A highly-effective and coherent math model with alignment in standards, curriculum, assessments, professional development and accountability measures.

# Swun Math Pilot School 

"Edison Elementary"

| Subgroups | Edison <br> Elementary |
| :---: | :---: |
| African American | $10 \%$ |
| Latino | $87 \%$ |
| Other | $3 \%$ |
| Low SES | $100 \%$ |

## Edison Elementary

\%Proficient and Advanced Proficient on the California Standards Test


## Long Beach Unified School District CST Math 2007-2008

Percent of School Proficient and Advanced Proficient in Math


Franklin MS Hamilton MS

## West Contra Costa Unified School District

 CST Math 2006-2008Percent of School Proficient and
Advanced Proficient in Math


## Oakland Unified School District CST Math 2006-2008

Percent of School Proficient and Advanced Proficient in Math


## What is Swun Math?

## Content Standards Instruction (1-hour per

 day)- Innovative Lesson Delivery and Structure (Swun-Math Lesson Design)
- Mastery of Content
- Alignment of Instructional Strategies

Basic Facts Instruction "Beyond the Basic Facts" (30 minutes a day)

- Focuses on Automaticity (Memorization)
- Accuracy
- Computational Skills


## Swun Math Basic Facts Instruction "Beyond the Basic Facts"

- ABC's of Math
- Taught using the commutative property for addition and multiplication
- 2-3 Facts introduced per day

$$
\begin{aligned}
& 6 \times 7=42 \\
& 7 \times 6=42
\end{aligned}
$$

- Lays down the foundation for Algebra


## "Beyond the Basic Facts" Multiplication Diagonal

| 2x2=4 | $3 \times 2=6$ | $4 \times 2=$ | $5 \times$ | $6 \times$ | $7 \times$ | $8 \times$ | $9 \times 2=18$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2x3=6 | $3 \times 3=9$ | $4 \times$ | $5 \times 3$ | $6 \times 3=$ | $7 \times 3=21$ | $8 \times 3=24$ | $9 \times 3=27$ |
| 2x4=8 | $3 \times 4=12$ | $4 \times 4=16$ | $5 \times 4=20$ | $6 \times 4=24$ | $7 \times 4=28$ | $8 \times 4=32$ | 6 |
| $2 \times 5=10$ | $3 \times 5=15$ | $4 \times 5=20$ | $5 \times 5=25$ | $6 \times 5=30$ | $7 \times 5=3$ | $8 \times 5=40$ |  |
| 6=12 | $3 \times 6=18$ | $4 \times 6=24$ | 5x6=30 | $6 \times 6=36$ | $7 \times 6=4$ | $8 \times 6=48$ | 9x6=54 |
| $2 \times 7=14$ | $3 \times 7=21$ | $4 \times 7=28$ | $5 \times 7=35$ | $6 \times 7=42$ | $7 \times 7=49$ | $8 \times 7=56$ |  |
| =16 | $3 \times 8=2$ | $4 \times 8=32$ | $5 \times 8=40$ | $6 \times 8=$ | $7 \times 8=56$ | $8 \times 8=64$ |  |
| $2 \times 9=18$ | $3 \times 9=27$ | $4 \times 9=3$ | $5 \times 9=$ | $6 \times 9=$ | $7 \times 9=63$ | $8 \times 9$ | 9x9=8 |

## Swun Math Lesson Design

Swun Math Lesson Design

| Approximate Time | Component | Example (student journal) |  |
| :---: | :---: | :---: | :---: |
| 8 min | Problem of the Day <br> 1st $^{\text {st }}$ Trimester: Word Problems <br> $2^{\text {nd }} / 3^{\text {rd }}$ Trimester: Problem of the Day based on classroom data analysis <br> - Teacher models the first problem, thinking aloud step-by-step <br> - Student then solves a second parallel problem independently. <br> - Teacher calls on students to share out answers. | Teacher | Student |
| 3 min | Lesson Opener: <br> Students write the following in their journals (optional for grade 2): <br> - Title (lesson content). <br> - Student friendly objective. <br> - Vocabulary: Use math examples when possible. | Adding 2-Digit Numbers <br> Objective: I will add 2-digit numbers with regrouping. <br> Vocab: $5+4=9 \leftarrow \text { sum }$ |  |
|  | Input/Model <br> - Teacher models two problems, thinking aloud step-by-step. <br> - Students watch and listen only. | Ex \#1 Input/ | Ex \#2 <br> del is not written in student journals |
| 15 min | Structured Guided Practice <br> - Teacher and students work out two problems together. <br> - Teacher uses active participation strategies to call on students for each step while students write in their journals. <br> Check for understanding <br> - Teacher gives one problem for students to work on independently on their whiteboards. Teacher uses this opportunity to see if students are ready to move on to S.P. | $\frac{\text { S.G.P. }}{1 .}$ <br> Cbeck for <br> 3. | 2. <br> standing: |
| 17 min | Student Practice <br> - Teacher assigns six problems and two challenge problems to the class. Teacher can use this time to pull students for small group instruction. <br> - Students work on problems independently, but may ask their table for help. Reaching a Consensus <br> - Student leader reads off answers to S.P. while table agrees/disagrees on answers. | $\begin{array}{\|l\|} \hline \text { S.P. } \\ \text { 1. } \\ \text { 4. } \\ \text { Challenge } \\ \hline 7 . \\ \hline \end{array}$ | 2. 3. <br> 5. 6. <br> 8.  |
| 15 min | Presentation <br> - Teacher randomly calls on one student per table to present one of the six problems. <br> - Student explains the problem step by step to class. |  |  |
| 1 min | Closure <br> - Teacher elicits student responses on what their objective was for the day. <br> - Students may share aloud or write it in their journal. | "Tell your neighbor one thing you learned today." "Share with the class one thing you learned today." |  |
| 1 min | Preview <br> - Teacher models a problem from the next day's lesson without explanation. <br> - Students watch only. | $627-249=$ |  |

- Continuously spiral content to ensure mastery of all content standards
- Goal is to create a community of learners in the classroom
- Depth and complexity is attained during reaching consensus and presentation


# Instructional Strategies 

## Let's Round Numbers!

Manhattan Beach Lifeguards reported to the Press Telegram that there were 2,857 people at the beach on Sunday. Round this to the nearest $\qquad$
(1) Underline the word that comes after "nearest".
(2) Underline the digit in the indicated place.

3 Circlethe digit to the right of the underlined place.
(4) If the circled digit is 5 or greater, add one to the underlined place and change all digits to the right to zeros. (1)
5 If the circled digit is 4 or less, keep the underlined place and change all digits to the right to zeros.

- Instructional Strategies stay consistent from grade level to grade level
- Instructional strategies are student friendly.


# Swun M Oakland Unified School District 2008-2009 

Important Notes:

- Beyond the Basic Facts- Memorization of the math facts and the application of these facts will be practiced everyday to facilitate mastery of units 1,3 and 6 . You will need to spend time modeling addition and subtraction with regrouping, during your 1-hour content lesson, to complete the "Application portion" of Beyond the Basic Facts.

Aug. 27 - Aug. 28

Aug. 29 - Mar. 7

Aug. 29 - Sept. 28
Instructional Days: 22
Approx. days per lesson: 2.2
CA Standards: NS 1.0 Tens/Hundreds-pgs.45-46, 307-308
CA Standards: NS1.0 Tens and Ones/Hundred, Tens, Ones-pgs. 47-48, 309-310
CA Standards: NS 1.0 Understand Place Value-pgs. 49-50, 311-312
CA Standards: NS 1.1 Read and Write Numbers-pgs. 51-52, 313-314
CA Standards: NS 1.0, MR 2.1 100 Less, 100 More-pgs. 321-322
CA Standards: NS 1.3 Compare Numbers: >, <, or = -pgs. 61-62, 323-324
CA Standards: NS 1.0 Order Number: Before, After, Between-pgs. 63-64, 325-32
CA Standards: NS 1.0 Order Numbers on a Number Line-pgs. 327-328
CA Standards: MR 1.2 MR 3.0 Even and Odd-pgs. 65-66
CA Standards: MR 3.0 Skip-Count-pgs. 67-68
Oct. 1 - Oct. 26

## Addition

Addition is integrated throughout this section. (Beyond the Basic Facts)
Instructional Days: 20
Approx. days per lesson: 2.9
CA Standards: AF 1.1 Add 3 Numbers-pgs.11-12
CA Standards: NS 2.1 Missing Numbers-pgs. 35-36
CA Standards: AF 1.0 Problem Solving-pgs. 39-40
CA Standards: NS 2.2 Add 2-Digit Numbers-pgs. 171-172
CA Standards: NS 2.2 Rewrite 2-Digit Addition 175-176
CA Standards: NS 2.2 Add 3-Digit Numbers-pgs. 373-374
CA Standards: NS 5.1 Add Money-pgs. 377-378

- Order of the textbook lessons are changed to ensure mastery of content
- Natural progression of learning for students
- Specific to California Content Standards
- Paced so that all content is taught two weeks prior to the CST


## Swun Math Assessment Tools Accountability for Students

- Facts Component
- Pre/Post diagnostic assessments
- Application Assessments
- Math Facts Assessment
- 1-Hour Content Component
- Trimester pre-post exams (item analysis grid/test specs)
- Unit Assessments (grade level specific)


## Swun Math Monthly Support

- Comprehensive Trimester Trainings (3)
- Lesson Design
- Beyond the Basic Facts
- Instructional Strategies
- Blueprint Training
- Monthly On-site Support
- Monthly Demo Lessons
- Team Teaching
- Grade Level/ Staff Meetings
- Principal/Administrative Support


# Swun Math Team 

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