

PK-12 Mathematics

Status Update

April 5, 2016

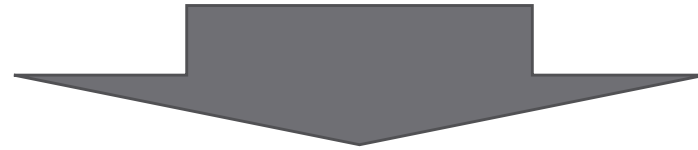
**Moving in the right
direction**

Focus Questions

- *What changes were made in the last curriculum revision?*
- *What was done to implement the curriculum?*
- *What adjustments have been made with the implementation and pacing since the curriculum adoption?*
- *What evidence was collected since the curriculum was adopted to indicate student growth or achievement?*
- *What next steps are being considered?*

What changes were made in the last curriculum revision?

Connecticut's Core Standards – July 2010



Math Content Standards

Math Practice Standards

Elementary		Secondary	
PK-2	Approved: Spring 2013	6 – 8 Alg-1 & Geometry	Approved: Spring 2013
	Implemented Fall 2013		Implemented Fall 2013
3-5	Approved: Spring 2012	Alg. 2 - Electives	Approved: Spring 2014
	Implemented Fall 2012		Implemented Fall 2014

*What was done to
implement the
curriculum?*

Teacher Perspective

- Professional Development
- Teacher classroom experience
- Resources

Administrative Perspective

- Impact on teaching/learning (before/after)
- Rigor – Student Engagement
- Teacher Support/Growth

What adjustments were made since the curriculum adoption?

Elementary Adjustments

- Grade PK-2:
 - Unit sequences were revised based on teacher feedback and student performance
- Grade 3:
 - Multiplication moved to earlier in the year
- Grade 4:
 - Geometry & Angle Measures moved to earlier in the year
- Grade 5:
 - Volume concepts moved to earlier in the year

Secondary Adjustments

- 6th Grade:
 - Moved Statistics to earlier in the year
- 6th/7th Grade Accelerated Courses:
 - Grouped units of similar topics
- Algebra-1
 - Switched first two units (Solving Equations & Functions)
- Algebra-2
 - Reorganized content to begin the year – Functions
 - Moved Sequences & Series Unit to the end of the year

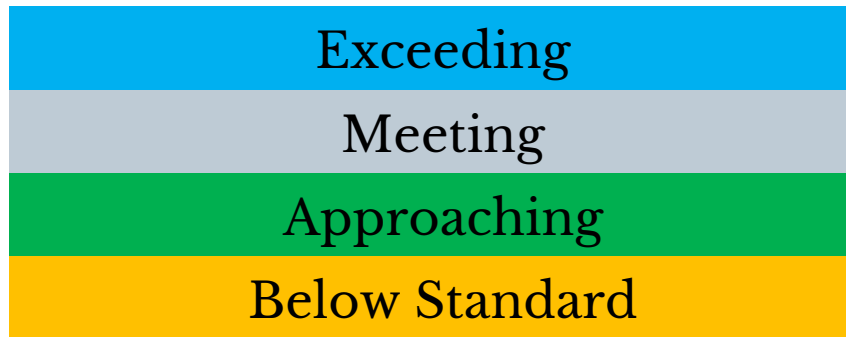
What evidence was collected since the curriculum was adopted to indicate student growth or achievement?

Headlines

- Smarter Balanced Assessment data supports our improvement strategies
- I-Ready illustrates growth overall and by sub-strand
- Increased number of students placed into higher levels of mathematics
- Positive signs from High School data

Smarter Balanced Assessment (SBA) Data

Overall Performance



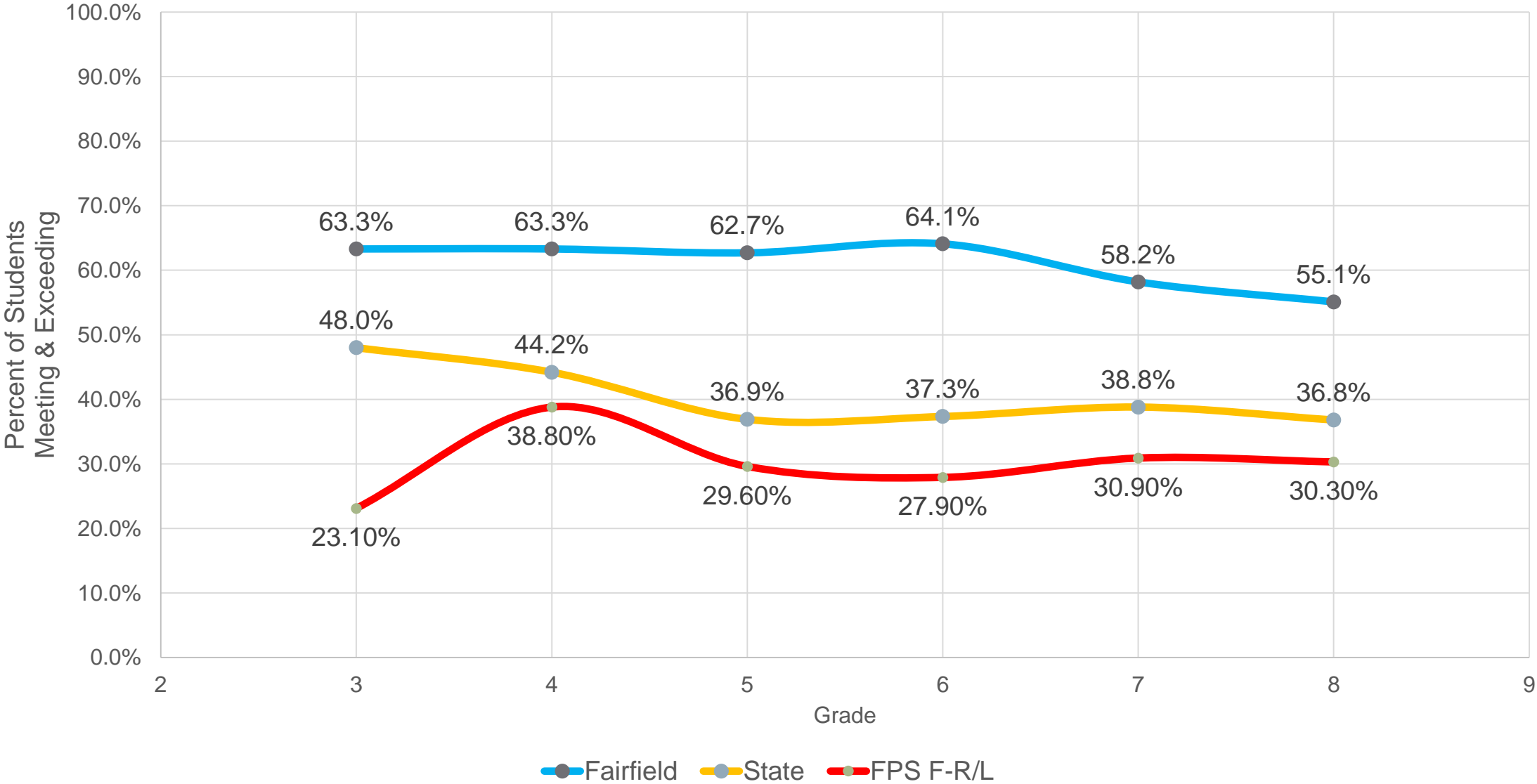
**Scale Score Range (3-11)
2000-3000**

General Claims

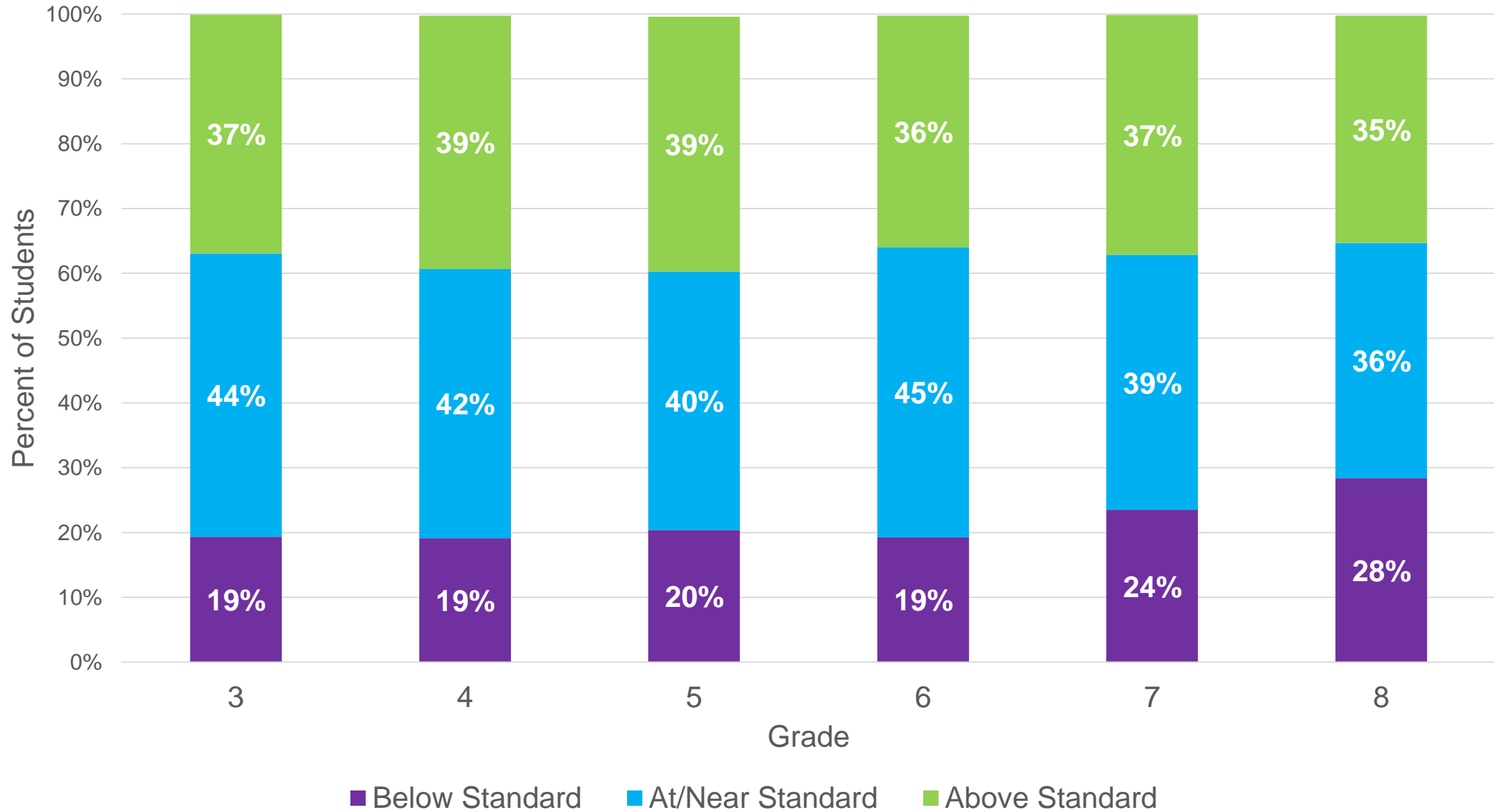


No Score Associated

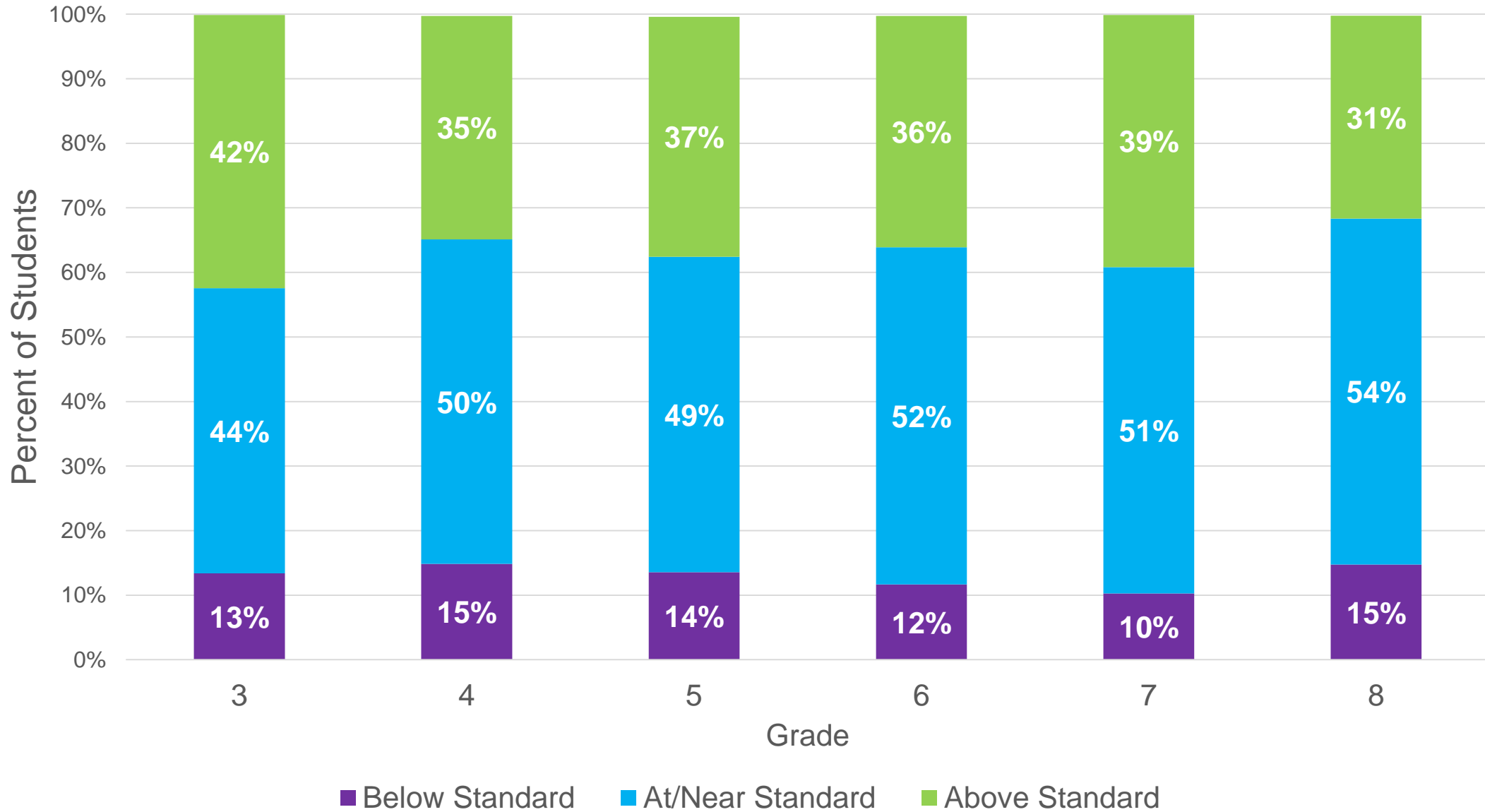
SBA Comparison of Student Achievement: FPS (all students) vs. State vs. FPS F-R/L



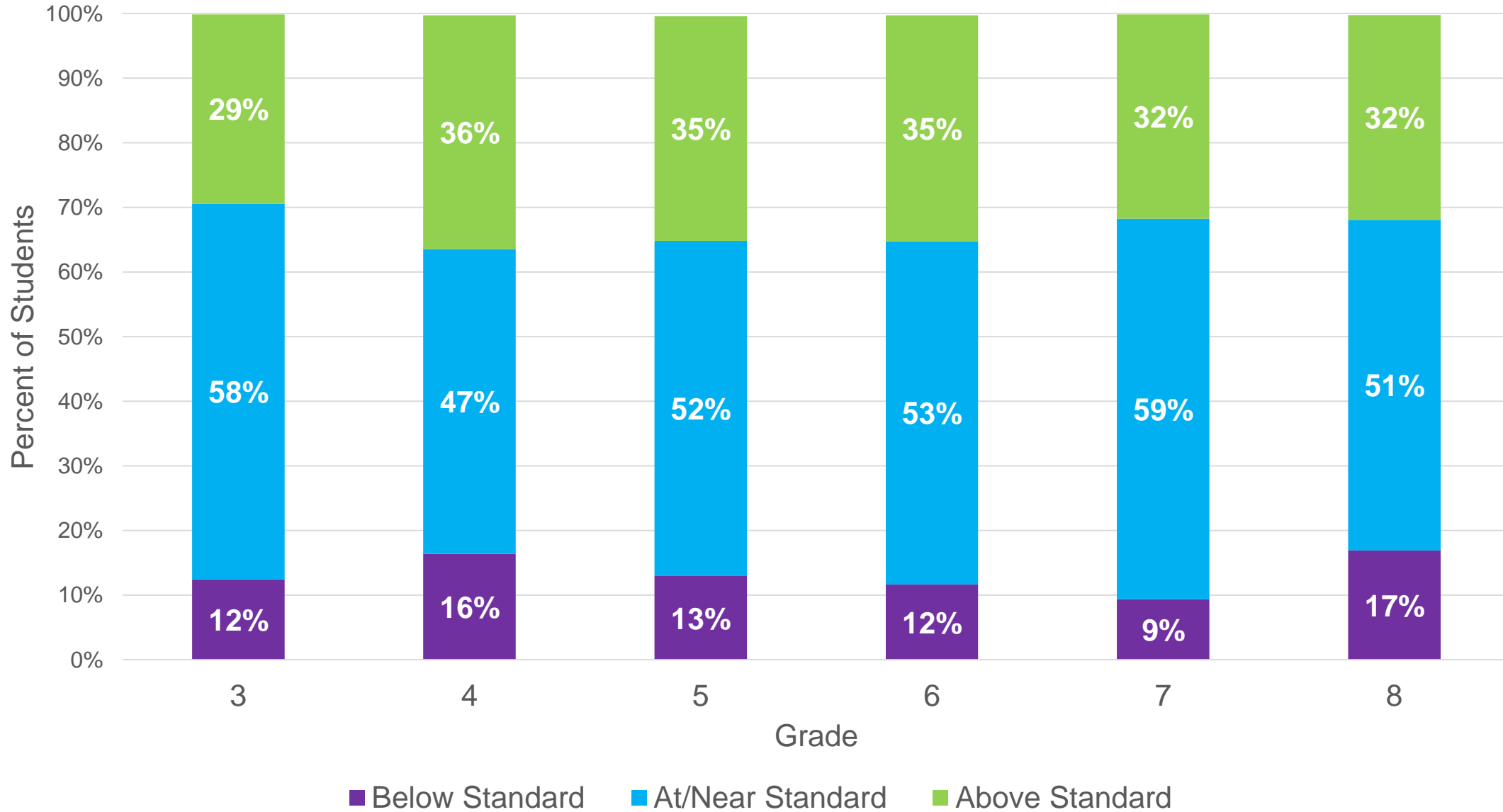
SBA Claim 1: Performance Level Distribution



SBA Claim 2/4: Performance Level Distribution



SBA Claim 3: Performance Level Distribution

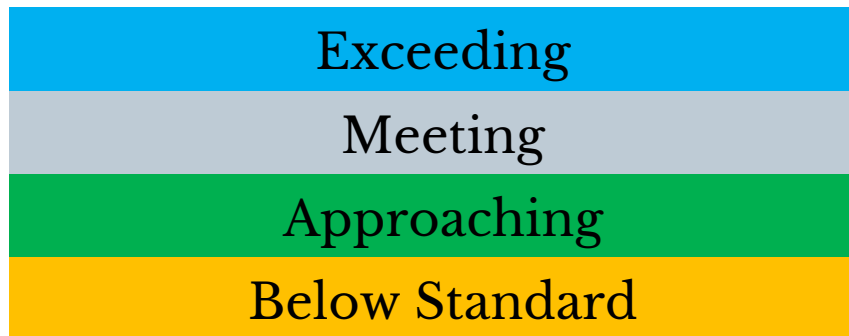


SBA Math Conclusions

- Achievement gap exists between F-R/L students and overall population.
- Strengths:
 - Claim 2/4: Problem Solving
 - Claim 3: Communicating Mathematical Ideas
- Areas to Improve:
 - Claim 1: Concepts and Procedures
- Limitations of the Data
 - Lack of Math Domain Information
 - Difficult to make connections from the Overall & Claim Scores
 - One year worth of data – difficult to make growth conclusions

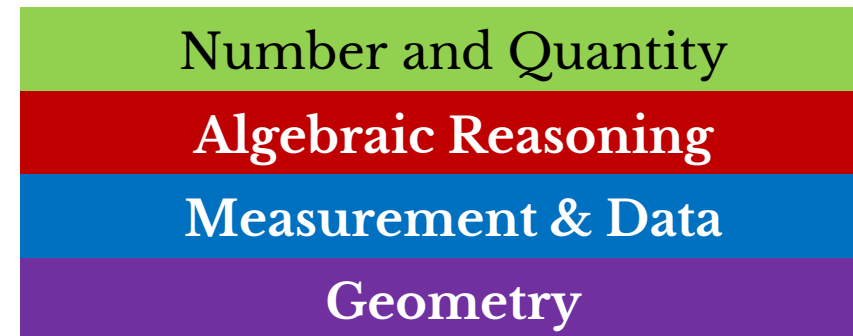
I-Ready Math

Overall Performance



Scale Score Range (K-12)
100-800

Domain Scores



Domain Scale Scores
100-800

I-Ready Overall Performance

Winter 2015	K	1	2	3	4	5	6	7	8
Meeting and Exceeding Winter 2015	62.9%	62.3%	64.0%	73.0%	66.8%	70.9%	68.9%	55.0%	49.1%
Meeting and Exceeding Winter 2016	66.4%	66.6%	64.2%	76.8%	67.0%	68.1%	74.3%	64.5%	54.1%
Difference	+3.5	+4.3	+2	+3.8	+2	-2.8	+5.4	+9.5	+5

Grade K	Winter 2015	Winter 2016
Number and Operations	363	363
Algebra & Algebraic Thinking	365	367
Measurement & Data	369	371
Geometry	382	385

Grade 1	Winter 2015	Winter 2016
Number and Operations	394	399
Algebra & Algebraic Thinking	412	414
Measurement & Data	402	405
Geometry	419	421

Grade 2	Winter 2015	Winter 2016
Number and Operations	421	423
Algebra & Algebraic Thinking	437	438
Measurement & Data	437	436
Geometry	431	436

Grade 3	Winter 2015	Winter 2016
Number and Operations	441	443
Algebra & Algebraic Thinking	463	465
Measurement & Data	460	465
Geometry	443	445

Grade 4	Winter 2015	Winter 2016
Number and Operations	467	467
Algebra & Algebraic Thinking	483	483
Measurement & Data	486	487
Geometry	464	461

Grade 5	Winter 2015	Winter 2016
Number and Operations	492	491
Algebra & Algebraic Thinking	491	491
Measurement & Data	506	506
Geometry	475	480

Grade 6	Winter 2015	Winter 2016
Number and Operations	510	509
Algebra & Algebraic Thinking	504	507
Measurement & Data	512	513
Geometry	485	491

Grade 7	Winter 2015	Winter 2016
Number and Operations	513	518
Algebra & Algebraic Thinking	516	521
Measurement & Data	518	526
Geometry	495	503

Grade 8	Winter 2015	Winter 2016
Number and Operations	515	522
Algebra & Algebraic Thinking	529	530
Measurement & Data	534	532
Geometry	510	514

I-Ready Conclusions

- Overall and sub-strand improvement from year-to-year
- Overall performance complements SBA performance
- Strengths:
 - Algebraic Reasoning
 - Measurement & Data
- Areas of Improvement
 - 4-8 Geometry

5th to 6th Transition

Percentage of 5th Grade Students Recommended for Transition to Pre-Algebra

School Year	Percent of Students	Number of Students
2015-2016	49%	377
2014-2015	40%	338
2013-2014	40%	324
2012-2013	32%	267
2011-2012	30%	255
2010-2011	35%	280

Percent of 5th Grade Students Recommended for Pre-Algebra-7

School Year	Percent of Students	Number of Students
2015-2016	3.9%	30
2014-2015	2.6%	22
2013-2014	2.1%	17
2012-2013	1.8%	15
2011-2012	2.0%	17
2010-2011	1.5%	12

5th to 6th Transition Conclusions

- Increased number of students into accelerated courses.
- Efforts made toward implementing the new, rigorous standards may have caused higher levels of performance

SAT Math Performance

	2012	2013	2014	2015
Fairfield Average	546	556	551	551
State Average	512	512	510	495
Difference	+34	+44	+41	+56
Test Takers	592	578	614	597

PSAT Math Performance

	Percent Meeting Benchmark		
	Fairfield	Connecticut	National
10 th Grade (470)	62%	45%	48%
11 th Grade (500)	57%	40%	48%

	Participation Rates		
	Fairfield	Connecticut	National
10 th Grade	94%	80%	53%
11 th Grade	97%	85%	53%

AP Enrollment

	2013-2014	2014-2015	2015-2016	2016-2017 (Projected)
BC Calculus	42	50	56	51
AB Calculus	63	61	81	75
Statistics	59	51	54	91

AP Math Performance

BC Calculus	Percent scoring a 3 and above		
	2012-2013	2013-2014	2014-2015
Fairfield	96.9%	90.2%	93.6%
Connecticut	71.4%	83.8%	83.5%
National	79.9%	81.1%	79.7%

AB Calculus	Percent scoring a 3 and above		
	2012-2013	2013-2014	2014-2015
Fairfield	92.6%	96.4%	93.1%
Connecticut	59.4%	69.8%	68.5%
National	59.4%	58.9%	54.7%

Statistics	Percent scoring a 3 and above		
	2012-2013	2013-2014	2014-2015
Fairfield	93.5%	92.5%	100%
Connecticut	70.0%	70.6%	64.7%
National	57.9%	59.6%	57.8%

High School Conclusions

- Increase in number of students taking AP math classes with high performance level maintained.
- Too soon to make any conclusions on new curricula on SAT & AP assessments.

Instructional Rounds

- Teachers are improving on implementing rigorous tasks to address the demands of the content and practice standards
- Students are improving with mathematics discourse
- Continue to improve instructional approaches that encourage our students to explain the “why” behind the math
- Continue to work with teachers on approaches to develop a classroom culture that improves students’ problem solving and communication skills.

*What next steps are
being considered?*

Next Steps

Elementary

A committee is currently in the process of reviewing textbook/resources to support the implementation of the approved curriculum.

Secondary

- SAT data analysis
- Algebra-2 Textbook

Continue to improve the instructional capacity of teachers through coaching

Continue teacher professional development to address the achievement gap and support the district improvement plan.

Headlines

- Teachers have worked hard toward implementing curriculum standards (content and practice standards)
- With increased rigor and expectations, students are rising to the challenge
- Students demonstrated strengths in problem solving and communication claims
- Number of students placing into accelerated courses is increasing
- We still have an achievement gap to address
- Continue to monitor and evaluate the implementation and pacing guides

**Moving in the right
direction**

Thank You!