Jefferson County Schools
Flexible Learning Plan Evaluation
2015-16
Carver Elementary School (CES)
Louisville Academy (LA)

Progress for the Lowest Quartile of Students

FLP scores to rank students made up of rubric including: ClassWorks, GLoSS, and IKAN

	# of students	FLP Score – October 2015	FLP Score – May 2016	Gain	% of Student Growth
CES	49	.35	4.53	4.18	80

Classworks – a software system that provides individualized instruction by analyzing student performance and then prescribing lessons that meet the student's specific needs and learning styles.

GLoSS – an assessment tool used to identify the strategy stage students are operating at across three domains: addition and subtraction, multiplication and division, and proportions and ratios. It consists of a series of strategy questions which can be administered to individual students in a few minutes or less. (*Global Strategy Stage*)

IKAN is an assessment tool used to assess a student's knowledge stage of number sequence and order, fractions, place value, and basic facts. (*Individual Knowledge Assessment of Number*)

Gains Analysis

Jefferson County Schools

Math Inventory Assessment: FLP Evaluation 2015-16: CES

Results Based On Assessment Data

08/01/2015 – 05/26/2016

Executive Summary

In partnership with Jefferson County Schools, Houghton Mifflin Harcourt has analyzed *Math Inventory* data from universal screening test administrations from two sites for students from Kindergarten to grade 5.

Preliminary Analysis Observations

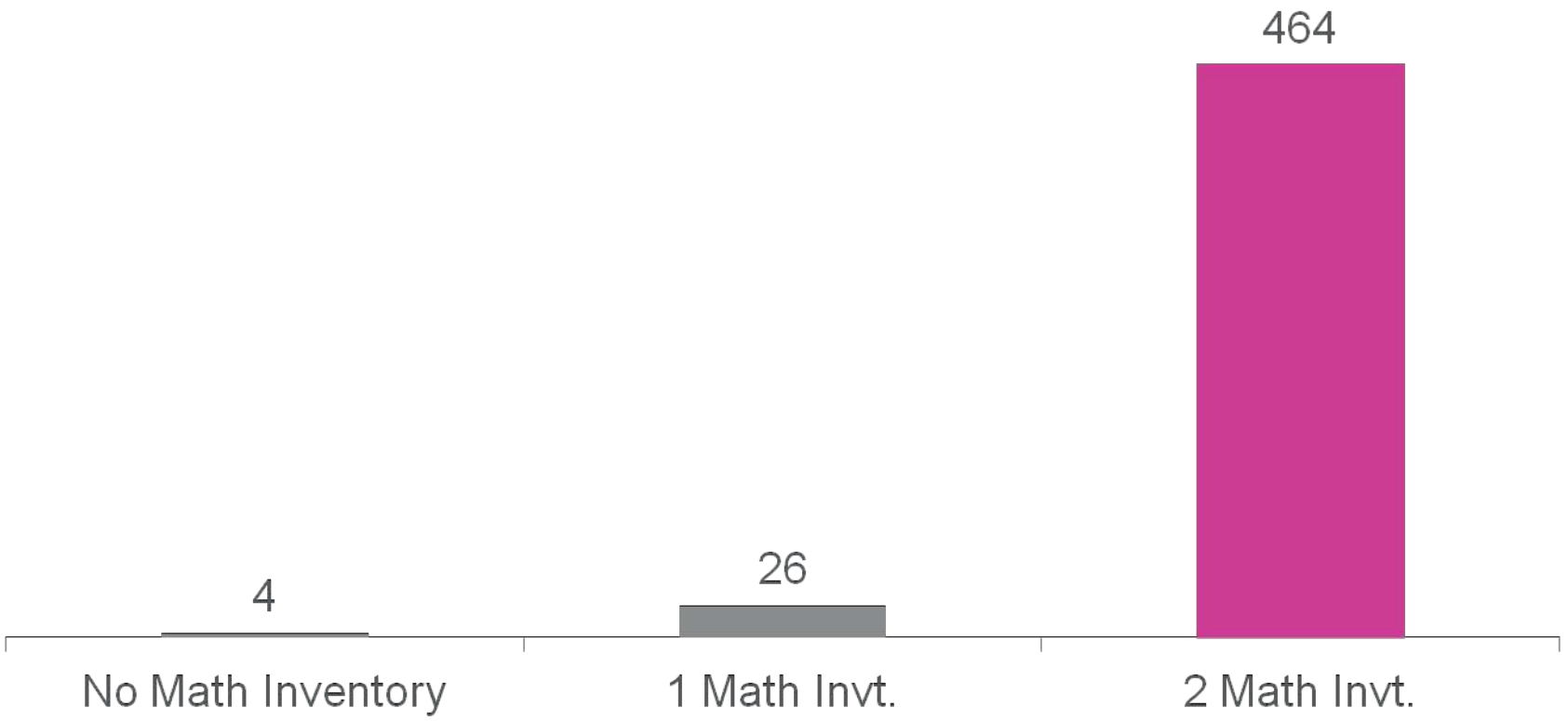
- 494 students were evaluated using *The Math Inventory*.
  - Highest Quantile® measure indicates potential need for intervention.
  - Data indicates that at least **36%** of students need math intervention.
- 427 students (grades 1 - 5) had sufficient data to analyze Quantile growth.
  - Data export indicates Quantile growth occurred for 82% of students.

Analytic Notes

- Quantile measures are based on *Math Inventory* test administration.
- Results are aligned to College and Career Readiness levels.
- Always consider multiple measures when making intervention placement decisions for each student. Best practice is to use *Math Inventory* results together with in-class performance and other math performance data.

Screening Efforts Overview

How Many Students have *Math Inventory* Test Administration Data?



- 94% of students had 2+ *Math Inventory* test administrations.
- Administration of 6+ tests in one year can lead to test fatigue which could yield anomalous results.

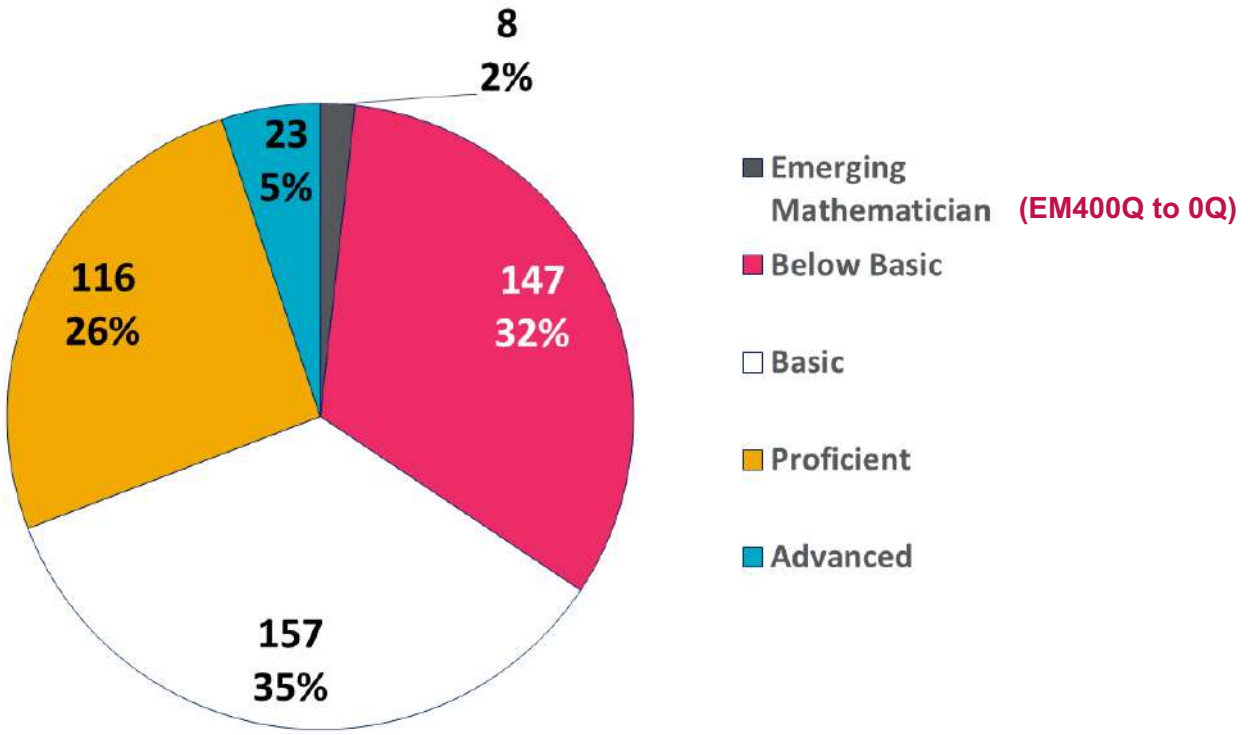
Screening Efforts by School

How Many Students have *Math Inventory* Test Administration Data?

School Name	No Math Invt. Test Administrations	1 Math Invt. Administration	2 Math Invt. Administrations	% with 2+ Math Invt. Administrations	Total Students
Carver ES		7	191	96%	198
Louisville Academy	4	19	273	92%	296
Math Inventory Student Totals	**4**	**26**	**464**	**94%**	**494**

- 94% of students (in grades K - 5) had 2+ *Math Inventory* test administrations.
- Administration of 6+ tests in one year can lead to test fatigue which could yield anomalous results.

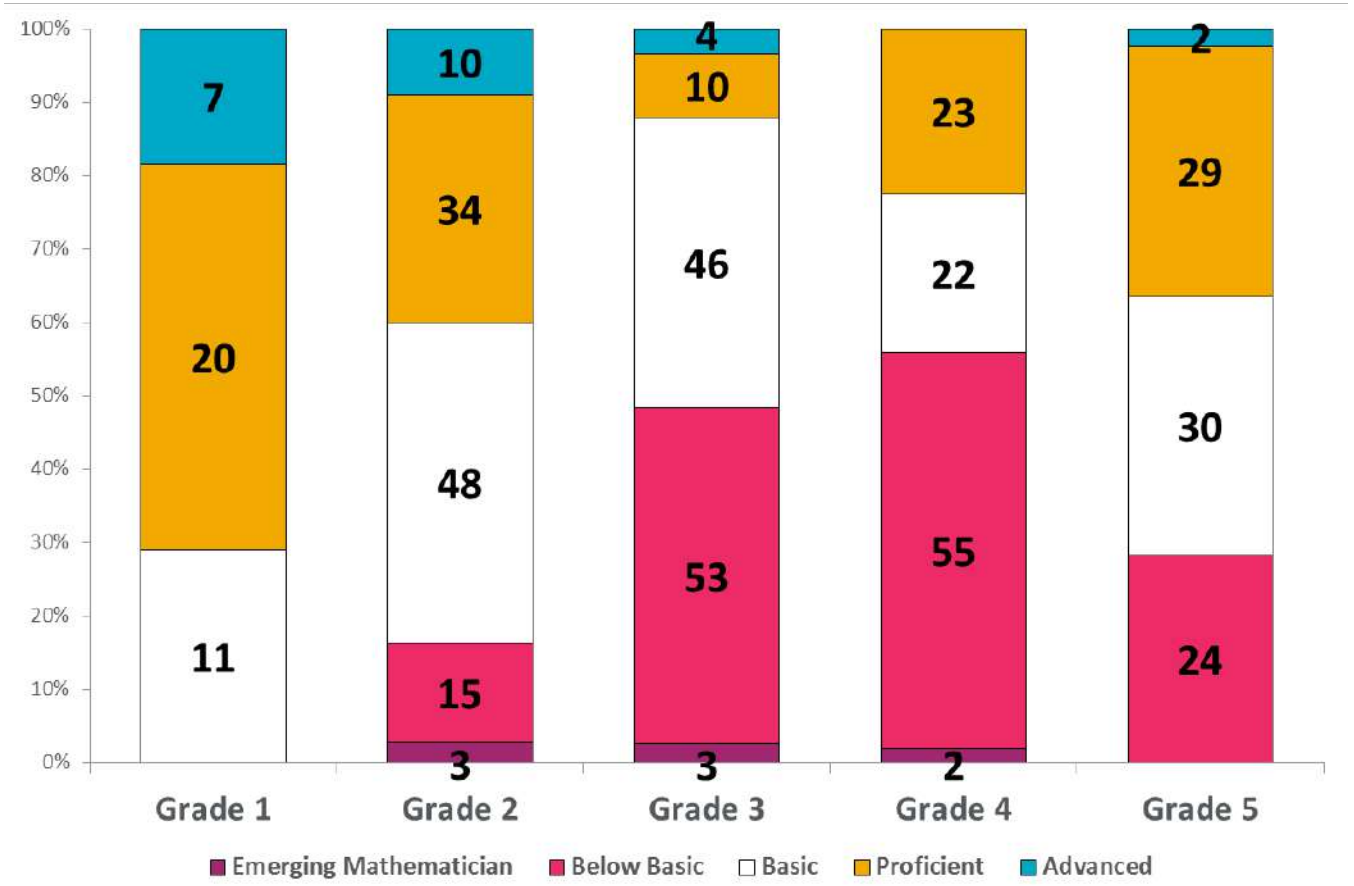
District-wide Performance Bands



- Students' highest Quantile measure can indicate a great deal about their readiness for math instruction; in aggregate, Quantile measures and performance bands can provide solid estimates for appropriate math solutions.
- Non-Proficient elementary students may have specific gaps such as Number Core understanding, arithmetic with one or two digits, fraction concepts and basic arithmetic fact fluency. **Use other measures to determine what type of Tier 2 or Tier 3 intervention will fill these gaps.**

College and Career Readiness by Grade

Readiness Based upon Students' Highest Quantile Measures



Above reflects students' highest Quantile measure held to end-of-year spring targets for proficiency.

College and Career Ready Quantile Proficiency

Spring Targets for Performance Bands – Reflects July 15th Cut-Scores

Grade	*Below Basic*	*Basic*	*Proficient*	*Advanced*
K	EM400Q – EM190Q	EM185Q – 5Q	10Q – 175Q	180Q & Above
1	EM400Q – 60Q	65Q – 255Q	260Q – 450Q	455Q & Above
2	EM400Q – 205Q	210Q – 400Q	405Q – 600Q	605Q & Above
3	EM400Q – 425Q	430Q – 620Q	625Q – 850Q	855Q & Above
4	EM400Q – 540Q	545Q – 710Q	715Q – 950Q	955Q & Above
5	EM400Q – 640Q	645Q – 815Q	820Q – 1020Q	1025Q & Above
6	EM400Q – 700Q	705Q – 865Q	870Q – 1125Q	1130Q & Above
7	EM400Q – 770Q	775Q – 945Q	950Q – 1175Q	1180Q & Above
8	EM400Q – 850Q	855Q – 1025Q	1030Q – 1255Q	1260Q & Above
9	EM400Q – 940Q	945Q – 1135Q	1140Q – 1325Q	1330Q & Above
10	EM400Q – 1020Q	1025Q – 1215Q	1220Q – 1375Q	1380Q & Above
11	EM400Q – 1150Q	1155Q – 1345Q	1350Q – 1425Q	1430Q & Above
12	EM400Q – 1190Q	1195Q – 1385Q	1390Q – 1505Q	1510Q & Above

As many states adopt more rigorous standards for content and assessment, HMH has partnered with MetaMetrics to determine what Quantile measure performance would best prepare students to be college-ready in the 21st century. HMH *Math Inventory* Quantile measure performance bands above have been implemented as part of SAM and gains reports since fall 2014.

Math Intervention Needs

Estimated Need for Intervention from Quantile Measures

- 130 students in the Basic range may be able to understand core math instruction if provided additional time and support (Tier 2 Intervention).
- 141 students are Basic-Below Basic with Quantile measures of at least 200Q and need intensive intervention to rebuild content that they have not understood through systematic and structured support (Tier 2 Intervention).
- 21 students with Quantile measures below 200Q need to rebuild foundational math skills in intensive math intervention (Tier 3 Intervention).
- Use Number Core and Arithmetic skills assessments and in-class performance to determine specific content needs.

Quantile Measure	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Total
Ready for Core Instruction	29	47	20	30	33	159
Core with Supplemental Int.	9	47	32	15	27	130
Intensive Tier 2 Intervention	0	8	58	50	25	141
Intensive Tier 3 Intervention	0	8	6	7	0	21

Always use multiple measures to determine appropriate student placement at the student level.

Quantile Gains by Grade

Quantile Growth and Increased Readiness for Mathematics Instruction

Grade Level	Students with Math Inventory for Progress Measurement	Mean Initial Quantile Measure	Mean Current Quantile Measure	Average Change in Quantile Measure	% of Students With Increased Quantile Measure	% of Students with 100Q or More Gain	% of Students with 100Q or More Drop
Grade 1	37	176	313	137	89%	65%	0%
Grade 2	102	247	367	120	85%	51%	4%
Grade 3	110	303	427	124	80%	61%	8%
Grade 4	99	405	504	99	80%	49%	7%
Grade 5	79	598	700	102	82%	61%	10%
District Summary Metrics	**427**	**357**	**471**	**114**	**82%**	**56%**	**7%**

- Students with a growth mindset and broad knowledge base paired with a deep understanding of mathematics are more likely to perform well on universal screeners such as *The Math Inventory*.
- Fall-to-winter growth results are directional in nature; more weight should be assigned to fall-to-spring comparisons of Quantile measures.

Percent of Students Who Gained Quantiles

Quantile Growth and Increased Readiness for Mathematics Instruction

- Increased Quantile measures indicate students are ready for more complex math.
- Decreased Quantile measures could indicate that the student lost motivation or encountered higher Quantile material he or she could not complete.
- Above includes students in Grade 1 through Grade 5.

Quantile Measures

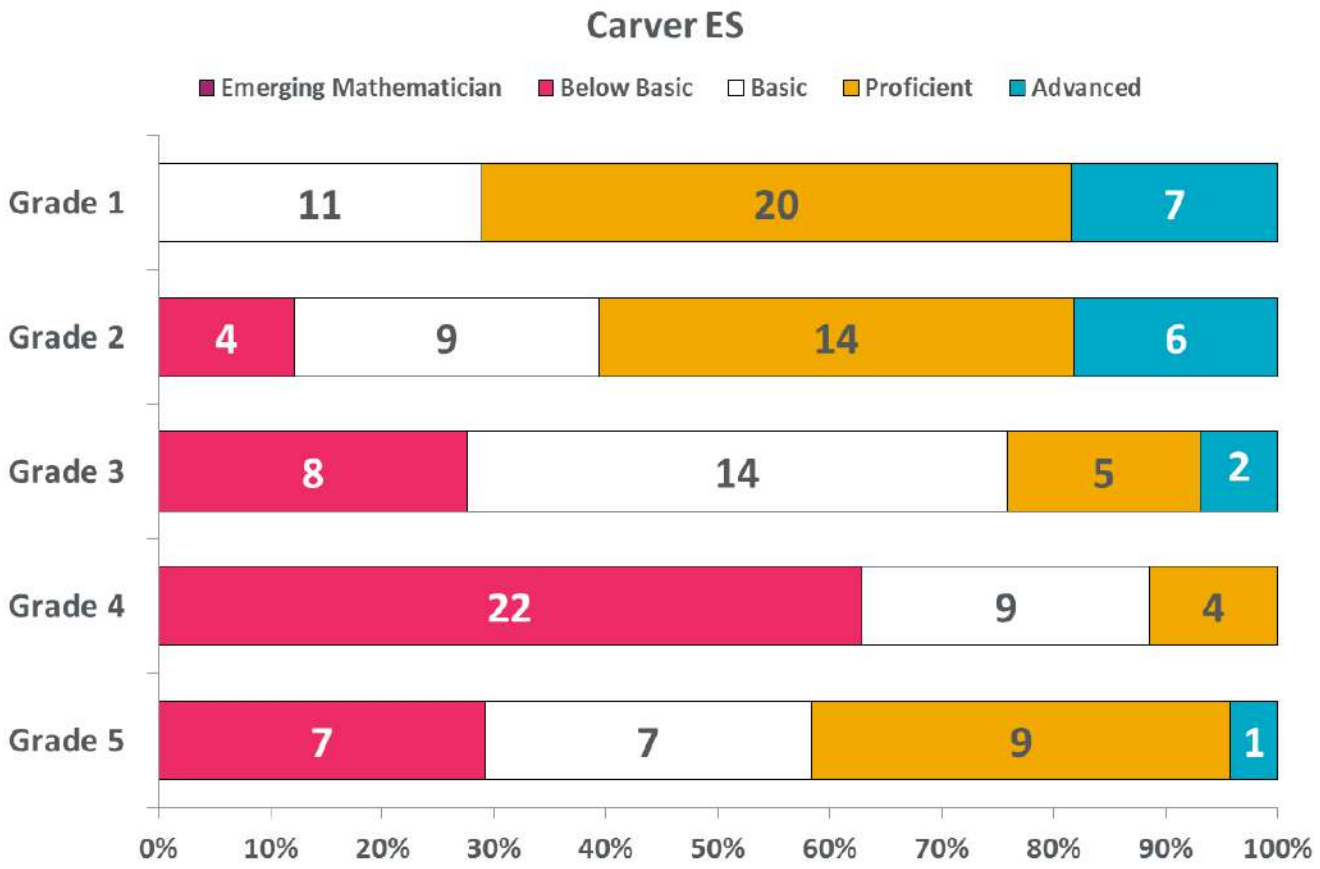
Performance Bands Based Upon HIGHEST *Math Inventory* Score

Grade Level	Emerging Mathematician	Below Basic	Basic	Proficient	Advanced	Total Students
Grade 1			11	20	7	38
Grade 2		4	9	14	6	33
Grade 3		8	14	5	2	29
Grade 4		22	9	4		35
Grade 5		7	7	9	1	24
Carver ES		**41**	**50**	**52**	**16**	**159**

- When estimating need for intervention of a group of students, it is best to use their highest Quantile measures from *The Math Inventory*.
- Emerging Mathematicians may have gaps in foundational math concepts or skills.
- It is recommended to screen students with low Quantile measures with assessments like *Do The Math* modules or *FASTT Math* placement tests to determine whether reinforcement of skills is needed.

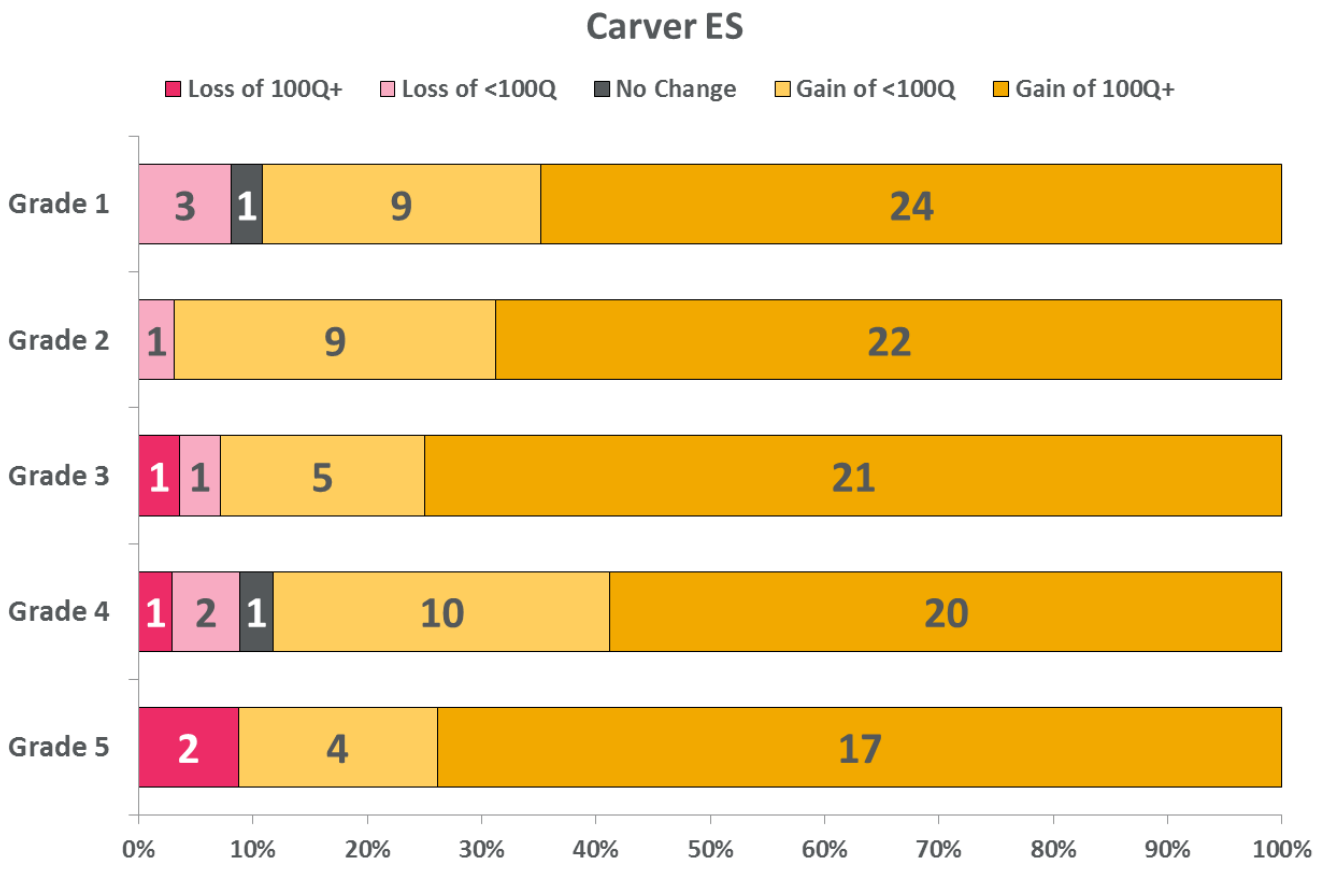
Math Inventory Performance Bands

Percent of Students in Each Band by Grade Level



Math Inventory Quantile Trends

Percent of Students Who Gained or Lost Over 100Q by Grade Level



Emerging Needs

Estimated Need for Students in Early Elementary Grades

- Consider that students in K–2 are learning definitions and basic operations for the first time.
- At this stage, much of their performance in math is tied to accurate fact recall.
- As students progress into Grade 3, fluency and automaticity should solidify so that they can master more complex concepts such as fractions and decimals as well as become fluent with addition and subtraction within 1000.
- If students never move beyond basic operations to a deeper understanding of the process, through activities that build number sense and critical reasoning skills, they will struggle on the path to Algebra.
- As a result, it can be difficult to identify intervention needs in K–2; use measures of accuracy and fluency that inform educators whether students are on track for future success.