Eureka Math
Parent Information Night

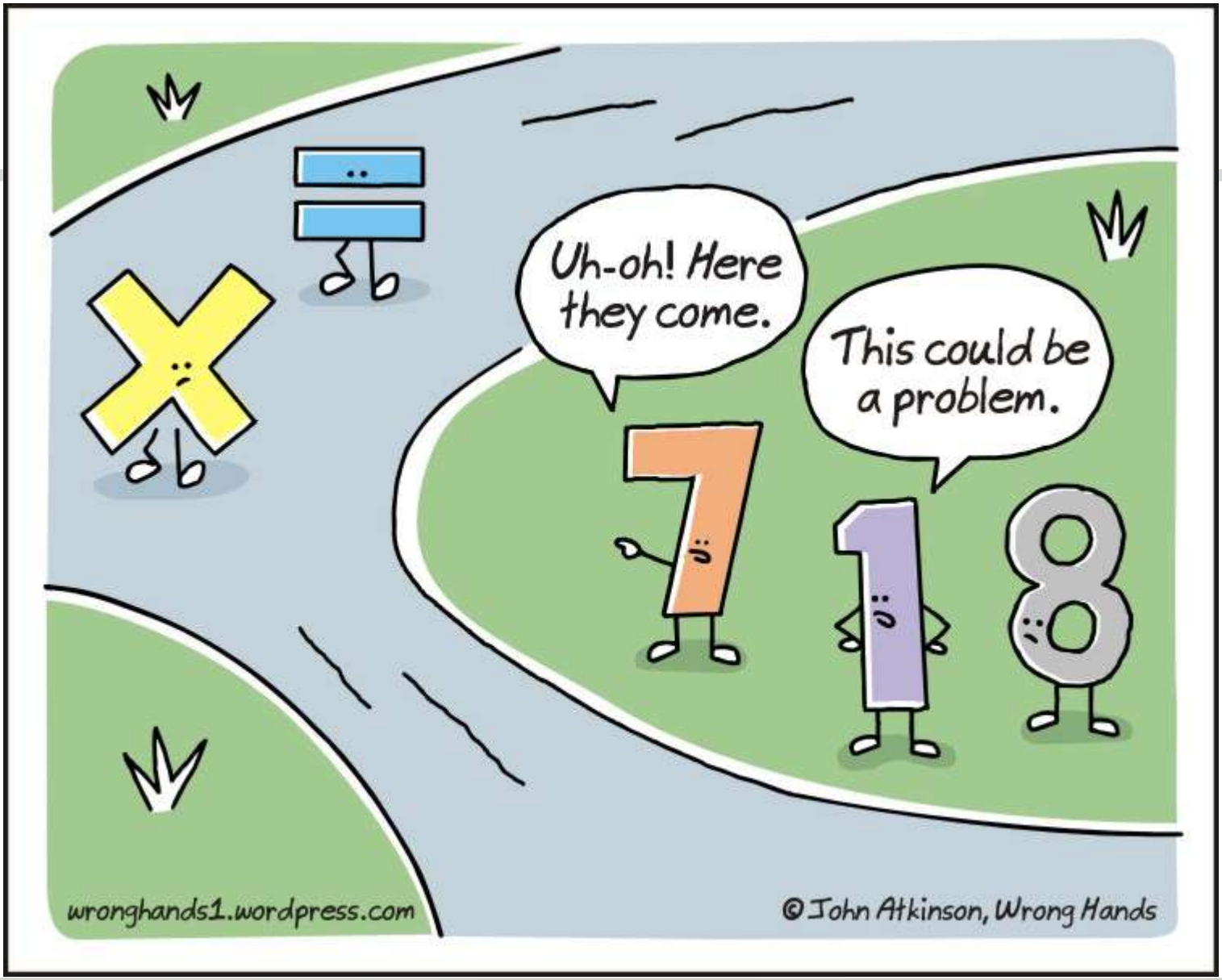
Tuesday, June 13th, 2017

Richards MS Idea Lab

Public Schools
FRASER
INNOVATE • LEARN • LEAD

Welcome

- Dr. Dave Richards, Superintendent
  - Fraser Public Schools
- Ms. Carrie Wozniak, Assistant Superintendent
  - Fraser Public Schools
- Elementary Principals
- Parents
- Staff


Uh-oh! Here they come.
This could be a problem.
wronghands1.wordpress.com
©John Atkinson, Wrong Hands

Session Overview

- Why the need for a new Curriculum – Our Challenge?
- Why Eureka?
  - Background
  - Program Description
- Lesson Overview
  - Sample Problems
  - Lesson Overview
- Next Steps
- Wrap Up/Questions

Challenge

- As the State of Michigan began the transition to the Common Core State Standards in 2010 as well as focus on College and Career Readiness, the district has spent a great deal of professional development time learning about the standards and the new assessment system (M-STEP).

Challenge

- During this time, teachers and administration have reviewed our local assessments and instructional materials being used with our students. Through this process it became evident that our assessments for Math were not aligned to the increased academic challenge of the both the standards and M-STEP Assessment.

Need for increased rigor

Rigor is creating an environment in which each student is expected to learn at high levels, and each is supported so he or she can learn at high level, and each student demonstrates learning at high level.

(Blackburn, 2008).

High Expectations:

- Increased Rigor
  - Complex Assessments
  - College and Career Ready Focus

Why?

Standard for Mathematical Practice	Student Friendly Language
1. Make sense of problems and persevere in solving them. 	• I can try many times to understand and solve a math problem.
2. Reason abstractly and quantitatively. 	• I can think about the math problem in my head, first.
3. Construct viable arguments and critique the reasoning of others. 	• I can make a plan, called a strategy, to solve the problem and discuss other students' strategies too.
4. Model with mathematics. 	• I can use math symbols and numbers to solve the problem.
5. Use appropriate tools strategically. 	• I can use math tools, pictures, drawings, and objects to solve the problem.
6. Attend to precision. 	• I can check to see if my strategy and calculations are correct.
7. Look for and make use of structure 	• I can use what I already know about math to solve the problem.
8. Look for and express regularity in repeated reasoning. 	• I can use a strategy that I used to solve another math problem.

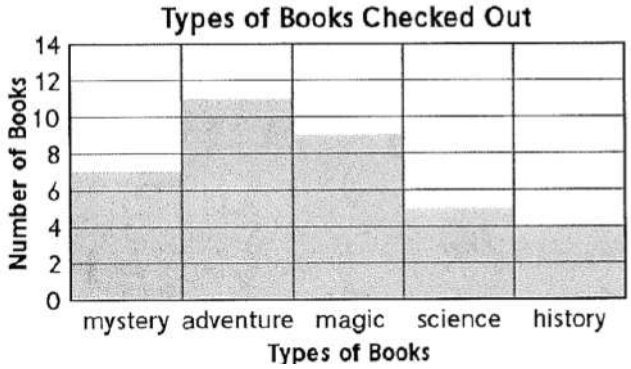
Increased Rigor

M-STEP GRADE 3 EXAMPLE

These slides were presented at the Building Eureka Math Parent Meetings.

Trimester Assessment – 3rd Grade Everyday Math

6. Use the information in the bar graph to answer the questions below.



How many mystery and adventure books were checked out all together?

_____

Retrieval/Comprehension Questions

How many more adventure books were checked out than science books?

_____

How many books were checked out in all? _____

Explain how you solved for the number of books checked out in all.

_____

_____

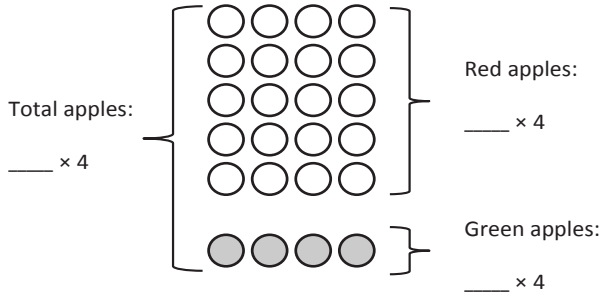
_____

_____

End of Module 3rd Grade Eureka Math Assessment

3. Ms. Park buys a tray of apples for a class party. There are 5 rows of 4 red apples. There is 1 row of 4 green apples.

   a. The picture below shows Ms. Park's apples. Fill in the blanks to complete the expressions.



   b. Fill in the unknowns in the equation below to match the picture of the apples in Part (a). Use the break apart and distribute strategy to find the total number of apples Ms. Park bought.

_____ × 4 = _____ × 4 + _____ × 4

Ms. Park bought _____ apples.

   c. Lilly brings 8 green apples for the class party. Show Lilly's green apples on the picture in Part (a). Fill in the unknowns in the equation below to match the new picture. Solve to find the total number of apples.

_____ × 4 = _____ × 4 + _____ × 4

There are _____ apples in all.

Vocabulary and Application

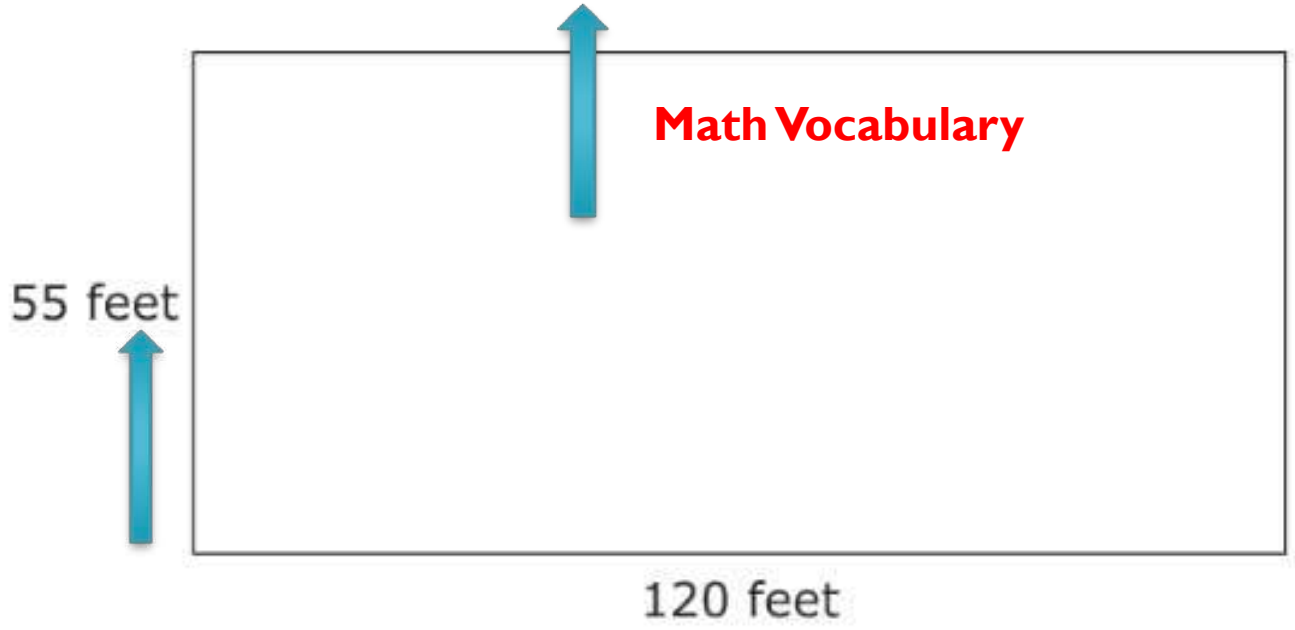
Multi-stepped

Mathematics Grade 3 Sample Items

Question 3

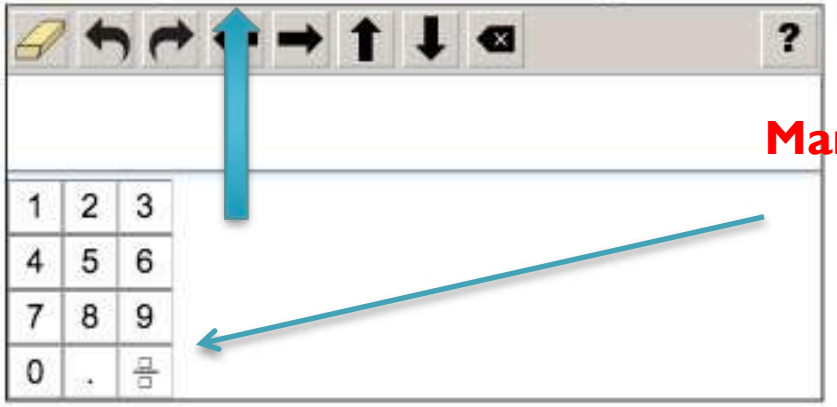
Line Guide

A city park is in the shape of a rectangle. The park is 120 feet wide and 55 feet long.



Math Vocabulary

Enter the perimeter, in feet, of the city park.



Manipulation of the iPad to answer question

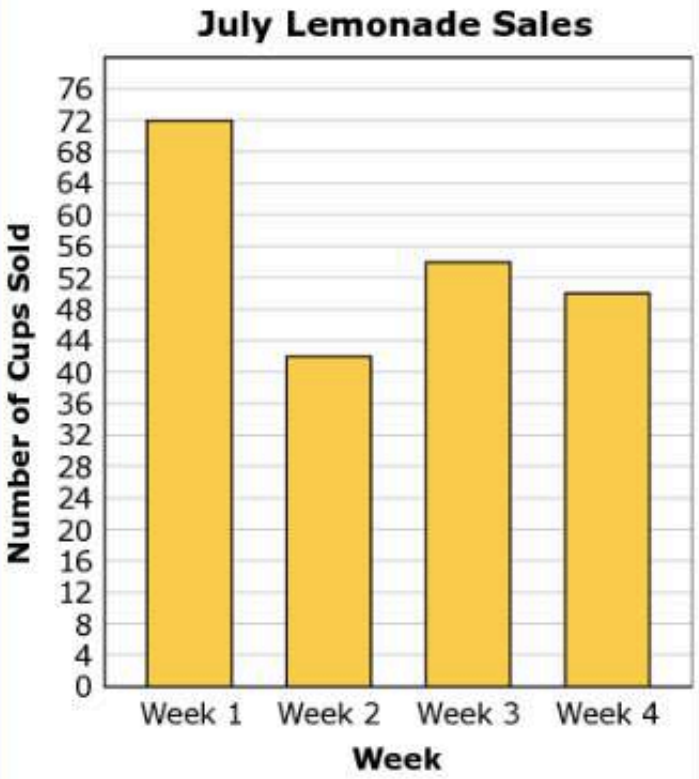
Mathematics Grade 3 Sample Performance Task

Training Student

Question 3

More Text Above

Jaleen has a lemonade stand. The bar graph below shows the number of lemonade cups sold in each of four weeks in July.



Use the **July Lemonade Sales** bar graph to complete this task

More Text Below

Jaleen also sold lemonade for 4 weeks in August. She compares her weekly sales in July to her weekly sales in August.

- For week 1, she sold 22 fewer cups in August than in July.
- For week 2, she sold 18 more cups in August than in July.
- For week 3, she sold 26 more cups in August than in July.
- For week 4, she sold 25 fewer cups in August than in July.

Complete the table to show how many cups Jaleen sold each week in August.

August Lemonade Sales	
Week	**Cups Sold**
1	
2	
3	
4	

Multi-stepped

Increased Rigor and Reading

Challenge

- The curriculum and materials were not supporting the increased rigor of the standards and assessment system that we are required to teach.
- Analysis of our district M-STEP Math data for the past two years, reflect a decline in the scores as our students progress through the grade levels.
- Upon further analysis of the assessments, it became clear that our students were not being assessed at the local level at the same level of complexity that the state assessments were requiring.

District M-STEP Data (2016 and 2015)

Note – Decline in Proficiency Level as the grades progress
Example: (3rd to 4th Grade)

2016 Macomb County M-STEP Data

Grade	Subject	State Percent Proficient	Macomb County Percent Proficient	Fraser Percent Proficient
3	Mathematics	45	45	53
4	Mathematics	44	43	44
5	Mathematics	44	34	45
6	Mathematics	33	31	45
7	Mathematics	35	33	36
8	Mathematics	33	33	27
11	Mathematics (SAT)	37	36	31

2015 M-STEP Data

Grade	Subject	State Percent Proficient	Macomb County Percent Proficient	Fraser Percent Proficient
3	Mathematics	49	49	61
4	Mathematics	41	39	45
5	Mathematics	33	34	35
6	Mathematics	33	30	35
7	Mathematics	33	31	39
8	Mathematics	32	31	28
11	Mathematics	29	28	21

Our Why for Change

Student learning drives the decision for increasing rigor and higher order thinking skills.

- As a district, we have spent a great deal of time focusing in on the implementation of the cognitive growth targets and deeper questioning strategies from our Modern Teacher professional development.
- Through this work, it had became apparent that we needed to realign our Math instruction to not only reflect the increased rigor but also address the high expectations of the complex assessments that our students are being asked to take on both the M-STEP and SAT.

Why Eureka Video

- Parent Video
  - https://greatminds.org/math/parent-night

Eureka Math writers explain how Eureka is different from the way we may have learned math and provides a glimpse of what to expect in the year ahead.

Background

- During the Spring of 2015, Fraser 4th Grade teachers attended an *itslearning* professional development training where they discussed Eureka Math as a potential tool for remediation and fluency development.
- As teachers began to learn and research more about the program, they saw the potential of Eureka Math.
- Our teachers realized the need to increase the rigor and improve student skills in the areas of math fluency and conceptual development.

Teacher Voice
Math Committee Meeting (March 2017)

"I really like the program, the rigor, and the student understanding and fluency pieces."

- 3rd Grade Teacher

"The rigor is difficult and (letter) grades do not reflect understanding."

– 5th Grade Teacher

Background

- Based upon this thinking and teacher input, we requested Board approval to move forward with the Eureka Math Program pilot, which was implemented in Grades 3 and 5 (Salk, Emerson, and Disney) and Grades 4 all buildings.
- For the 2016-2017 school year, teachers became familiar with resources, utilizing new instructional models, and instructional materials.

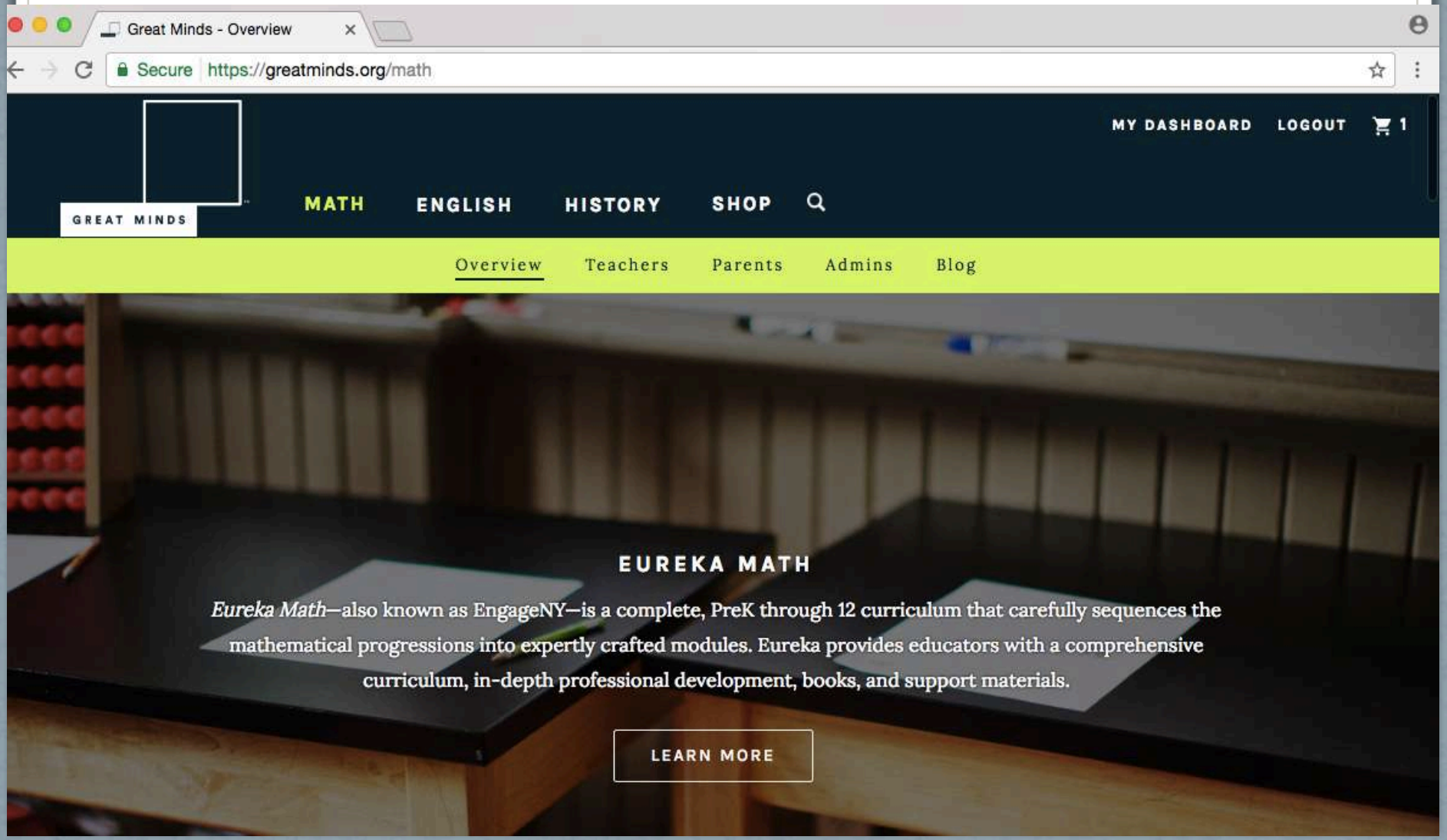
Background

- Throughout this year, students have been tracking their progress toward meeting grade level competencies as recorded on their report cards. We have also been listening to our parents, teachers, and students with regards to pacing and instructional practices.
- Using this feedback, we have collaboratively developed best mathematical practices and a parent resource page on the district website. The information can be found at: https://www.fraser.k12.mi.us/eurekamath.

Program Description

- Eureka Math was developed by Common Core, Inc. a Washington, DC based not-for-profit organization (not affiliated with the Common Core State Standards) that creates content rich curriculum tools and programs.
- Eureka Math provides an easily navigable online platform for housing the comprehensive mathematics curriculum Common Core Inc., created for the New York State Education Department.
- This material is housed on the website https://greatminds.org/math.
- Based upon this digital content, Fraser has designed instructional units within our learning management system *itslearning*.

Program Description



Resources

	Pre-Kindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5		2015-16*
1st TRIMESTER	M1: Counting to 5 (45 days)	M1: Numbers to 10 (43 days)	M1: Sums and Differences to 10 (45 days)	M1: Sums and Differences to 100 (10 days)	M1: Properties of Multiplication and Division and Solving Problems with Units of 2-5 and 10 (25 days)	M1: Place Value, Rounding, and Algorithms for Addition and Subtraction (25 days)	M1: Place Value and Decimal Fractions (20 days)	1st QUARTER	
	M2: Shapes (15 days)	**M2: 2D and 3D Shapes (12 days)	M2: Introduction to Place Value Through Addition and Subtraction Within 20 (35 days)	M2: Addition and Subtraction of Length Units (12 days)	M2: Place Value and Problem Solving with Units of Measure (25 days)	**M2: Unit Conversions (7 days)	M2: Multi-Digit Whole Number and Decimal Fraction Operations (35 days)	2nd QUARTER	
2nd TRIMESTER	M3: Counting to 10 (50 days)	M3: Comparison of Length, Weight, Capacity, and Numbers to 10 (38 days)	M3: Ordering and Comparing Length Measurements as Numbers (15 days)	M3: Place Value, Counting, and Comparison of Numbers to 1,000 (25 days)	M3: Multiplication and Division with Units of 0, 1, 6-9, and Multiples of 10 (25 days)	M3: Multi-Digit Multiplication and Division (43 days)	M3: Addition and Subtraction of Fractions (22 days)	3rd QUARTER	
	M4: Comparison of Length, Weight, Capacity, and Numbers to 5 (35 days)	M4: Number Pairs, Addition and Subtraction to 10 (47 days)	M4: Place Value, Comparison, Addition and Subtraction to 40 (35 days)	M4: Addition and Subtraction Within 200 with Word Problems to 100 (35 days)	M4: Multiplication and Area (20 days)	M4: Angle Measure and Plane Figures (20 days)	M4: Multiplication and Division of Fractions and Decimal Fractions (38 days)		
3rd TRIMESTER	M5: Addition and Subtraction Stories and Counting to 20 (35 days)	M5: Numbers 10-20 and Counting to 100 (30 days)	M5: Identifying, Composing, and Partitioning Shapes (15 days)	M5: Addition and Subtraction Within 1,000 with Word Problems to 100 (24 days)	M5: Fractions as Numbers on the Number Line (35 days)	M5: Fraction Equivalence, Ordering, and Operations (45 days)	M5: Addition and Multiplication with Volume and Area (25 days)	4th QUARTER	
		M6: Analyzing, Comparing, and Composing Shapes (10 days)	M6: Place Value, Comparison, Addition and Subtraction to 100 (35 days)	M6: Foundations of Multiplication and Division (24 days)	M6: Collecting and Displaying Data (10 days)	M6: Decimal Fractions (20 days)	M6: Problem Solving with the Coordinate Plane (40 days)		
				M7: Problem Solving with Length, Money, and Data (30 days)	M7: Geometry and Measurement Word Problems (40 days)	M7: Exploring Measurement with Multiplication (20 days)			
				M8: Time, Shapes, and Fractions as Equal Parts of Shapes (20 days)					

Approx. test date for grades 3-5

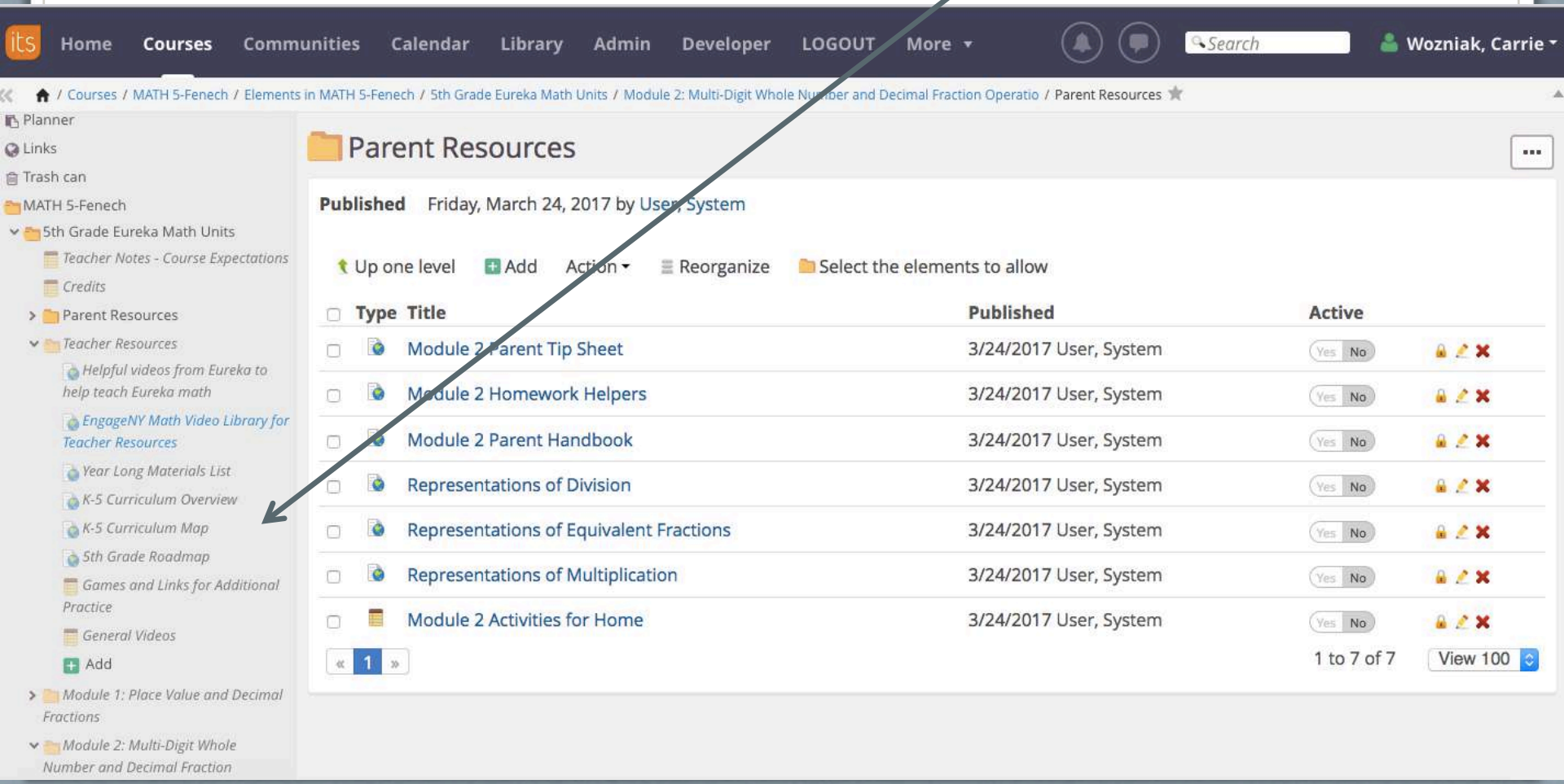
Key:			
Number	Geometry	Number and Geometry, Measurement	Fractions

*The columns indicating trimesters and quarters are provided to give you a rough guideline. Please use this additional column for your own pacing considerations based on the specific dates of your academic calendar.

**Please refer to the modules themselves to identify partially labeled titles as well as the standards corresponding to all modules.

Resources and itslearning

Digital Content can be printed or accessed 24/7.



Example of Student Learning

- https://greatminds.org/math/parent-support

Introducing Number Bonds

- Parents often ask why their children need to learn multiple strategies for solving problems. This video demonstrates the number bond model that is used throughout grades K-5.
- This is just one of the models students use in the *Eureka Math* curriculum. It provides another tool for understanding mathematical concepts and problem solving.

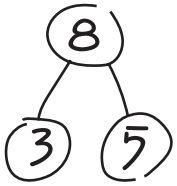
Number Bonds

NUMBER BONDS CAN HELP

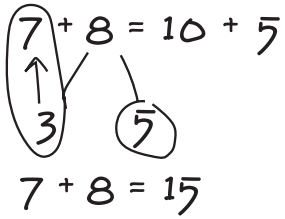
Add 998 and 337.

If you ask a 1st grader to add 998 and 337 and he or she only knows the standard algorithm, he or she will probably struggle to get the answer. This problem is likely too advanced, more like a 2nd- or 3rd-grade problem. But for a 1st grader who knows number bonds, the problem is a cinch.

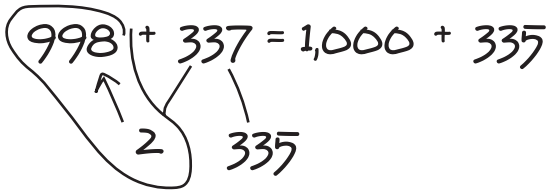
IN KINDERGARTEN, Eureka Math students learn to break numbers into small, manageable units: 3 + 5 = 8, or 8 – 3 = 5, or 8 – 5 = 3.



IN FIRST GRADE, students can see that 7 + 8 is the same as 10 + 5.



Once they see and understand that, they can also quickly solve 998 + 337. Step 1 is to make 998 a more manageable number, such as 1,000. That means adding 2 to 998, which is easily done by breaking 337 into 2 + 335. And then subtracting that 2 from 337.



Then, it's easy to add 1,000 + 335 = 1,335. And 998 + 337 = 1,335.

Homework Helpers

EUREKA MATH™ TIPS FOR PARENTS

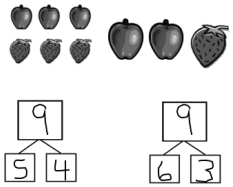
GRADE 1 | MODULE 1 | TOPIC A | LESSONS 1–3

KEY CONCEPT OVERVIEW

During the next few days, our math class will make progress toward the goal of fluently adding and subtracting numbers between 1 and 10. We will learn how to break apart a total into two parts, or **addends**. For example, 9 can be broken apart into 5 and 4, since 5 + 4 = 9. Students will begin to understand that a number can be broken apart in multiple ways.

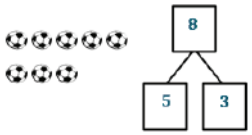
You can expect to see homework that asks your child to do the following:

- Quickly spot a group of five within a larger group of items, and then **count on** from five to find the total number of items.
- Show different ways to break apart a total and draw a matching **number bond**.
- Say what the total is when adding *one more* to a number; for example, "One more than 7 is 8."



SAMPLE PROBLEM *(From Lesson 1)*

Draw a number bond for the number 8 that has 5 as one part.



Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

GRADE 1 | MODULE 1 | TOPIC A | LESSONS 1–3

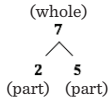
HOW YOU CAN HELP AT HOME

- Invite your child to show you how to count the Math Way (counting from left to right starting with the pinky of the left hand).
- Play "Math Way" Fingers Flash: Partner A quickly flashes a number (from 1 to 10) the Math Way with his fingers, and then hides them behind his back. Partner B says the number she saw. For a challenge, Partner B tells how many more Partner A needs to make ten.

- Play "Penny Parts": Invite your child to organize a group of 6–10 pennies into two groups, placing five pennies in one group. Then ask your child to draw a number bond that shows how the pennies are grouped. For example, if the total is 8 pennies, then the parts are 5 and 3. For an added challenge, separate the pennies two different ways with the same total, and draw a number bond to match each way; for example, 5 and 3, and 4 and 4.

MODELS

Number Bond: A model that shows the relationship between a number (whole) and its parts.



Counting On: To count up from one addend, or number, to the total. For example, in 6 + ___ = 8, we can start at 6 and "count on" two more to reach the total of 8.

Addend: A number that is added to another number(s); for example, in 3 + 4 = 7, 3 and 4 are addends.

For more resources, visit » *Eureka.support*

Teacher Instructional Practices and Pacing

- We have collaborated with all current Eureka Math Teachers to develop best practices related to instruction and class lesson design.
- Our teachers met as part of the professional development process, to review the math instructional models and pacing.
- Teachers collaborated on management strategy and best practices.

Teacher Instructional Practices and Pacing

- Our teachers have shared ideas and best practices to assure that students will be meeting grade level competencies in all buildings and classrooms.
- We are leveraging *itslearning* for content management, differentiation opportunities, and delivery.

Lesson Openers

- Whole Class Instruction (ALL STUDENTS)
  - Application Problem
  - Fluency Practice
- Concept Development – In some cases, concept development and/or common misunderstandings may need to be covered whole group

Whole Group Instruction with the Teacher

- Students learn with their teacher working on fluency, application problems, and concept development with concrete manipulatives. Paper/pencil or whiteboard.
- Concept Development: Opening example problems, problem sets, vignettes, student work samples.
- Guided Practice: Zearn and/or Interventionist
- Independent Practice: Paper Problem Sets and/or Digital Student Notes to accompany Zearn lesson.

Adjustments for students ahead of pace and students who need additional support.

- The students who are ahead of pace can still move on their own following the Lesson Opener, but they will still meet with the teacher for at least 10 minutes daily.
- During Independent Practice, the teacher can bring small groups together to remediate and provide additional support to smaller groups during independent practice.

Eureka Materials:
Grade Level Math Teacher will receive a kit.

K-6 Eureka Math Grade Level Manipulatives

Eureka Manipulatives are hands-on resources to support effective implementation of Eureka Math. Link to description of materials:
http://eurekamath.didax.com/

OFFICIAL PROVIDER OF

EUREKA MATH MANIPULATIVE KITS

We have partnered with the teacher-writers at Great Minds to identify the hands-on resources needed to effectively implement Eureka Math. Together, we have created grade-level kits as well as exclusive items to give your students the essential tools they need.

SHOP NOW

Shop by Grade: Pre-K | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12

GRADE LEVEL KITS

We offer two kits for each grade that are designed to support Eureka Math for a full year.

SHOP GRADE LEVEL KITS

Eureka Materials

K-2 Eureka Math Student Workbooks Student workbooks will be purchased for Grades K-2, as those students do not take home their iPads.

- For Grades 3-6, teachers will still have the opportunity to print materials as needed, and all of the content/materials will be accessible within *itslearning* for both student and teacher access.
- This protocol for Grades 3-5 was used throughout the 2016-2017 school year with Eureka Math Teachers.
- In addition, for Grades 3, 4, and 5 (exit tickets and problems sets can be printed and ordered for teachers)
- 6th Grade Materials will be discussed after the training.

Professional Development

- All Staff will have the opportunity to be trained in the Eureka Math Program with a Eureka Math Trainer prior to the end of the school year.
- Launching Eureka Training

Professional Development

Launching Eureka – District Training

- May 30th: DK - Kindergarten
- May 31st: 1st grade thru 5th
- June 1st: 1st thru 5th
- June 2nd: 6th Grade

Eureka Implementation Support: On-going Professional Learning and Instructional Coaching

(2017-2018)

Professional Development

- In an effort to make sure our professional development model aligned to our teacher needs, we reached out and personally talked to current Eureka Teachers in Grades 3-5.
- In speaking with staff, the common request was for opportunities to meet as a grade level team to discuss and prepare instructional strategies, pacing guides, and implementation.

Professional Development Model

- Teacher District Professional Development will continue during the 2017-18 School Year.
  - Back to School Training: *Focus on Fluency*
  - November District PD: *Next Steps with Eureka*
  - District Provided Professional Development (DPPD)

Thank you!

Questions/Comments