

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

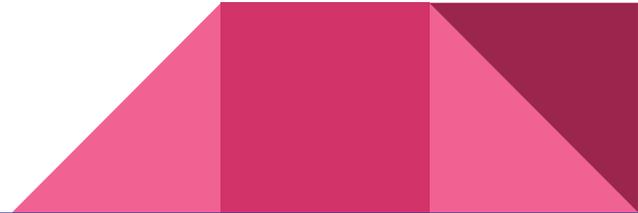
Intervention

Curriculum



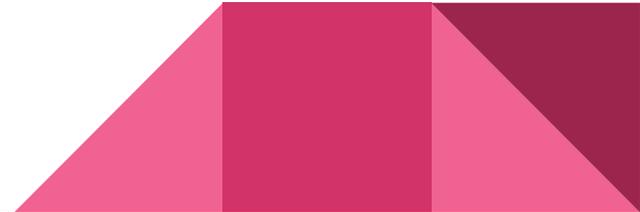
Guiding Principles

- 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

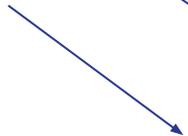
Grade 2 HPS - October, 2021

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

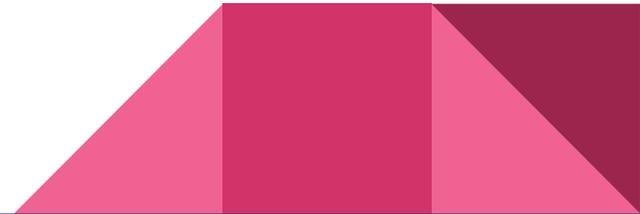
Area of curriculum needs review.

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.

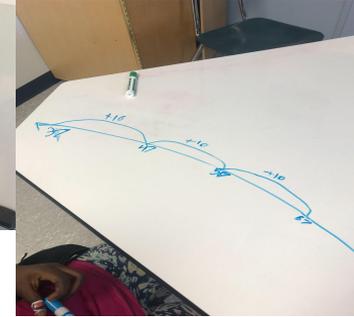
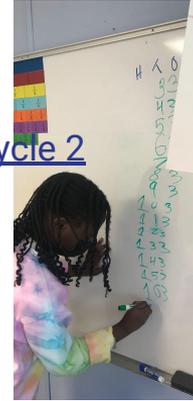
Residency / Co-Taught classrooms

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

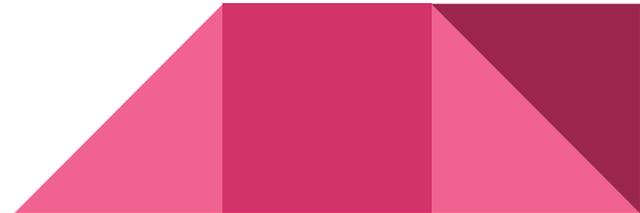
Content Area

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

