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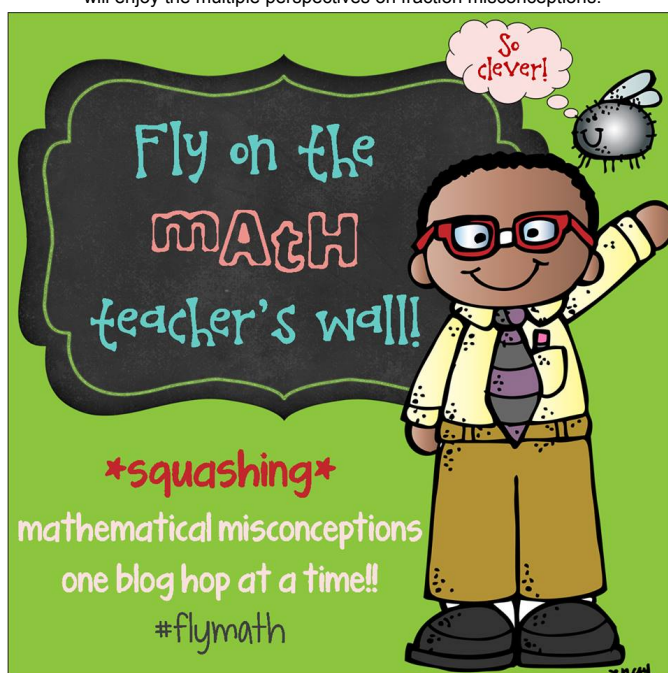
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## Fly on the Math Teacher's Wall: Fractions!

We're baaaaaaaaaaaaah-ack!!! My amazing group of mathematical friends are back to bring you a "Fly on the Math Teacher's Wall" Blog Hop #2: Fractions! Many, many thanks to Brandi from **The Researched Based Classroom** (<http://www.theresearchedbasedclassroom.com/>) for getting us organized again!

This month there are 16 of us teaming up to bring you our thoughts on fractions! Make sure to 'hop' through all 16 posts to pick up some ideas about how you can use fractions in your classroom! You may even find a freebie, or product along the way that will help out as well. Many perspectives and grade levels are covered. I do hope you will enjoy the multiple perspectives on fraction misconceptions!



This past week, I had the privilege of spending 2 full days with a representative from each of the 5th, 6th, 7th, and 8th grade math teams. We spent those two days talking about pacing, curriculum, and instructional strategies that each grade level use in an attempt to overhaul our math program and work more on the vertical articulation.

Before we started talking about instructional strategies, I share a great article with the group. **The article is called "13 Rules that Expire"** (<http://www.nctm.org/Publications/teaching-children-mathematics/2014/Vol21/Issue1/13-Rules-That-Expire/>) by Karen S. Karp, Sarah B. Bush, and Barbara J. Dougherty. It was featured in NCTM's *Teaching Children Mathematics* (August 2014, Volume 21, Issue 1). If you haven't read the article, I HIGHLY suggest it. It's a wonderful read and quite eye opening to all grade levels, but especially for elementary mathematics.

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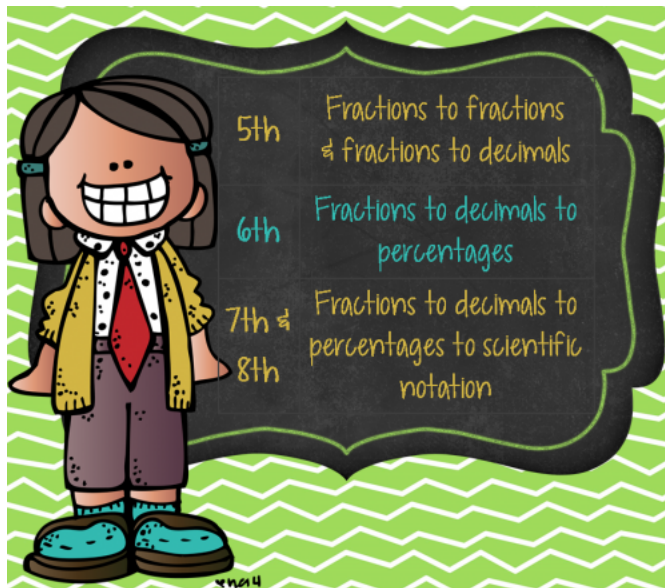
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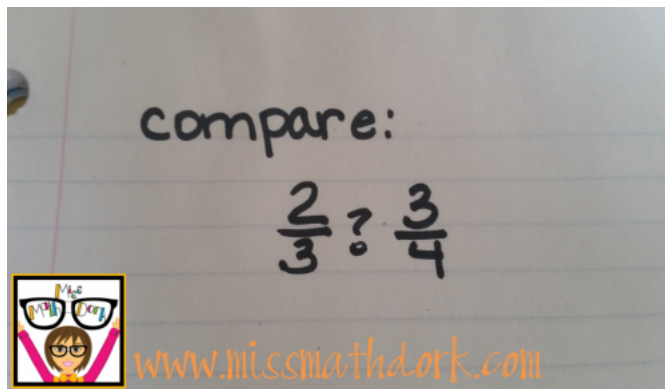
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As the day progressed we came to the topic of comparing numbers. In Virginia, the middle school comparison progression looks like this:



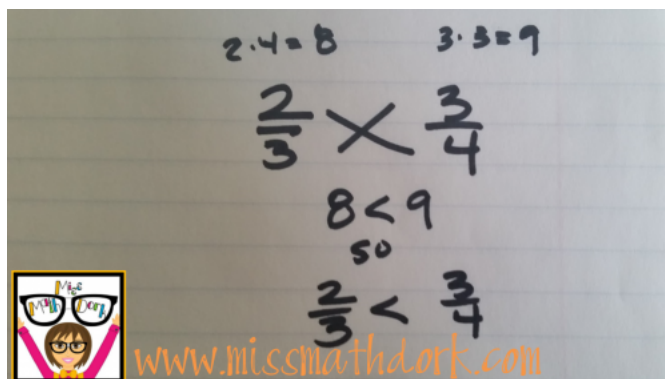
All of the teachers were able to come to a vertical consensus on the topic of conversions between different number representations. Then the 5th grade teacher spoke up. She was curious how most people taught comparing two fractions.



The other teachers chimed in that they taught quite a few different ways:

- 1) common denominators – then compare numerators
- 2) change to decimal or percentage form
- 3) sketch a picture and compare – especially if the fractions aren't very close together
- 4) using benchmarks such as 0, 1/4, 1/2, 3/4, and 1

As the conversation progressed, it was brought up that most of the students came to 5th grade using a method that had been taught in prior years. Many of you are probably very familiar with this method. The most common name for this “trick” is called the butterfly method.



The 5th grade teacher said she agreed with the other teachers on the methods they chose to teach comparing fractions, but that her grade level teachers decided just to continue with what the elementary had already taught the kids. She said she didn't think it would cause any harm in the future. The 6th/7th/8th grade teachers quickly spoke up and showed many reasons why this “trick” caused so much confusion in later years (I wish I had snapped a picture of the whiteboard!)

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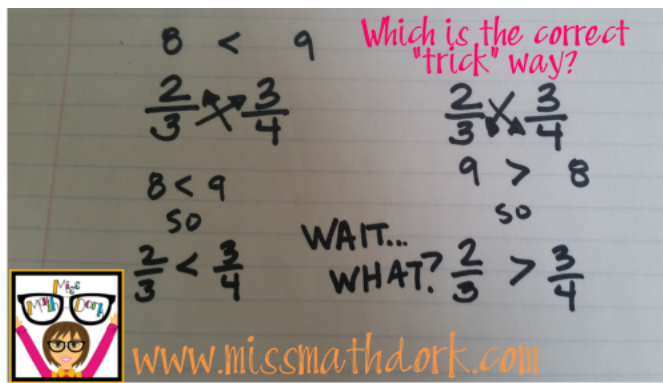
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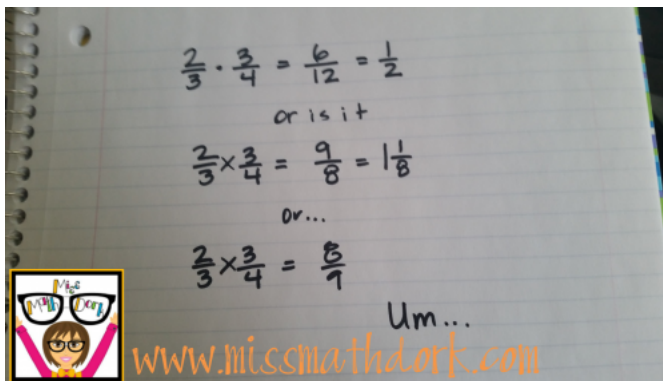
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- 1) some students mix up which way the “butterfly” wings should go and they get the wrong answer. If the student draws the arrows the wrong way, they get the answer wrong.... This makes the trick EVEN trickier.....



- 2) Students want to use the “butterfly” method on EVERY fraction problem they ever see (without discretion) – writing ratios, multiplying fractions, simplifying fractions, solving proportions... they can’t seem to unlearn this trick (AND they have yet to use it correctly!)



After about 5 minutes of discussion and seeing the whiteboard full of ratios and fractions that were taught in 6th, 7th, and 8th grade the 5th grade teacher said “I’m never teaching that trick again! I didn’t realize it would hurt them later!” We all had a pretty good laugh about it at the time, but when all was said and done, it was a big realization – one that I wish more teachers could have.

I don’t think ANY teacher teaches “tricks” with the intent to hurt students in the long run. I think teachers teach “tricks” because

- 1) they think they are helping students
- 2) it’s “easier” to teach students that way
- 3) they don’t understand the math at a conceptual level

Regardless of the reason for teaching the trick – most of them expire, or are conceptually harmful to students. Save the sanity of your fellow math colleagues! Don’t teach tricks 😊 Teach the concepts!

~\*~\*~\*~\*~\*~\*~\*~\*~\*

Leave me a message letting me know your opinion and then head on over to The Evil Math Wizard’s blog by clicking on her icon to see what she has to say about fractions!



(<http://wp.me/p37wzq-hs>)

Want to share this post with someone. [CLICK HERE!](#)

Share (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#>)

February 21, 2015 (<http://www.missmathdork.com/2015/02/>) | By: MissMathDork (<http://www.missmathdork.com/author/admin/>) | 10 Comments (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comments>)  
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Amy February 22, 2015 at 6:28 am (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67805>)

What would be your suggestion on the best method to teach comparing unlike fractions to fourth grade students?

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67805#respond>)



MissMathDork February 22, 2015 at 10:06 am (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67812>)

To me 4th grade is a HUGE number sense year! I would first suggestion sketching the fractions and looking for benchmarks. However, if the numbers are too close together for a sketch or landmark to help, I would suggest finding a like denominator and comparing numerators. Tara from The Math Maniac did a great post on comparing fractions for this hop. You can find her post [HERE](http://theelementarymathmaniac.blogspot.com/2015/02/fly-on-math-teachers-wall-squashing.html) (<http://theelementarymathmaniac.blogspot.com/2015/02/fly-on-math-teachers-wall-squashing.html>) I hope this is helpful to you! Thanks so much for stopping in!!

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67812#respond>)



The Math Maniac (<http://theelementarymathmaniac.blogspot.com/>) February 22, 2015 at 3:44 pm (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67842>)

Out with tricks, in with conceptual understanding! My rule is, if you can't explain why a "trick" works, you can't use it!

Tara

The Math Maniac (<http://theelementarymathmaniac.blogspot.com/>)

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67842#respond>)



MissMathDork February 23, 2015 at 10:05 pm (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67937>)

Love this mantra!! Going to use it in our vertical meetings the next two weeks! Thanks love!

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67937#respond>)



Greg Coleman (<http://mrelementarymath.blogspot.com/>) February 22, 2015 at 7:07 pm (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67847>)

Great post about the negative consequences of depending on tricks to teach math concepts. Students will never obtain the conceptual understandings needed to be prepared for the next grade level.

Greg

Mr Elementary Math (<http://mrelementarymath.blogspot.com/>)

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67847#respond>)





MissMathDork February 23, 2015 at 10:06 pm

(<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67938>)

I just don't think people look outside of their bubble! Tricks are NOT helpful in the long run!

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67938#respond>)



Tricia (<http://bookishways.blogspot.com/>) February 22, 2015 at 8:28 pm

(<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67852>)

This method is good IF the teacher takes the time to help students understand that they are really finding fractions with common denominators. Once you show them this, the method makes sense. I agree that teaching this as a "trick" devoid of conceptual understanding is a huge problem.

On another note, I love the article you mentioned and have my preservice teachers read it in my methods class. Too often teachers don't understand the impact their strategies have when students reach upper grades.

As to fractions, I particularly like this article from the March 2008 issue of Mathematics Teaching in the Middle School.

Clarke, Roche, & Mitchell – 10 Practical Tips for Making Fractions Come Alive and Make Sense

Thanks for sharing!

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67852#respond>)



MissMathDork February 23, 2015 at 10:07 pm

(<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67939>)

I agree with you Tricia! This IS appropriate if the why's and how's have been taught and the number sense is there! However, I RARELY see trick's bring taught WITH the number sense piece.... the teacher can RARELY tell me WHY things happen.

Thanks for sharing that article! Another one of my favorites!

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67939#respond>)



Not Your Mother's Math Class (<http://nymmathclass.blogspot.com/>) February 23, 2015 at 9:49 pm (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67935>)

My principal hated us to teach the butterfly method. I have to admit that I did it even though I hate teaching tricks. I felt like I had to thought because there were always inappropriate questions on county or state tests. We are only supposed to compare fractions with like numerators or denominators. Our kids aren't ready for more yet. Thank you for your post. I enjoyed it.

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67935#respond>)

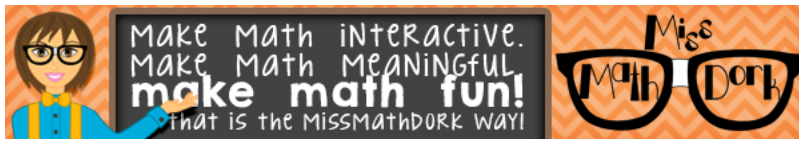


MissMathDork February 23, 2015 at 10:10 pm

(<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/#comment-67941>)

I understand where you are coming from. I think the problem is the "trickle up" effect. Students have been coddled for so long with tricks that they don't have the number sense to back up their foundation with mathematical supports even when they are mathematically mature enough. The tricks only add to a weaker foundation as the new math gets added to their plate each year. Let's start an age of "trickle up" number sense! Can you imagine how amazing number talks would be with students who got it?! Ahhhhhh....utopia!

Reply (<http://www.missmathdork.com/2015/02/fly-on-the-math-teachers-wall-fractions/?replytocom=67941#respond>)



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### MissMathDork

Lover of all things mathematical! Huge fan of DIY projects and funky, nerdy earrings! Spoiler of my English Bulldog fur-baby, Dozer!

