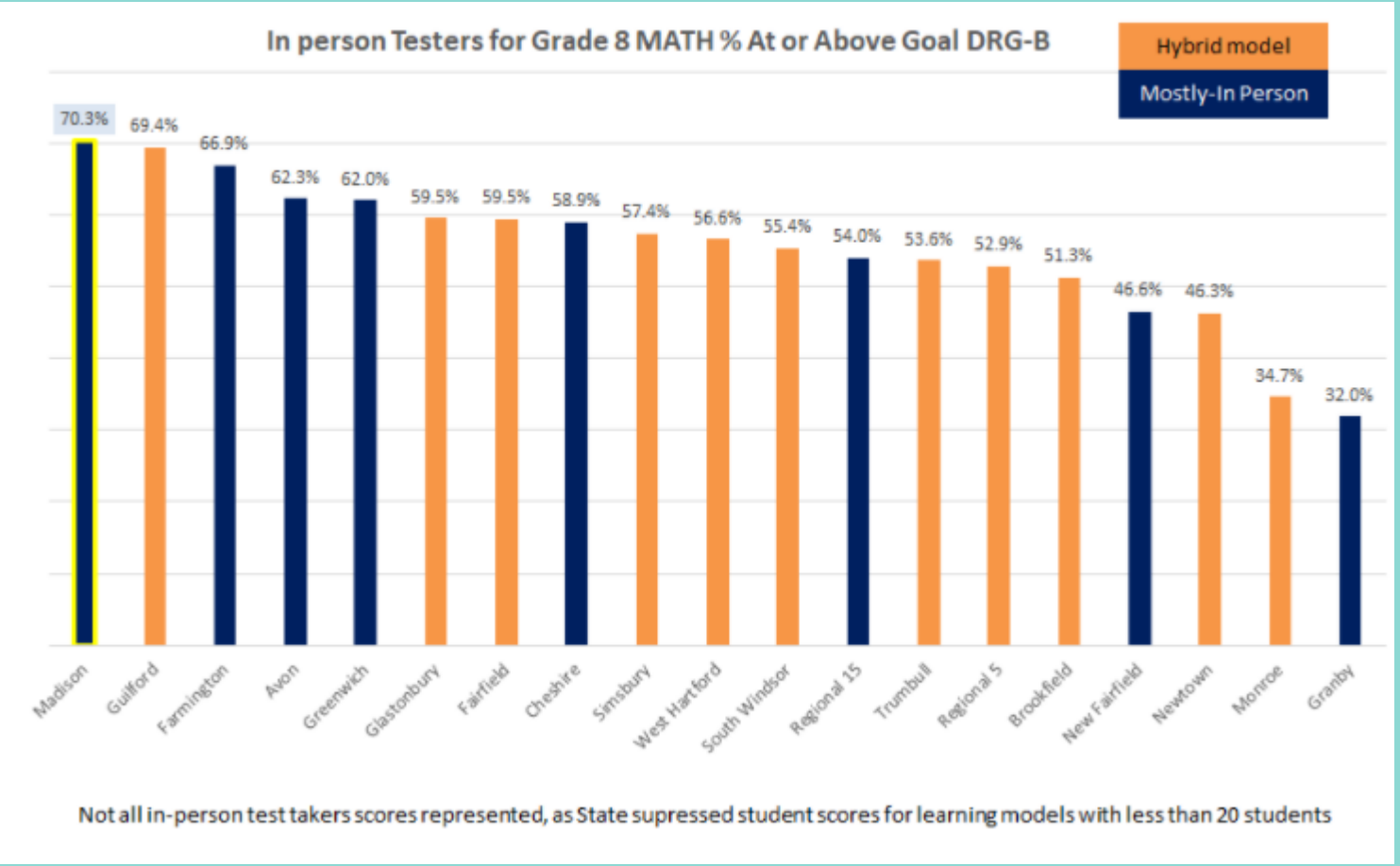
Illustrative Mathematics

Curriculum and Student Development Committee
January 4, 2022

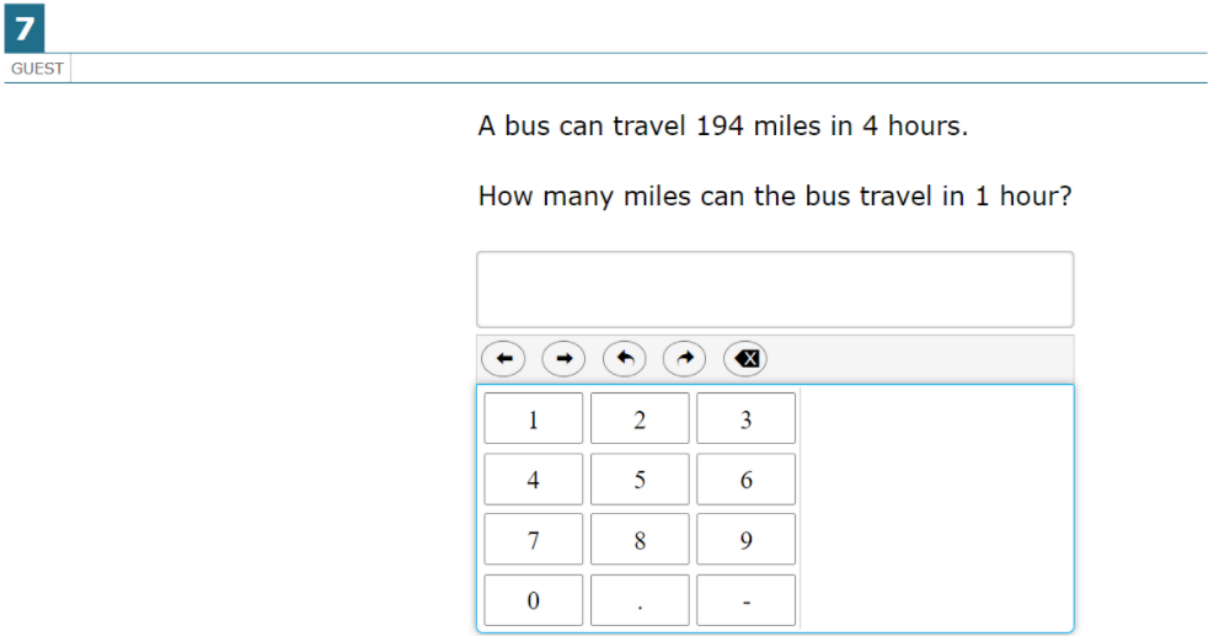
Math Curriculum Timeline

2013- 2014	Bridges in Mathematics was implemented in grades K- 2
2014 - 2015	Bridges in Mathematics was implemented in grades 3 -5
2014 - 2016	K - 12 Madison Math Curriculum was written
2016 - 2019	Pulled resources from Internet to implement curriculum
2019 - 2020	Grades 6-8 began experimenting with Illustrative Math
Fall 2019	Coordinator and coach visited Waterford to observe Illustrative lessons
Summer 2020	Three people attended professional development for Open Up Resources
2020- 2021	High School underwent material review process
Spring 2021	3 Professional development days with Math and Special Ed Teachers
Summer 2021	Unit planning by grade level- grades 6- 8
Fall 2021	Began implementation in grade 6, grade 7 Math, grade 8 Pre-Algebra.
2021-2022	Continuing professional development with Lindsey Ramos from CREC (4 days)

Standardized Assessment Scores



IABs- Grade 6 Ratio & Proportional Reasoning



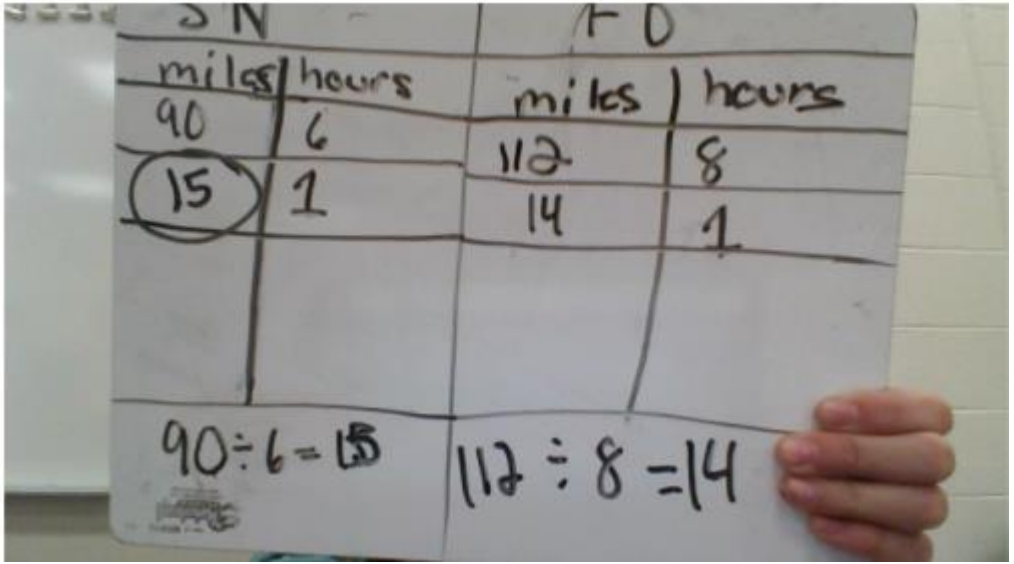
Difficulty level: moderate
2020: 57% of students answered correctly
2021: 91 % of students answered correctly

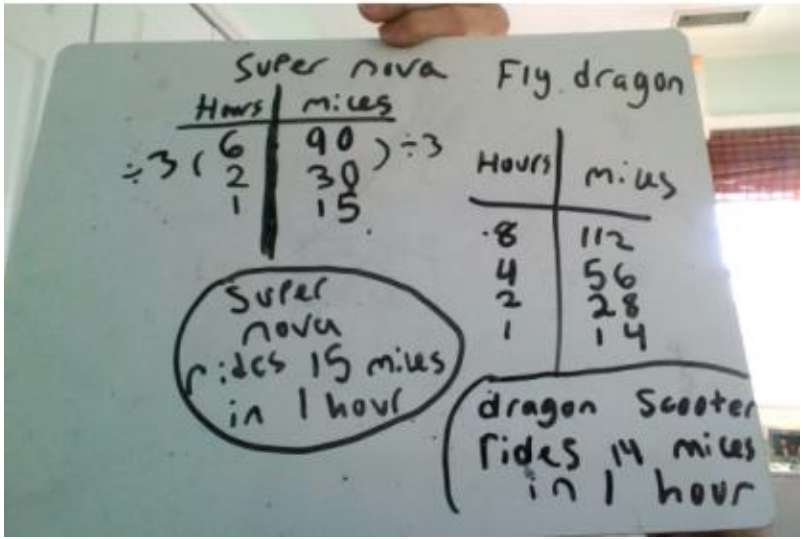
Pre and Post Illustrative Math (Grade 6)

In the past, when assessing ratios:

10) Natalia can travel 90 miles on her motorized Super Nova scooter in 6 hours. Shelby can travel 112 miles in 8 hours on her motorized Flying Dragon scooter.

On Saturday they are traveling together to get ice cream. Which scooter should they use to get there in the fastest time? (Work = 2 pts)

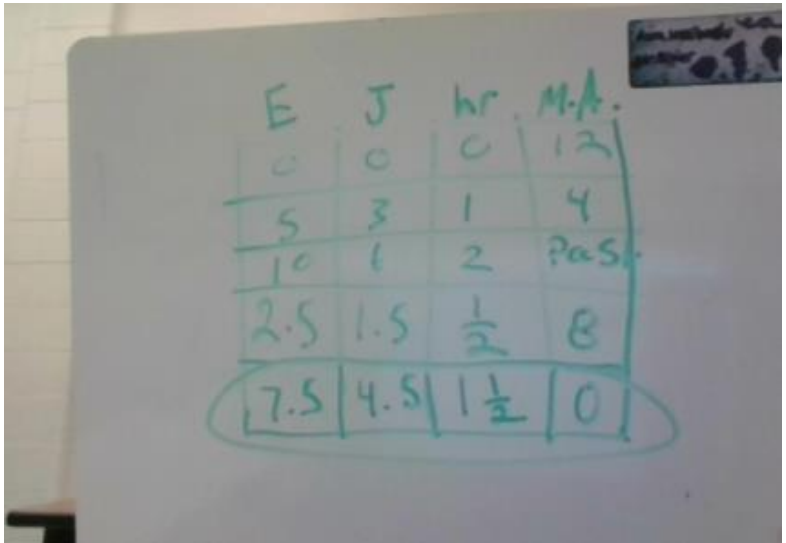




Grade 6 Student Examples from Assessment

An Illustrative question assessing ratios:

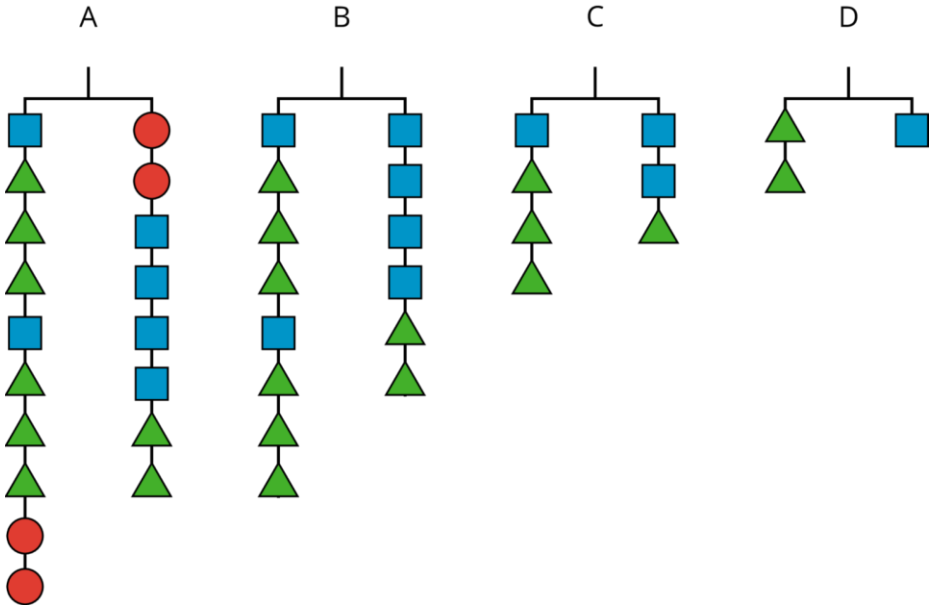
Elena and Jada are 12 miles apart on a path when they start moving toward each other. Elena runs at a constant speed of 5 miles per hour, and Jada walks at a constant speed of 3 miles per hour. How long does it take until Elena and Jada meet?



1 1/2 hours

Hours	Elena	Jada	Distance apart
1	5	3	4
1/2	2.5	1.5	8
1 1/2	7.5	4.5	0

Pre and Post Illustrative Math Grade 8



1)Here are some equations. Which equation goes with each figure?

$$2(x + 3y) = 4x + 2y$$

$$2y = x$$

$$2(x + 3y) + 2z = 2z + 4x + 2y$$

$$x + 3y = 2x + y$$

2) Each variable represents the weight of one shape. Which goes with which?

3) Explain what was done to each equation to create the next equation.

Algebra I: CT Model Curriculum - Creating Equations

1. You and three friends go to the local fair. You each buy a $3 food ticket and a stamp for unlimited rides. If the total cost for the four of you is $32, how much does the stamp for unlimited rides cost?
    a. What is the unknown cost in the problem?
    b. What is the known cost in the problem?
    c. Write an expression showing the cost for one person.
    d. Write an expression showing the total cost for everyone.
    e. The total cost equals $43. Write an equation that models this situation.
    f. Now we want to solve this equation to find the cost of the stamp. If you followed the steps correctly, your equation should have a pair of parentheses in it. Up until now, we have not solved any equations with parentheses. How are we going to get rid of the parentheses? Explain below.
    g. Use the distributive property to eliminate the parentheses in the equation.
    h. Now solve the equation. Show your work and circle your answer.

Algebra I: Illustrative Mathematics - Creating Equations

The drama club is printing t-shirts for its members. The printing company charges a certain amount for each shirt plus a setup fee of $40. There are 21 students in the drama club.

a. If there are 21 students in the club and the t-shirt order costs a total of $187, how much does each t-shirt cost? Show your reasoning.

b. The equation $201.50 = f + 6.50(21)$ represents the cost of printing the shirts at a second printing company. Find the solution to the equation and state what it represents in this situation.

Professional Growth and Collaboration

		Video for Kids Lessons 1-4	
Representing Linear Relationships			
	Lesson 5 Introducing Linear Relationships • moving on from proportional • graphs, tables, and equations. • similarities and differences between linear and proportional • the focus is proportionality vs. linear relationships and rate of change	Google Slide Carol's Google Slide Rick's Activity 1 - can skip, it's fine, good review of division of fractions Activity 2 - keep it to the time suggested, don't overteach Activity 3 - good follow up for the previous activity , definitely do Cool Downs Prac Problems (#1,2,3,4) (this might be too much - cut #4) ANSWERS	Something we feel was missing in 2021 was questions like "here is an equation, make a table and graph it"
	Lesson 6 More Linear Relationships • In this lesson, slope remains important • students learn the new term vertical intercept or -intercept • see how the -intercept and slope influence the shape and location of a line	Google Slide Carol's Google Slide Rick's Activity 1 - could be skipped but also good to do Activity 2 - sort and answers Chart to go along with the activity Activity 3 -good Prac Probs (#1 together?)(#2,3)	Might be able to slide these activities into other lessons

Next Steps & Needed Supports

Spring 2022	Continued PD at Polson and begin PD at Hand
Summer 2022	Gr.7 PreAlgebra and Gr. 8 Algebra and Gr. 9 Algebra
Fall 2022	Implement in Gr.7 PreAlgebra and Gr. 8 Algebra & Gr. 9 Algebra
2022-2023	Continuing professional development

New Profile of the Graduate

Critical Thinking	Creative Thinking	Collaboration/ Communication	Self-Direction	Global Thinking
Inquiry Posing, pursuing, and refining significant questions to deepen understanding about a topic or issue.	**Idea Generation** Studying a problem, need or model (mentor text, political piece, documents, art work, etc.) to consider limitations and imagine new solutions/transformations.	**Collective Intelligence** Working respectfully and responsibly with others, exchanging and evaluating ideas to achieve a common objective.	**Self-Awareness** Examining current performance critically to identify steps/strategies to persist.	**Citizenship** Identify, analyze and contribute to critical issues in society in an ethical and responsible manner.
Analyzing Examining information/data/evidence from multiple sources to identify possible underlying assumptions, patterns, and relationships in order to make inferences.	**Design** Engaging in a process to refine a product for an intended audience and purpose.	**Product Creation** Effectively use a medium to communicate important information.	**Decision Making** Make responsible decisions, based on potential outcomes.	**Alternate Perspectives** Interpret or critique complementary and competing approaches, experiences, and worldviews in order to develop an empathetic perspective.

Guiding Document: Long-Term Transfer Goals

Students will be able to independently use their learning to:

1. initiate a plan using a variety of methods/strategies appropriately, execute it, and evaluate the reasonableness and accuracy of the solution.
2. represent situations using mathematical reasoning and symbols.
3. construct viable arguments using clear and appropriate mathematical language and critique the reasoning of others.
4. apply models to solve problems.
5. choose appropriate tools to make reaching solutions more efficient, accessible and accurate.
6. demonstrate fluency with mathematical computations and definitions.
7. identify and generalize patterns and structure in numbers, expressions, data and objects.
8. apply an understanding of known patterns to new problems and make connections between concepts.