, and a temperature at or below 50 degrees Fahrenheit.

The reason for these requirements is that the formula is an approximation which only holds in a certain range. To test its limitations, suppose that the wind speed is exactly 3 miles per hour. If this formula worked across all temperatures, at what actual temperature T would the wind chill temperature be equal to T ? Round your answer to the nearest degree Fahrenheit.

Source: Expii, <https://www.expii.com/solve/57/2>

University Center Maps



UNIVERSITY CENTER STORE HOURS

Barnes & Noble Bookstore: Friday 7:30 am – 4:30 pm and Saturday 9 am – Noon

Food Court: Friday 7 am - 8 pm and Saturday 11 am - 8 pm

On The Fly (Market): Friday 8 am - 8 pm and Saturday 4 pm - 7 pm

Captain's Coffee (in the Paul Meek Library): Friday 8 am - 3 pm and closed Saturdays

The Hangar (Starbuck's): Friday 7 am - 3 pm and closed Saturdays

SECOND FLOOR



Just for Fun

The 2016 Nobel Prize for Literature was won by rock and roll poet, Bob Dylan. One of his most famous songs, “Blowin’ in the Wind”, opens with the signature line, “How many roads must a man walk down, before you call him a man?” While the answer may be blowing in the wind, we can estimate how far a person would walk over 80 years. A moderately active person takes around 7,500 steps per day. Which of these is closest to the total distance walked over that time?

- Across Town
- Orient Express
- Trans-Siberian Railway
- Around the World
- 5 Times Around the World
- Moon and Back

Source: Expii, <https://www.expii.com/solve/53/1>

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Just for Fun

In the Hitchhiker's Guide to the Galaxy, the supercomputer, Deep Thought, takes $7\frac{1}{2}$ million years to compute and check the Answer to the Ultimate Question of Life, the Universe, and Everything. Deep Thought states the answer, 42, seems meaningless because the beings who programmed Deep Thought never actually knew what the Question was. A possible Question, for example, could be "What do you get if you add five and thirty and seven?" How many such Questions are possible, written in the form of adding together some list of positive integers with Answer 42? Consider $5 + 30 + 7$ and $5 + 7 + 30$ to be different Questions.

Source: ExpII, <https://www.expII.com/solve/42/3>

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Sudoku Puzzle

9			3					
3		8		5	2			7
2						8	3	
	2			7	1		5	
	5		2	9			1	
	9	6						2
5			4	6		7		9
					7			5

http://sudoku.com n° 2804 - Level Medium

Kakuro Puzzle

Kakuro is like a crossword puzzle with numbers. Each "word" must add up to the number provided in the clue above it or to the left. Words can only use the numbers 1 through 9, and a given number can only be used once in a word. Every kakuro puzzle has exactly one solution.

<http://www.kakuroconquest.com/>

			8	10			11	15
	3	4	3		4		6	
16						6	3	
4			19					
	19	10	4		10	6		
7				4	3		9	14
15						3	13	
13			16					
4				4				

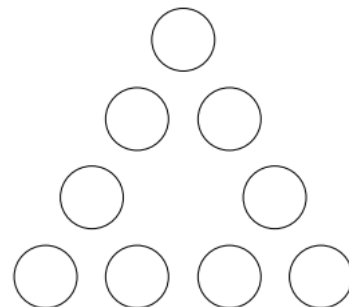
Just for Fun

There is a highway that wraps around a large lake, making a 90-degree turn through a gradual curve which follows the arc of a perfect circle. Each direction has 5 lanes for traffic, each of which is 12 feet (about 4 meters) wide, and the radius of the circular arc is about 8 miles (about 13 kilometers). What is the difference between the distance traveled along the circular arc if you drive in the leftmost lane in a single direction, versus the rightmost lane in that direction?

Source: Expii, <https://www.expii.com/solve/64/1>

Just for Fun—Problems that Never End

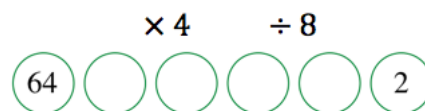
1. Use each of the numbers 1, 2, 3, 4, 5, 6, 7, 8, and 9 exactly once to fill in the circles to make the sum of each side equal to 17.
2. Is there more than one solution? If so, how many solutions exist?
3. Use each of the numbers 1, 2, 3, 4, 5, 6, 7, 8, and 9 exactly once to fill in the circles to make the sum of each side equal to a number **greater than** 17. What is the greatest sum possible using this configuration?
4. Can you arrange the numbers to make the sum **less than** 17? Why or why not?
5. What other questions can you ask about this problem? (Think: More circles? Different numbers? Both positive and negative numbers? Do the numbers have to be consecutive? How does changing the numbers change the problem, the solution(s), the problem solving strategies, ...?)



Source: Adapted from a problem in *Advanced Common Core Math Explorations: Numbers and Operations*, by Jerry Burkhart (Prufrock Press, 2014)

Just for Fun—Problems that Never End

1. Use only $\times 4$ and $\div 8$ to change 64 into 2 in five steps. Write numbers in the other circles to show your answer at each step. You may use $\times 4$ and $\div 8$ more than once.
2. Is there more than one solution to the problem? Do the solutions have anything in common? How many solutions are there? How can you be sure when you have found all of the solutions?
3. Can you do the problem backwards (turning 2 into 64) using $\times 4$ and $\div 8$?
4. What other questions can you ask about this problem? How could you adapt it (more circles? different operations? different numbers?)? How does changing the problem change your problem solving strategy?



Source: Adapted from a problem on <http://www.5280math.com/problems-that-never-end/>

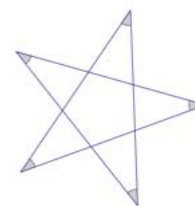
Just for Fun—Problems that Never End

1. In the list of fractions to the right, what pattern was used to create the list? Is there more than one pattern that could have been used? $\frac{2}{3}$ $\frac{7}{10}$ $\frac{5}{7}$ $\frac{8}{11}$ $\frac{3}{4}$
2. What observations do you have about the fractions in the list?
3. Can you use one (or more) of your pattern(s) to extend the list? How many ways can you extend the list? In what directions?
4. Create a new list using your pattern(s) with new fractions on the left and right. Are your observations still true about the fractions in the new list? Why or why not? Does it make a difference whether you use equivalent fractions or non-equivalent fractions as your “new fractions” when you create your new list? Why or why not?
5. What other questions can you ask about this list of fractions?

Source: Adapted from a problem on <http://www.5280math.com/problems-that-never-end/>

Just for Fun—Problems that Never End

1. This star is formed by extending the sides of a regular pentagon. Find the measures of the angles at the tips of the star using what you know about the angles in the pentagon.
2. Create other stars by extending the sides of other regular polygons. What are the measures of their star-tips angles? Are there patterns for finding those measures? Is there an algebraic formula (or formulas) for finding those measures?
3. What happens if you start with a non-regular convex polygon? Can you still create a star? Can you still conclude something about the measures of the star-tips angles?
4. Why did we start with a pentagon? Why didn't we use a triangle or a square?
5. What other questions can you ask about star-tips angles?



Source: Adapted from a problem on <http://www.5280math.com/problems-that-never-end/>

Just for Fun—Problems that Never End

On the planet Hexa, the inhabitants use a different numbering system than we do. Examples of our numbers and the equivalent Hexan numbers are given to the right.

Now that you have an idea of what “Problems that Never End” means, what questions can you ask about Hexan numbers? Can you answer your own questions?

Our Number	Hexan Number
8	12
14	22
20	32
26	42
32	52
38	102

What other Problems that Never End can you create?