Program Updated on October 8th, 2018

Vermont Council of Teachers of Mathematics
2018 Annual Conference

Moving Mountains with Mathematics

Friday, October 19th, 2018
Norwich University
8:00 – 3:30

Follow us on Twitter and join the conference conversation!
@vermontmath #vtmath18

Welcome and About VCTM

***VCTM Mission**: Building a math educators community, by facilitating conversation and sharing resources around best practices to engage student learning throughout the state of Vermont while strengthening connections with state and national organizations.*

The Vermont Council of Teachers of Mathematics strives to provide teachers around Vermont with opportunities to network, share resources, and improve their teaching practices, in order to improve learning for our students. Each year we are proud to offer a rich conference. Thank you for taking time out of your busy schedules to spend the day with us!

Sincerely,

Sue Abrams
VCTM Co-President
Montpelier High School
Montpelier, VT
vctmpresident@gmail.com

Lara White
VCTM Co-President
Lyndon Town School
Lyndonville, VT
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Jacie Kendrew
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Conference registration includes a one-year membership to VCTM. Here are a few benefits of your membership:

EVENTS

- Every Fall, **VCTM's Annual Conference** allows teachers across the state to share classroom activities and instructional practices with one another.
- This spring VCTM will host their 3rd **Annual Math Fair**. Last year it attracted over 50 projects from K-12 students.
- **Math Morsels** in the spring is a way VCTM is getting math teachers together to network and discuss important topics in our classrooms and the state.
- VCTM hosts the regional ATMNE (Association of Teachers of Mathematics in New England) conference every six years (coming to Vermont in 2020).

NETWORKING AND RESOURCES

- VCTM members can subscribe and/or contribute to discussions and resources in the **online forum** on **vctm.wildapricot.org** (just use your log in from registration).
- Follow us on **twitter** (@VermontMath). VCTM is building a community to share classroom accomplishments and to network with other math teachers.
- VCTM publishes a bi-monthly e-newsletter to share events happening around the state and highlight VCTM news.

RECOGNITIONS

- VCTM supports and recognizes new teachers in the state with its annual **Rookie of the Year** Award.
- VCTM supports and recognizes established teachers through the **PAEMST** Award (Presidential Award for Excellence in Mathematics and Science Teaching).

ORGANIZATIONS

- Every VCTM Member is also a member of ATMNE (Association of Teachers of Mathematics in New England).
- VCTM is a recognized affiliate of both NCTM (National Council of Teachers of Mathematics) and NCSM (National Council of Supervisors of Mathematics).
- VCTM gives financial support to the Vermont State Math Coalition to help sponsor students from Vermont competing in the American Regions Mathematics League program.

Keynote Speaker:

John Tapper

Associate Professor of Elementary Education,
St. Michael's College

"Mathematics, in schools at least, is about opportunity. When students are successful with math classes they can graduate high school and go on to college. My goal, regardless of whether or not students enter STEM careers, is to be sure they have access to every opportunity math affords them."

John Tapper completed his PhD in Teaching and Learning at New York University. His research includes teaching methods that support struggling math learners and the effects of poverty and race on mathematics learning. Before going to New York, John was the Director of Curriculum, Instruction, and Assessment for Barre, Vermont. In the 1990s, he cofounded the nationally recognized Westminster Primary Program, an innovative non-graded public school in southern Vermont. John has provided professional development on topics ranging from mathematics learning to multiage teaching throughout the U.S., Eastern Europe, and Japan.

John was an elementary classroom teacher, math curriculum coordinator and math coach for over 20 years. His teaching experiences range from the two-room elementary school in Vermont, where he began his career to his work at the Neighborhood School on the Lower East side of Manhattan. John completed his PhD in Teaching and Learning at New York University focusing his research on teaching methods that support struggling math learners and the effects of poverty on mathematics learning. He is the author of several papers on math learning and the book, *Solving for Why: Understanding, Assessing, and Teaching Children who Struggle with Mathematics*. Solving for Why was the winner of a 2012 Academy for Emerging Professionals Award for publications for professional development.

VCTM is very excited and grateful to welcome John to this year's VCTM Conference!

DAY AT A GLANCE

7:30 – 8:30	Registrations, Breakfast, Exhibitors Open
8:30 – 9:20	50 Minute Sessions
9:20 – 9:35	Break/Visit our Exhibitors!
9:35 – 10:45	VCTM Awards and Business Meeting and Keynote Address
10:45 – 11:00	Break/Visit our Exhibitors!
11:00 – 12:15	75 Minute Sessions
12:15 – 1:00	Lunch
1:00 – 1:10	Break/ Visit our Exhibitors (last chance)!
1:10 – 2:00	50 Minute Sessions
2:10 – 3:25	75 Minute Sessions or 30 Minute Bursts
3:30 – 3:45	Conference Closure and Door Prize Giveaways

WORKSHOP STRANDS

CURRIC	**Teaching, Learning, and Curriculum**: Best Practices for Engaging Students
EQUITY	**Access, Equity and Empowerment**: Teaching Mathematics with an Equity Stance
LEADER	**Leadership**: Strategies and resources for Coaches, Specialists, and Teacher Leaders
PBGR	**Proficiency Based Graduation Requirements**: Learning targets, Scales, and Assessment
TECH	**Tools and Technology:** Using Technology to Effectively Teach and Learn Mathematics

MORNING WORKSHOPS (8:30 – 9:20)

#1 Grades PK – 5 CURRIC EQUITY

ALL Students can SEE the Math: Routines That Will Empower Students' Depth of Thinking & Fluency

Subitizing is not just for Pre-K-2! Harness the power of conceptual subitizing by using quick images. Come "play" as we explore and share daily routines to develop 3-5 computational fluency. Leave with ready-to-use activities that support ALL students' flexibility and understanding of many tricky intermediate grade concepts.

TJ Jemison, TJ Consulting teedjvt@gmail.com

#2 Grades 6 – 12 CURRIC

Isometric Drawing as a Tool for Visualization and Planning

This is the most popular unit that I always include in my Geometry classroom. Isometric drawing allows the student a way to develop spatial reasoning from the mind's eye while giving the instructor a quick diagnosis of student reasoning and problem solving and their ability to expand their current level of dimensional reasoning. We will explore how to develop a unit that can easily be done concurrently within another, and have students work at their own pace to develop their drawing and visual strengths.

David Rome, Essex High School vtdavidr@gmail.com

#3 Grades 6 – 12 CURRIC

From Number Sense to Algebraic Fluency

Do your students struggle with algebraic formulas and procedures? Let's get together to explore how making connections between numerical fluency, precise use of mathematical language, and geometric representations, can help making sense of algebraic symbols. You will be able to use these strategies and activities in your next math class!

Natalya Vinogradova, Plymouth State University nvinogradova@plymouth.edu

#4 Grades 6 – 8 CURRIC LEADER

Middle School Math Resource Swap

In this workshop I will share the resources I use most often in my middle school classroom. I hope that you will share what you use as well. We can all leave with new connections to people using the same math program, ample supplemental ideas from the internet, and a toolbox of only the best, tried and true, content-rich strategies and activities to use the rest of the year.

Lara White, Lyndon Town School laradawnwhite@gmail.com

#5 Grades 9 – 12 EQUITY LEADER

Realizing Classroom Equity in Mathematics

We will discuss the dominant and critical axis of equity in mathematics education and address ways to increase equity in our classrooms including: (a) the use of teacher goals and regular reflective practice, (b) designing group work to increase equity in student discourse and outcomes, and (c) using feedback to facilitate students' development of positives identities as knowers and doers of mathematics.

Katie Westby, Brattleboro Union High School kwestby@wsesu.org

KEYNOTE ADDRESS

(Following 9:35 Business Meeting)

Teaching Math for All Learners

Mathematics is not just a subject in school. It is the gateway to college and more than half the careers students can pursue. Competence with mathematics opens opportunities, especially for historically marginalized groups - students living in poverty, students of color, and students on IEPs.

In this talk, John will ask participants to consider how their practice of teaching mathematics supports or hinders success for every child. He will share some strategies from the All Learners Project, where teachers try to practice the belief that *every* child can learn mathematics.

John Tapper, St. Michael's College jtapper@smcvt.edu

MORNING WORKSHOPS (11:00 – 12:15)

#6 Grades PK – 2 CURRIC

Reading, Counting, and Measuring! Oh My!

Participants will engage in activities that will integrate mathematics and science. They will experience doing mathematics through the stories of common children's books. Bibliography and handouts will be provided.

Maria Diamantis, Southern CT State University diamantism1@southernct.edu
Co-Speaker: Adam Goldberg

#7 Grades PK – 12 CURRIC LEADER

Instructional Shifts to Improve Student Learning

Improving student performance in mathematics is a challenge that we all face, leaving us wondering what can we do to better improve our mathematical instruction to help our students perform at higher levels in mathematics, as well as fostering a deeper understanding of the mathematics that they are being taught. In this session, we will explore how we can adjust our teaching practices to improve student performance.

Patrick Peters, Bradford Elementary School ppeters881@gmail.com

#8 Grades PK – 12 CURRIC LEADER

Understanding and Teaching "Elementary" Mathematics

This presentation debunks the notion that elementary school mathematics is simple. Participants will explore real questions asked by elementary grade students, such as: Why is a negative times a negative a positive?; Where in real life will I divide a fraction by a fraction?; Why is division by zero undefined?; and more. Attendees will leave with an understanding of how reasoning and conceptual perspectives influence the mathematics that is taught and enhances, informs, and supports the mathematics that is learned.

Joseph Spadano, Rivier University jspadano@rivier.edu

#9 Grades PK – 12 CURRIC

Are We Ignoring Best Instructional Practices in a Standards-Based World?

Of the eight best instructional practices developed by NCTM, only one is directly addressed in proficiency based instruction: "Establish mathematics goals to focus learning." Yet, we must be vigilant about incorporating the other seven practices into our lessons lest we unwittingly create reductionist experiences that center around memorization of procedures to show proficiency toward our unit goals. We will experience how purposeful integration of these practices into our lessons can be a powerful way to help develop mathematical confidence in our students.

Sue Abams, Montpelier High School sue.r.abrams@gmail.com

#10 Grades 3 – 8 CURRIC TECH

Using Google Sheets to Track and Analyze Student Learning

In this session learn how I track student learning on specific learning targets using Google Sheets. I will share how I score my students on unit specific targets with a 1, 2, 3, 4 rubric while engaging them in the recording and monitoring of their progress – all within in a traditional grading system. Explore ways to record data on Google Sheets and use color coding, simple formulas, and visually appealing graphs to assess and analyze student learning.

Jacie Kendrew, Mater Christi School jacielyn87@gmail.com

AFTERNOON WORKSHOPS (1:10 – 2:00)

#11 General PK – 2 CURRIC

Exploring Additive Reasoning Through Story Problems and the Numberlines

This workshop will focus on grades 1-2 Common Core Algebraic Reasoning exploring the relationship between addition and subtraction. We will discuss how we can use best practices in teaching these concepts. Teachers will walk away with ideas on how they can introduce inverse operations through the use of story problems using various tools to represent these stories.

Kimberly Farone, Berlin Elementary School kfarone@u32.org
Co-Speaker: Kelly MacMartin

#12 Grades 9 – 12 PBGR LEADER

Proficiency Based Learning at Your School, and Around Vermont

This session provides an opportunity to share successes and struggles with other teachers from around VT regarding Proficiency Based Learning and its implementation at your school. Are you curious about how other schools and teachers are managing report cards, re-takes of assignments, explaining PBL to parents, and encouraging students to take ownership of their learning? Come prepared to share a few experiences with others in a judgement-free zone (just the facts of where we are right now today), and to ask a few questions of others. We're a small state going through an important change—let's have a conversation and learn from one another.

Christine Latulippe, Norwich University clatulip@norwich.edu

#13 Grades K – 8 CURRIC

Three-Act Math Lessons in Your Classroom

A Three-Act Task is a whole group mathematical task consisting of three distinct parts: an engaging and perplexing Act One, an information and solution seeking Act Two, and a solution discussion and solution revealing Act Three. Come see how you can incorporate Three-Act Math tasks into your mathematics program to help engage students and increase the problem solving capabilities of your students while also having fun during math time.

TJ Jemison, TJ Consulting teedjvt@gmail.com

#14 Grades K – 8 CURRIC TECH

Using Coding to Develop Spatial-Numerical Structures for Mathematical Problem Solving Beginning in Kindergarten

In this session, learn how I explore coding with the elementary grades and make connections to their math curriculum. Last year, specifically, second grade students explored angles in math (and function loops in coding) by programing Elsa (from *Frozen*) to skate different multicolored snowflakes and patterns. A couple years ago, I taught inequalities to 7th graders using coding in Arduino on the Sparkfun Digital Sandbox. Within a week all students demonstrated a sophisticated use of inequalities to describe data sets. The project resulted in interactive devices that represented temperature, sound or light intensity data using a light bar or variable colored LED. Overall, students display increased problem solving efficiency by linking spatial organizational structures with numerical structures in their approaches to coding solutions.

Tricia Finkle, Mater Christi School tfinkle@materchristischool.net

#15 Grades PK – 12 PBGR LEADER

Coaching Proficiency Recovery

What happens if a student is not proficient at the end of a lesson, a formative assessment, a summative assessment, a unit, or a course? How can you as a coach help the teacher and student with proficiency recovery? What strategies and systems can you help teachers put in place? Come and explore teaching with proficiencies and proficiency recovery ideas.

Kaaren Meyer, Stowe Middle/High School kaaren.meyer@lssuvt.org
Co-Speaker: Heidi Whipple

AFTERNOON WORKSHOPS (2:10 – 3:25)

#16 Grades PK – 2 CURRIC

Early Numeracy and Counting

This session will explore Graham Fletcher and John Van de Walle's learning progression for early numeracy and counting. It will include the topics of subitizing, comparison, rote counting, one-to-one counting, cardinality, hierarchical inclusion, and conservation of number. We will explore these topics, what it looks like when students are in each of these stages, activities that we can facilitate for students in each of these stages, and how to progress students to the next stage in the progression.

Jessica Litchfield, Berkshire Elementary jlitchfield@berkshirek8.net

#17 Grades 6 – 12 TECH

Flip, Turn and Slide

The CCSS include teaching geometric transformations starting in middle school and through high school. This is a very important topic with connections to algebra and the transformation of functions. In this session participants will select an object to transform. Graphing technology will be used to "discover" what happens with each transformation. Rather than just memorizing rules a conceptual understanding of transformations will be a goal for the participants and therefore for their students. The intention of the session is to have fun while gaining a deep understanding of geometric transformations and their connections to other mathematical topics.

Jean McKenny, NEKLS jmckenny@together.net

AFTERNOON BURSTS (2:10 – 2:40)

#18 Grades PK – 12 EQUITY

Dear Diary, Guess What I Learned in Math Class Today…

Regularly writing in a journal can be a useful tool for both record keeping and for reflection. So, how can teachers leverage digital portfolios to enhance student experiences? We'll look at how one classroom uses Class Dojo to build math confidence and to engage family members.

Joshua Hester-Reyes, Randolph Union High School joshua.hester.reyes@gmail.com

#19 Grades K - 12 CURRIC EQUITY LEADER

What Do Your Students See, Notice, or Wonder? ...Could be a Math Fair Project!

Learn how to leverage your K-12 students' natural quantitative curiosities to involve them in a homegrown flexible pathway, namely VCTM's own Statewide Math Fair. This annual event launched in 2017 with sponsorship and support from the University of Vermont Department of Mathematics and Statistics and in the past two years has provided young mathematicians across all grade bands with an opportunity to get excited about mathematics in its most applied, pure and often paradoxical forms. After a brief contextual overview of the statewide math fair, this session will give significant attention to the idea-generating and project-forming process. You will walk away with the resources, project ideas, and pedagogical impetus to involve your students in this highly accessible and authentic avenue for learning mathematics.

Steven Ushakov, U32 Middle/High School sushakov@u32.org

#20 Grades 6 - 8 CURRIC

Strategies Used to Promote Discourse in Math Classrooms

In many classrooms, students sitting together in teams does not guarantee effective mathematical discourse. Defending one's position is important, but everyone needs to be heard. In this session, activities will be modeled that encourage students to talk, write and share ideas. Status is important and some of these activities will address this issue.

Lynn Ryan, CPM Teacher Leader lynnryan@cpm.org

AFTERNOON BURSTS (2:55 – 3:25)

#21 Grades 3 - 5 CURRIC EQUITY

Identify, Simplify, and Diversify: Using Mathematics to Identify Percentages of Unrepresented Characters in Picture Books in the School Library

This presentation is an overview of an activity in which students applied their knowledge of simplifying and converting fractions to percents to determine the percentage of picture books in the school's library that have underrepresented characters. They then wrote a persuasive letter to the school's librarian requesting that more diverse titles be obtained. This real-world challenge combines inquiry, critical thinking, and creative problem solving with a high-interest, cross-curricular activity. Fraction skills were practiced while gaining an understanding of the power of using statistics for making persuasive arguments.

Katie Sullivan, Warren Elementary School ksullivan@wwsu.org

#22 Grades K – 12 LEADER

The Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST)

Would you like to more about the award? Are you thinking about applying? Do you know someone deserving? This burst session will answer the most common questions people have about nominating and/or applying for the award. The 2018 – 2019 application cycle is for teachers of 7th - 12th grade mathematics, science, or computer science. Teachers in grades K – 6th will be eligible in 2019 – 2020.

Lara White, Lyndon Town School laradawnwhite@gmail.com

#23 Grades PK - 12 CURRIC

Math Trails: Explore Norwich University, and Your School with Mathematical Eyes

Come learn about math trails, and this great strategy to help students explore the mathematics all around us! Math trails are a way to promote the active learning of mathematics outside of the confines of the classroom; they are relevant to students of all ages, and can emphasize various mathematical content areas at a variety of grade levels. Participants will try a few "virtual" questions from a math trail designed for Norwich University, and gain insight and resources for creating their own school-based math trails.

Christine Latulippe, Norwich University clatulip@norwich.edu

CONFERENCE CLOSURE AND DOOR PRIZES* (3:30)

Please join us for a few minutes to close out the day and hand out some awesome door prizes!

Must be present to win.

A Big VCTM Thank You to Everyone who has Helped to Make this Conference a Success!