

November/  
December  
2019

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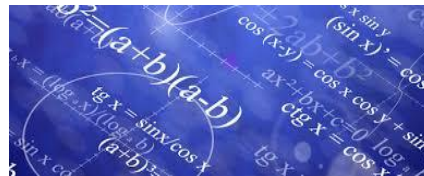
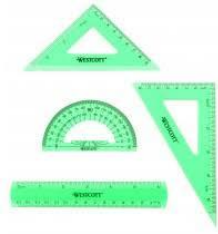
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- Request subscription by emailing [Ryan Parkman](#); your name will be added to a listserv;
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- AOE Website: [The Mathematics Content page](#).



## Rolling Along

I hope that your year is now rolling smoothly along. Many of you have just completed your first quarter, while others are getting ready to wrap up that first trimester. Contained in this newsletter are a couple of pieces that will hopefully pique your interest and provide useful information for you. There are also some upcoming events and a couple of “free” resources that can be found online.

Enjoy, stay warm, and have a great time!

## Implicit Bias and the Equitable Classroom

Equity in education is often assumed to be synonymous with “education for all” or “success of all learners.” In order to reach “all” students, teachers must be equitable. Right? However, teaching practices without explicit attention to equity, will inevitably result in some students not meeting their goals ([Journal for Research in Mathematics Education 2017, Vol. 48, No. 1, 7–21](#)). In the Vermont Agency of Education’s [What is Proficiency-Based Learning](#), the following statement regarding Equity is provided:

Equity requires that each and every learner has access to the knowledge, skills, and learning opportunities necessary to be contributing members of a rapidly changing global society, regardless of factors such as race, gender, sexual orientation, ethnic background, English proficiency, immigration status, socioeconomic status, or disability.

One factor that must be discussed is that of implicit bias. The National Institutes of Health define [implicit bias](#) as a form of bias that occurs automatically and unintentionally, that nevertheless affects judgments, decisions, and behaviors. Implicit biases often stand in opposition to a person’s stated beliefs. According to the [Fundamental Advisory](#) website, implicit bias lies within all of us and even those who strive to have commitments to openness and a nonjudgmental mindset, often harbor as many as anyone else. This brings about the need to become aware of our own biases and work to recognize them before they can influence any of our decisions.

Laura Hunter, PhD, Associate Diversity Officer for the University of Arizona's Office of Diversity and Inclusive Excellence, states that "it takes vigilance and incorporating various strategies to reduce the impact of unconscious bias in the classroom." Hunter offers up [five ways educators can work to remove bias from their classroom](#) and create a learning environment where all students are given equal opportunities to succeed and participate. Here is an overview:

1. **Ensure good assessment practices.**

Grade assignments and tests without looking at names to ensure a fair response to all students.

2. **Record yourself teaching and take note of student participation, language used and body language.**

You may become aware of patterns you didn't know were occurring.

3. **Gather anonymous student feedback.**

Student feedback is one of the best barometers of the classroom climate.

4. **Encourage group processes.**

Activities and assignments should provide a way for instructors to get to know students and students to get to know each other as individuals.

5. **Use varied instructional strategies.**

If you typically give mini-lectures to students, you might consider using things like visual materials, demonstrations, hands-on activities and group work to mix it up.

The National Council of Teachers of Mathematics' [Catalyzing Change](#) in High School Mathematics presented a crosswalk between their eight Mathematics Teaching Practices and equitable mathematics teaching practices. The Vermont Agency of Education, in 2018, created proficiency scales to accompany these "[Equitable Mathematics Teaching Practices](#)." This tool is meant to be a self-assessment for teachers to determine their proficiency with NCTM's eight math teaching practices, to guide and support continuous improvement, and to support them in improving their teaching practices.

Only through awareness of any implicit-bias and the explicit use of equitable teaching practices will we truly be able to achieve our goal of "success for all learners". For more information, visit the Vermont Agency of Education's webpage for [Educational Equity](#) and the link for [Equity Literacy Resources](#).

### **How exacting do I need to be in terms of Proficiency-Based Graduation Requirements and Performance Indicators?**

This was a question that was recently posed to me. Let's start with a little background information. The choice of Graduation Requirements and their associated Performance Indicators are a local determination. The AOE has provided [sample PBGR's](#), along with their associated Performance Indicators, as a guide to assist schools with the development of their local requirements.

Here are a couple of specific questions that some may have thought about, possibly even agonized over:

- When assessing my school’s performance indicator of “Make Geometric Constructions”, how exacting do I need to be?
  - Does it have to be the compass and straight edge of old?

In this example, the Performance Indicator/Standard is derived from Geometry (d) – Make Geometric Constructions (HSC.CO.D), a Performance Indicator directly from the AOE sample PBGR document which is derived directly from a Common Core Standard Cluster. As for the question, “does it have to be the compass and straight edge constructions?”, the short answer is “no.” However, local Scoring Criteria/Proficiency Scales should describe what a student must be able to demonstrate in order to meet that Indicator/Standard at a Proficient Level, which is a local decision.

Let me provide a sample Performance Indicator Scoring Criteria/Proficiency Scale, this example is from the [Great Schools Partnership](#).

**Math Graduation Standard 2- ALGEBRA:** Interpret, represent, create and solve algebraic expressions.

Performance Indicator	1	2	3	4
Students will be able to <b>interpret</b> the structure of expressions.	I can <b>define</b> an expression.	I can <b>identify</b> the individual parts of an expression.	I can <b>examine</b> an expression and <b>justify</b> conclusions about the meanings of the different parts according to the context of the problem.	I can <b>create</b> an expression and <b>justify</b> conclusions about the meaning of all the different parts according to the context of the problem.

As you can see, the scoring criteria in this example go beyond restating the “standard” and describes how the student can “examine” and “justify”, which helps flesh out what it means to “interpret” at a proficient level. [Great Schools Partnership](#) has a wealth of resources. One resource that I found very informative is their webinar on [Determining Proficiency Levels and Establishing Scoring Criteria](#).

I hope this helps answer the question, “how exacting do I need to be in terms of Proficiency-Based Graduation Requirements and Performance Indicators?”.

## Events, Announcements, and Resources

[Khan Academy](#) is a free resource that can be used for students to make up work, tutoring, stations in the classroom, summative assessment review, as a resource for parents, and many more. One application that can be useful is to locate practice problems for students that are organized by grade level/course and then by topic area. It is important to note that Khan Academy is aligned to Common Core Standards for Mathematical content, but not the Practice Standards. If interested, you will need to create an account in order to access any material. Please contact me for instructions on how to navigate the website.

[Kahoot!](#) is a game-based learning platform that makes it easy to create, share and play learning games or trivia quizzes in minutes. The sign-up for this is free. Once you have an account you can access already made quizzes and assign them to your students. Once you get comfortable you can then start to create your own quizzes. Please contact me for instructions on how to navigate the website.

[PhET Interactive Simulations](#) project of the University of Colorado Boulder creates free interactive math and science simulations. PhET sims are based on extensive education research and engage students through an intuitive, game-like environment where students learn through exploration and discovery. To get started, just click on the [Math icon](#) in the list of subject areas. You can then either download or embed the simulation. If you choose “download” your next prompt will ask you what you want to do, just select Open and you will begin the simulation. Once again, give it a try and have some fun!

[Additional Mathematics Resources](#) can be found at this link.

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**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](mailto: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.

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