


Third Grade Math-Scope and Sequence 2009-10 Including Sample Ideas and Strategies

TPS-TAKS Problem Solving
 TTP-TAKS Test Prep
 GP- Guided Practice
 DYU-Do You Understand

Projected Timeline	Topic	TEKS	Concrete	Pictorial	Abstract	Language, Process & Generalizations	Comments																																				
First Semester	Addition/ Subtraction Facts	2.3a. Recall and apply basic addition and subtraction facts.	Make a plan that will increase the facts to learn each week; i.e., first week-counting on by 1, second week-counting on by 2; third week-doubles, etc.	Practice facts orally using a hundreds chart to help kinesthetic learners.	Using a set of 20 or so facts, get students to practice orally each day and written at least once a week.	Practice orally each day saying the facts aloud.	Chart paper progress on a graph weekly.																																				
Aug. 24- Sept. 3 See next table	<p>(9 Hours) Representing, Comparing, Ordering, Rounding Numbers See Teacher Notes</p> <p>Representing (Whole no. to 999,999) Assessment Examples</p> <p>Comparing and Ordering (Whole numbers through 9,999) Assessment Examples</p>	<p>3.1a. Use place value to read, write (in symbols and words), and describe the value of whole numbers through 999,999.</p> <p><i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i></p> <p>3.1b. Use place value to compare and order whole numbers through 9,999.</p> <p><i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i></p>	<p>From worded problems use base-ten blocks to represent numbers.</p> <p>Connect the model of the number to a place value chart.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>HT</td><td>TT</td><td>T</td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td></td><td>2</td><td>1</td><td>4</td><td>3</td></tr> </table> <p>Use objects (counters and base-ten blocks to model the comparisons.</p>	HT	TT	T	H	T	O			2	1	4	3	<p>From worded problems, draw pictures of the base-ten blocks (students can trace) that represent the numbers.</p> <p>Connect the model of the number to a place value chart.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>T</td><td>H</td><td>T</td><td>O</td></tr> <tr><td>2</td><td>1</td><td>4</td><td>3</td></tr> </table> <p>From worded problems, students should draw pictures of numbers, write the place value, use > or < to order.</p>	T	H	T	O	2	1	4	3	<p>Using the concrete or pictorial of the base-ten blocks, students should represent the number in place value (3 hundreds, 0 tens, 5 ones), words (three hundred five), and expanded form (300 + 5). Show students pattern in zeros in expanded notation.</p> <p>Students work in pairs, draw 4 cards, and each tries to build the largest number. From worded problems, students should write the numbers in a table to compare and order.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>T</td><td>H</td><td>T</td><td>O</td></tr> <tr><td>3</td><td>2</td><td>0</td><td>5</td></tr> <tr><td>3</td><td>2</td><td>8</td><td>7</td></tr> <tr><td></td><td>8</td><td>8</td><td>6</td></tr> </table> <p>TPS, p. 7 #18-21 TTP, p. 22-33, #2, 4-9, 13</p>	T	H	T	O	3	2	0	5	3	2	8	7		8	8	6	<p>Using the pictures of the numbers, students should describe why the place is called thousands, hundreds, tens, and ones. DYU, p. 4, #5, 7 Vocabulary includes hundred-thousands, ten-thousands, thousands, hundreds, tens, ones, place value, expanded form.</p> <p>Students should describe how they determined the larger number (...the hundreds place values are the same, the 5 in the tens place is greater than the 4 in the tens place.) Vocabulary includes greater than, less than, largest, smallest, greatest, fewest, least, between. DYU, p. 11, #5,-6 DYU, p. 14, #5-6 TPS, p. 12, #21-25</p>	<p>It is important that students see concrete, pictorial and abstract (place value) side by side.</p> <p>Examples should also be used of the thousands cube. Show students repeating pattern of hundred, tens, ones. Practice writing in expanded form.</p> <p>See strategy.</p>
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	Rounding See Teacher Notes.	3.5a. Round whole numbers to the nearest ten or hundred to approximate reasonable results in problem situations <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	With a classroom number line which represents a range of numbers (20 to 55), use students to locate a specific number (37 or 32, etc.) and determine if the number is closer in distance to 30 or 40. The process should be repeated with a floor number line numbered in 10's for a range (30 to 130).	On sentence strips with number lines, students should practice locating a number on the number line and determine the rounded number.	After the number is located on the number line, the student should write the range for a number (37 is between 30 and 40 or 276 is between 200 and 300 or between 270 and 280. TPS, p. 38, #38-44 TPS, p. 42, #28-35 TTP, p. 46, #1, 3, 6, 8, 11, 13	Enough examples should be completed so that students can generalize that two-digit numbers ending in 1, 2, 3, or 4 is closer to the lower number and numbers ending in 6, 7, 8 and 9 are closer to the higher number. After students are able to generalize, the rule of 5 should be given. DYU, p. 37, #13-5 TPS, p. 38-39	The concrete activity can be done in many ways including masking tape and index cards or outside with sidewalk chalk. If stories like "going next door.." are used, students should be able to explain the "math" of going next door
Sept. 4	Quiz: Place Value, Comparing, Ordering, Rounding						
Sept. 8	Re-teach topics determined from quiz results						
Sept 9 – 10	Math Diagnostic Test						
Sept. 11 – Sept. 23	(9 Hours) Addition and Subtraction Process Please Note: Only Process Answers See Teacher Notes. Assessment Examples	3.3a. Model addition and subtraction using pictures, words, and numbers. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	Use real-life situations with objects, action words, and number sentences to ensure understanding of addition and subtraction.	Use real-life situation with pictures of objects, action words, and number sentences to ensure understanding of addition and subtraction. Use model drawing to help students comprehend the language.	Use real-life situation with pictures of objects, action words and number sentences to ensure understanding of addition and subtraction. Students should write MULTIPLE number sentences and process words to connect to the picture.	Students should describe that the model drawing shows "putting together," "taking away," "comparing", and "finding missing part." Vocabulary includes sum, difference, addend, add, subtract, minus, compare, take away, missing part, join, number sentence. DYU, p. 57, #4	Avoid using "altogether" and "in all" to mean addition. Emphasis is completing the model drawing and determining a number sentence that would help find the "?". These problems do not have number answers. Focus should be on worded problems with extra information or include more than one action. See strategy.





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Sept. 24 – Oct. 2	(3 Hours) Addition, Subtraction Algorithm See Teacher Notes.	3.3a. Model addition and subtraction using pictures, words, and numbers.	From real-life situation or worded problem, use base-ten blocks and virtual manipulatives to model addition and subtraction algorithm.	From worded problems, use pictures of base-ten blocks to model addition and subtraction algorithm.		Students should be able to describe why regrouping is done or not done. Additional vocabulary includes regroup, trade.	Includes borrowing across zeros. Problems should include 2 and 3 digit numbers. See strategy. 
	(4 Hours) Addition, Subtraction, Estimation Assessment Examples	3.3b. Select addition or subtraction and use the operation to solve problems involving whole numbers through 999. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>		From worded problems, students draw a picture to determine the action.	From worded problems, select addition or subtraction and use the algorithm to find the solution	Vocabulary includes sum, difference, addend, add, subtract, minus, compare, take away, missing part, join, number sentence. Encourage students to write the “how” with specific vocabulary words. DYU, p. 94, #7; DYU, p. 97, #23, 24; DYU, p. 98, #7; DYU, p. 104, #7-8; TPS, p. 105, #20	Answers are number answers in the form of griddables or multiple choice. Include multi-step problems.
	Assessment Examples See Teacher Notes.	3.5b. Use strategies including rounding and compatible numbers to estimate solutions to addition and subtraction problems. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>				Define compatible numbers as numbers that are easy to work with mentally. In pairs, deal a deck of cards so that each student has ten cards. Each student takes a turn, finding 2 cards that add to 10. Cards are then drawn to re-place the pairs. The person with the greatest number of pairs wins. The game can be played using subtraction of 100.	Vocabulary: Compatible numbers, about, round, reasonable. Describe why numbers that add to 10 might be called compatible numbers in addition. Describe how estimation and rounding are alike and different. DYU, p. 41, #7-9; DYU, p. 87, #7; TPS, p. 55, #22 TPS, p. 61, #16; TPS, p. 82, #26



Third Grade July 2009












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Oct. 5-6	Review for Benchmark: Review and practice students raising their hand and asking for reading assistance.						
Oct. 7	Benchmark: PV, Estimation, Add & Subtraction Process, Add/Subt : Test will need 3 -4 hrs to complete. Add/Subt Algorithm will be no more than 2 problems on BM.						
Oct. 8	Payback for Extended Window						
Reflections on student difficulties:							

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Oct. 9 – Oct. 22	(9 Hours) Patterns, Number lines, Money	3.6a. Identify and extend whole number and geometric patterns to make predictions and solve problems. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	From worded problem, use concrete items to build the pattern and extend. GP, p. 262, #1-4	Use a hundred's chart and practice skip counting (forward and backward), especially 2's, 3's, 4's, 5's, 6's, and 10's.	TPS, p. 263, #13-15 TPS, p. 267, #14 TTP, p. 280, #1, 2, 7, 9	Vocabulary: Ten more, two more, three less, etc. Students should describe a pattern, i.e., numbers are five less than the number before.	Physical movement is important. Students should use fingers on student chart. Practice patterns forward and backward on the hundred's chart. These are list NOT table patterns. See strategy.
	Patterns See Teacher Notes.						
	Assessment Examples						
	Number lines	3.10a. Locate and name points on a line using whole numbers. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	Use a classroom number line to locate whole numbers.	Locate numbers on a number line on sentence strips. Given a picture of a number line, identify the pattern by finding neighbors, describing the pattern, and add or subtract to find the point OR skip count to name the point. TE, p. 236H Adv. Act.		Describe number relationships using the number line (16 is less than 20 or 16 is between 15 and 17 or the numbers less than 20 are on the left side of 20.). Describe the pattern in number lines. Vocabulary includes before, after, between, smaller, greater, pattern, increasing, decreasing Students should be able to describe in words the pattern or attribute identified.	
	See Teacher Notes.						
	Assessment Examples						
	Ex-Non-Ex See Teacher Notes	3.16a. Make generalizations from patterns or sets of examples and non-examples. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	Use students and concrete objects to create a sort on the basis of a critical attribute. Ask students to identify the attribute.	From worded problems, identify a pattern from sets of examples and non-examples.			The problems include "made-up" words; i.e., these are bames...these are not bames.
	Assessment Examples						
	Money See Teacher Notes	3.1c. Determine the value of a collection of coins and bills. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	In real-life situations, use coins and hairy money strategy to determine the value. In worded problems, use coins and hairy money strategy to find value of coins.	In worded problems, use pictures of bills, pictures of coins and hairy money strategy to determine the value of a collection of coins.	In worded problems which have no pictures of coins and bills but use words (3 quarters, 1 dime and 2 nickels), students should draw pictures of coins and then use hairy money strategy.	Students should be able to connect "coin words" (quarters, dimes, etc.) to their value and express why a coin has 5 hairs. DYU, p. 17, #4-6 TPS, p. 18, #23-24	It is important for students to find the value of coin combinations greater than \$1 and for the coins to be mixed up. See strategy.
	Assessment Examples						



Third Grade July 2009

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Oct. 23 – Oct. 26	(2 Hours) Act It Out or Draw a Picture See Teacher Notes	3.14c. Select or develop an appropriate problem-solving strategy including act it out and draw a picture. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	See the Teacher Notes for problems and objects which can easily be used for this TEKS.	See the Teacher Notes for problems and objects which can easily be used for this TEKS.		Students should be able to describe the strategy used to find the solution.	
Oct. 27	Review: Patterns, Number lines, Examples/non-examples, Act It Out						
Oct. 28	Quiz						



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<p>Oct. 29 – Nov. 13</p> <p>See next table</p>	<p>(12 Hours) Multiplication and Division</p> <p>Multiplication Facts Assessment Examples</p> <p>See Teacher Notes</p> <p>Assessment Examples</p>	<p>3.4a. Learn and apply the multiplication facts through the 12's using concrete models.</p> <p>3.6b. Identify patterns in multiplication facts using concrete object, pictorial models or technology.</p> <p><i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i></p>	<p>Use counters or color tiles to build numbers to 12. For example, the counters for three are:</p> <p> 3×1  1×3</p> <p>The tiles for four</p> <p> 1×4  4×1  2×2</p> <p>The tiles for six are</p> <p> 1×6  6×1</p> <p> 3×2  2×3</p> <p> $1 \times 3 = 3$ $2 \times 3 = 6$ $3 \times 3 = 9$</p> <p></p>	<p>Use grid paper or bingo dot markers to build numbers 11 to 25.</p> <p>Use a Hundred's Chart and color the multiples.</p> <p>Begin using Multiplication Motivation CD and a Hundred's Chart to practice skip counting.</p>	<p>Practice skip counting of facts from concrete examples: feet of multiple students, wheels of multiple tricycles, wheels on multiple cars, fingers on multiple hands, sides on multiple dice, days in a week of multiple weeks, sides in multiple octagons</p>	<p>TPS, p. 125, #13-15</p> <p>Students should describe patterns as “3 more or 3 less.”</p>	<p>Focus is on understanding instead of memorization. Memorization is a 4th grade TEKS.</p> <p>Continue practicing with the Hundred's Chart and the Multiplication Motivation CD for a few minutes a day, couple times a week.</p> <p>Skip count in the halls, in lines, in PE, on playground, etc.</p>

Third Grade July 2009

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Oct. 29 – Nov. 13 See next table.	Fact Families See Teacher Notes. Assessment Examples	3.6c. Identify patterns in related multiplication and division sentences. <i>Process TEKS:</i> 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.	Students build a six-cube by two-cube array using unifix cubes showing that $12 = 2 \times 6$. Then unsnap the cubes and rejoin them into six columns of two to show that $12 = 6 \times 2$. Students snap all twelve cubes together into a six-inch by two-inch rectangle, then separate the cubes into two groups of six to show that $12 \div 2 = 6$. Finally, students snap the twelve cubes back together and separate them into six groups of two to show that $12 \div 6 = 2$. Students write related facts.	From worded problems, draw pictures to represent the fact (multiplication or division) TE, p. 212-213, 213B IA	Solve worded problems choosing which facts are or are not in the same fact family.	Connect multiplication and division so that students understand that if they know a multiplication fact, then they know the related division fact; that is, division can be accomplished by knowing a related multiplication fact. DYU, p. 212, #5-7	Help students understand that $\square \div 4 = 5$ can be found by 4×5 . Emphasize that division facts are known when a multiplication fact is known.
Oct. 29 – Nov. 13	Multiplication and Division See Teacher Notes. Assessment Examples	3.4b. Solve and record multiplication problems (up to 2×1). <i>Process TEKS:</i> 3.14b, 3.14d, 3.15a, 3.15b, 3.16b. 3.4c. Use models to solve division problems and use number sentences to record the solutions. 3.6c. Identify patterns in related multiplication and division sentences (fact families). <i>Process TEKS:</i> 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.	Given worded problems, use base-ten blocks and array mat to model multiplication. Given a worded problem, use concrete objects to write a division number sentence and use a related multiplication fact to find the answer.	Given worded problems, draw pictures of base ten blocks to model multiplication. Given pictures, use “math pictures” to write a division sentence and use a related multiplication fact to find the answer.	Solve worded problems using multiplication	Students should verbalize that multip. is repeated addition as well as the meaning of the process for regrouping. Vocabulary: factor, product, number sentence TE, p. 187, #24-25 Connect multiplication and division so that students understand that if they know a multiplication fact, then they know the related division fact; that is, division can be accomplished by knowing a related multiplication fact. Vocabulary: factor, quotient, fact family, number sentence	Emphasize that division facts are known when a multiplication fact is known.

Third Grade July 2009

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Nov.16-17	Review for Benchmark (Emphasize asking for reading assistance.)						
Nov. 18	Benchmark (Extended Window)						
Nov. 19	Payback						
Nov. 20 – Nov. 24	Re-teach						
Reflections on student difficulties:							

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Nov. 30 – Dec. 4	(5 Hours) Measurement (Time) See Teacher Notes. Assessment Examples	3.12b. Tell and write time shown on analog and digital clocks. <i>Process TEKS:</i> 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.	Students use geared clocks and write time in 4 ways.	Relate the big clock or geared clock to a time line. Show the hours and five-minute markers on the time line. Discuss a time that is after or before. Write time in multiple ways. TE, p. 414, #1-3 TE, p. 415, #1, 2, 5-7 TE, p. 418, #1, 2, 4-7 TE, p. 412F, Adv. Act.	Students outline the activities of the day (or evening) by making a chart showing the name of the activity, the time the activity begins and ends, and pictures of both traditional and digital clock faces showing times.	Students should be able to describe the location of the hands at various times. Students should be able to describe why a time is after, before or between. Vocabulary: before, after, until, minute, hour, earlier, later, hands. DYU, p. 415, #3-4 DYU, p. 419, #3	Elapsed time is not included in the NEW math TEKS. Please note that students will need to order times and find earlier, later, and between times. 
Dec. 7 – Dec. 9	(3 Hours) Graphs See Teacher Notes. Assessment Examples	3.13a. Collect, organize, record, and display data in pictographs and bar-graphs where each cell might represent more than one piece of data. <i>Process TEKS:</i> 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.	Students collect information about class drinks in a week- # of pints of milk drank at school. They make a chart to record the data for each day and use actual milk cartons to create a real graph of each day's milk consumption.	Students, working in groups, then draw pictures to translate the real graph information to a pictograph. The pictograph is translated into a bar graph where each cell on the graph may represent two or more milk cartons. Each group makes a title for the graph and writes questions that could be answered with the information in the graph.	After posting the different graphs for each group, discuss the similarities and differences in the graphs.	Students should be able to verbalize how pictographs and bar-type graphs are alike and how they are different. Vocabulary: Key (legend), Scale, Graph Title DYU, p. 439, #3-5	See strategy. 
	Assessment Examples	3.13b. Interpret information from pictographs and bar graphs. <i>Process TEKS:</i> 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.		Given worded problems, identify the title, labels and legend (scale) and answer questions from the pictograph or bar graph. TE, p. 432, all TE, p.433 1, 2, 4-7 TE, p. 434, #8-12, 16-17		DYU, p. 433, #3	Students should always identify the title, labels, scale, and quantities in the graph prior to answering the questions.



Third Grade July 2009

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Dec. 10– Dec. 14	(3 Hours) Problem-Solving Strategy: Guess and Check See Teacher Notes. Assessment Examples	3.14c. Select or develop an appropriate problem-solving strategy, including guess and check. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	Given worded problem, use counters with the teacher note lesson.	Given worded problems, use tally marks or “draw a picture” to help student solve most types of guess and check problems.	TE, p. 64-65		
Dec. 15	Quiz: Time, Graphs, Guess Check						
Dec. 16 – Dec. 18	(3 Hours) Probability See Teacher Notes. Assessment Examples	3.13c. Use data to describe events as more likely, less likely, or equally likely. <i>Process TEKS: 3.14b, 3.14d, 3.15a, 3.15b, 3.16b.</i>	Put two colors of color tiles in bags (5 red, 1 blue) so that students work in pairs or groups. Have students take turns picking 1 tile from the bag, recording the result on a tally chart (large butcher paper) and putting the tile back in the bag. Repeat 20 times.		Have students post the tally charts. Use the results of the charts to define more likely and less likely. Discuss what kind of bag would make the selection “equally likely, certain, or impossible.”	Vocabulary: More likely, less likely, equally likely, certain, impossible. DYU, p. 442, #5	