

# Mathematics Grades K-5

Kathy O'Connell - Mathematics Content Specialist Grades K-5

Lincoln School Committee Presentation, March 24, 2022

# Mathematics in the Lincoln Public Schools

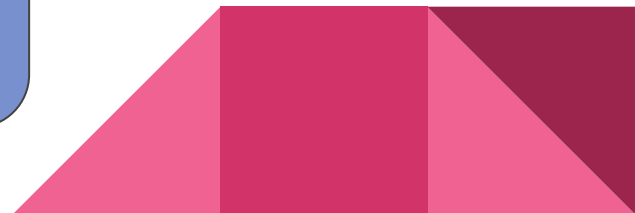
Guiding  
Principles

Our Team

Assessment

Intervention

Curriculum



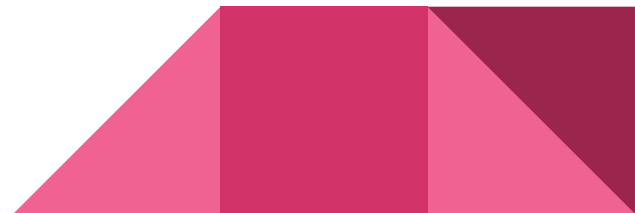
# *Guiding Principles*

- Develop curious students who engage in productive struggle.
- Develop a love of mathematics in school and in the world around them.
- Solve problems in efficient and effective ways.
- Assessment informs instruction.



# *The People*

- Math Team
  - Carol, Carolyn, Elaine, Ellen, Kathy, Maren
- Classroom Teachers
- Principals
- Students and parents
- Jess



# *Assessment*

- Purpose
- Beginning of Year
- Ongoing
- Data Collection



# Beginning of Year Assessment

- Identified key mathematical Standards from prior year.
- Assessments created using Everyday Math End of Year Assessments from *prior year*.
  - administered in small groups or individually.
  - scored by Math Specialists for consistency and data was entered into spreadsheets.
- Data was examined by teams and Math Specialists to identify curriculum gaps, in-class support and pull-out remediation support.





# Deeper Dive

## Grade 2 HPS - October, 2021

### Grade level Reinforcement/Practice

- Value of digits (356 - the **value** of 5 is 50. It is the tens' place.)
- Flexibility with equations

Group	Goals	Schedule/Provider
3 students	<ul style="list-style-type: none"><li>• Oral counting to 100; reading and writing numbers to 100</li><li>• Estimation</li><li>• Counting groups of objects by 10s, 5s and 2s</li><li>• Given tens and 1s, determining quantity without counting. Then +/- 10</li><li>• Part/Whole relationships (adding and subtracting)</li></ul>	4 x 20 student w/ Sasha 3 x 20 2 students w/ Elaine
4 students	<ul style="list-style-type: none"><li>• Place Value and unitizing language. Connecting numerals to quantities.</li><li>• Can use number of 10s and 1s to determine quantity without counting.</li><li>• Adding and subtracting multiples of ten mentally</li><li>• Conservation &amp; counting by groups</li></ul>	2 x 20 Elaine
1 student	<ul style="list-style-type: none"><li>• Adding and subtracting multiples of ten mentally</li><li>• Conservation &amp; counting by groups</li></ul>	Doing well in class. Reading is a bigger concern and focus with parents.
1 student	<ul style="list-style-type: none"><li>• Understands 10s and 1s</li><li>• Has +/- 10 and 20, but not solid</li><li>• Rushes, does not self monitor when skip counting</li><li>• Makes interesting connections</li><li>• Needs systems to keep track</li><li>• Needs more practice counting by 2s. (can organize, understands the pattern, needs practice)</li></ul>	All need more practice organizing and skip counting by 2s.

More information  
on 9 students...  
different  
decisions were  
made.



# Ongoing Assessment - End of *Everyday Math* Units

- Amended over the years.
- Scored by Math Specialists against developed criteria.
- Data displayed in spreadsheet and discussed at Team Meetings.
  - Each question linked to report card descriptor.
- Based on student needs different Intervention Models are used.

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
9 assessments	9 assessments	8 assessments	7 assessments	7 assessments



# Grade Level Spreadsheets

- Created for each grade level each assessment.
- Teams review after each assessment.

Math Focus	Story - equal sharing	Justify 1/2 equivalence	Shade Equivalent fractions	Identify Equivalent fractions	Identify Equivalent fractions	Label fractional parts on number line	Fraction & decimal for 1/2	Fractions as decimals, shading	Write Fraction & decimal of shading	Write Fraction & decimal of shading	Compare Decimals	Compare Decimals	C
Report Card Descriptors	4.MTH.P.1	4.MTH.NO. 1	4.MTH.NO. 1	4.MTH.NO. 1	4.MTH.NO. 1		4.MTH.NO. 3	4.MTH.NO. 3	4.MTH.NO. 3	4.MTH.NO. 3	4.MTH.NO. 3	4.MTH.NO. 3	
Question #	EoU3-Q1	EoU3-Q2	EoU3-Q3	EoU3-Q4	EoU3-Q5	EoU3-Q6	EoU3-Q7	EoU3-Q8	EoU3-Q9	EoU3-Q10	EoU3-Q11	EoU3-Q12	
	2	3	3	3	2	3	3	3	3	3	3	3	
	1	3	1	2	1	1	3	3	3	3	3	3	
	3	3	3	3	3	3	3	3	3	3	3	3	
	2	3	3	3	3	3	3	2	3	3	3	3	
	3	3	3	3	3	3	3	3	3	3	3	3	
	3	3	3	3	3	3	3	3	3	3	3	3	
	3	3	3	3	2	3	3	3	3	3	3	3	
	2	3	3	3	2	3	3	2	3	3	3	3	
	3	3	3	3	3	3	3	3	3	3	3	3	
	3	3	1	3	1	3	3	2	3	3	3	3	
	3	3	3	3	3	3	3	3	3	3	3	3	
	2	2	3	3	3	3	3	3	3	3	3	3	

Aligned to report card standards.

Student story to explore.

Area of curriculum needs review.

# Diagnostic Assessment

- Currently identifying a high-quality diagnostic assessment that could be used K-8 three times a year, beginning in September 2022.
- Data from this assessment would be used alongside MCAS, curriculum-embedded end of unit assessments, and teachers' observations of students to determine which students require intervention and track student progress.



# *Intervention*



# Intervention Structures

## Small Groups (in or out of classroom)

Identify specific questions on *Everyday Math* End of Unit Assessment.

Targeted goal, outside/inside of classroom with Math Specialist. Overall Cycle 2

Students need additional instruction/practice in a particular area.

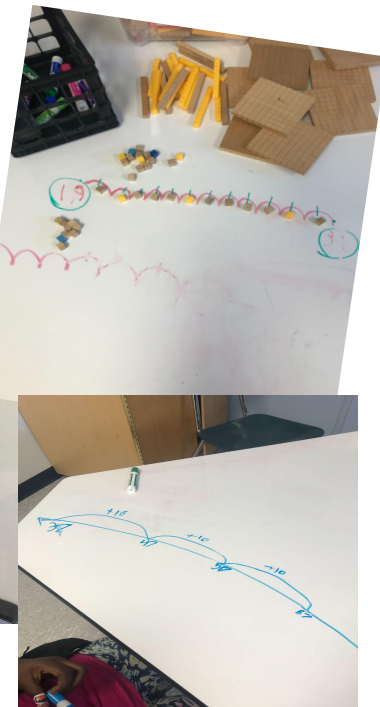
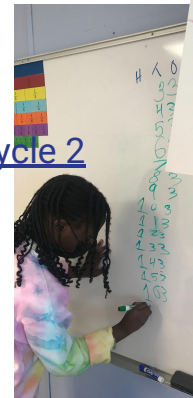
## Residency / Co-Taught classrooms

Currently - Grade 2 at HPS, Grade 4 and Grade 5 HMS.

## Content Area

Large group of students across classrooms need additional instruction/practice.

Boot Camp - grade 3 on both campuses.

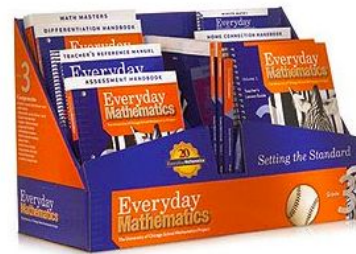


# *The Curriculum*



# Everyday Math Curriculum and more!

- Everyday Math Curriculum (Grades 1-5)
- Steve Wyborney - Esti-Mysteries
- Building Fact Fluency Toolkit
  - Graham Fletchy and Tracy Yager
- Dreambox



# Esti-Mystery!



## Clue #1

The answer is between 10 and 40.

## Clue #2

Cross out all of the numbers in this pattern: 12, 14, 16 ...

## Clue #3

The answer does not include the digit 1.

## Clue #4

The answer is not 27  
or the number  
that is 8 more than 27.

## Clue #5

There are some remaining pairs of numbers that have a difference of 10.  
Eliminate all those pairs.

- High Level of Engagement
- Develops Skill
- Rich Math Discussion - vocabulary in context!




# Areas of Strength

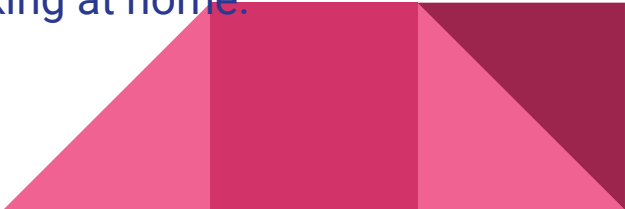
## Math Program...

- Is well-aligned with the state standards.
- Teaches a variety of strategies to solve problems.
- Allows for hands-on experiences to make sense of mathematical ideas such as place value and fractions.
- Incorporates games to provide valuable opportunities for practice.

## Our Math Specialists...

- Are thoughtful, knowledgeable and committed to the work.
  - Have strong relationships with teachers, principals and students.
- 

# Areas to Grow

- This year the math specialist team is working to clarify and align:  
prioritized standards→curriculum and pacing→impactful teaching  
practices→assessments→tools, resources, and professional development
  - Continued support & professional development to increase differentiated instruction.
  - Collaborating with parents to support mathematical thinking at home.
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# Questions

