

OUSD Mathematics Instruction

Building A Coherent Strategy for Bridging the Achievement Gap



“. . . a laser-like focus on teaching and learning in the classroom—not just on what we do but how we do it.”

*Pedro Noguera, Steinhardt School of Education, NYU 2003
Pathways for Student Success Research Project*

OUSD Secondary Mathematics Instruction

- **High Schools**

Using CAHSEE as a catalyst to promote and work toward equity and high quality teaching and learning to drive student achievement

- **Middle Schools**

Identifying need to deepen academic interventions; invest in mathematics as we have in literacy

- **Middle School Math Program for 2005-2006**

Demanding rigor coupled with high expectations and strong supports, based on models that have significantly improved student performance in urban schools and with at-risk students

- **Next Year and Beyond**

Building capacity at elementary schools and taking action needed to ensure sustainable improvement at all grade levels (instructional leadership and a high quality teacher in every classroom)

What might next year's 9th grade class look like and what are the implications?

- More than 2000 scored BB (2+ years below grade level) or FBB (3+ years below grade level) on their Mathematics CST in the 7th grade with another 800 at BASIC (1+ year below grade level)

Math CST Performance 7th Graders SPRING '04		
Total Enrollment	3483	
Total Tested	3362	
Participation Rate	96.5%	
Mean Scaled Score	299.7	
CST Ranking	# Students	% Students
Advanced	134	4%
Proficient	370	11%
Basic	807	24%
BB	1278	38%
FBB	740	22%
Not Tested	121	NA

- ED of high schools has asked that academic interventions begin immediately at middle schools to support student mastery of basic math skills before they enter high school (*multiplication tables, operations with whole numbers, fractions, decimals, and percents*)
- Mathematics instructional reform begun in high schools to continue--and the same is needed in middle and elementary schools

California High School Exit Exam Mathematics Grade 6, 7, Algebra 1 Standards

The CAHSEE pass rate and average scale score for 10th graders have significantly increased over the past three years.

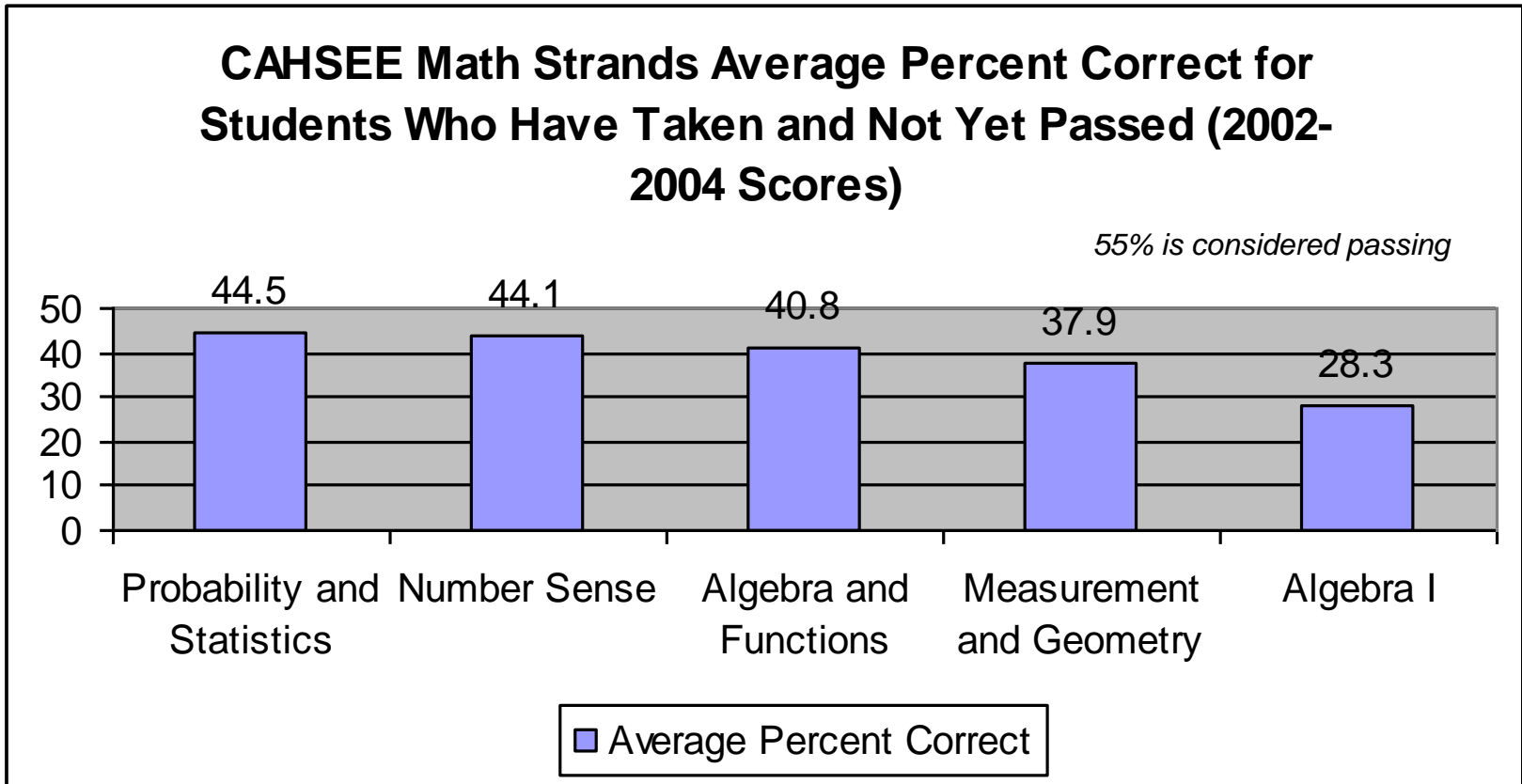
CAHSEE Math – 10 th Grade Performance	01-02 Tenth Graders	02-03 Tenth Graders	03-04 Tenth Graders
# Students Tested	1561	2758	2612
Percent Passed	18%	37%	52%
Average Scale Score	328	344	356

Including the results of the November 2004 re-testing of our 03-04 Tenth Graders, **63% of current 11th grade students have now passed CAHSEE math.** This group of students—our graduating class of 2006—will be the first for which passing the CAHSEE is a graduation requirement.

California High School Exit Exam Spring 2004

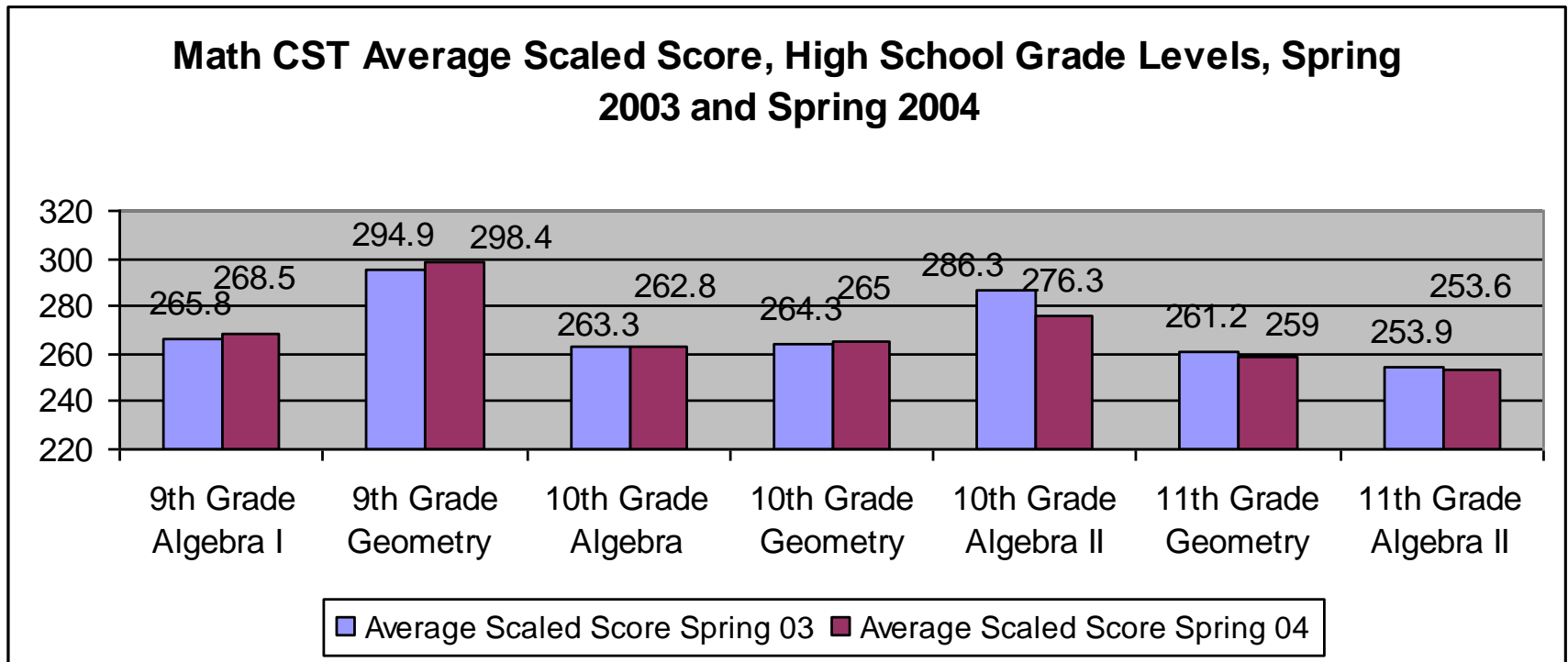
Mathematics Grade 6, 7 , Algebra 1 Standards

For students who have taken and not yet passed CAHSEE Math, the weakness in Number Sense, which includes basic math and pre-algebraic skills, is the primary cause of poor achievement in other math strands.



High School Math CST Scores Spring 2002-2004

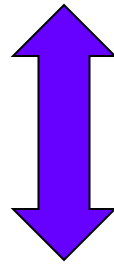
How has this weakness in Number Sense manifested itself in higher level courses?



300 is minimum Basic, 350 minimum Proficient (at standard).

What the High School Network is doing to promote student success on CAHSEE Math

Student Learning Needs



Student Data

Site CAHSEE Plans

Best CAHSEE Resources

Professional Development

Evaluate Results and Modify Plans

OUSD High School Students Moving with Math & Conquering the CAHSEE!

CAHSEE as a catalyst to promote and work toward equity and high quality teaching and learning for all students in the OUSD



Our Vision:

Mathematics instruction in our high schools will meet the diverse learning needs of our students, significantly bridge their achievement gaps in mathematics, and provide them access to and tools for proficiency in higher level math coursework

STUDENT DATA

Developing tools to help Principals and teachers analyze student data and target academic interventions to meet needs of their student populations

CAHSEE Math Scores, COHORT 2006

School Name

Teacher: , Inter Alg period 4

2/20/2005

Strands:
Percent Correct, Most Recent

STUDENTS	Grade	Ethnicity	Gender	CELDT Overall 03-04	Attendance 2003-2004	CST Math Spring 2003	CST Math Spring 2004	Math GPA 2003-2004	2003-2004 Math Course	CAHSEE Math Scale Score	Math Passed	Probability & Statistics	Number Sense	Algebra & Functions	Measurement & Geometry	Algebra 1	INTERVENTION NOTES
	11	AfrAm	F		36.6	BB			Geometry	318	N	38	35	15	50	25	
	11	AfrAm	F		65.2		BB	1.0	Geometry	312	N	23	24	40	28	25	
	11	AfrAm	F		83.3	FBB	FBB	0.0	Intermediate Algebra	382	P	62	71	75	78	83	
	11	AfrAm	F		94.2	FBB		4.0	Geometry	326	N	38	47	40	33	25	
	11	AfrAm	F		91.1	BB	FBB	2.0	Geometry	348	N	38	41	70	61	42	
	11	Latino	F		87.4		BB	1.0	Geometry	373	P	77	76	65	67	58	
	11	AfrAm	F		64.6	BB	FBB	2.0	Geometry	350	P	77	59	45	44	50	
	11	Latino	F		90.1		FBB	2.0	Geometry	343	N	46	53	60	56	17	
	11	AfrAm	F		90.5	FBB	BB	2.0	Geometry	324	N	46	47	30	44	8	
	11	AfrAm	F		59.8	FBB		0.0	Geometry	343	N	31	65	50	39	58	
	11	AfrAm	M		87.4		FBB	1.0	Geometry	367	P	92	59	65	78	25	
	11	AfrAm	F		85.5		BB	0.0	Geometry	335	N	62	59	35	39	25	
	11	AfrAm	M		98.5	FBB	BB	2.0	Geometry	361	P	92	53	55	50	67	
	11	AfrAm	F		86.7	BB		2.0	Geometry	335	N	62	53	55	28	17	

Summary for Teacher Name, Inter Alg Period 4

Average Math Scale Score Average Percent Correct, Math Strands:

n = 14	# Passed: 5	# Tested/Not Passed: 9	# ALL Not Tested:	344.1	56.0	53.0	50.0	49.6	37.5
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CAHSEE PLANS

Guiding site development of CAHSEE intervention plans to ensure highest possible pass rate for 11th Graders (Cohort 2006) followed by 10th graders (Cohort 2007)

CAHSEE STUDENT INTERVENTION PLAN: Fall 2004						
School Site: EOSA			Date Submitted: September 22, 2004			
Number of 11th Graders that need to pass CAHSEE: 100			Number in Supplemental Programs: 100			
Number of 11th Graders Levels 1-3: 70			Number in Supplemental Programs: 70			
Name/Type of Intervention	Brief Description:	# of Students Participating	Staff in Charge (and contact information)	Intervention Schedule	Prof Development Plan	How will Student Progress/Success be Measured during the Intervention?
Daily warm activities in all math classes to support all 11th graders that need to pass CAHSEE	Warm-up curriculum will be adjusted for the different levels of math. Part of this activity will be test-taking strategies and CAHSEE awareness.	100	All math teachers	In regular schedule	Teachers will participate in CAHSEE Planning PD on Moving with Math curriculum; and attend District Mini-Conferences on CAHSEE strands and scaffolding as needed.	Students will maintain a journal of all warm-up activities and be required to demonstrate mastery of the CAHSEE strands. Teacher will assess students on their level of mastery on the standards covered and provide timely feedback.
CAHSEE Prep during Int. and Advanced Algebra	Moving with Math curriculum for scaffolding CAHSEE standards into core instruction.	48 (included in 100 shown above)	Ms. Battle	In regular schedule	Same as Moving with Math shown above.	Students will be required to complete specific and be required to demonstrate mastery of the CAHSEE strands. Teacher will assess students on their knowledge of the standards covered and provide timely feedback.
After-school interventions for any 11th grader, priority will go to Level 1 Students	Six week course; 28 hours of instruction; class size ideal is 12 to 15 students	22 (included in 100 shown above)	To be determined	To be determined	Same as Moving with Math shown above.	Students will meet course benchmarks and be required to demonstrate mastery of the CAHSEE strands. Teachers will maintain accurate attendance records and will inform parents/guardians and administrator of poor attendance
CAHSEE Prep in all core math classes--to prepare 10th graders for the Feb. 2005 CAHSEE and 9th graders 2005-2006 school year	Moving with Math curriculum to support scaffolding CAHSEE standards into core instruction. Every teacher will have a class set of MwM.	ALL 10th and 9th grade students	All math teachers	In regular schedule.	Teachers will participate in CAHSEE Planning PD on Moving with Math curriculum; and attend District Mini-Conferences on CAHSEE strands and scaffolding as needed.	Students will maintain a journal of all warm-up activities and be required to demonstrate mastery of the CAHSEE strands. Teacher will assess students on their level of mastery on the standards covered and provide timely feedback.

RESOURCES, PD, and COACHING

Providing access to resources, teacher training, and site-based coaching to accelerate student mastery of CAHSEE standards as planned.



- District-wide CAHSEE Planning Sessions provide professional development on intervention curriculum, *Moving with Math – Conquering the CAHSEE*, and on student-centered instruction.
- Coaching of site Professional Learning Communities on use of student data to assess and target instruction for meeting student learning needs.
- Providing access to excellent intervention materials and supporting their use for accelerating mastery of CAHSEE standards for students of varying skill levels
 - Past CAHSEE questions on overhead transparencies for targeted daily reviews
 - Math manipulatives to deepen student understanding of math concepts
 - *Princeton Review : Roadmap to CAHSEE* for students *near* mastery of CAHSEE standards
- Supported “pilots” of Algebra “support classes” using *Moving with Math – Conquering the CAHSEE* as primary curriculum.

An Example:
JAMES LICK HIGH SCHOOL

**SAIT SCHOOL – Moved from Lowest Performing to Highest Performing (in Gains)
East Side Union High School District 2001-2004**

What Did They Do?

- Eliminated “Algebra 1 for all 9th graders” policy
- Students follow an Algebra plus “math support” path based on “grade level mastery”
- Grade level mastery informed by NWEA assessments
- Students may accelerate mastery and change paths (“no tracking”)

- *Prentice Hall* for Algebra instruction
- *Moving with Math – Conquering the CAHSEE* for math support

- Full time math coach
- Common lesson plans; all teachers on same page at same time
- Struggling students assigned to a Summer Intensive to build “numeracy” skills

**James Lick High School:
Instructional/Support Paths based on Grade Level Mastery**

# Students (Total = 250)	Path/Grade Level Mastery	Math Courses
20	“Advanced” Above Grade Level	Geometry
45	“Benchmark” At Grade Level	Algebra 1
90	“Strategic” 1-2 Grade Levels Below	Algebra 1 and 1-year Math Support
95	“Intensive” > 2 Grade Levels Below	Algebra A-B and 2-year Math Support <u>or</u> Algebra A + Math Support followed by Algebra B Summer

SUMMARY

What the HSN has been doing about needs of struggling math students

- Targeting instructional leadership by Principals
- Ensuring teacher professional learning communities work on understanding learning needs of students below grade level and collaborate on solutions
- Supporting data inquiry to identify individual student learning needs and plan instruction to accelerate learning
- Scaffolding CAHSEE standards into core math instruction
- Supporting the use of math manipulatives to deepen student understanding of math concepts
- Targeting after school interventions targeted to specific student learning needs (Number Sense, Probability, etc.)
- Working with individual teachers to pilot standards-based interventions in Algebra support classes
- Communicating to students, parents, and community about CAHSEE to foster engagement

What the HSN has learned about needs of struggling math students

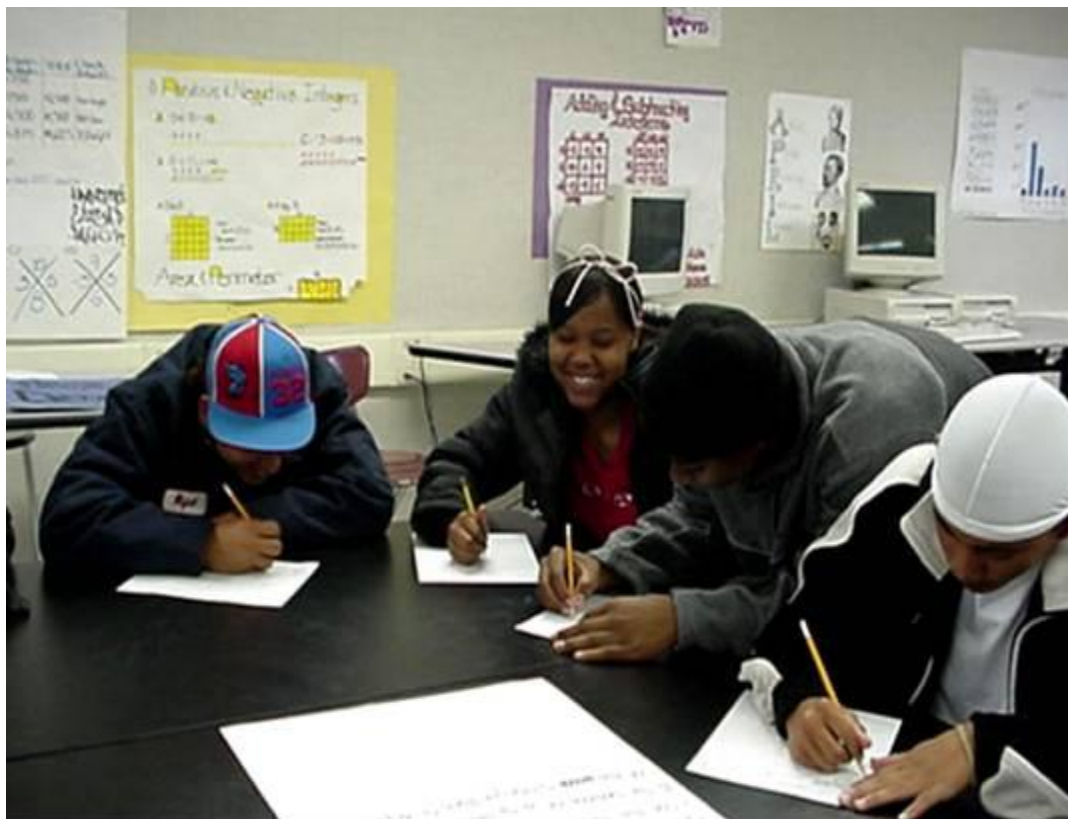
*(From our experience and from research of The Education Trust**)*

- **Qualified math teacher in every classroom**
- Laser-like focus on standards
- Students must know basic math concepts
- Small class size (20:1)
- Two periods of math for standards-based acceleration
- Use of manipulatives to support learning of math concepts
- Targeted, year-long professional development for teachers
- Parent involvement

****DISPELLING THE MYTH – The Education Trust**
“What do highest performing urban schools do well?”

Our Vision Revisited:

Mathematics instruction in our high schools will meet the diverse learning needs of our students, significantly bridge their achievement gaps in mathematics, and provide them access to and tools for proficiency in higher level math coursework.



In today's world, economic access and full citizenship depend crucially on math and science literacy.

- Robert Moses, 2001