Leading with Algebra

Welcome to latest issue of the Algebra Newsletter!

Welcome to the latest issue of the newsletter for the 2015-2016 school year. We hope you found the previous one useful! Expect the final newsletter of the year in late May.

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Updates from PARCC

PARCC has released test items from the 2015 PARCC tests along with actual student work samples for the extended response items. Included are the test items and keys. To quickly find the math items on the site, enter "Math" for the subject and choose the appropriate grade level. The Algebra Items provide good review material for the CPS Algebra Exit Exam.

Updates from the Department of Math

The annual Algebra Course approval documents will be available on the Knowledge Center the week of 4/25. All schools who wish to offer high school algebra in the middle grades in 2016-17 school year must apply to offer the course.

The Algebra Exit Exam webinar will be on Thursday, May 5 at 4:30pm. The webinar will discuss the logistics and administration of the Exit Exam. Register for the webinar on the Learning Hub.

The Exit Exam window is the week of May 30th. Thank you teachers for your hard work and best wishes to everyone.

Math Challenge of the Month

A driver plans to average 50 miles per hour on a trip from A to B. Her average speed for the first half of the distance from A to B is 45 miles per hour. How fast must she drive for the second half of the trip?

Adapted from M. Munem and D. Foulis, *Algebra and Trigonometry* 1982

Math Talk Idea

To help students understand linear and exponential functions more conceptually, consider a math talk where you present them with a table similar to the one at the right and ask: "Is there a linear function with $f(2)=1$ and $f(5)=2$? If so, what is $f(0)$?" Then follow up with asking "Is there an exponential function with $f(2)=1$ and $f(5)=2$? If so, what is $f(0)$?" By choosing different input and output values, you can adjust the difficulty level of the problem.

x	f(x)
0	
1	
2	1
3	
4	
5	2

Have you tried any of the math challenges in your classroom? If so, share a story with us: a surprising student strategy, something you learned, or anything else. Email your story to Kathleen Pitvorec (kapitvor@uic.edu).

Teacher Spotlight: Mihaela Calafeteanu, 8th grade and Algebra teacher, Maria Saucedo Scholastic Academy

A conversation about using the Formative Assessment Lesson [Defining Lines by Points, Slopes, and Equations](#) which addresses Common Core Standards 8.EE.5 and 8.EE.6 Understand the connections between proportional relationships, lines, and linear equations.

Q: What were the students learning in this FAL and where did it fit in your instructional unit?
My students were about halfway through a unit on linear and non-linear relationships. We had learned about the slope of a line and about equations for lines, and my students were fairly comfortable with the mechanics. This FAL challenged them to deepen their conceptual understanding of slope and lines, especially in the application of these ideas in different contexts.

Q: What did your students gain from this lesson?
My students loved the cooperative nature of the activity, manipulating the cards. They had fun!   They didn't realize how much they were learning. The lesson develops many of the standards for mathematical practice, especially "Make sense of problems and persevere in solving them," "Attend to precision," and "Use appropriate tools strategically." My students also learned that visuals are sometimes deceptive: two lines may look very similar on a graph, but mathematical analysis can reveal they are really different.

Q: What did you like about this particular lesson?
My students were explaining their reasoning to each other and challenging each other on their reasoning. Finally they wrote down their reasoning. By reading their explanations, I could get insight into their thinking. The students did all the work. The gallery walk was also successful as some groups discovered their errors by reading others' posters.

Q: How did you assess your students?
Their grades were based on a short self-assessment, a short assessment by them of their partners, my own observations of their work during the activity, and the post-assessment.

Q: What advice do you have for teachers who are interested in using a Formative Assessment Lesson for the first time?
The preparation looks intimidating at first, but the prep time really pays off! Read the entire packet as it contains excellent suggestions on responding to students who are having diffculties. If it doesn't go so well the first time, try it again with another group. It will definitely get better. You can also adapt it to your students' needs and your own teaching style.

Relevant Reading
Jo Boaler's latest book [Mathematical Mindsets](#) looks at the implications of some of the latest research findings on learning and on the brain for mathematics teaching. She argues forcefully and convincingly that "everyone, with the right teaching and messages, can be successful in math, and everyone can achieve at the highest levels in school." Among the topics she discusses are the value of mistakes, the importance of developing number sense, how to develop a growth mindset in your students, and alternatives to tracking in our classrooms.