**VCTM ’22 Virtual Saturday Concurrent Sessions**

**10:15 – 11: 15**

**1 Using Algebra Tiles to Build Understanding of Expressions and Equations**

George Room

Timothy Scripko timscripko@cpm.org
Jocelyn Dunnack jocelyndunnack@cpm.org
Ashley Boyd Ashleyboyd@cpm.org
Astrida Lizins astridalizins@cpm.org

Learn how to use algebra tiles to make algebra into a concrete, visual experience for your students. You will have a chance to explore using algebra tiles to create expressions for area and perimeter expressions, combining like terms, evaluating expressions, writing equations, solving equations and multiplying polynomials. Tile usage creates equity among your students.

**2 Cultivating Number Sense Through Understanding of Number and Place Value PK-3**

Mason Room

Melinda Schwartz m\_schwartz@origomath.com

Deep understanding of number and place value is essential, and the foundation of these concepts begins early. Pre-K through 2nd Grade teachers will engage in activities that utilize a variety of representations and honor a developmentally appropriate teaching model and sequence to ensure student understanding of number and place value.

**3 Re-Imagining Mathematics Literacy: Perspectives of Secondary Preservice Mathematics Teachers**

University Room

Mary Enderson menderso@odu.edu

Sarah Ferguson scfergus@odu.edu

Mathematics literacy means more than reading word problems. This session will explore the meaning of mathematics literacy through examination of enhancements made to a Problem-Based Instruction course to focus on guiding pre-service teachers to promote mathematics literacy in their teaching.

**4 Developing Math Fluency in Grades K-5**

Patriot Room

Angie Meredith angelaam@bellsouth.net

Timed tests do not teach fluency, but what does? Come see how the powerful combination of using number strings and math talks improves a student's ability to think about numbers flexibly, efficiently, and accurately. Daily Math Fluency helps students build a strong foundation of mathematical reasoning for future math success in only 10 minutes a day!

**5 Making Math Instruction Enjoyable and Accessible for All K-8 Learners**

Virginia Room

Mary Betz MBetz@larsontexts.com

Jodi Miranda Jodi.Miranda@cengage.com
Jessica Darring Jessica.Darring@cengage.com
Lisa Williams LisaWilliams@larsontexts.com

Strategies to make grade-level Math content accessible and enjoyable to all learners through various forms of engagement, including the use of Games, Math Musicals, STEAM Connections, Cross-Curricular Connections, Performance Tasks, as well as Discovery-based activities for building Conceptual Understanding for learners with differing Ability Levels and Learning Modalities.

**6 The Mathematics of Congressional Reapportionment: Rounding in Action**

Graduate Room

Eric Choate echoate2@radford.edu

The US Constitution awards states representatives “according to their respective Numbers” but is silent about how. Rounding makes this problem harder than it seems like it should be, and throughout history political machinations have muddied these calculations. This provides a great application of computational thinking to American government and history.

**7 VDOE Mathematics Update**

Freedom Room

Tina Mazzacane tina.mazzacane@doe.virginia.gov

Melody Bushley melody.bushley@doe.virginia.gov

Virginia Department of Education representatives from the Office of STEM and Innovation and the Office of Student Assessment will provide updates regarding mathematics education in Virginia.

**8 Vertical Articulation to Bridge for Math Strength**

Learning Room

Sara Kirschner skirschn@gmu.edu

Jessica Callison jwcallison@augusta.k12.va.us
Maureen Vora maureen.vora@gmail.com

How do mathematics concepts develop over the elementary years? Learning about vertical articulation and learning trajectories can support your instruction by focusing on where students are coming from and where they are going. Learn how to align strategies, language, problem types, questioning, and instructional activities across grade levels to support strong conceptual understanding.

**9 The Rewards and Challenges of Integrating Reasoning Routines**

Green Room

Kendra Heffelbower kendra.heffelbower@k12.dc.gov

Judy Leak-bowers judy.leakbowers@k12.dc.gov

Join us for an interactive session sharing the collaborative efforts between a coach and 1st grade teacher around how to implement mathematics reasoning routines integrated into STEM. We will discuss both the rewards and challenges of both creating and implementing strong integrated STEM reasoning routines.

**10 Is there a simple formula to improve mathematics students' motivation?**

Gold Room

Kyle Schultz kschultz@umw.edu

Kenn Barron barronke@jmu.edu

This session will present an easy-to-remember framework for understanding classroom factors that impact students' motivation in the mathematics classroom, along with practical examples for improving motivation. Our discussion will focus on using this framework to identify specific motivational impediments in our classrooms and brainstorm solutions for removing them.

**41 “Partner Power-UP!” We co-PLAN, co-INSTRUCT, and co-ASSESS to meet the needs of ALL our students!**

Research Room

Amber Benson abenson@rcps.us

Ruby Voss rvoss@rcps.us

“Who is the main teacher?” We are proud when our students answer, “They both are.” We are partners-in-teaching, Powered Up and ready to go! There are many varieties of co-taught classrooms but few actually Co-Plan, Co-Instruct, and Co-Assess to meet the needs of ALL students. Join Math co-teachers, BensonVoss, for a fast-paced, activity packed session including our use of Explicit and Specially Designed Instruction and the positive effect on individual student and class growth.

**VCTM ’22 Virtual Saturday Concurrent Sessions**

**11:30 – 12:30**

**11 Helping Students Succeed in Algebra through Manipulatives**

George Room

Kevin Dykema kdykema@mattawanschools.org

Do your students struggle with algebraic concepts? See how your students benefit from a visual approach to algebra and learn how hands-on activities can help promote their understanding of algebraic concepts and accelerate their learning. Topics include integer operations, solving equations, polynomial expressions, graphing, and more.

**12 Strategic Use of Purposeful Questions to Support Productive Struggle**

Mason Room

Jennifer Suh jsuh4@gmu.edu

Cindy Baird cbaird@hampton.k12.va.us
Rachel Freid rfreid@greenecountyschools.com
Riley Moran rmoran@mcps.va.org
Kasey Warren

In this session, teachers will share how to strategically use purposeful questions and the Bridging for Math Strength resources to support productive struggle. Teachers will share classroom vignettes that showcase how to build on student strength and advance their thinking through questioning.

**13 Leveraging Technology to Bridge for Math Strengths- Grade K-5**

University Room

Kate Roscioli krosciol@gmu.edu

Charina Johnson-Webb johnsoc@pwcs.edu
Stacey Rodgers sroders@iwcs.k12.va.us
Michele Thompson michele.thompson@portsk12.com

In this session, participants will explor some of the technology enhanced routines, tasks and games on the Bridging for Math Strengths website. We will discuss how these items can be adapted and used to reinforce and enhance mathematics instruction. Additional sites and resources will also be shared to support an engaging and productive use of technology in any mathematics classroom.

**14 Hands-On Learning Can Be Powerful with the Right Tools K-5**

Patriot Room

Angie Meredith angelaam@bellsouth.net

Manipulatives are tools to help students make abstract concepts more concrete. Come learn how using the right tools can make hands-on learning powerful in developing conceptual understanding in grades K-5. Lessons and ideas will be shared from our newly updated Hands-On Standards Math: Teaching Math with Manipulatives. Hands-On Standards is designed to deepen understanding of key math concepts using manipulatives and scaffolded lessons to seamlessly transition from the concrete to the abstract.

**15 Accelerate Learning Through Math Centers (3-5)**

Virginia Room

Cydney Rolle cyd1223@gmail.com

Small group instruction paired with math centers is a part of a balanced math program. Come learn how to use small groups and centers as an effective practice for accelerating student learning to meet the needs of all students. Participants will experience a variety of center activities and learn new strategies to make center learning meaningful for students and realistic for the teacher.

**16 Using Desmos to Drive Discussion and Build Connections**

Graduate Room

Todd Gasparello todd\_gasparello@ccpsnet.net

In this session, we will explore how to use the Desmos activity builder and graphing calculator to enhance classroom discussion and build connections across mathematical concepts.

**17 Level Up Your SOL-Based Mathematics Instruction and Address Unfinished Learning Using Legends of Learning!**

Freedom Room

Joselyn Whetzel joselyn.whetzel@legendsoflearning.com

With Legends of Learning’s math games, kids learn while playing! While guiding mathlings in “Space Taxi,” inflating balloons in “Balloon Shop,” or sorting building materials in “Super Builder,” students understand quantities, grasp concepts like more and less, make number comparisons, and relate numbers to real-life problems in their everyday world.

**18 Fun with Circles!**

Learning Room

Shannon Downs sdowns8@radford.edu

Kristen Barbour kbarbour8@radford.edu
Mia Bialobreski mbialobreski@radford.edu
Aaron Farmer afarmer16@radford.edu
This presentation discusses developmentally appropriate methods finding the area of circles for grades 6-12. Through four hands-on activities we present vertical articulation of this topic. Activities include exploration using areas of squares, parallelograms, triangles, and other polygons. Virtual and physical manipulatives will be demonstrated; classroom ready handouts will be distributed.

**19 Make and Take a Lumio by SMART lesson from start to finish!**

Green Room

Shruti Sanghavi sanghasd@pwcs.edu

Heather Anderson AndersH@pwcs.edu

Are you interested in making differentiated, equitable lessons for your students? Participants will make and take a Lumio lesson to share with their classroom/school from start to finish. K-12 all are welcome. You will learn to make an account, begin your lesson by adding pages, uploading documents, YouTube videos, visuals, and even learn to add verbal directions. The end result of the 70 minute presentation would be that all teachers would leave with a differentiated virtual lesson that they could use with both virtual and in-person learning.

**20 Laplace Meets Tesla in a Differential Equations Class**

Gold Room

Maila Brucal-Hallare mcbrucal-hallare@nsu.edu

Shahrooz Moosavizadeh smoosavizadeh@nsu.edu

Teaching mathematics courses to engineering majors by way of applications. The wireless toothbrush is one of many household applications of a 2-coil wireless power transfer (WPT). In this presentation, we will consider a mathematical model of this WPT via magnetic induction to illustrate the application approach to teaching and learning differential equations.

**VCTM ’22 Virtual Saturday Concurrent Sessions**

**12:45 – 1:45**

**21 Foundations for Fluency in Multiplication and Division 3-5**

George Room

Melinda Schwartz m\_schwartz@origomath.com

Through activities and discussion, participants will explore strategies for multiplication and division that build number sense and computational fluency. This approach prepares students for success beyond the basic fact range. This session will empower Third through Fifth Grade teachers with interactive activities for students for immediate classroom use.

**22 Manipulatives in Middle School? Absolutely!**

Mason Room

Kevin Dykema kdykema@mattawanschools.org

Do your middle school students need some hands-on activities to help develop their mathematical concepts? Discover the benefits of using manipulatives in your middle school class to help students better understand math and accelerate their learning. You'll walk away with some ways to use a variety of manipulatives. See why manipulatives are a powerful tool for middle school students!

**23 Leveraging Technology to Bridge for Math Strengths- Grade 6-8**

University Room

Kate Roscioli krosciol@gmu.edu

Kryshelle Cothran kryshelle.cothran@pcs.k12.va.us
Alexandria Forkell aforkell@mcpsva.org

In this session, participants will explore some of the technology enhanced routines, tasks and games on the Bridging for Math Strengths website. We will discuss how these items can be adapted and used to reinforce and enhance mathematics instruction. Additional sites and resources will also be shared to support an engaging and productive use of technology in any mathematics classroom.

**24 The Power of Friendly Numbers**

Patriot Room

Sarah Matthews matthews@fcpsk12.net

Scarlett Kibler kiblers@fcpsk12.net

Friendly numbers are "BFFs" in number theory. Join us today to discuss the power of friendly numbers in our K-5 classrooms with a wide variety of activities and strategies to strengthen Tier 1 instruction by providing entry points for all learners to help fill learning gaps.

**25 Build a community of problem solvers 10 minutes at a time**

Virginia Room

Cydney Rolle cyd1223@gmail.com

Do you wish your students could confidently understand and solve multi-step word problems? During this session, participants will experience 5 types of word problems that use hands-on materials and encourage students to become true problem solvers. Problem types include: video, multi-solution, numberless, single solution, and create a problem.

**26 Problem Solving, Persistence and Perseverance: How to integrate the 3 P’s into Social and Emotional Learning in the Math Classroom.**

Graduate Room

Annwyn Long annwyn\_long@ccpsnet.net

Lisa Micou PH.D NCSP lisa\_micou@ccpsnet.net

Have you ever wanted to learn new and exciting techniques for integrating social and emotional learning into the mathematics classroom? This workshop will teach social emotional learning strategies that can be integrated into the mathematics curriculum, thus increasing growth mindset.

**27 Making 6-12 Math Relevant and Interesting in a Tech-Forward World**

Freedom Room

Mary Betz MBetz@larsontexts.com

Jessica Darring Jessica.Darring@cengage.com
Jodi Miranda Jodi.Miranda@cengage.com
Lisa Williams LisaWilliams@larsontexts.com

Geared toward teachers of Middle and High School Students, this session will focus on the age-old question of “Why do I need to know this? Where will I ever use Math in my Real Life?!”. Reinforcing where students may see Math content in their every-day lives, and how it can be channeled for different STEAM career paths.

**28 Teaching About Our World with Mathematical Models and Manipulatives**

Learning Room

Abby Watkins awatkins@populationconnection.org

In this interdisciplinary workshop discover activities that bring current events and top global challenges into the math classroom. Explore trends in the environment, global population and more using models, manipulatives and group work that build math skills while connecting math to students’ lives. Receive electronic lesson plans matched to SOLs.

**29 A Specially Formatted 100s Chart to Teach a Multitude of Math**

Green Room

Susan Bardenhagen smb4steam@gmail.com

Patterns, multiples, factors, prime and composite numbers, squares, factoring, GCFs, LCMs, and oh, BTW PATTERNS! This tool and its application continue to support the development of many Math skills. Presenter created the chart in several iterations combined with repurposed manipulatives- encouraging students' creativity as they develop their wonder and amazement.

**30 The Math Comes First: Rethinking Our Approach to Reviewing for the Big Test**

Gold Room

Kyle Schultz kschultz@umw.edu

Teachers invest considerable classroom time and resources reviewing for standardized assessments. This session will present an approach for ensuring our review time focuses on the mathematical understandings underlying traditional test-taking strategies. As a group, we will practice modifying traditional review problems to make them more conceptually-focused.

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**2:00 – 3:00**

**31 A project-based lesson for teaching mean as a balance point.**

George Room

Sarah Ferguson scfergus@odu.edu

In this project-based lesson, students will work with data collection and balance point calculation techniques to create a classroom zoo. This lesson provides opportunities for students to show their creativity while also bringing excitement to the topic of calculating mean as a balance point.

**32 Developing Math Fluency in the Middle Grades**

Mason Room

Angie Meredith angelaam@bellsouth.net

Having students develop math fluency is critical, but how can we do this? Come explore ways to integrate math talks and number strings to develop this essential skill with students in the middle grades. See how manipulatives can be used to further this development.

**33 Accelerate Learning Through Math Centers (K-2)**

University Room

Cydney Rolle cyd1223@gmail.com

Small group instruction paired with math centers is a part of a balanced math program. Come learn how to use small groups and centers as an effective practice for accelerating student learning to meet the needs of all students. Participants will experience a variety of center activities and learn new strategies to make center learning meaningful for students and realistic for the teacher.

**34 GeoGebra Constructions & Dynamic Calculations**

Patriot Room

Todd Gasparello todd\_gasparello@ccpsnet.net

In this session, we will use constructions and dynamic calculations in GeoGebra to explain and justify various geometric concepts.

**35 Routines for Equity**

Virginia Room

Kate Roscioli rosciokm@pwcs.edu

Brooke Souders souderbd@pwcs.edu

Number sense routines are an amazing way to engage all your students at the start of every math lesson. In this session, participants will experience 5 different number sense routines and practice creating their own! We will also share how to structure the routines so all students have a voice and how routines can promote equitable math practices.

**36 Meaningful Technology in Mathematics**

Graduate Room

Crystal Miller crystal\_miller@ccpsnet.net

Noreen Ingram noreen\_ingram@ccpsnet.net

Participants will engage in various online platforms that will help maximize student discourse, engagement, and active learning. We will demonstrate how to ensure that technology tools are used in meaningful ways to enhance learning. Participants will create activities during the session that can be used immediately afterwards.

**37 Teaching Measurement with Mixed-Methods**

Freedom Room

Marissa Spencer marissa.spencer@gc.k12.va.us

Deborah Armentrout Deborah.Armentrout@gc.k12.va.us
George Rublein gtrubl@wm.edu

Experience snippets of four different lessons that align with science, mathematics, and history/ social science standards for grades K – 1. These lessons demonstrate the importance of vertical alignment when making connections to past experiences to enhance new learning. This session will provide new ideas on teaching mathematics through problem-solving, observations, and investigations.

**38 Beyond Rote Practice, Making practice engaging, dynamic, and with number-sense in mind.**

Learning Room

Cory Howard CHoward@cainc.com

How can we engage young learners in dynamic practice to support depth of knowledge while developing their number sense through play, games, and conceptual practice? Join this session to explore practice opportunities beyond rote practice.

**39 Tricked into Thinking**

Green Room

Patricia Low Patricia.Low@explorelearning.com
Math needs to be more than just answering a question, we need students to think. Using simulations we can Trick students into Thinking.

**40 The Gini is Out: Measuring Health Disparity (A Numerical Investigation of Cancer Data in Virginia)**

Gold Room

Maila Brucal-Hallare mcbrucal-hallare@nsu.edu

The Lorenz curve and the Gini index are commonly used in Econometrics as a measure of inequality of income and wealth distribution. The project aims to apply these tools to quantify health disparity in the state of Virginia. Health disparities are defined as differences in health that are not only unnecessary and avoidable but, in addition, are considered unfair and unjust. In particular, we use existing data on mortality due to prostate cancer, colorectal cancer, and breast cancer as published by the Virginia Department of Health, to determine if there is health disparity on these cancer types. A trapezoidal quadrature rule was designed to numerically approximate the Gini index and a least squares approach was used to find the curve that best fits the Lorenz curve. Power and Pareto-like functions were used as fitting functions. The numerical results were used to analyze trends in the Gini indices and provide quantitative evidence to statements on health disparity on cancer.