

# Enhancing Upper School Math Program

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March 22, 2018

# Background - what we know

- **Change to a more balanced approach to math** - conceptual development + procedural fluency + application, including more Algebra in middle school
- **Sort students** into on-grade-level and accelerated math pathways after 6th gr
- **Disproportionate representation** of students of color, students with disabilities, English language learners, and students identified as economically disadvantaged in accelerated math pathway
- **Impact on student self-perception & mathematical ability** of tracked classes
- **Performance below state/comparison district averages on MCAS** for African-American/Black students, students with disabilities, English language learners, and students identified as economically disadvantaged

# Background - where we have been

Ongoing research and outreach to experts and other districts, informed by engagement with various stakeholder groups:

- Standing component of **6-12 Administrators** working meetings since last spring
- Focused work with **coaches & educators** through regular professional learning
- **School Committee Roundtable** in November 2017
- **Educators Forum** in January 2018
- **Superintendent's Cabinet** analysis of *current* data & program in January 2018
- **School Committee** Budget Proposal & Budget Workshop in March 2018

# Enhanced Upper School Math & Our District Plan

## Equity & Access

1.5 Provide all students with access to challenging curriculum and technology

## Whole Child as an Individual

2.1 Develop and expand effective inclusive practices in all classrooms through professional learning

## Implementation & Progress Monitoring

5.1 Institute a continuous improvement process that supports implementation of the district plan: monitoring, evaluating and sharing progress

# Enhanced Upper School Math: Multi-Pronged Approach



# Curriculum

## Curriculum

**IN ALL US MATH CLASSES:**

**Standards-aligned, top-rated resource**

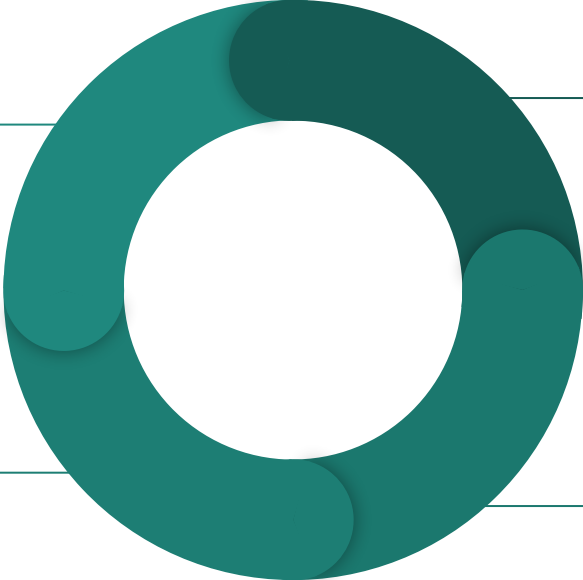
**Updated curriculum scope & sequence**

**Consistency across schools**

**Instruction**

**Assessment**

**Professional Learning**



# Instruction

## Curriculum

IN ALL US MATH CLASSES:  
Standards-aligned, top-rated resource  
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Consistency across schools

## Assessment

## Instruction

7th gr students in heterogeneous classes

Strengthened Tier 1 + support & extension scheduled into every week

## Professional Learning

+Math educators for *flexible* small group

Online math program to supplement



# Assessment

## Curriculum

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## Instruction

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## Assessment

Math coaches & educators  
developed common interim  
assessments

Put specific supports in place  
(re-teaching, tutoring,  
vacation/weekend math  
instruction)

Building capacity in error analysis

## Professional Learning

# Professional Learning

## Curriculum

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Updated curriculum maps

## Instruction

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## Assessment

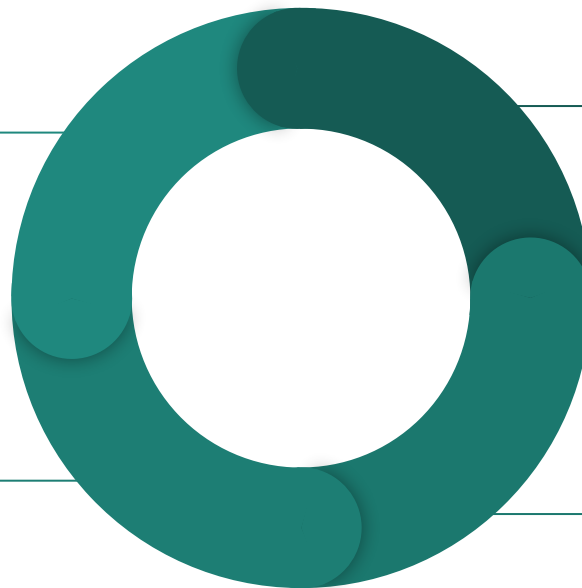
Math coaches & educators developed  
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## Professional Learning

June w/ curriculum developers

**Year-long with focus on  
curricular resources +  
instruction + formative  
assessments**

**Math content-focused coaching**



# 7th Grade Enhanced Mathematics

means

- New curriculum resources, aligned to standards
- Summer and yearlong support to educators in curriculum & ambitious instruction
- Common assessments to identify student knowledge and needs and flexible groups
- Exposure to 8th grade standards for all students and deeper dive for students who demonstrate mastery of 7th grade content
- Pathway for students to study Algebra standards in 8th grade

# Anticipated Timeline - *with room for learning and adjustment*

2017-2018

Focus on **Ambitious Instruction** for all students

Introduction of standards-aligned **curricular resources** for all grade levels

2018-2019

Maintain heterogeneous classes in 6th grade

Add **7th grade in heterogeneous classes** with support/extension

2019-2020

*Maintain heterogeneous classes in 6th & 7th grade*

*Add 8th grade in heterogeneous classes with support/extension*

2020-2021

*Maintain heterogeneous classes in 6th, 7th & 8th grade*

*Options at high school enable multiple pathways to high-level math*

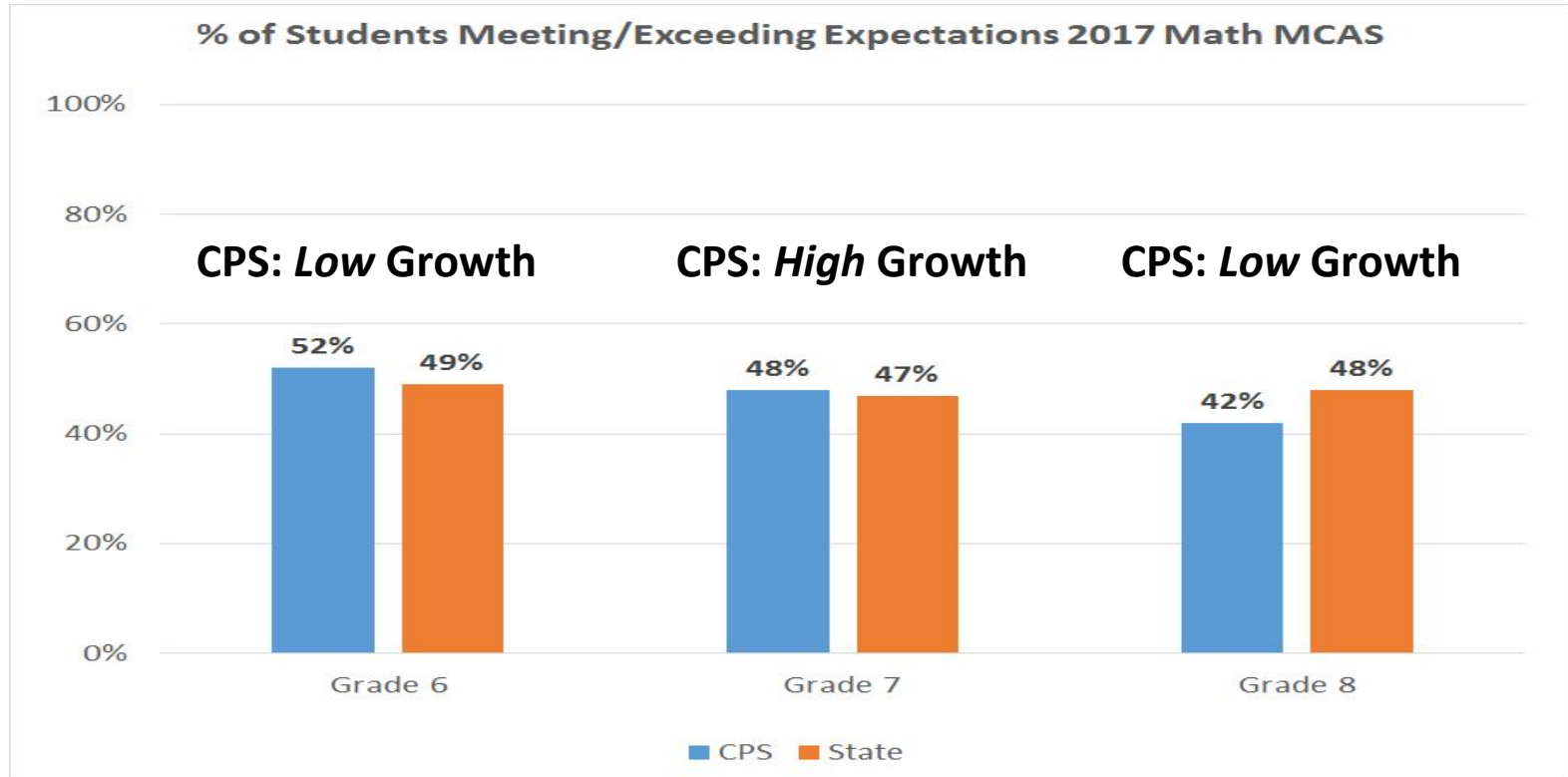
# Discussion

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# Reference Slides

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# 2017 Math MCAS Results



# Grade 6 Math MCAS Results by Subgroup

	<b>% of Students Meeting/Exceeding Expectations: 2017 Grade 6 Math MCAS</b>							
	<b>CPS</b>	<b>State</b>	<b>Somerville</b>	<b>Boston</b>	<b>Framingham</b>	<b>Waltham</b>	<b>Newton</b>	<b>Brookline</b>
<b>All Students</b>	<b>52</b>	<b>50</b>	<b>46</b>	<b>30</b>	<b>36</b>	<b>42</b>	<b>72</b>	<b>74</b>
<b>Students w/ Disabilities (123)</b>	<b>16</b>	14	14	5	10	5	26	27
<b>ELL And Former ELL (15)</b>	<b>47</b>	23	19	20	14	10	54	59
<b>Economically Disadvantaged (150)</b>	<b>33</b>	28	33	21	16	24	36	34
<b>Non-Economically Disadvantaged (261)</b>	<b>63</b>	61	58	47	51	51	76	80
<b>African Amer./Black (109)</b>	<b>30</b>	25	33	16	14	37	23	36
<b>Asian (38)</b>	<b>79</b>	76	77	75	59	58	86	86
<b>Hispanic/Latino (60)</b>	<b>32</b>	27	31	20	15	23	48	59
<b>Multi-Race, Non-Hisp./Lat. (36)</b>	<b>62</b>	51	0	46	44	0	75	85
<b>White (165)</b>	<b>66</b>	57	0	57	47	56	74	77

*The numbers in parentheses are the number of tested students in each subgroup in CPS.*

# Grade 7 Math MCAS Results by Subgroup

	% of Students Meeting/Exceeding Expectations: 2017 Grade 7 Math MCAS							
	CPS	State	Somerville	Boston	Framingham	Waltham	Newton	Brookline
All Students	48	47	44	31	40	44	74	74
Students w/ Disabilities (103)	19	11	12	5	9	4	30	29
ELL And Former ELL (16)	19	19	8	18	9	6	59	50
Economically Disadvantaged (153)	25	24	27	21	19	27	43	49
Non-Economically Disadvantaged (240)	64	57	61	48	53	55	77	78
<b>African Amer./Black (120)</b>								
African Amer./Black (120)	23	23	7	18	17	41	47	30
<b>Asian (43)</b>								
Asian (43)	63	74	67	73	70	58	89	80
<b>Hispanic/Latino (61)</b>								
Hispanic/Latino (61)	29	24	30	19	20	34	37	53
<b>Multi-Race, Non-Hisp./Lat. (33)</b>								
Multi-Race, Non-Hisp./Lat. (33)	64	49	36	42	53	0	80	83
<b>White (130)</b>								
White (130)	73	54	69	64	51	52	76	79

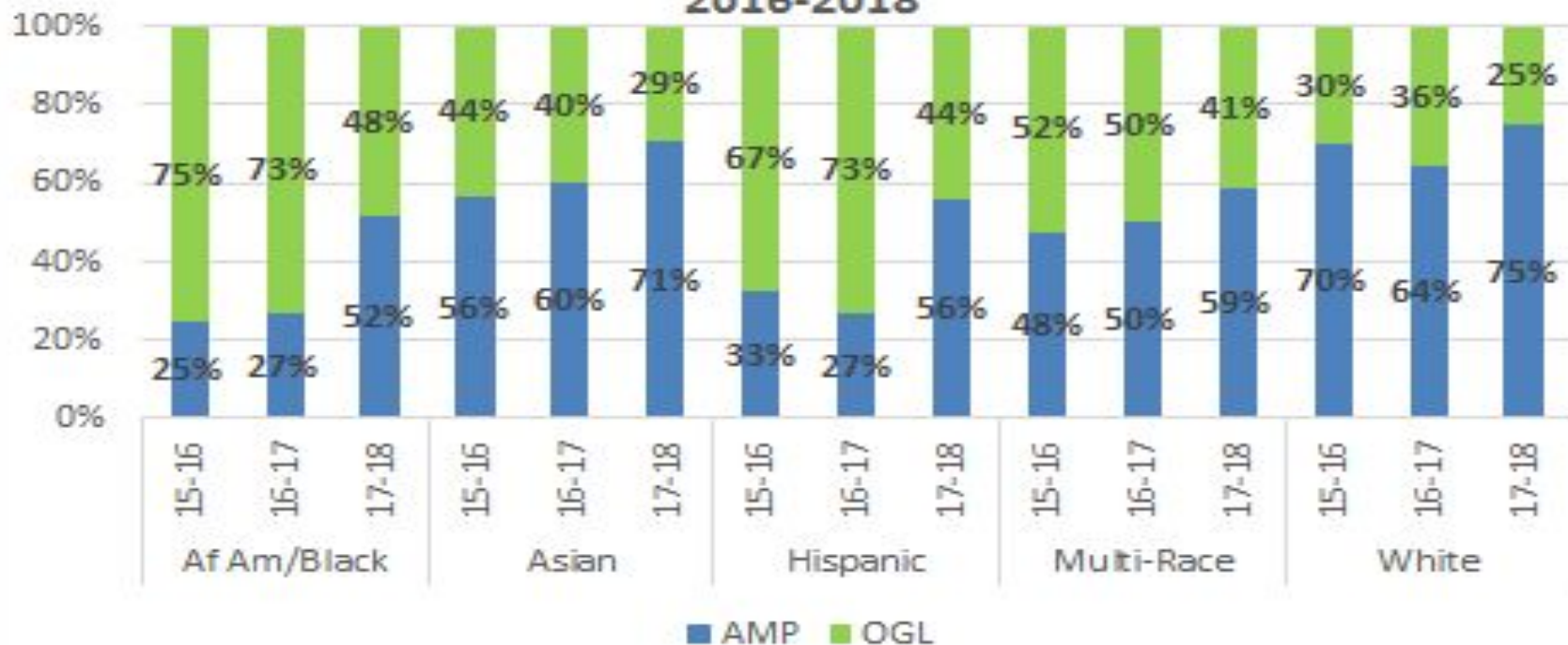
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# Grade 8 Math MCAS Results by Subgroup

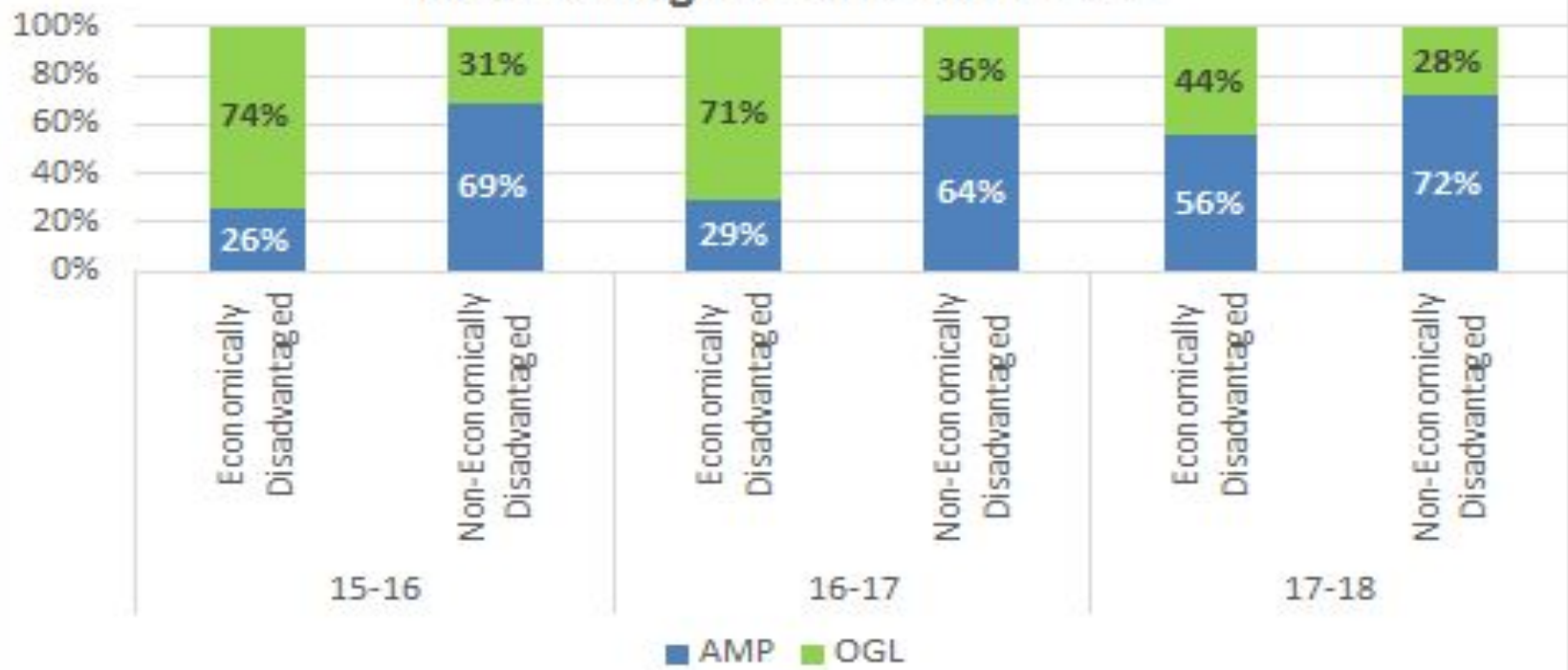
	% of Students Meeting/Exceeding Expectations: 2017 Grade 8 Math MCAS							
	CPS	State	Somerville	Boston	Framingham	Waltham	Newton	Brookline
All Students	43	48	46	30	36	44	72	78
Students w/ Disabilities (95)	15	12	7	6	3	19	31	25
ELL And Former ELL (14)	7	17	6	13	13	13	65	76
Economically Disadvantaged (125)	16	26	30	19	20	34	51	44
Non-Economically Disadvantaged (225)	58	58	59	45	45	49	74	84
African Amer./Black (109)	10	24	53	15	12	35	38	25
Asian (38)	60	74	40	68	67	53	85	88
Hispanic/Latino (49)	29	27	32	20	21	30	63	62
Multi-Race, Non-Hisp./Lat. (25)	52	49	0	39	41	43	67	84
White (124)	70	54	60	56	43	54	72	85

*The numbers in parentheses are the number of tested students in each subgroup in CPS.*

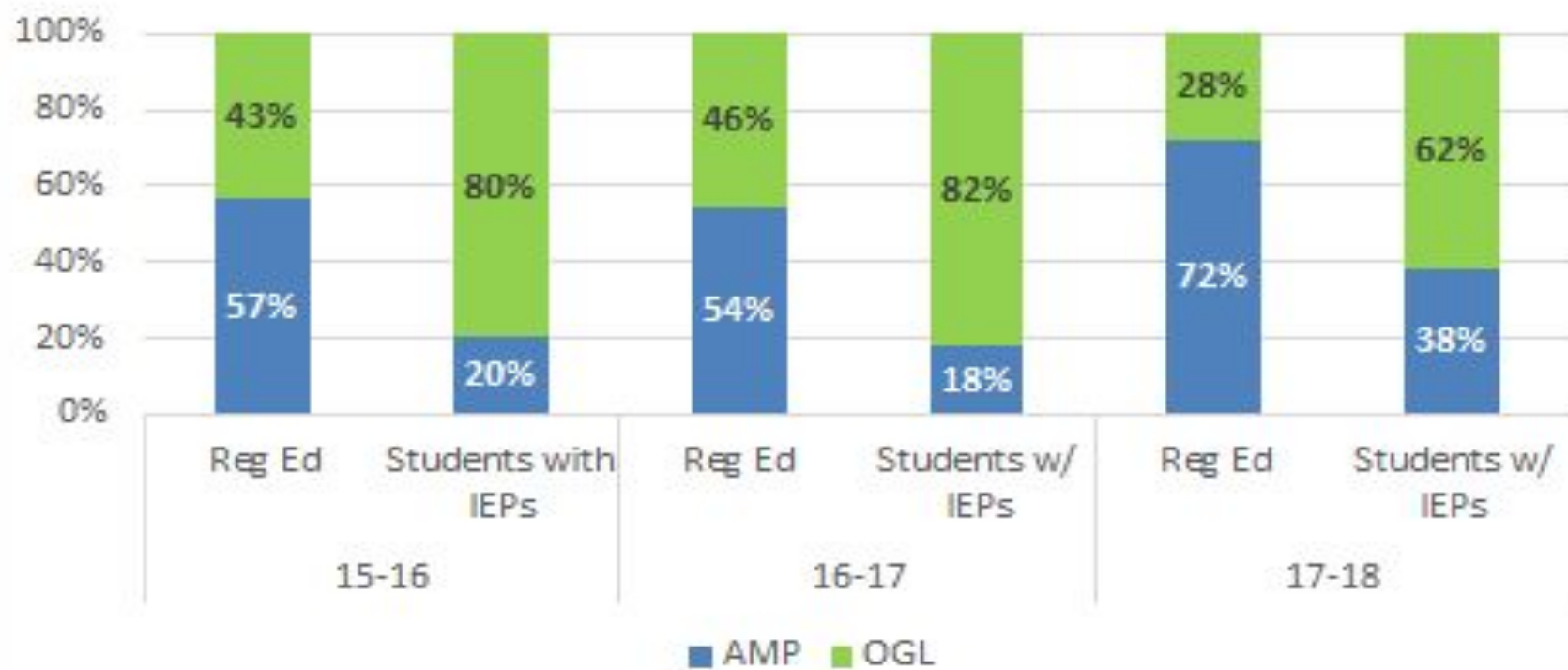
## Grade 7 Math Course Enrollment by Race/Ethnicity: 2016-2018



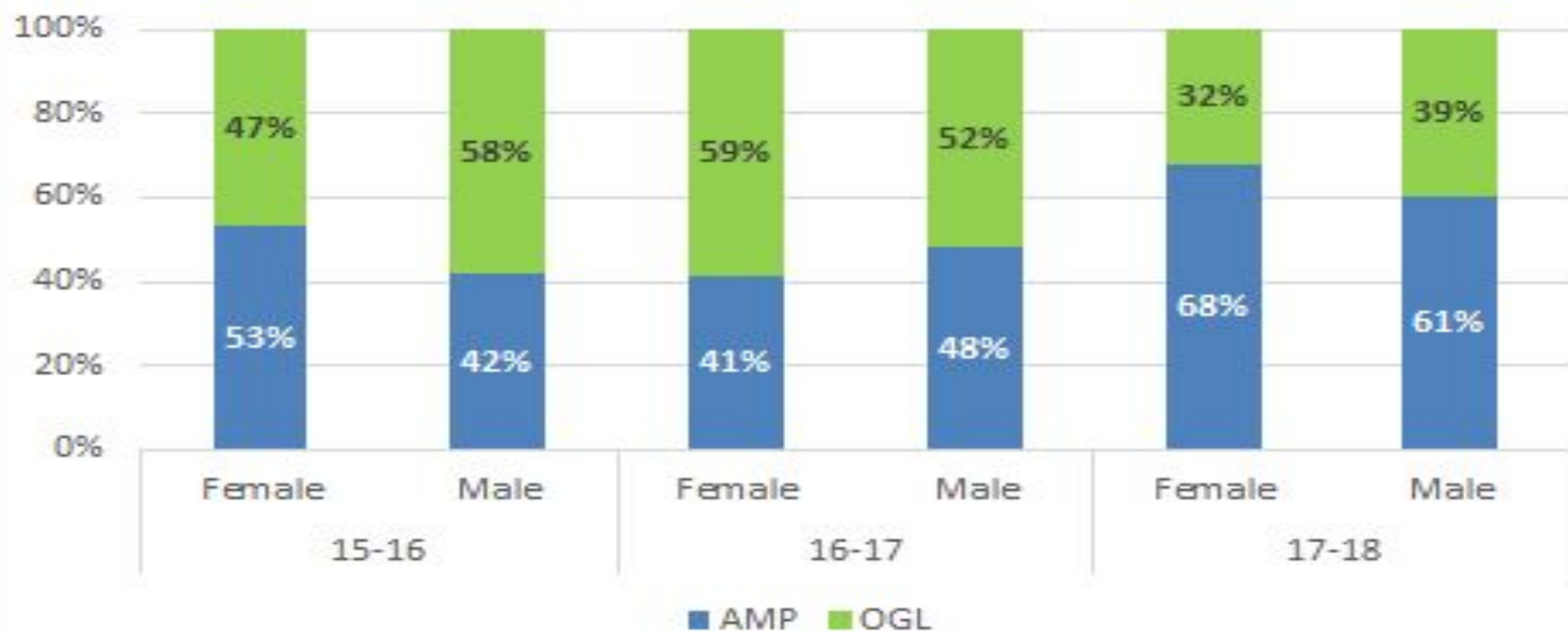
### Grade 7 Math Course Enrollment by Economically Disadvantaged Status: 2016-2018



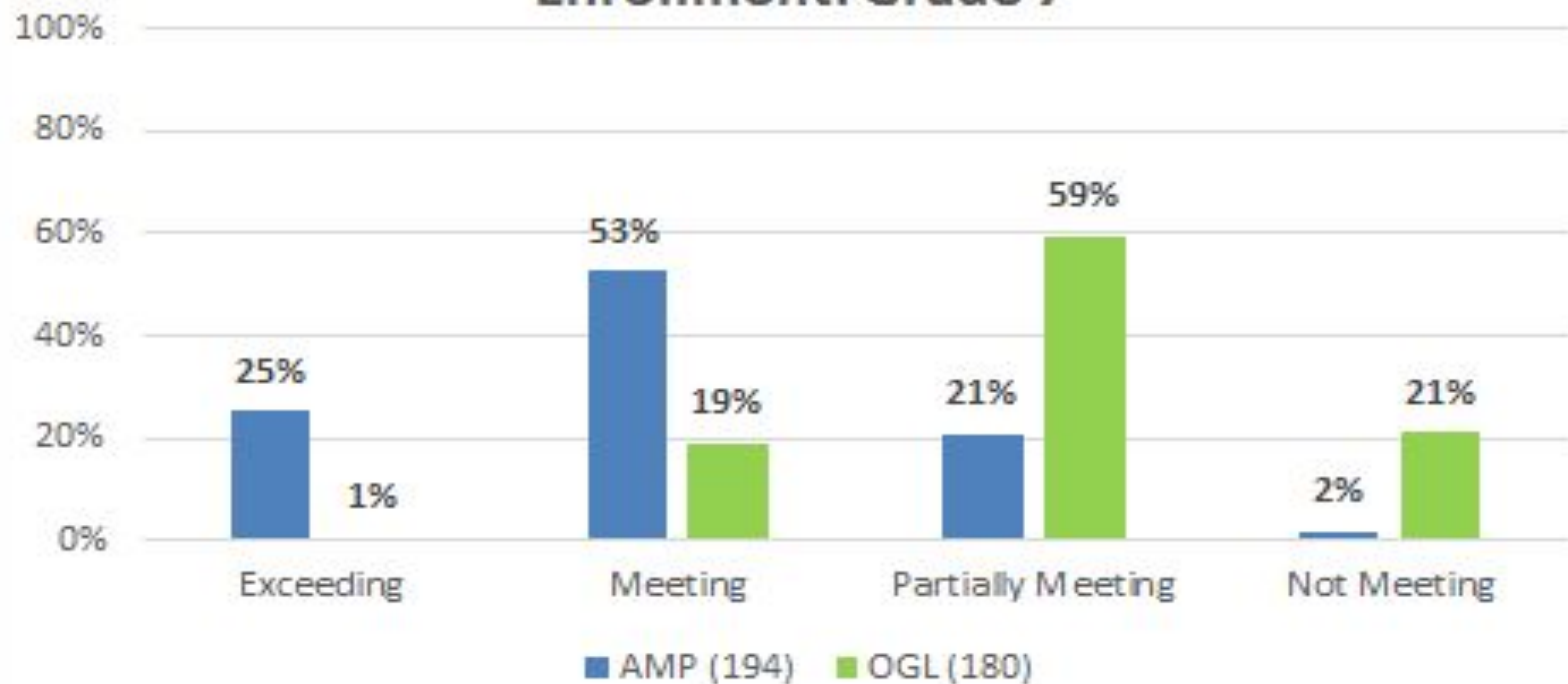
## Grade 7 Math Course Enrollment by Special Education Status: 2016-2018



### Grade 7 Math Course Enrollment by Gender: 2016-2018



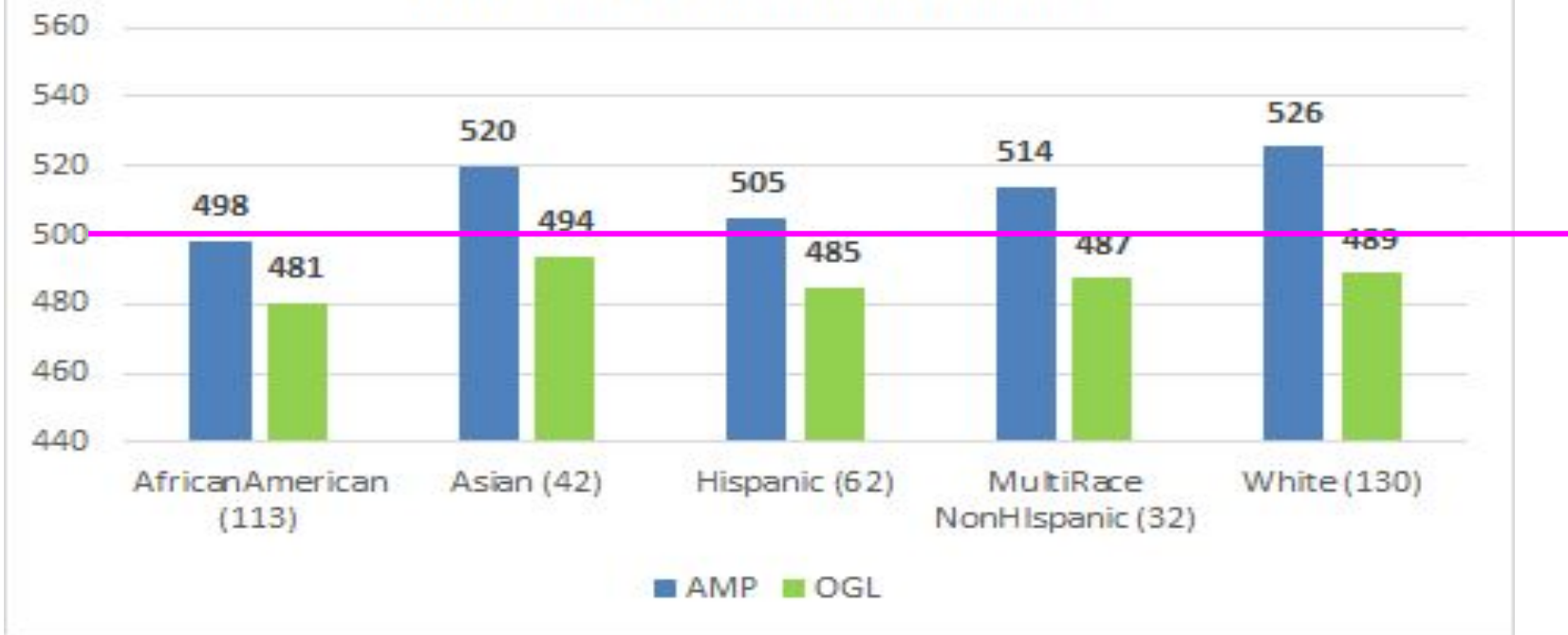
## 2017 Math MCAS Results by Math Course Enrollment: Grade 7



### Distribution of 2017 Math MCAS Student Growth Percentiles (SGP) by Math Course Enrollment: Grade 7

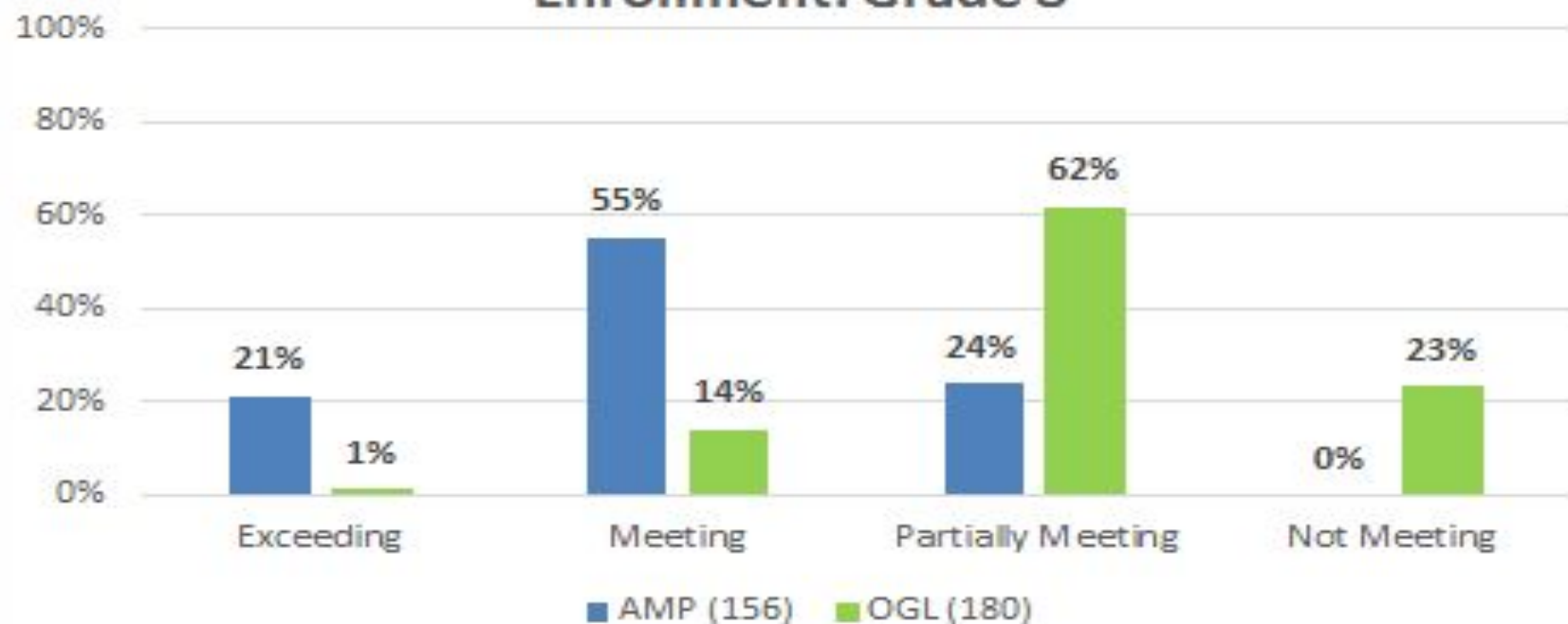


### 2017 Math MCAS Scaled Scores by Race/Ethnicity and Math Course Enrollment: Grade 7

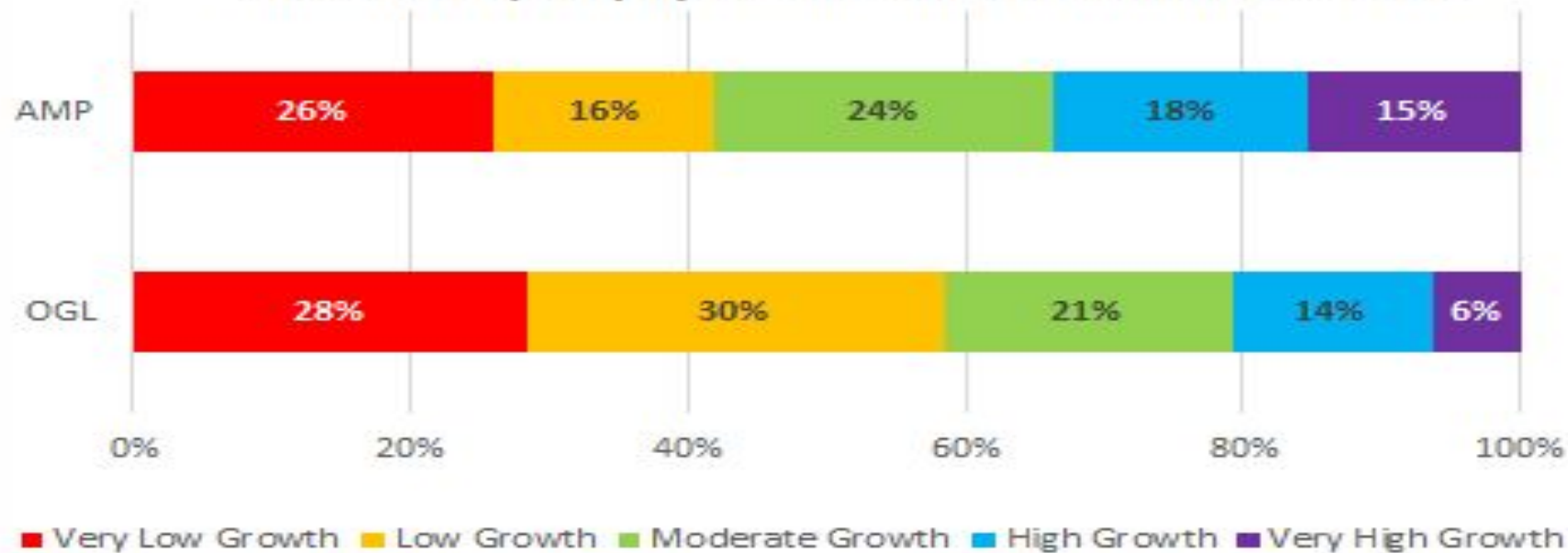


500 = Meeting Expectations

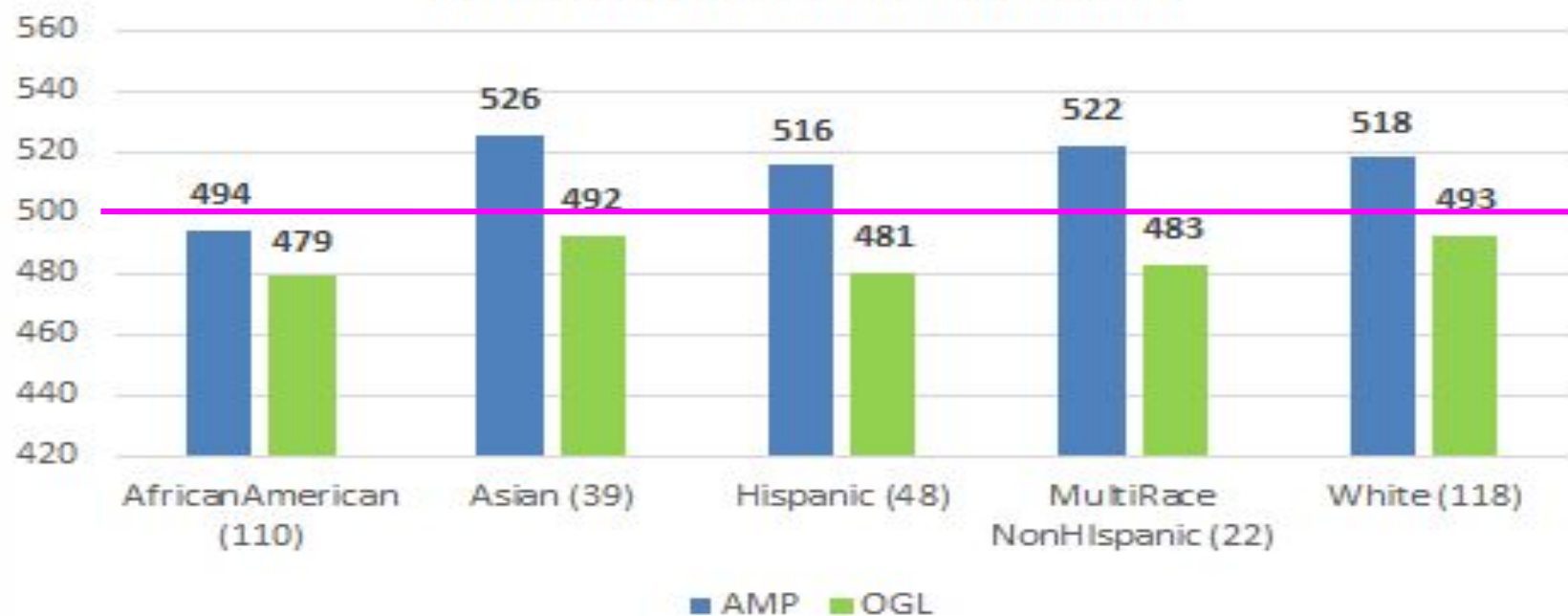
## 2017 Math MCAS Results by Math Course Enrollment: Grade 8



### Distribution of 2017 Math MCAS Student Growth Percentiles (SGP) by Math Course Enrollment: Grade 8



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