



Math Achievement

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AIMS Math Achievement Data 2010-2013

% of Students by Grade Passing AIMS Math By Year

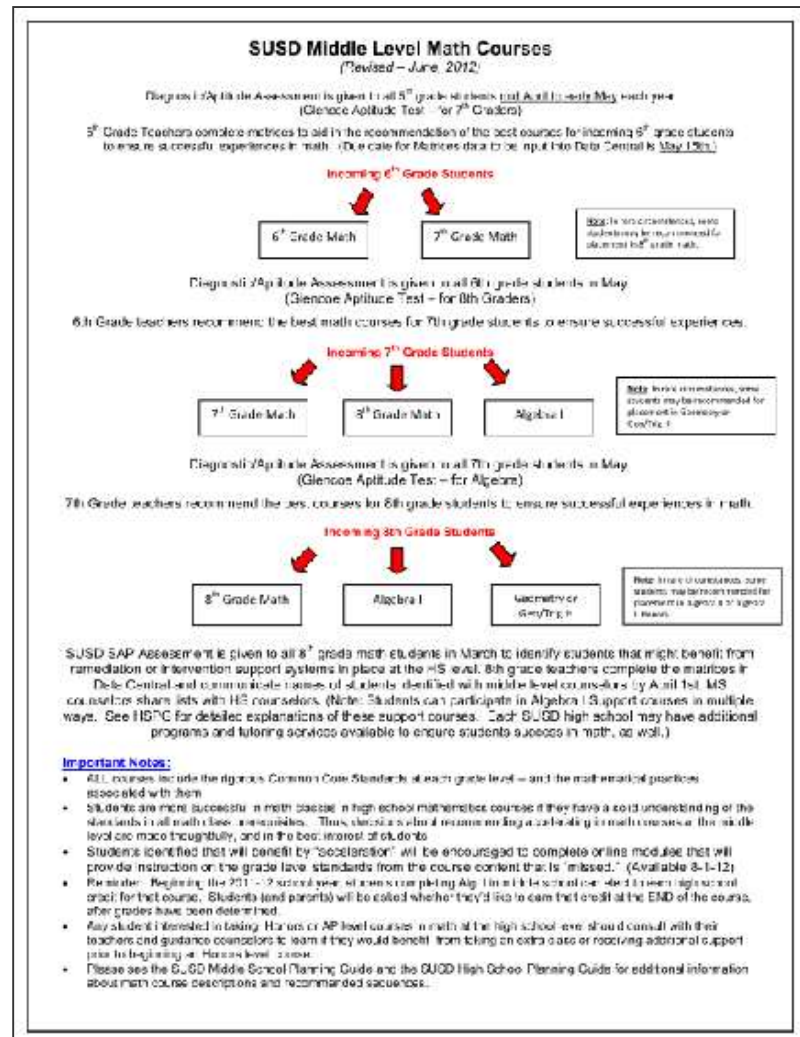
Year	3rd Grade SUSD	3rd Grade AZ	4th Grade SUSD	4th Grade AZ	5th Grade SUSD	5th Grade AZ	6th Grade SUSD	6th Grade AZ	7th Grade SUSD	7th Grade AZ	8th Grade SUSD	8th Grade AZ	10th Grade SUSD	10th Grade AZ
2010	81	64	77	63	77	58	74	56	73	57	76	56	79	58
2011	83	68	84	65	78	63	73	59	74	61	70	54	79	60
2012	82	69	82	67	80	63	73	61	74	62	71	57	79	60
2013	82	69	76	64	77	63	74	63	74	65	68	58	76	62

Ranges in Percent Passing 2013 AIMS Math

Grade Level	Lowest performing school	Highest performing school	SUSD Average
3	57%	95%	82%
4	43%	96%	76%
5	55%	94%	77%
6	42%	93%	74%
7	55%	91%	74%
8	48%	88%	68%
10	43%	87%	76%

SUSD Math Sequence – Middle Level

College and Career Readiness means having the knowledge and skills to enroll and succeed in credit-bearing, first year courses at a postsecondary institution – without the need for remediation.



Math Matrices -- Timeline

Late April (After AIMS)

Grades 5-7 teachers give diagnostic/readiness tests to all students in grades 5, 6 and 7.

May 1 – 15

Grades 5-7 teachers enter students' scores on math test and indicate scores for “work habits” on the electronic matrix in Data Central. (Using “indicators” tip sheet.)

May 15-24

Electronic matrices indicate total “scores” to assist in recommending placement (Missing data will be corrected – score will “default” to the placement test.)

June/July

Letters indicating recommended placement will be generated from District Office

The screenshot shows a document titled "2014 Middle Level Placement in Math and ELA - Timeline and Processes - 2014". It outlines the process for recommending student placement based on AIMS scores. Key points include: AIMS scores are used to recommend placement; scores are entered into Data Central; and placement is recommended based on scores. The document also mentions that scores are used to recommend placement for students in grades 5, 6, and 7.

Timeline	Process
April 15	Grades 5-7 teachers enter scores on math test and indicate scores for “work habits” on the electronic matrix in Data Central.
May 1 - 15	Grades 5-7 teachers enter scores on math test and indicate scores for “work habits” on the electronic matrix in Data Central.
May 15 - 24	Electronic matrices indicate total “scores” to assist in recommending placement.
June/July	Letters indicating recommended placement will be generated from District Office.

Math FAQ – Middle Level



Scottsdale *Unified* School District

SUSD Middle School Math – Grades 6, 7 and 8

Frequently Asked Questions

Student Readiness Indicators and Math Placement at the Middle Level

1. "My student(s) is performing very well at grade level standards. Why is he/she not being recommended to "accelerate" (skip a level) next year if he/she is "exceeding" at current standards and earning "A's" in math this year?"

Research continues to show that students are more successful in all mathematics courses if they have a solid understanding of the standards in all math class prerequisites. Thus, decisions about recommending "acceleration" in math courses at the middle level are made very thoughtfully and in the best interest of students.

Math progresses on two levels. Based on state standards, there is a progression of skills from one grade level to the next, and there is a progression on a conceptual level as well. Students that are performing well at grade level demonstrate a solid foundation of the skills and thinking required of the standards of the course. The next levels of conceptual understanding depend on cognitive maturity. Abstract thought is a function of brain development and maturation, not intelligence. This maturity develops at different times for students throughout adolescence. Asking high performing students to delve deeply into concepts that their brains may not be ready to perform can lead to temporary achievement based on formulaic approaches to problem solving and memorization, but it often does not provide students with the solid foundation that they will need to be successful in higher level and more demanding courses. Using student readiness indicators to properly place students each year ensures that students are cognitively ready for the standards and thinking expected in each course – providing students with a stronger foundation for their future mathematical experiences.

2. "What are the indicators SUSD is using to determine the best math courses for students to ensure success at the middle level?"

A variety of factors are considered when determining placement including: student's scores on an aptitude test to show readiness for acceleration, teacher's evaluation of student's work habits (based on a district rubric), and student's performance on AIMS tests and SUSD benchmarks. Together, these indicators are totaled in a matrix, and combined scores within the matrix are used to recommend the most appropriate math course for each student. The indicators are weighted in the matrix as follows:

Glencoe Aptitude Test Results (No. of Questions Correct) (60%)	Teacher's Evaluation of Student's Work Habits (10%)	Previous Year's AIMS Results (20%)	First Benchmark Results (Current Year) (5%)	Second Benchmark Results (Current Year) (5%)
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Percentages of Students in Grades 6-8 Enrolled in Accelerated Math Classes

Grade Level	% of students in accelerated courses
6	15%
7	39%
8	30%

SUSD High School Math Courses

Algebra II	x	x	x	x	x
Algebra II Honors	x	x	x	x	x
Algebra III with Trigonometry	x	x	x	x	x
Geometry	x	x	x	x	x
Geometry/Trigonometry Honors	x	x	x	x	x
Trigonometry/PreCalculus	x	x	x	x	x
Trigonometry/PreCalculus Honors	x	x	x	x	x
AP Calculus (AB)	x	x	x	x	x
AP Calculus (BC)	x	x		x	x
Integrated Math	x	x	x	x	x
AP Computer Science	x		x	x	x
Business Mathematics	x	x	x	x	x
AP Statistics	x	x	x	x	x
Algebra I Support	x	x			
Essential Algebra I	x	x	x	x	x
Essential Geometry	x	x	x	x	x
Essential Math Skills	x	x	x	x	x
Essential Business Math	x	x		x	x
Essential Algebra II				x	
Essential Math Skills II	x				x
Trigonometry/PreCalculus Dual Enrollment		x			
Calc III /Differ Equa Honors		x		x	
Essential Integrated Math		x			
Functional Math Skills		x		x	x
AIMS Mathematics Standards I					
Essential AIMS Mathematics Standards I/II			x	x	x
IB Mathematics I (HL)				x	
IB Mathematics (SL)				x	
IB Mathematics II (HL)				x	
IB Math Studies (SL)				x	

Highlighted courses indicate those accepted as math credits for SUSD graduation requirements and those recognized by colleges and universities.

SUSD High School Math Courses

Year 1	Year 2	Year 3	Years 4 and 5 <i>Please see HSPG for course pre-requisites and recommended sequences.</i>		Year 6
Algebra I	Geometry	Algebra II	**Algebra III with Trig	***Brief Calculus	Calculus III <i>Prerequisite : AP Calc BC</i>
	+ Geometry-Trig Honors	+ Algebra II Honors	**Algebra III Dual Enrollment	***AP Calculus AB	
Note: Algebra Support course is available in conjunction with Algebra I, as an elective	Note: Geometry Support course is available in conjunction with Geometry, as an elective	*ACCRS Math Mathematics	**Trigonometry/ Pre-Calculus	***AP Calculus BC	
		++Integrated Math (In conjunction with Algebra II)	**Trigonometry/ Pre-Calculus Honors	AP Statistics	
			Trigonometry/ Pre-Calculus Dual Enrollment	*IB Math HL 2	
++Business Math					
**IB Math SL					
**IB Math HL-1					
**IB Math Studies					
**Integrated Mathematics					
*ACCRS Mathematics					
++Foundations of Mathematics					

Root Issues/Greatest Challenges

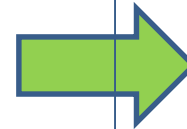
Example: Identified by SUSD Teachers



Checking In...

January Early Release –
Middle Level Teachers

What is your greatest
challenge in teaching
math?



Middle Level Math Teachers January District Early Release, 2014 – Reflection/Feedback	
checking in... 	Middle School Math: What TAD might be missing? OR What revision of standards do you recommend?
What do you notice? Video Clip 1:	What difference did you note between Anne and Carol's discussion and speaking angle?
Video Clip 2:	What did you like?
Video Clip 3:	What do you do differently... or better? 



Challenge/Issue...

Tendency in US is to spoon-feed our students by telling them exactly how to solve a certain type of problem and then asking them to practice solving problems.

Very recently, more and more teachers in the US are guiding students' learning... seeing the value of letting students struggle a bit to determine how to solve a problem before helping them find the best OR most efficient approacheses to the problem.

As a result – students in these classrooms have more opportunities to make meaning with math and work collaboratively to solve problems...

Challenge/Issue...



From ASU: When working with new teachers we continue to observe that many initially have difficulty shifting to view teaching as being about engaging students in meaning making that leads to their developing understandings and expert mathematical practices -- in contrast to their current view of teaching as being about making learning easy by helping students learn to work specific problem types.

Challenge/Issue...



Nationally:

Low-level tracking and endless remediation are sentencing some students to fall even further behind

Intervention programs that provide extra time and support before students fall too far behind are recommended.

Proposed Solutions

**From NCTM, Third International Math and Science Study, and Partnerships
with ASU and SCC AMP Project**

- Improve mathematics experiences for ALL students – structure learning opportunities around *the student* by using inquiry based teaching to promote thinking and meaning making in math.
- “Raise the floor AND the ceiling” -- Believe in every student. Help all students achieve high levels of mathematics.
- Commit to ending low level tracking, endless remediation, and other practices that sentence some students to fall even further behind.
- Use solid processes for recommending students for acceleration in math.
- Nurture, support and invest in teachers at every stage of their careers -- Providing PD practices and programs that strengthen math knowledge and teaching skills of all teachers.
- Provide more time and PD for teachers to learn about high quality instructional materials available to them that support the mathematical practices in the ACCRS.
- Expand accountability measures to include assessments that address mathematical thinking, reasoning, and problem solving as well as course content.

Recommendations/Opportunities

Continue to:

- Analyze resource allocation for mathematics (staffing, instructional time, instructional materials, etc.)
- Revisit curriculum maps to analyze pacing and vertical articulation (K-12)
- Focus on first best instruction-access to grade level/course content
- Evaluate the effectiveness of interventions – replicate successes.
- Consider additional alternative measures for holding students accountable for their middle school performance -- Saturday school, summer school, tutoring
- Refine use of data through benchmarks and Data Central to identify strengths and challenges (specific and focused support). One size does not fit all.
- Provide additional training and support for teachers and administrators in the instructional shifts associated with new math standards and college readiness
- Increase education about the math placement process for parents, students, and staff.
- Recognize and capitalize on the expertise of our teachers and principals.

The background features a large, stylized graphic. On the left, there are several yellow, jagged, triangular shapes pointing upwards and to the right, resembling a sunburst or a stylized 'W'. To the right of these, there are several blue, rounded, vertical shapes that look like stylized fingers or a hand reaching upwards. The entire graphic is set against a white background with a large, curved, light blue shape on the right side.

Discussion