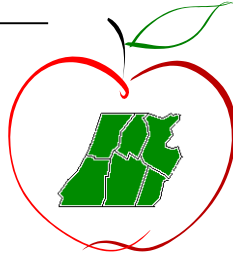


Laurel Highlands Mathematics Alliance

M_{athematics} E_{ducation} and T_{eacher} E_{xchange} R_{eport}



Fall 2013

affiliated with NCTM/PCTM

President's Message

Dear Colleagues in Mathematics Education:

We are so very pleased to bring you this first edition of the "revived" LHMA METER. It is one of many indicators that our local affiliate is healthy once again. Many of you joined us in March for a very successful first annual Mathematics Educator Mini-Conference. It was additionally great to have so many middle-level educators and their students participate in Try-Math-a-Lot in May. Looking forward, we hope that all of you will mark your calendars and plan to attend our second annual Mathematics Educators Mini-Conference on Saturday, March 22, 2014, at the University of Pittsburgh-Johnstown. And how very fortunate we are to have the 2013 PCTM Annual Conference, scheduled for November 6-8 at Seven Springs Mountain Resort!

Certainly this is an exciting era for mathematics education, characterized by both high expectations for students and readily available resources and best-practice research. Yet the challenges facing classroom teachers are many and often daunting. Opportunities for collegial conversation and collaboration are invaluable for sustaining teachers in today's classrooms. The Laurel Highlands Mathematics Alliance can and should serve as the local nexus for healthy professional dialogue. As an organization, we have some great momentum. But now it is up to you, the members, to keep us moving forward. We are here to serve and support each other. As such, new ideas and new leaders are always welcome!

As the saying goes, there is strength in numbers. So please help us to extend invitations to join LHMA to those who are not yet members. Consider sharing the membership form and this newsletter with colleagues in your school district at all levels (pre K- 12) at the start of the school year. We also warmly welcome the involvement of learning-support teachers whose role in equitable mathematics education is so critical. Laurel Highlands Mathematics Alliance includes a six-county area: Cambria, Blair, Bedford, Somerset, Huntingdon, and Fulton. On a whole, we know that we need to do a better job reaching out to teachers in Huntingdon and Fulton counties and any help you can provide in doing so will be most appreciated.

*Warm Regards,
Kate Remillard
LHMA President*

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PCTM/NCTM Report

Nina Girard, University of Pittsburgh at Johnstown

Since Laurel Highlands Mathematics Alliance is an affiliate group of both the PA Council of Teachers of Mathematics and the National Council of Teachers of Mathematics, we like to keep, you, the LHMA membership, abreast of the happenings of these two professional organizations. As your representative, I attend PCTM Executive Board meetings every three months in Harrisburg, and I try to represent LHMA when I can in the Eastern II Caucus and Delegate Assembly at the NCTM Annual Conference, so our affiliate does have a voice in these two parent organizations.

First, don't forget to plan for the 62nd Annual PCTM Conference to be held November 6-8, 2013 at Seven Springs. It's not often that this statewide, professional conference comes to our area, so hopefully you'll be able to take advantage of the proximity. There will be many sessions to pick from with lots of nationally known speakers. A preliminary schedule of the conference events and the details regarding registration and lodging costs can be found at:

<http://pctm.squarespace.com/2013-annual-conference/> Also, our affiliate will be helping with the Hospitality Committee at the conference. If you are able to assist at the Hospitality Table while at the conference, even if just for an hour, please contact me (nina@pitt.edu).

In other PCTM news, PCTM is running a membership special: two years membership for ten dollars! Basically, this is the student rate for membership, so everyone is a student again. If you are not a member or need to renew your membership, consider doing so now. Also, submissions for the 2013-2014 PCTM Yearbook are now being accepted. Please visit the Yearbook page under Publications at www.pctm.org.

NCTM regularly releases news regarding implementation of the Common Core Standards and offers many resources at their website for aiding in implementation. One great NCTM

resource available for free are the Core Math Tools—a downloadable suite of interactive software tools for algebra and functions, geometry and trigonometry, and statistics and probability. The tools are appropriate for use with any high school mathematics curriculum and compatible with the Common Core State Standards for Mathematics in terms of content and mathematical practices. Java is required. See more online at the NCTM website www.nctm.org under Lessons & Resources.

Save the Date

October 16-18, 2013

NCTM Regional Conference

Baltimore

<http://www.nctm.org/baltimore/>

November 6-8, 2013

2013 PCTM Annual Conference

Seven Springs

<http://pctm.squarespace.com/2013-annual-conference/>

February 15, 2014

Mathcounts Regional Competition

University of Pittsburgh at Johnstown

brn10@pitt.edu

March 22, 2014

LHMA 2nd Annual Mathematics Educators Mini-Conference

University of Pittsburgh at Johnstown

April 30, 2014

Try-Math-A-Lot

University of Pittsburgh at Johnstown

dbeam@pitt.edu

You Are What You Eat: The Mathematical Diet of our Students

Kate Remillard, St. Francis University

“You are what you eat” is a metaphor worth reflecting on as we begin to plan for the new school year. We all have room for continual improvement in our personal diets. We could eat less fat, salt and sugar. We could consume more veggies, grains and fruits. Similarly, as teachers, we are well-served to reflect on our students’ *mathematical meals*. How can we be sure to serve up a mathematically rich diet for our students this year? And how can we avoid the fast food and fad diets of our discipline? This article aims to give you some “food for thought” as you begin to prepare your mathematical menu (i.e., lesson plans) for the school year.

Consider that “students develop their sense of what it means to ‘do mathematics’ from their actual experiences with mathematics, and their primary opportunities to experience mathematics as a discipline are seated in the classroom activities in which they engage” (Henningsen & Stein, 1997, p 525). The [Common Core Standards for Mathematical Practice](#) paint a picture of *doing* mathematics. We know *doing* mathematics includes persevering in problem solving, attending to precision, reasoning, explaining, modeling, making use of a variety of tools, seeing structure, and generalizing. If we value productive mathematical dispositions in our students, characterized, for example, by reasoning and sense making, then our classrooms must be venues where students regularly *engage* in dynamic mathematical activity.

Our students’ mathematical diets consist primarily of the instructional tasks we feed them. As teachers, it will help to reflect on how “nutrient packed” the tasks are that we use in the classroom. Does the task afford students ample opportunity to engage in the Standards for Mathematical Practice? To think and reason in flexible ways? To conjecture? To communicate

and justify their reasoning? Stein and Smith (1998) offer the [Mathematical Task Analysis Guide](#) to assist teachers in their menu planning. Tasks are analyzed based on their cognitive demand, that is, the kind and level of thinking required of students in order to successfully engage with and solve the problem. Tasks that require *memorization* or invoke *procedures without connections* are classified as lower-level demands. Higher-level demands have two designations in the guide: *procedures with connections tasks* and *doing mathematics tasks*. The first makes use of procedures as a means of increasing the depth of understanding of mathematical concepts and ideas. Tasks designated as *doing mathematics*, provide opportunities for students to develop the very best mathematical habits. They require such things as non-algorithmic thinking, understanding of concepts and relationships, examination of constraints, self-monitoring, and self-regulation.

Lower-Level Demands	Higher-Level Demands
Memorization Tasks	Procedures with Connections Tasks
Procedures without Connections Tasks	Doing Mathematics

Figure 1

The Task Analysis Guide (see modified version in Figure 1 above) is analogous to the USDA’s My Plate (see Figure 2) or its predecessor My Food Pyramid (see Figure 3).



Figure 2

In mathematics education, there is room and justifiable need for tasks at all four levels (memorization, procedures without connections, procedures with connections, and doing

mathematics). We should, however, be mindful of portion control. Lower-level demand tasks might be thought of as fats, oils and sweets. The Food Pyramid reminds us to “consume sparingly.”

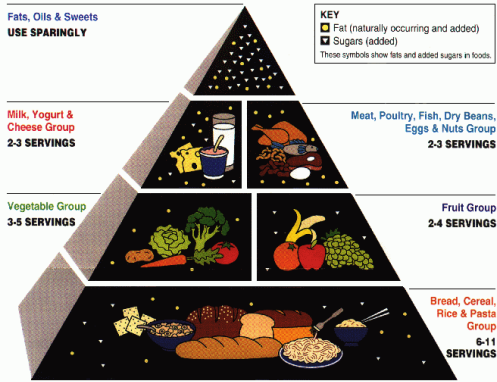


Figure 3

In so doing, we make more room on our students’ plates for healthy portions of higher-level cognitive demand tasks.

References

Henningsen, M. & Stein, M.K. (1997). Mathematical tasks and student cognition: Classroom-based factors that support and inhibit high-level mathematical thinking and reasoning. *Journal for research in mathematics education*, 28(5), 524-549.
 Stein, M.K., & Smith, M.S. (1998). Mathematical tasks as a framework for reflection: From research to practice. *Mathematics Teaching in the Middle School*, 3(4), 268-275.

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Class Openers*

On the first day of school students typically know each other, yet you don’t know them. Have students break into groups of two or three. Students should explain something interesting about their name to the group members. It could be about their first, middle, or last name. Examples include: who they were named after, the meaning of their name, nickname story, etc. Have group members introduce each other to you and tell you what is interesting about that student’s name. In a group of three, students should decide who each one will introduce. Every student should introduce someone. For example: “This is Tom Nichols. He was named after his grandfather Thomas and his grandfather David. He is glad they named him Thomas David and not David Thomas (the founder of Wendy’s).”

Becky Piscitella, Richland High School

**Mathematical Humor and Class Openers will be regular features. Please send contributions to vccl@pitt.edu.*

Mathematical Humor*

Q: What happened to the plant in math class?

A: It grew square roots.

Q: Why should the number 288 never be mentioned?

A: It’s two gross.

source: <http://www.jokes4us.com/miscellaneousjokes/mathjokes/>

Q: How does a ghost solve a quadratic equation?

A: By completing the scare.

Q: What did one algebra book say to the other?

A: Don’t bother me; I’ve got my own problems!

Q: Why did the polynomial plant wilt?

A: Its roots were imaginary.

source: <http://www.jokes4us.com/miscellaneousjokes/mathjokes/algebajokes.html>

Back to School Co-Teaching Tips

Anna Balouris, Hollidaysburg Area School District

1. Get to know your co-teacher on a personal level

Whether you are new to co-teaching or working with a new co-teacher, it might be awkward at first. Learning to share “teaching space” in the classroom can be a challenge. However, if you make time to get to know your co-teacher on a personal level at the start of the year or better yet in the summer, it will help to create a smooth transition. You may become close friends, you may not, but being able to connect about topics outside the classroom will create a more comfortable climate.

2. Embrace differences

One co-teacher on the team will likely be the “expert” in mathematics, while the other will be the “expert” in special education. There may also be differences in age, experience and teaching styles between teachers. The beauty in co-teaching emerges when two teachers embrace differences and collaborate. You may not always see eye to eye but remember students can sense tension. The best co-teaching teams take risks and build upon each other’s strengths. By accepting rather than fighting differences, both teachers will grow professionally and the students will ultimately benefit.

3. Making planning a priority

In order to be effective, co-teachers must be on the same page. Make it a priority to plan together at least once a week. If you do not have common planning time, make time either before or after school. Both teachers must be clear on their individual roles during lessons. Planning most likely will take longer at the start of the year, but as the year progresses both teachers will be more comfortable in their roles.

4. Observe other co-teaching teams

Regardless if it is your first time co-teaching or you have been co-teaching for years, observing other teams is valuable. By simply watching how other teams interact with each other and their students, you may get ideas you want to try and even what you want to avoid! Do not just stick to math teams. Branching out to other subject areas may give you a new perspective.

5. Try different methods

You may have found a go to method that works best with your co-teaching partner but it is important to familiarize yourself with each method. Lesson to lesson, different methods may be more effective. Often methods change multiple times during a lesson. Being comfortable with each of the co-teaching methods is important as the needs of students change throughout the school year.

6. Switch roles frequently

Just because you are mathematics teacher does not mean you cannot take on the role of the special education teacher during lessons. Regardless of the method of co-teaching, periodically switching roles will give students a new perspective. It will also enhance an environment of equality between students with and without an IEP.

7. Don’t give up!

Sharing responsibilities with another professional in the classroom can be both rewarding and challenging. Every teacher knows sometimes lessons flop, and the same goes for co-taught lessons. Nevertheless, continue to work on the relationship with your co-teacher and your craft of teaching cooperatively. It may take time to find a rhythm, but in the end an effective co-teaching team can make the difference in every student’s school experience, not just those with IEPs.

Laurel Highlands Mathematics Alliance (LHMA), an affiliate of the Pennsylvania Council of Teachers of Mathematics (PCTM - <http://pctm.squarespace.com/>) and the National Council of Teachers of Mathematics (NCTM - <http://www.nctm.org/>), gives mathematics educators the opportunity to grow professionally and interact with colleagues in Bedford, Blair, Cambria, Fulton, Huntingdon, and Somerset Counties. As such members can have a direct impact on state and national policy decisions in areas of certification, curriculum changes, and graduation requirements. Information about membership, can be found at <http://faculty.francis.edu/LHMA/>

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*Interested LHMA members are encouraged to consider filling vacant positions. For more information, please contact Dr. Nina Girard at nina@pitt.edu.

To submit information about upcoming events, jokes, class openers, or an article for the Spring 2014 issue (deadline: early January), please contact Victoria Czarnek at vcc1@pitt.edu.