AMPHITHEATER
Public Schools

Status of Math Curriculum and Math Achievement

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Curriculum

- Lessons and academic content taught in a school or in a specific course or program;
- Knowledge and skills students are expected to learn, **standards** or **learning objectives** they are expected to meet;
- Units and lessons that teachers teach;
- Assignments and projects given to students;
- Books, materials, videos, presentations, and readings used in a course; and
- Tests, **assessments**, and other methods used to evaluate student learning in a particular course.

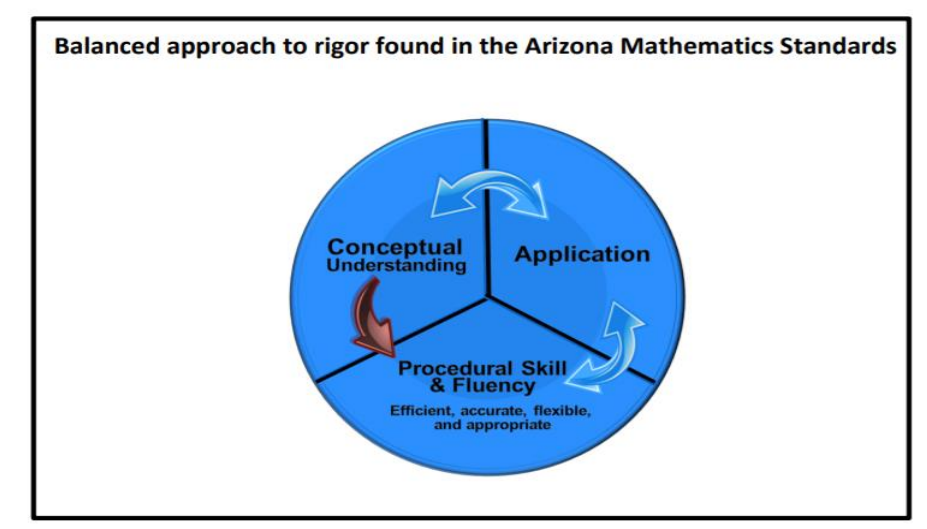
Pedagogy

The art, science and practice of teaching.

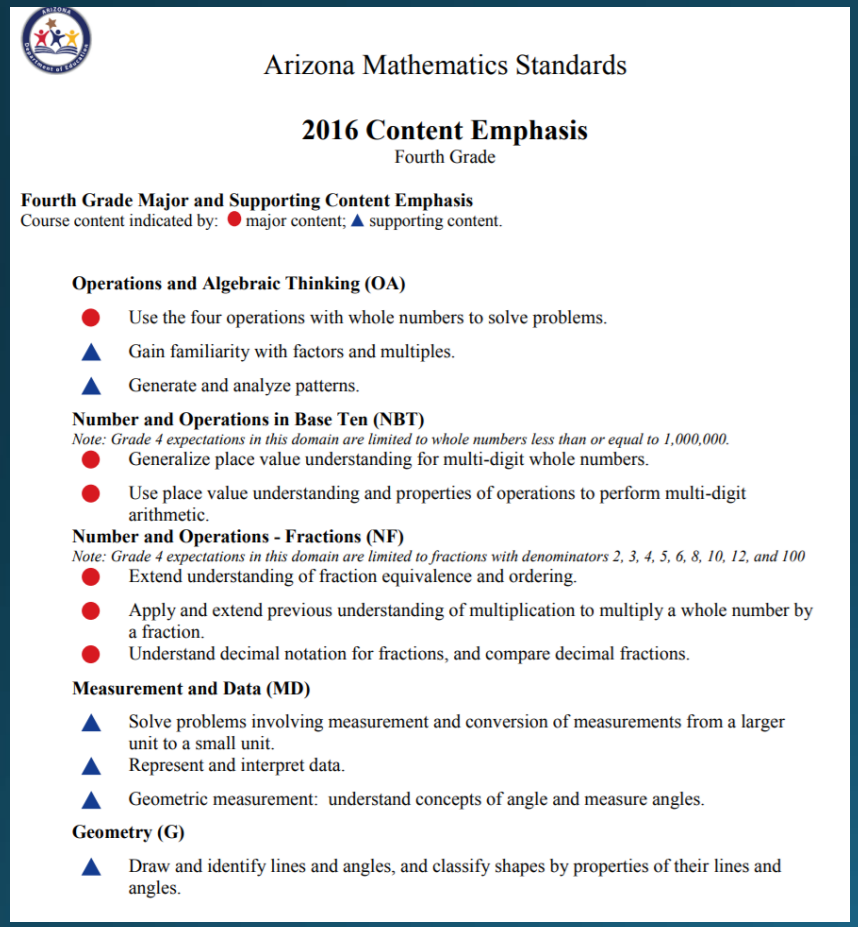
The methods of instruction.

Shifts in AZ Mathematics Standards

- Focus: Key topics at grade levels
- Coherence: Clear progressions
- Rigor: Balance of conceptual understanding, application, and procedural skill and fluency



Focus: Content Emphasis Documents



Arizona Mathematics Standards

2016 Content Emphasis

Fourth Grade

Fourth Grade Major and Supporting Content Emphasis

Course content indicated by: ● major content; ▲ supporting content.

Operations and Algebraic Thinking (OA)

- ● Use the four operations with whole numbers to solve problems.
- ▲ Gain familiarity with factors and multiples.
- ▲ Generate and analyze patterns.

Number and Operations in Base Ten (NBT)

Note: Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.

- ● Generalize place value understanding for multi-digit whole numbers.
- ● Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations - Fractions (NF)

Note: Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100

- ● Extend understanding of fraction equivalence and ordering.
- ● Apply and extend previous understanding of multiplication to multiply a whole number by a fraction.
- ● Understand decimal notation for fractions, and compare decimal fractions.

Measurement and Data (MD)

- ▲ Solve problems involving measurement and conversion of measurements from a larger unit to a small unit.
- ▲ Represent and interpret data.
- ▲ Geometric measurement: understand concepts of angle and measure angles.

Geometry (G)

- ▲ Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

http://www.azed.gov/standards-practices/k-12standards/mathematics-standards/

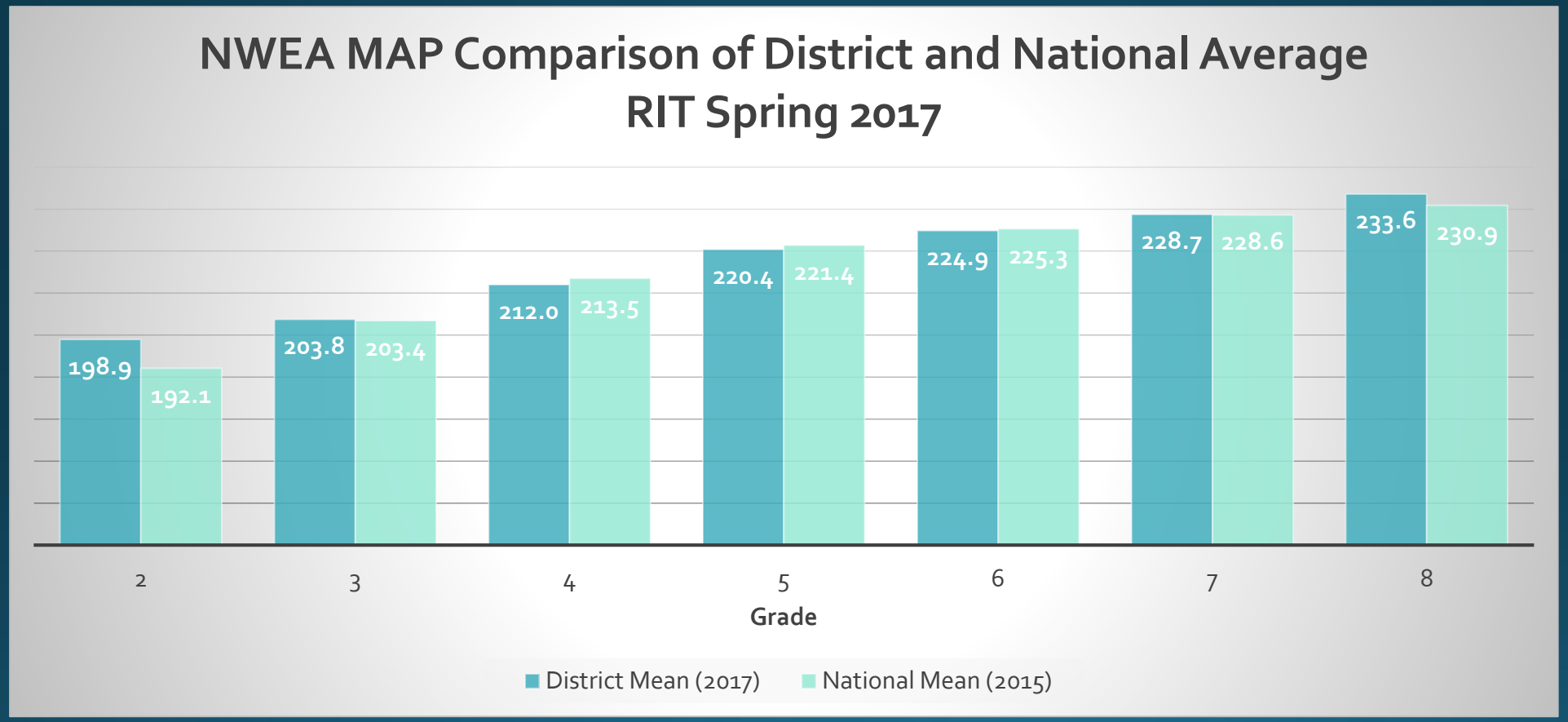
Standards for Mathematical Practice

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

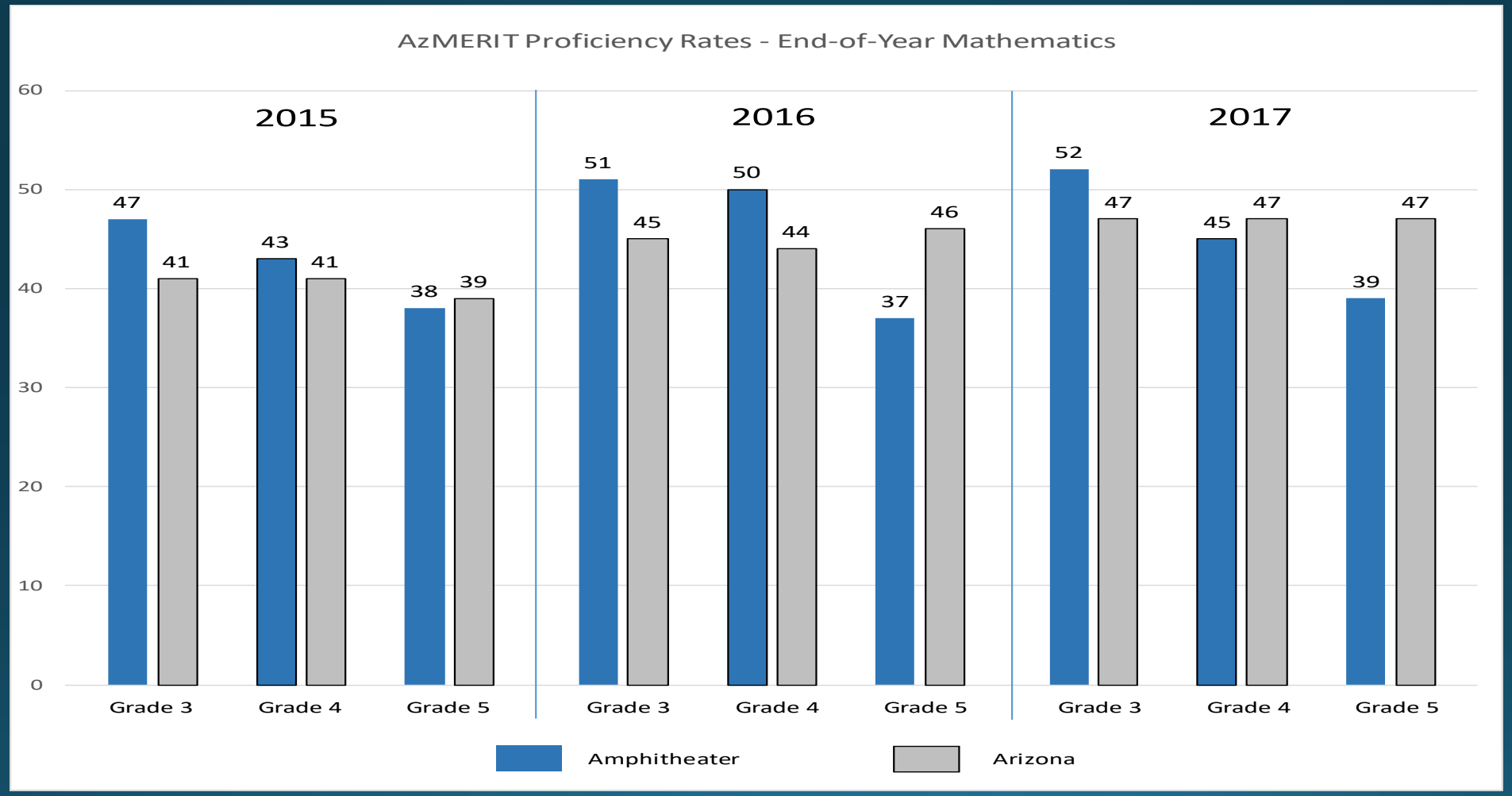
Elementary Information

- NWEA MAP: District vs. National Norms (3-8)
- AzMerit: District vs. State

NWEA MAP Math Data



AzMERIT Proficiency Rates: Grades 3-5



Secondary Information

- AzMerit: District vs State
- SAT
- ACT

Acceleration Pathway

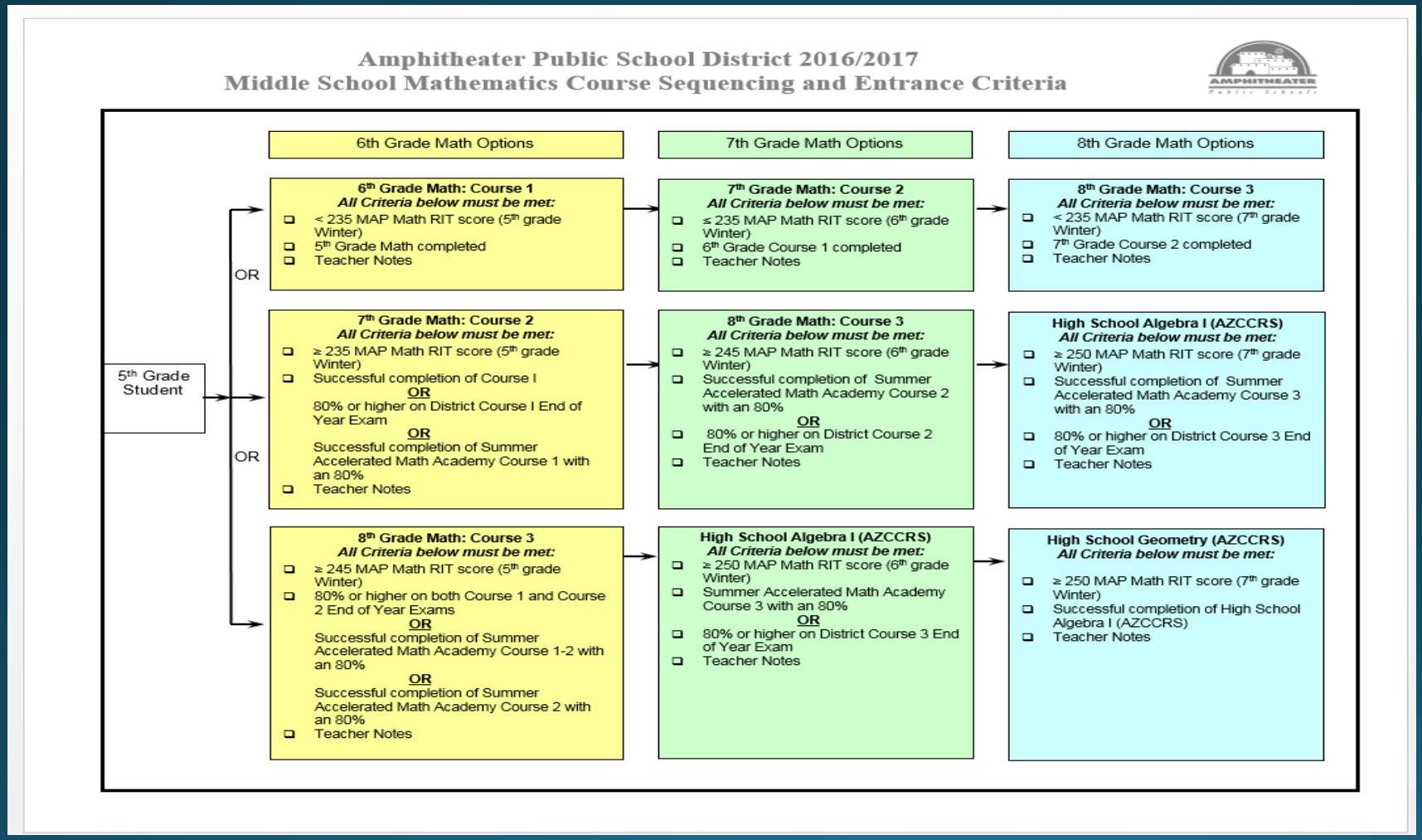
Development of Entrance Criteria:

- Careful consideration of the Arizona College and Career Ready Standards (including focus, coherence, and rigor) and the Standards for Mathematical Practice.
- Data analysis on hundreds of Amphitheater students, looking at MAP data and students' grades in accelerated courses.

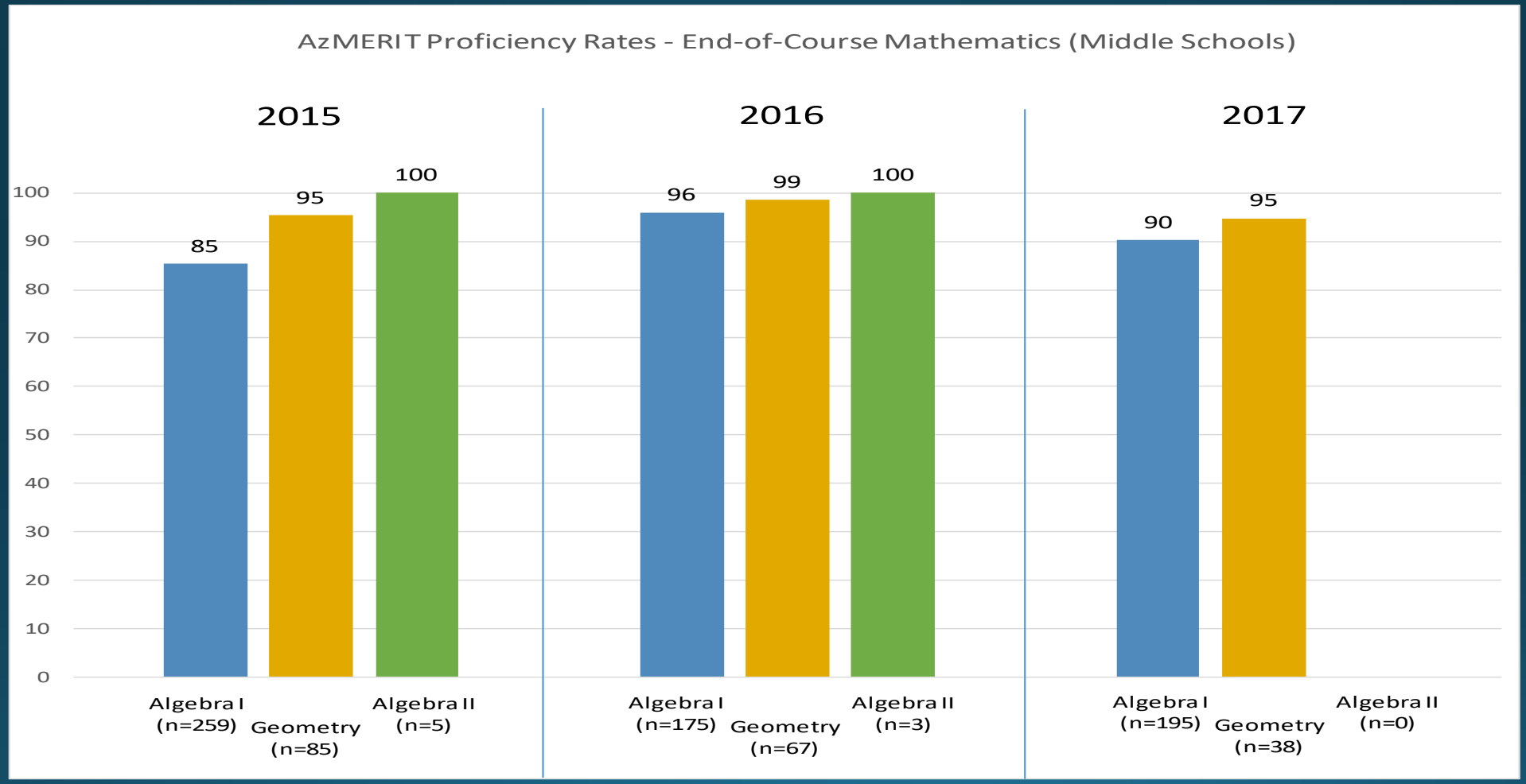
What Amphitheater Student Data Shows:

- NWEA MAP Score Lower than Cut Off Score=Poor Grades When Accelerated
- Students who earned a C, D, or F in any accelerated courses often had to repeat a course, or if they continued on their current trajectory, went on to fail high school credit math courses.

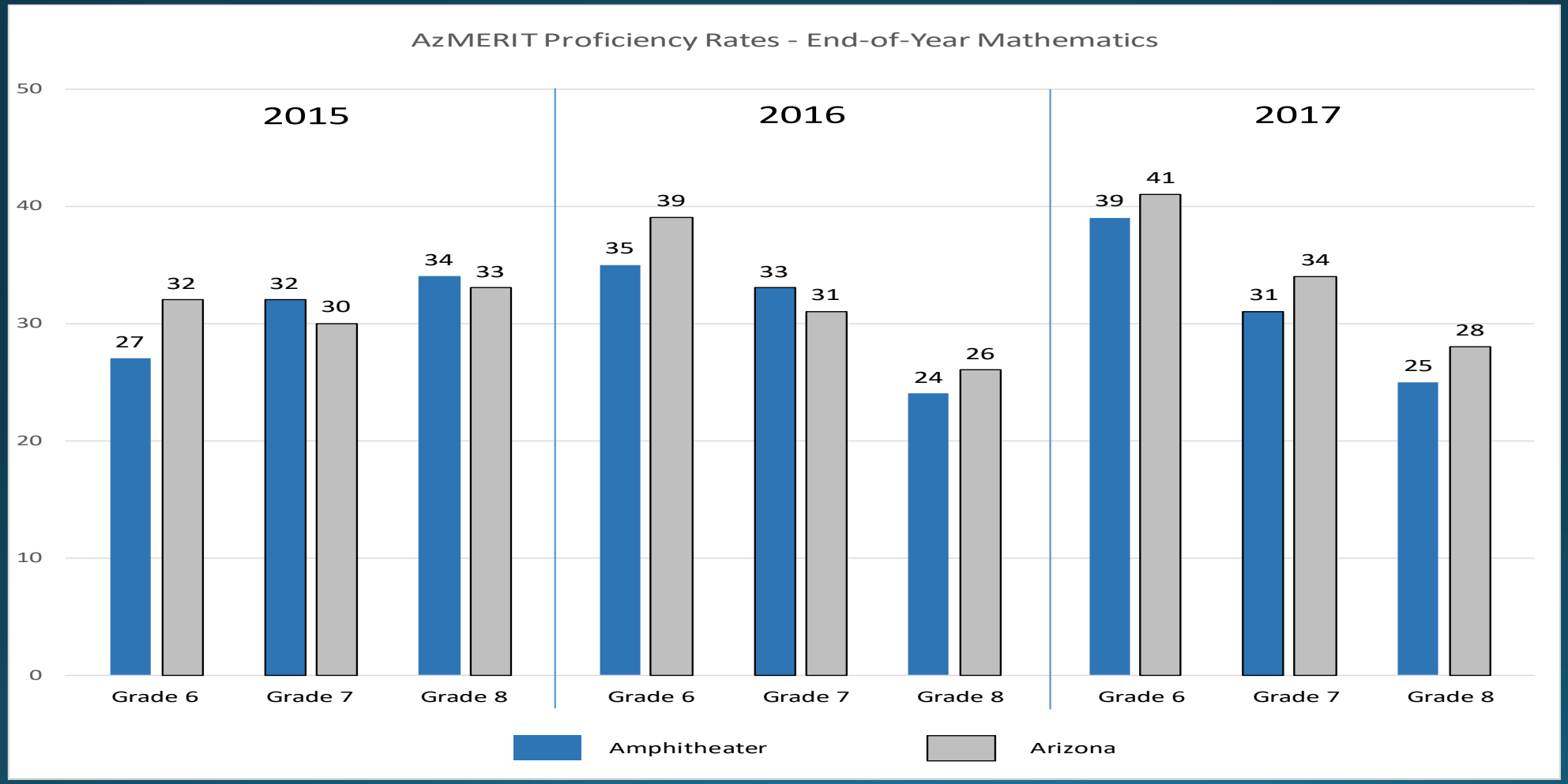
Math Placement and Acceleration



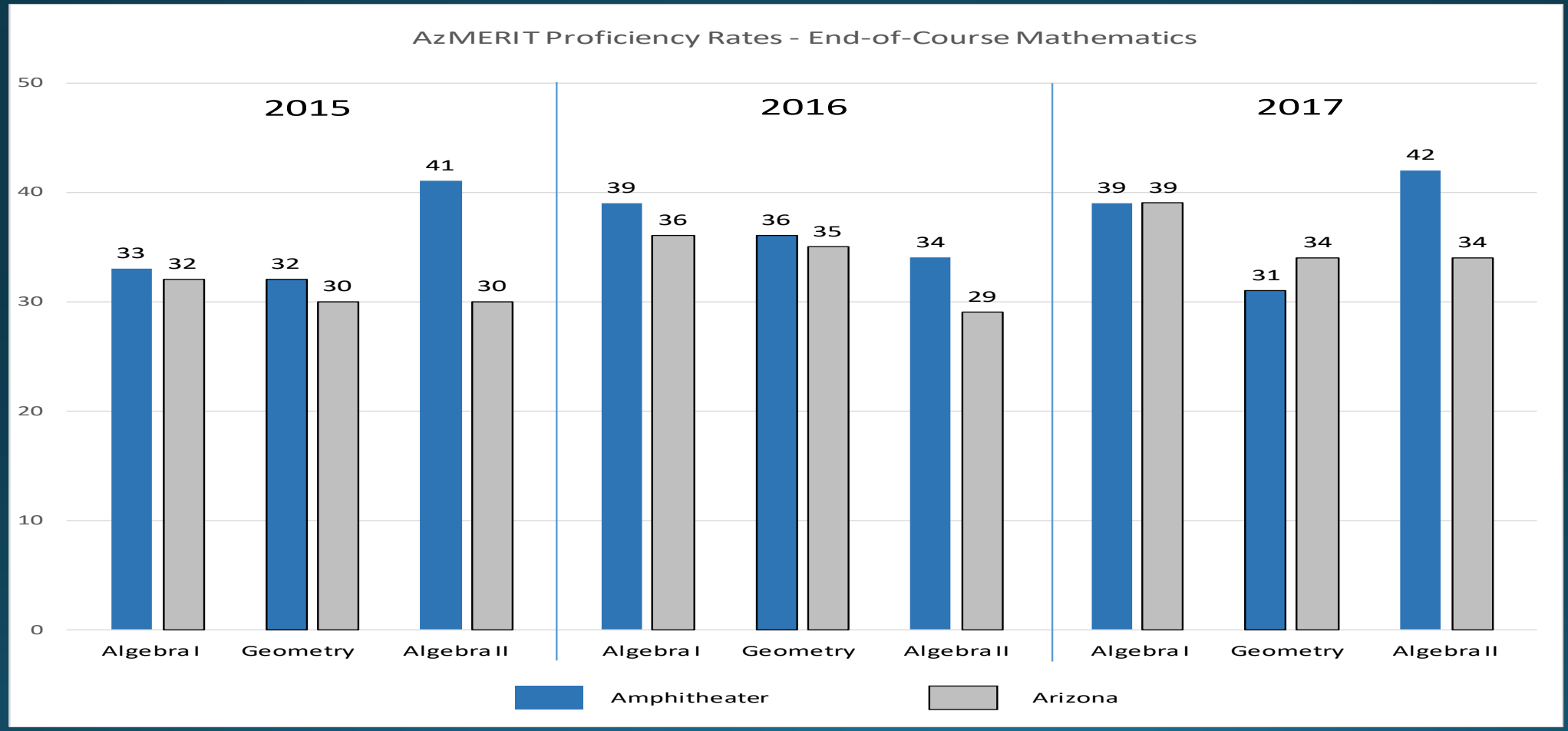
Accelerated Middle School Students



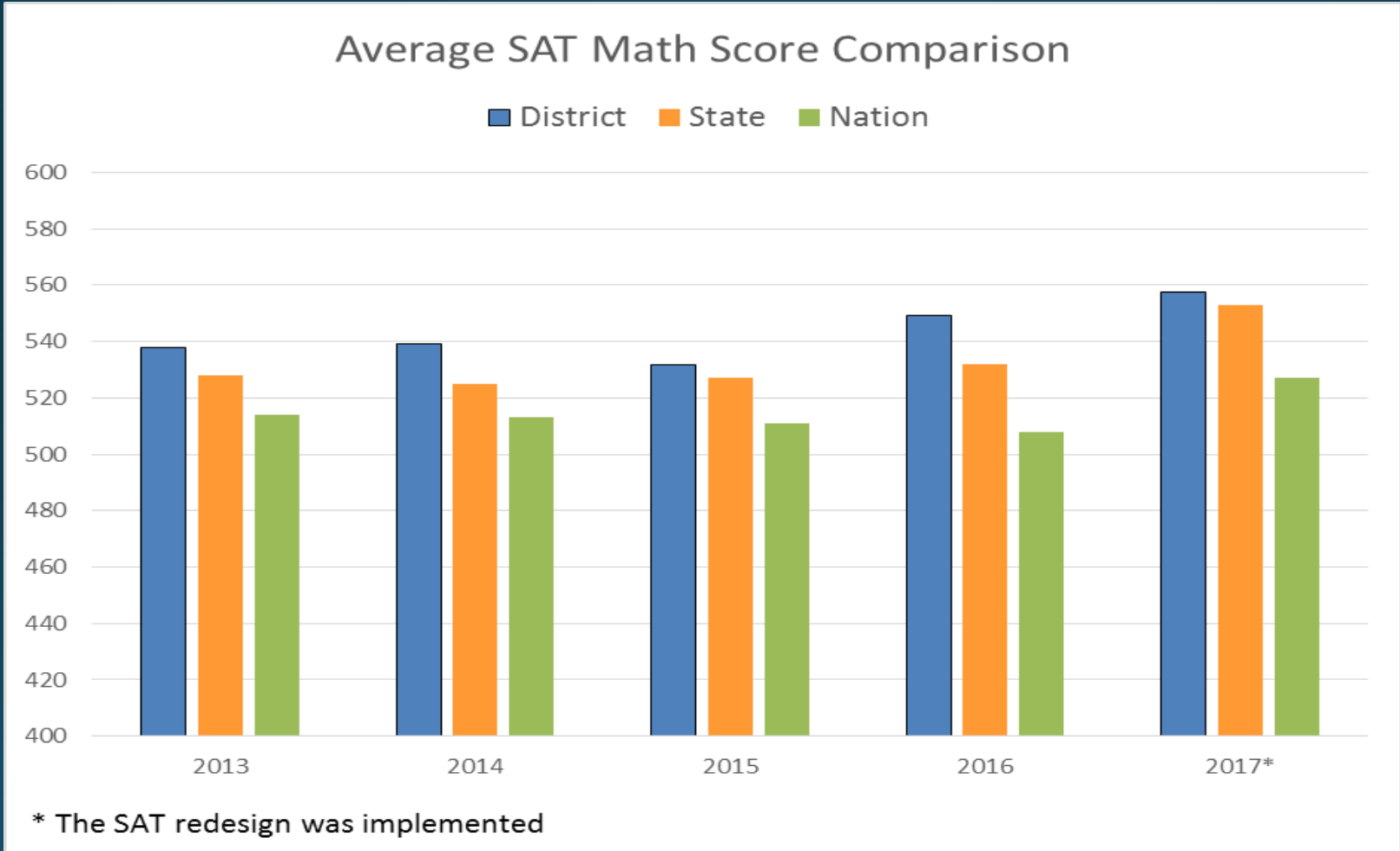
AzMERIT Proficiency Rates: Grades 6-8



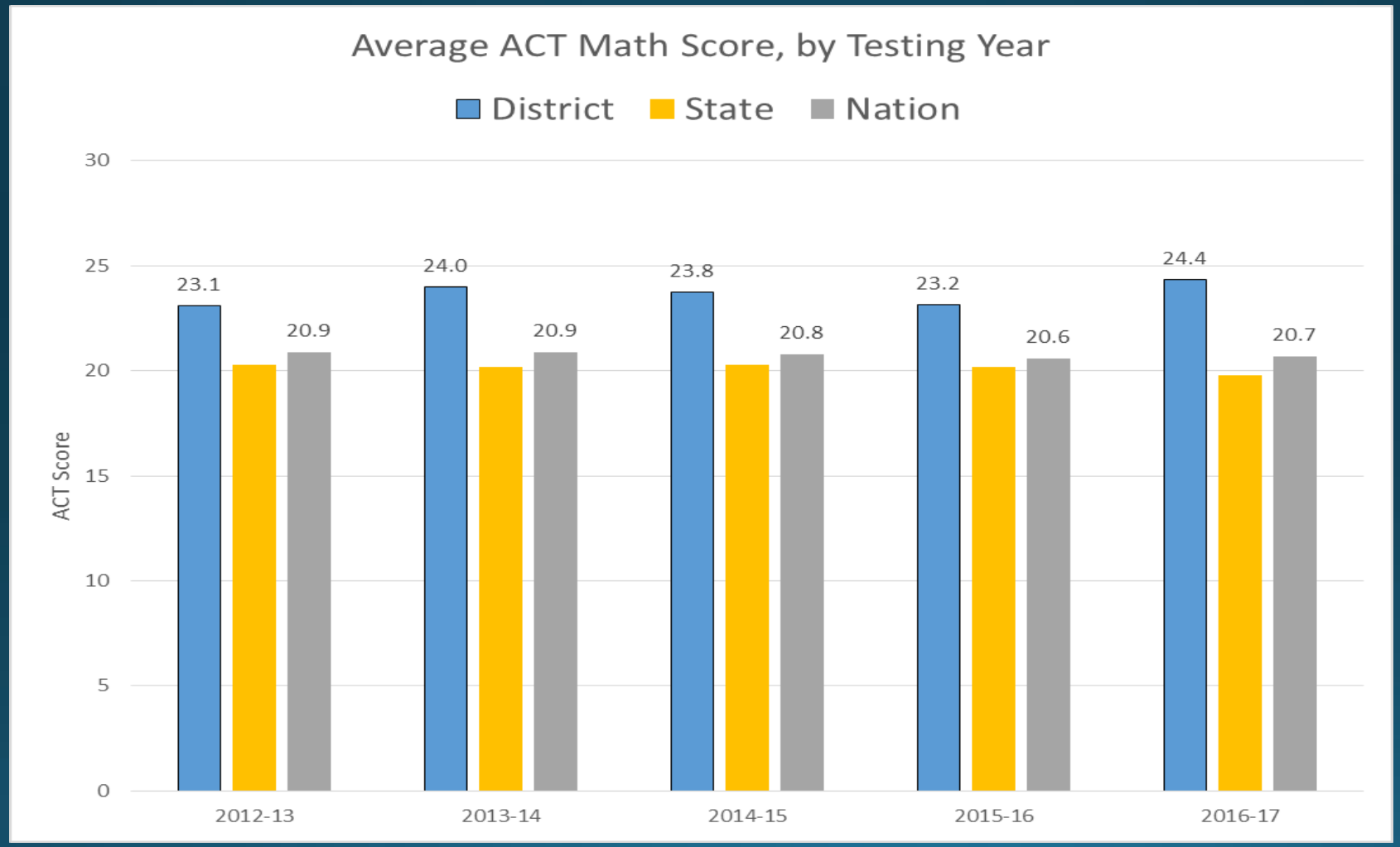
AzMERIT Proficiency Rates: HS



SAT


Average SAT Math Score Comparison
District
State
Nation
600
580
560
540
520
500
480
460
440
420
400
2013
2014
2015
2016
2017*
* The SAT redesign was implemented

ACT


Average ACT Math Score, by Testing Year
District
State
Nation
ACT Score
30
25
20
15
10
5
0
23.1
20.9
24.0
20.9
23.8
20.8
23.2
20.6
24.4
20.7
2012-13
2013-14
2014-15
2015-16
2016-17

Current Core Curriculum Materials

- Elementary: My Math, Grades K-5
- Secondary: Carnegie Math, Grades 6,7,8, Algebra I, Algebra II and Geometry
- Secondary: Holt – Algebra, Geometry, and Algebra II

Professional Development

Use data to drive professional development

- Time for working with new materials
- Learning new strategies/pedagogy
- Focus on content/concepts needed most by our students

Procurement

- Interactive textbooks
- Timeline:
  - November – Teacher Collaboration
  - December- Request for Proposals (RFP)
  - January- Evaluation by Team
  - February – March (60 Day Display Period for Public Review)
  - April – Board Action

Questions?