The V²CTM Reflection

Fall Meeting November 15 at Skyline Middle School

The Annual Fall V²CTM Meeting will be held on Wednesday, November 15, 2017, at Skyline Middle School in Harrisonburg. The meeting will feature a keynote presentation by Dr. Elizabeth Burroughs, Professor, Montana State University. To get to Skyline Middle, take Interstate 81 to Exit 247 (US 33 East). Immediately get into the left lane and turn left at the first stoplight onto Linda Lane. Continue through the light and turn right when you see the school signs -- Skyline Middle School adjoins Smithland Elementary School; both schools' parking lots are available. Please register online at http://tinyurl.com/V2CTM2017Fall by November 3. Conference registration costs are only $5 and include a fully catered dinner provided by White Hill Catering. There will be numerous appealing door prizes, including an e-membership to NCTM! The program is below:

4:30 – 5:00   **Registration**

5:00 – 5:45   **Dinner** catered by White Hill Catering (Meat Lasagna with Homemade Marinara Sauce, Vegetable Lasagna with Homemade Alfredo Sauce, Mixed Vegetable Medley, Green Salad, Garlic Bread, Dessert, Sweetened/Unsweetened Tea and Water)

5:45 - 6:00   **Business Meeting:** Laurie Biser, V²CTM President

6:00 – 7:00   **Keynote Address:** *Teaching Mathematical Modeling from Kindergarten through High School,* Dr. Elizabeth Burroughs, Montana State University

7:05 – 8:00   **K-2 Session:** *Connecting the Dots Between Fraction Representations*, Eric Imbrescia, James Madison University

                     3-5 Session: *Modeling With Data in Grades 3 to 5*, Chris Willingham, James Madison University

                     6-8 Session: *Modeling Proportional Relationships*, Jennifer Gibson, James Madison University

                     9-12 Session: *How would you create a scale for area?*, D. Brian Walton, James Madison University

Beth Burroughs to Present at Fall Conference

Keynote Address
Teaching Mathematical Modeling from Kindergarten through High School

Modeling, a cyclic process by which mathematicians develop and use mathematical tools to represent, understand, and solve real-world problems, provides important learning opportunities for school students. Modeling opportunities in secondary schools are apparent, but what about in the younger grades? What opportunity do mathematics teachers have in preparing children to grow into thoughtful citizens who make wise decisions? Mathematical modeling—or making choices about how to use mathematics or statistics to make a prediction or decision—highlights the sometimes conflicting natures of mathematics and school mathematics. Meanwhile, the education system and those of us in it bear a responsibility to ensure fair and equitable access to knowledge, opportunity, and sound judgement.

Elizabeth Burroughs is Department Head and Professor in the Department of Mathematical Sciences at Montana State University in Bozeman, Montana. A 2014-15 Fulbright Scholar, she has devoted the past decade to research in K-12 mathematics education. She serves on the Mathematical Association of America's Congress as the Representative for Teacher Education and is a lead writer for the MAA's forthcoming Instructional Practices Guide. Her current research focuses on the creation and use of materials for teacher preparation in undergraduate mathematics courses, as part of the NSF-funded META Math project. Before earning her Ph.D. in Mathematics from the University of New Mexico, Beth was a high school mathematics teacher in Atlanta, Georgia.

JMU Professors Present Break-out Sessions

K-2 Session: *Connecting the Dots Between Fraction Representations*
This session will focus on ways that K-2 teachers and students can connect different models of fractions to gain a better and more meaningful understanding of how to count, compare, and represent fractions.

Eric Imbrescia is a math methods instructor in the College of Education at James Madison University, where he works to prepare pre-service elementary school teachers with the best methods for teaching mathematics. Previous to his time at JMU, Eric worked for 11 years as an elementary school teacher in Rockingham County Schools. He has been recognized at the local, state, and national level for his work with elementary math students.

3-5 Session: *Modeling With Data in Grades 3 to 5*
This session will present a sample modeling activity appropriate for grades 3 to 5 students with connections to STEM-based concepts, contexts, and questions. Lesson plans and samples of student work from a unit examining the manufacturing of candy will demonstrate opportunities for problem posing, data collection and organization, inference, prediction, and decision making. Additionally, this context will offer students the chance to experience the "creation of variation" as they compare and represent the masses of Play-doh "candy" made by hand versus those made in a controlled process using a Play-Doh extruder. These topics connect

directly to the Virginia Standards of Learning in areas such as number and number sense, measurement, probability and statistics, and scientific investigations into matter, force, and energy.

Chris Willingham is an assistant professor in the Department of Mathematics and Statistics at James Madison University and holds a Ph.D. in Mathematics and Science Education from the University of Middle Tennessee. He has taught a variety of mathematics and science courses in K-12 and college classrooms over the past 15 years.

6-8 Session: *Modeling Proportional Relationships*

This session will focus on making sense of fractions as ratios and on proportional reasoning activities appropriate for middle school. We'll use Cuisenaire rods and counters as representations of ratios and describe proportional relationships through real-world applications.

Jenny Gibson is an instructor in the Department of Mathematics and Statistics at James Madison University, where she teaches math content courses for pre-service elementary and middle school teachers. Prior to her position at JMU, she served as the K-12 Mathematics Coordinator for Rockingham County Schools. She began her career as a high school mathematics teacher in Virginia and in North Carolina.

9-12 Session: *How would you create a scale for area?*

Area is clearly defined for rectangles and can be computed for simple geometric shapes. We can measure length with a ruler and volume with a graduated cylinder. How would we measure, not calculate, area? We will look at the use of proxy variables and standard curves in science to explore possible strategies. The process emphasizes the importance of functions and inverse functions in modeling relationships between variables.

Brian Walton is a Professor in the Department of Mathematics and Statistics at James Madison University, where he has received the department's Distinguished Teaching and Distinguished Scholar awards. As an applied mathematician, he studies mathematical models in biology.

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News from VA Department of Education: Implementation of New Standards of Learning Test Blueprints for the 2016 Mathematics Standards of Learning

VDOE released new test blueprints developed for the 2016 Mathematics Standards of Learning. The new blueprints do NOT become effective until 2018-2019, for implementation of the new assessments measuring the 2016 Math SOL; however, school divisions should begin teaching the new content from the 2016 *Mathematics Standards of Learning* in the 2017-2018 school year, as field-test items in spring 2018 will include new content from the 2016 Mathematics standards. The following chart provides information regarding the 2016 Mathematics Standards of Learning implementation timeline:

2017-2018 School Year – Crosswalk Year
- 2009 *Mathematics Standards of Learning* and 2016 *Mathematics Standards of Learning* are included in the written and taught curricula.
- Fall 2017 Standards of Learning Assessments measure the 2009 *Mathematics Standards of Learning,* but will <u>not</u> include field test items measuring the 2016 *Mathematics Standards of Learning.*
- Spring 2018 Standards of Learning assessments measure the 2009 *Mathematics Standards of Learning* and include field test items measuring the 2016 *Mathematics Standards of Learning*.

2018-2019 School Year – Full-Implementation Year
- Written and taught curricula reflect the 2016 *Mathematics Standards of Learning*.
- Fall 2018 End-of-Course (Algebra I, Geometry, and Algebra II) and Spring 2019 (Grades 3-8 and End-of-Course) Standards of Learning assessments will measure the 2016 *Mathematics Standards of Learning*.

Grant Opportunities

VCTM First-Timers Grant
$800 toward first NCTM conference or $400 toward first VCTM conference
Applications are due by December 2, 2017.
For more information and an application, visit http://www.vctm.org/Grant-First_Timers

V²CTM Conference Grants
Up to $1000 toward the NCTM Conference or $400 toward the VCTM conference
Applications are due by November 28, 2017 for VCTM and January 15, 2018 for NCTM.
For more information and the application, visit http://tinyurl.com/V2CTM-GrantApp

M.Ed. in Mathematics at JMU

James Madison University will be offering two online, graduate Probability and Statistics courses during the Spring and Summer of 2018 in order to better prepare teachers who are teaching, will be teaching, or are interested in teaching Statistics courses. Math 617 and Math 618 will cover the underlying mathematical basis AND the conceptual understanding needed to use statistical methods appropriately. Math 617 will be offered during the Spring 2018 semester and is a prerequisite to register for Math 618 during the Summer 2018 semester. Please email (tongenal@jmu.edu) or call (540-568-7328) if you are interested in enrolling in Math 617 for the Spring 2018 semester or if you have any questions.

Upcoming Events

VCTM Annual Conference 2018
Moving Mountains with Mathematics
Radford University, March 9-10, 2018
Registration information is available at http://www.vctm.org/VCTM18
Speaker proposals now being accepted through December 8, 2017

Regional 24 Challenge Tournament
Wilson Middle School, Fishersville, VA
6:00pm
Thursday, April 19, 2018
Contact Laurie Biser (lbiser@augusta.k12.va.us) for information.

NCTM 2018 Annual Conference and Exposition
Washington, D.C., April 25-28, 2018
Registration information is available at:
http://www.nctm.org/Conferences-and-Professional-Development/Annual-Meeting-and-Exposition/

V²CTM Fall 2017 Conference Registration

There is no paper registration for the fall conference. To register, you must access the online registration link at **http://tinyurl.com/V2CTM2017Fall**. You may pay your $5 conference fees at the door on November 15. Please complete your registration no later than November 3, so we will have an accurate dinner count.

See you at Skyline Middle School on Wednesday, November 15!

V²CTM Reflection
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PLEASE SHARE THIS NEWSLETTER WITH ALL MATHEMATICS TEACHERS, GRADES K-12