



KENTUCKY CENTER FOR MATHEMATICS

Let's Do Math with KCM-Middle Grades

Addition & Subtraction of Fractions & Decimals

Welcome!

Your host

Cindy Aossey

Regional Consultant Kentucky Center for Mathematics cindy.aossey@outlook.com





Kentucky Center for Mathematics

- KCM seeks to advance the knowledge and practice of effective mathematics teaching and learning, encompassing early childhood through adult education.
- KCM provides and develops statewide leadership, facilitate professional learning experiences, and cultivate innovation with the aim of improving mathematics education, practice and policy.



Visit Our Website

www.kentuckymathematics.org





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Today's Goal

Let's Do Math together

To share tasks and resources that:

- Promote reasoning and problem solving
- Allow for multiple entry points
- Encourage students to play with mathematical ideas
- Can be used when remote teaching



Today's Agenda

- What's the research?
- Review content standards
- Open Middle Tasks
 - Let's do math
 - Virtual manipulatives
- Tiled Area Questions
 - Let's do math
 - Using Google Jam Board
- KCM here to support teachers
- #BetterTogether #TeamKCM



Research



TEACHING FRACTIONS AND RATIOS FOR UNDERSTANDING Essential Content Knowledge and Instructional Strategies for Teachers 1 $\frac{1}{2}$ $\frac{1}{4}$ $\frac{\sqrt{4}}{2}$ $\frac{12.2}{14.4}$ $\frac{2}{1}$ SUSAN J. LAMON

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THIRD EDITION

Core ideas for developing rational number understanding and proportional reasoning



Teaching Fractions and Ratios for Understanding.third edition by Susan Lamon (page 10).

4th edition available April 7!

TEACHING FRACTIONS AND RATIOS FOR UNDERSTANDING

Essential Content Knowledge and Instructional Stategies for Teachers

SUSAN J. LAMON

Fourth Edition



KENTUCKY CENTER FOR MATHEMATICS

Link for 4th edition:

https://www.routledge.com/Teaching-Fr actions-and-Ratios-for-Understanding-Essential-Content-Knowledge/Lamon/p /book/9780367441678

Standards

KY.5.NF.1 Efficiently add and subtract fractions with unlike denominators (including mixed numbers) by...

- using reasoning strategies, such as counting up on a number line or creating visual fraction models
- finding common denominators

KY.6.NS.3 Fluently add, subtract, multiply and divide multi-digit decimals using an algorithm for each operation.



Let's Do Math

ADDING FRACTIONS 6

Directions: Using the digits 1 to 9 at most one time each, fill in the boxes to make a true statement.





https://www.openmiddle.com/

Using the digits 1 to 9 at most one time each, fill the boxes to make a true statement.



Can you make another? How about one with a different whole number sum? Type your answers & strategies in the chat box.

ame:	Period: Date:							
First attempt:	Points:/2 attempt/2 explanation							
What did you learn from this attem								
	Fourth attempt: F	oints:/2 atter	npt/2 e:	xplanation				
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	What did you learn from this attempt? How will your strategy change on	your next attempt?						
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Virtual Manipulatives: Fraction tiles

https://www.abcya.com/games/fraction_percent_decimal_tiles



Let's Do Math

SUM OF FRACTIONS CLOSEST TO 10

Directions: Using the digits 1 through 9, at most one time each, fill in the boxes to make the statement true.





Book Link: https://www.stenhouse.com/conten t/open-middle-math# Website Link: https://www.openmiddle.com/

Using the digits 1 to 9 at most one time each, fill the boxes so that the equation is true and the sum is a close to 10 as possible.



Additional Tasks...

ADDING MIXED NUMBERS 3

Directions: Use the digits 1-9 each once to make a the largest possible sum.





O PEN MIDDLE MATH Problems That Unlock Student Thinking, Grades 6-12

ROBERT KAPLINSKY

Book Link: https://www.stenhouse.com/conten t/open-middle-math# Website Link: https://www.openmiddle.com/



Challenges for you to think about later!

https://www.openmiddle.com/

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Home > Grade 6 > Adding Multiple Decimals ADDING MULTIPLE DECIMALS Directions: Use the digits 0 to 9, at most one time each, to fill in the boxes so that the sum is as close to 10 as possible.	Search Q OPEN MIDDLE STICKERS Get an Open Middle sticker OPEN MIDDLE WORKSHEET English (student version)
Hint ~ Answer ~ Source: <u>Giselle Garcia</u>	English (document camera version) French (student version) French (document camera version) Spanish (student version)
SHARE Like 0 Y Tweet Share @ Save	Spanish (document camera version) NUMBER TILES Printable PDF with the digits 0 to 9 Printable PDF with the integers -9 to 9

Characteristics of Open Middle

- They generally have multiple ways of solving them as opposed to a problem where you are told to solve it using a specific method.
- They may involve optimization such that it is easy to get an answer but more challenging to get the best or optimal answer.
- They may appear to be simple and procedural in nature but turn out to be more challenging and complex when you start to solve it.

MATHEMATICS

Tiled Area Questions

https://stevewyborney.com/2017/01/tiled-area-questions/

What is the area of this shape?





Steve Wyborney's Blog: I'm on a Learning Mission.

Sharing Thoughts About Education

Google JamBoard https://drive.google.com/open?id=1fkoM8qeBZdKDYIJKGVuFy1CE0x12ym_cH3W0vIVPHm4

4	Area 1	ïles Jam Board	1		<	1/3	>	
Ś	¢	Background	Clear frame					
* 2 * = *				What is the area of this shap	e?			

Google JamBoard Example

Jam Board allows teachers and students to draw on an image





















Tiled Area Questions

https://stevewyborney.com/2017/01/tiled-area-questions/







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Steve Wyborney's Blog: I'm on a Learning Mission.

Sharing Thoughts About Education



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Teaching and Learning

3 Powerful Tile Strategies will equip you to provide number sense opportunities to your students that involve composing and decomposing either whole numbers or fractions. This is a very flexible resource that can be used in any grade, K-12.

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This post follows up the wildly popular Tiled Area Questions and Primary Tile Questions posts with even more strategies - and with 40 brand new downloadable pages!

By using some or all of the 3 Powerful Tile Strategies your students will have strong ongoing opportunities to develop number sense in bright, colorful, and insightful ways.

Dourouful Til

For all resources, including additional prompts, search the blog for "Tile Area Questions"

https://stevewyborney.co m/2017/02/3-powerful-tilestrategies-and-40-new-do wnloadable-pages/





Teaching Fractions and Ratios for Understanding.third edition by Susan Lamon (page 10).

Upcoming Virtual Professional Learning





Visit Our Website

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KCM is here to support you!

Contact me:

Cindy Aossey



Regional Consultant Kentucky Center for Mathematics cindy.aossey@outlook.com

