# Mathematics in Vermont

*The newsletter for Vermont's Mathematics Educators and supporters*

VERMONT
AGENCY OF EDUCATION

**September/ October 2019**

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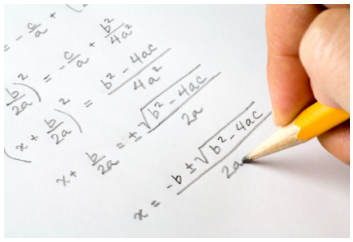
**The ways you can access this newsletter:**

- **Request subscription by emailing Ryan Parkman; your name will be added to a listserv;**
- **The AOE *Weekly Field Memo* when issues are published; and**
- **AOE Website: The Mathematics Content page.**



## Welcome Back

Here we are at the start of another school year. I hope that the rush of the opening days is somewhat behind you and things are starting to settle down. Some would argue that things never settle down in schools, but hopefully you at least have things going in a manageable rhythm.

Let me take a moment to introduce myself, I am your new Mathematics Content Specialist, Ryan Parkman. I am honored to become part of the Proficiency-Based Learning Team at the Agency of Education (AOE). I have been a teacher and administrator for more than 25 years in the state of Vermont. I began my career in education as a high school math teacher and was an administrator for the past dozen or so years. I am very excited by the work that is being done at the Agency. Our team is here to support the implementation of proficiency-based learning systems, promote high quality instruction, and assist schools in the development of their local comprehensive assessment system.

A major emphasis here at the agency is that all decision-making be done with educational equity at the center. Framing decisions through an equity lens will ensure that learning is advanced for all learners. Very often this newsletter will have entries that relate to students having comparable opportunities to learn, removing the achievement gap, and meeting the overall vision of the Education Quality Standards.

## Math for Everyone

This statement, Math for Everyone, implies that all students achieve or exceed the mathematics standards approved by the State Board of Education. Every supervisory union or district has crafted their own Proficiency Based Graduation Requirements (PBGRs); these are the locally-delineated set of content knowledge and transferable skills connected to state standards that, when supplemented with any additional locally-developed requirements, have been determined to qualify a student for earning a high school diploma. Therefore, it is not permissible to "lower the bar" so that all students "meet" the standard; we must ensure that every student make it over that same high bar of mathematical knowledge.

Many teachers ask the question: How do I create, support, and sustain high expectations in the teaching and learning of mathematics while ensuring a culture of equity and access? This is the million-dollar question and why highly qualified teachers are crucial in the instruction of mathematics. The National Council of Teachers of Mathematics (NCTM) has published their position on this very question:

> Creating, supporting, and sustaining a culture of access and equity require being responsive to students' backgrounds, experiences, cultural perspectives, traditions, and knowledge when designing and implementing a mathematics program and assessing its effectiveness. Acknowledging and addressing factors that contribute to differential outcomes among groups of students are critical to ensuring that all students routinely have opportunities to experience high-quality mathematics instruction, learn challenging mathematics content, and receive the support necessary to be successful. Addressing equity and access includes both ensuring that all students attain mathematics proficiency and increasing the numbers of students from all racial, ethnic, linguistic, gender, and socioeconomic groups who attain the highest levels of mathematics achievement.

Providing the access alone is not enough, this curriculum needs to be taught by skilled teachers who differentiate as needed, monitor student progress to inform their instruction, and provide interventions to either remediate or provide challenges as appropriate.

Nancy Emerson Kress wrote about 8 Characteristics of an Equitable Mathematics Classroom. These are still very relevant today. Her characteristics are not the only things that need to be done to ensure equity, but they are characteristics that can become part of any class at no cost.

1. Many voices are part of the conversation, and every student feels that they have something unique to contribute.
2. Many approaches to solving any individual problem are explored.
3. Thorough discussions trump quick answers.
4. Students utilize a variety of strategies for recognizing if things make sense.
5. Feedback is rich with positive commendations.
6. A growth mindset permeates the atmosphere.
7. Feedback, both commendations and recommendations, are thorough and detailed.
8. Mistakes are embraced and are treated as rich learning opportunities.

Student engagement is the key to knowledge acquisition and looking through an equity lens in your teaching practices is the first step to ensure that all students learn at a high level and meet our proficiencies in mathematics.

## Recent Survey on Proficiency-Based Learning

Many of you probably saw the article that I am referencing and many of you probably have not. The article appeared on the **VTDigger** website and was entitled, Union survey finds teachers feel unprepared for proficiency-based learning. The article references a survey that was conducted in mid-April of this year by the NEA to more than 1,000 of its teachers. The results of this survey should be used to ask the bigger question of "why". If the result is negative, let us ask why is this happening? And what is the root cause? And finally, how can we change this? Similarly, if the result is positive, ask why is this a favorable outcome and how can we ensure that it continues?

In looking over the slides included in the article, I came across several results that stood out. Let each of these statistics be the springboard to more questions that can improve our practice. When problems are raised with no solutions, they do no good for anyone.

- 69% of members say that parents do not have a clear understanding of their student's learning.
  - Why is that?
  - What can we do to improve parent's understanding?
- 72% say student's work ethic decreased.
  - Why is that?
  - How can we engage our students?
- 47% say student content knowledge has decreased.
  - Why is that?
  - How can we ensure all students meet their PBGR's?
- 51% say school's calibration of assessment practices is ineffective.
  - Why is that?
  - What PD do we need to create effective calibration?
- 54% spend more time assessing student work.
  - Why is that?
  - How much more time and do we need more?

In section 2120.5 of Vermont's Education Quality Standards it states that, "each school shall enable students to engage annually in rigorous, relevant and comprehensive learning opportunities that allow them to demonstrate proficiency in…mathematical content and practice." Schools have always had "graduation requirements"; the major difference is that those requirements are now defined by Performance Indicators derived from the Common Core State Standards for Mathematics. In the past it was a set number of "credits" in mathematics required in order to graduate from high school. There are many great things going on in and around the schools of this state. Let us all work together and make this the best system it can be by asking the tough questions that will ensure success for all learners.

## Events, Announcements, and Resources

**Fairbanks Museum & Planetarium - STEM Lab:**
**Math Encounters Lab - A Deep Investigation of Mathematics**
Open to all, including adults, with a focus on middle/high school youth who want to do a deep investigation of mathematics. Mathematics illuminates patterns that abound in our world, making sense of sequences, designs, and structures. Math Encounters will stimulate inquiry, spark curiosity, and reveal the wonders of mathematics -- your world will never be the same!
Third Saturdays, 2:00 - 5:00 PM, September 2019 - September 2020
Instructed by Daisy McCoy, Christopher Kurdek, and Theodora Montague.
Limited to 20 students at a cost of $250/student.
Contact the Museum for multiple family member payment options.
Contact: Leila Nordmann

### Register Now for Mathcounts

**MATHCOUNTS** believes that math adds up to more than numbers. Learn more and register your school **for just $30 per student** to participate in your local MATHCOUNTS competition this year. Students compete against and alongside their peers while practicing valuable lifelong skills like determination.

**Start by checking out their guide for new coaches and registering at the MATHCOUNTS Website.** And while you're there, download your free copy of the *2019-2020 MATHCOUNTS School Handbook*, with 200 creative math problems.

This year, show your students how math and determination go hand in hand. Register today!

### Regional Instructional Coaching Networked Improvement Communities: Professional Learning Opportunity

Audience: Superintendents, Principals, Instructional Coaches, Curriculum Directors

The Vermont Agency of Education is inviting instructional coaches from Vermont schools to participate in a two-year Instructional Coaching Networked Improvement Community (IC NIC).

- **2019–2020** The goal of the first year of the IC NIC is twofold: use improvement science to define the role of the Instructional Coach in Vermont schools and to identify and test a change idea using the AOE Impact Plan.
- **2020–2021** The goal is to create an Instructional Coach Toolkit that contains the necessary resources to support an instructional coach in their practice. The IC NIC will be offered in four Vermont regions.

Learn more about this professional learning opportunity and register online.
Contact: Susan Yesalonia at susan.yesalonia@vermont.gov or (802) 479-1284

### Mathematics Resources

**Directions for Submissions:** If you would like to submit an article, announcement, event, or resource for a future newsletter, please email information to ryan.parkman@vermont.gov. This newsletter will be published four times throughout the school year. Time sensitive materials will be prioritized but check the dates to see if the dates of publication will delay the sharing of information.

**To subscribe, or unsubscribe to the Mathematics in Vermont e-bulletin, write to ryan.parkman@vermont.gov or call (802) 479-1378.**

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