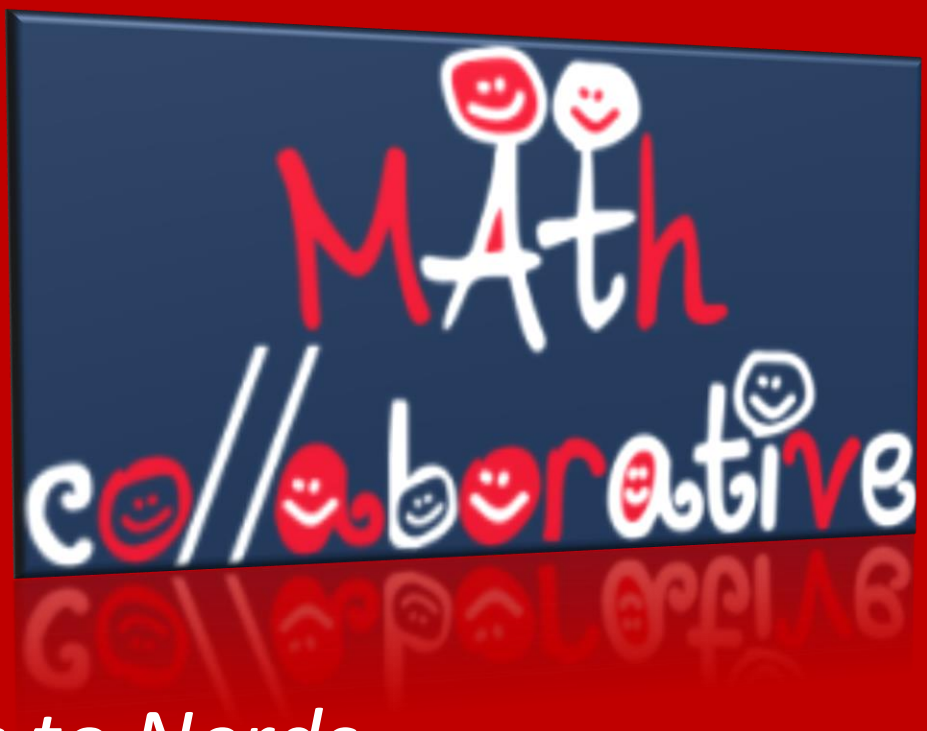

Notes to Nerds

March 19, 2021

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Announcements

- Happy Almost-Spring Break! We appreciate you, teachers! You are amazing!
- ***Operation Super Solver* Camp** is being planned. We are excited! More information to come. Rising 6th graders be on the lookout!
- **Thinking Classroom** book study to start soon. **Warning!** This will disrupt your current thinking about teaching. Those interested contact: Peter Anderson
- A summer high school mathematics camp is being planned. Contact Peter Anderson for more information.
- **Free for CSU Students (and Faculty)** The Math Collaborative has a whole slate of workshops (FOR FREE!) on Tuesdays, Wednesdays, and Thursdays! **Thank you to those who have attended!** Registration Link
- Parent Resource Page has some pretty cool MATH stuff! Check it out! (Link to cool Parent stuff) TEACHERS might like it TWO… too!

Upcoming Workshops

Tuesday, March 23: Aiming for Deeper Understanding - Using Desmos in the Elementary Classroom @3:45pm

Tuesday, April 6: Aiming for Deeper Understanding - Review of Standards 4th and 5th Grade @3:45pm

Tuesday April 13: Aiming for Deeper Understanding - Review of Standards 2nd and 3rd Grade @3:45pm

Tuesday, April 13: Finding, Editing, and Creating Your Own Desmos Instructional Activities @4:30pm

Wednesday, April 14: Leverage the Standards High School Algebra 1 Workshop Series @4:15pm

What's a life lesson you've learned from teaching?

This time of year, as the days grow longer and, as teachers, our reservoir of strength and patience becomes more of a puddle. Let us soak up a little spring rain of wisdom from our colleagues. They are a pool of inspiration we might use to take us closer to the break.

These are responses to the question posed in a Twitter feed by Howie Hua: *What's a life lesson you've learned from teaching?*

Here are some responses:

- Everyone has something to teach me. - Paula
- It's really easy to hear someone speak even a simple sentence and assume that you understand exactly what they mean. And you don't.
    - Corollary: *Clarifying questions are critical.* - Todd
- If you're going to drink lots of coffee in the morning, be sure the bathroom is not too far away. - Mike
- It is a life of service. Leave your ego and martyrdom at the door. - Kathleen
- You don't realize how much you don't understand it until you try to teach it. - David
- Learning takes time. #WaitTime #Patience - Rik
- Treat everyone like you're going to spend 90 minutes with them for the next four years of your life. - Kevin
- Ask the daughter for help with shoe choices. - Heather
- The kids that can try your patience the most can be the ones who end up closest to your heart. - Caleigh
- Make sure you treat your students with respect, kindness, and grace—one day, they may be your colleagues, friends, or even your boss—this is my reality, and I love it. - Christi
- Teaching is inspired learning. - Sanjay
- Authentic connection and caring are everything. - Missy
- Don't tell yet, wait, wait and wait some more. Listen! - Ichiskov
- Maslow's > Bloom's - Emmanuel
- Not everyone learns in the same way. - Trigger
- You never arrive... rather you continually evolve into something new and fresh. - Candace
- When a student is having a hard time or is angry in class, it's almost never about you (the teacher.) - Julie
- Those who need the most love show it in the most unloving ways. - Miller
- That ice cream is made from dirt. This is what a first grader told me during a lesson. Loved it. His connection from dirt-grass-cow-milk-factory-ice cream. It was profound. - Colin
- Plans are great to have, but sometimes life is the best instigator for learning. - Carrie
- Teaching does not cause learning. - Alexa
- Take a RISK! - Darlene
- Don't take yourself too seriously. It's just the 7th grade. - Noelle
- Slow down! - Jennifer
- Laughter is the best part of life. - KW

I needed to hear these words of wisdom. I hope they lift you as well.

As the school year grinds on and the days longer, know the most important work you do is from the heart. *Maybe* during the spring respite, you can take a moment to slow down and enjoy some ice cream made from dirt and risk some laughter while not worrying about your shoes matching.

Thank you for being a learner - the best kind of teacher.

Happy Maths,

Peter

Rabbit Holes – They aren't just for Alice!

Lately, I haven't just been falling down rabbit holes; they have been sucking me in – pulling me off task but into a fun world of questioning and wondering,

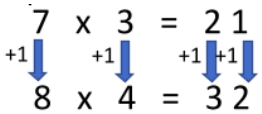
- "I wonder, why does that work?"
- "I wonder, does it always work?"
- "I wonder, can I find a solution, an answer?"

Join me on a journey into "Wonder" land!

Originally from a Marilyn Burns blog post: Where's the Math?, I want you to ask yourself the above questions as you look at this 3rd grader's observation.

7 x 3 = 21
8 x 4 = ?

The student reasoned that the product was 32. When questioned what her reasoning was, she stated:



Instead of shutting down the discussion, and telling the child, "That's not how multiplication works," Marilyn Burns immediately picked up pencil and paper to investigate this conjecture. She then challenged the student and her classmates to test it. They found equations where it worked and equations where it didn't. I did the same thing. And once I found equations where it didn't work – that's when the falling down the rabbit hole started! I looked for a pattern that WOULD work EVERY time. Instead of adding one to each digit in the original problem, is there another possible pattern that will determine the product?

You can argue, "Isn't it easier to just memorize the facts?" I would argue, "Yes, but let's also encourage questioning and reasoning as a big component of our math instruction." Create an atmosphere of questioning in your room.

I would love to hear your thinking on why this works sometimes and others not. Have you found a possible pattern that connects problems such as these: 7 x 3 connected to 8 x 4, 4 x 5 connected with 5 x 6, 2 x 3 connected to 3 x 4, etc. Email us at: crmc@columbusstate.edu

Note: If you don't know Marilyn Burns, please explore her blog and other resources: Marilyn Burns Math Blog

One other rabbit hole I fell down took me to Alice in Numberland by Ben Waldram. This is a pdf with ten activities that challenge students to think.

Explore:

THE CATERPILLAR TASK

The Caterpillar is a curious creature. It has number on its head and back that seem to change as it grows. The caterpillar's segments each contain numbers that follow a pattern – if the number is even, then it is halved; if the number is odd, you add 1. The last segment on every caterpillar is numbered 1.

The Caterpillar with a 23 on his head will have 8 segments. For example: 23 *(odd, +1),* 24 *(even, halved),* 12 *(even, halved)*, 6*(even, halved),* 3*(odd, +1),* 4*(even, halved),* 2*(even, halved),* 1.

Which Caterpillar will be longer – the one who has a 19 on his head or the one who has 20 on his head?

Start with a Caterpillar with 84 on his head, how many segments long will he be? Can you predict?

Can you find a Caterpillar between 1 and 100 that has the most segments?

Can you make a Caterpillar with exactly 20 segments?

See pg. 8 of the pdf for extension activities and page 18 for answers:

Alice in Numberland

Take your students on a trip to "Wonder" land.
Challenge your students to fall down the rabbit holes.
Challenge them to ask, "Why?"
Challenge them to wonder, "How come?"
Challenge them to try to reason and understand a math problem – not just find the answer.