



Fourth Grade Math-Scope and Sequence 2009-10 with Sample Ideas and Strategies



CA = center activity
 DI= Differentiated Instruction
 DYU = Do You Understand

Projected Timeline	Topic	TEKS	Concrete	Pictorial	Abstract	Language, Process & Generalizations	Comments																							
Aug. 24 – Sept 1 (See next table)	(7 Hours) Representing, Comparing Ordering See Teacher Notes Representing Numbers	4.1a. Use place value to read and write whole numbers through hundred-millions place. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>	From worded problems use base-ten blocks to represent numbers such as 2,143. Connect the model of the number to a place value chart. <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>	T	H	T	O	2	1	4	3	From worded problems, draw pictures of the base-ten blocks (students can trace) that represent numbers such as 2,143. Use a chart of place values. <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>A website that illustrates place value: http://www.321know.com/plc12ex2.htm</p>	T	H	T	O	2	1	4	3	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>M</td><td>HT</td><td>TH</td><td>T</td><td>H</td><td>T</td><td>O</td></tr> </table> <p>Labeling the periods and connecting the reading of the periods to the comma can help.</p> <p>Numbers should be represented in words, standard and expanded notation.</p> <p>Enrichment Master 1-1, p. 9, #21 D.I., p. 9B On-level (CA 1-2)</p>	M	HT	TH	T	H	T	O	Vocabulary includes millions, thousands, hundreds, tens, ones, place value, expanded form. Helping students to see the patterns in place value and describe those patterns will help in long-term recall.	It is important that students see concrete, pictorial and place value side by side. At this grade level, the emphasis should be on being successful at the abstract level. Place value can be practiced in games such as mystery number, rolling dices to build largest number, concentration, etc. See strategy.
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M	HT	TH	T	H	T	O																								
Comparing and Ordering Assessment Examples	4.1a. Use place value to compare and order whole numbers through hundred-millions place. 4.10a. Locate and name points on a number line using whole numbers. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>		Use number lines to help in comparing and ordering numbers.	From worded problems students should use Place Value columnar charts; i.e., the worded problem asks for a comparison of 23,567 and 21,625: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>HT</td><td>TT</td><td>T</td><td>,</td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td>2</td><td>3</td><td>5</td><td>6</td><td>7</td><td></td></tr> <tr><td></td><td>2</td><td>1</td><td>6</td><td>2</td><td>5</td><td></td></tr> </table> <p>DYU, p.11, #7 CA 1-3</p>	HT	TT	T	,	H	T	O		2	3	5	6	7			2	1	6	2	5		Students should describe how they determined the larger number (such as the TT place values are the same, the 3 in the thousands place is greater than the 1 in the thousands place. Vocabulary includes greater than, less than, largest, smallest, greatest, fewest, least, between. Increasing, decreasing	Students should practice working from the standard numeral to place value chart to expanded notation. See strategy.			
HT	TT	T	,	H	T	O																								
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Fourth Grade July 2009

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(Cont.) Aug. 24 – Sept 1	Rounding and Estimation	4.5a. Round whole numbers to nearest ten, hundred or thousand. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>		In problem situations, students can locate the number on a number line in order to see to which hundred the number is closer to.	In problem situations, students can circle the part being rounded and determine which it is closer to...i.e., If the problem wanted 2,463 rounded to hundred, 2,463 463 is closer to 500 than 400.	Students should be able to describe why 2,463 rounds to 2,500. Vocabulary: Estimate, Round	Using number lines and concept of closer provides better understanding of what rounding is and helps build number sense. If you are using rounding rules, students should be able to verbalize why 2,463 becomes 2,500. Avoid using rules like add 0 for the last digits or increase a place by 1. If stories like “going next door” are used, students should be able to verbalize the mathematics.  See strategy.
Sept. 2 – Sept. 9 (See next table)	(5 Hours) Addition and Subtraction See Teacher Notes Assessment Examples	4.3a. Use addition and subtraction to solve problems involving whole numbers. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>	Use real-life situations and base-ten blocks to model addition and subtraction 	Use real-life situation with pictures of numbers, action words, and number sentences to ensure understanding of addition and subtraction. From worded problems, use pictures of base-ten blocks to model addition and subtraction process. See Teacher Notes.	Use real-life situation with pictures of numbers, action words and number sentences to ensure understanding of addition and subtraction. Read a worded problem aloud, ask student to use model drawing to decide which type of action is in the story and describe why they selected the action. From worded problems, use pictures of the base-ten blocks to model the addition and subtraction process and connect to the algorithm including grouping, regrouping to add or subtract – carrying, borrowing. See Teacher Notes.	Students should describe that the addition action is putting together OR joining. Students describe subtraction actions of taking away, comparing, and finding missing part. Vocabulary includes sum, difference, minus, addend, add, subtract, minus, compare, take away, missing part, join, number sentence, expression, group, regroup and trade. Students should be able to explain why and how regrouping is done.	Use model drawing to connect actions, number sentences, and phrases. P. 30, Counting on strategy using model drawing. Avoid emphasizing clue words and isolated vocabulary like “altogether” means addition. Emphasis is main idea of question, details related to question and writing addition or subtraction number sentence. Students should practice the addition and subtraction algorithm, primarily from the worded problem. Worded problems should have extra information and should include more than one action.

Fourth Grade July 2009

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Sept. 2 – Sept. 9	Rounding Addition & Subtraction See Teacher Notes Assessment Examples	4.5a. Round whole numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>				Vocabulary: Estimate, about, round, reasonable. Describe how estimation and rounding are alike and different.	Answers may be in ranges. Rounding is one method of estimating.
Sept. 10– Sept. 16 (See next table)	(5 Hours) Multiplication and Division See Teacher Notes Assessment Examples	4.4a. Model factors and products using arrays and area models. 4.4b. Represent multiplication and division (facts only) situations in picture, word and number form. (Actions) <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>	From worded problems, students build an array and write a multiplication number sentence to describe the action. Intervention p. 95B 	From worded problems, students draw a picture of the array and write a multiplication number sentence to describe the action. From worded problems, students should determine the main idea, use model drawing (details) to determine the action, write a number sentence and solve. Lesson 4-1 uses model drawing Enrichment Master 4-1	Lesson 3-8 and 4-8 (model drawing lesson for 5 times as long, twice, etc.) Practice Master 4-5 CA 3-8	Students should describe a 4 x 6 array as 4 groups of 6. WTE p. 71, #15 Enrichment 3-1 Students should be able to describe the action; put together equal sets, arrange in rows or columns, take away equal sets, share a set equally via model drawing. Vocabulary: _groups of __, __ sets of __, array, factor, product, multiply, fact family, quotient.	This is facts and fact families only. See strategy. 

Fourth Grade July 2009

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Sept. 10 – Sept. 16	<p>Facts and Fact Families</p> <p>See Teacher Notes.</p> <p>Assessment Examples</p>	<p>4.4c. Recall and apply multiplication facts (6’s, 7’s, 8’s and 9’s).</p> <p>4.6a. Use patterns and relationships to develop strategies to remember basic multiplication and division facts (fact families) such as $5 \times 8 = 40$ and $40 \div 5 = 8$.</p> <p><i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i></p>	Intervention p. 73B DYU p. 72, #9-11	Lesson 4-4	<p>Use multiplication “Wrap-Ups” or other kinesthetic activities for a few minutes each day to help students learn facts.</p> <p>Help students understand that if they know the multiplication fact then the division fact is also known because multiplication and division are related.</p>	<p>Students should recite facts orally. Repeating orally pairs of related facts will help with the connection.</p> <p>Skip counting orally will help students use multiplication facts and recognize patterns until the facts are memorized.</p>	<p>Research indicates that it is best to begin with the larger numbers. Show students the 9’s trick, land of 8’s, and help students memorize the 6’s and 7’s. Music, stories, oral recitation, and kinesthetic experiences, will improve efficiency of memorizing facts. Practice with paper and pencil at least once per week. Students should make a graph which shows progress.</p>
Sept. 17	Review of PV, Comparing, Estimation including rounding, addition, subtraction, multiplication, division facts (fact families).						
Sept. 18	Quiz						
Sept. 21 – Oct. 2 (See next table)	<p>(10 Hours)</p> <p>Whole Number Patterns and Tables</p> <p>See Teacher Notes.</p> <p>Assessment Examples</p>	<p>4.14c. Select or develop an appropriate problem-solving strategy including looking for a pattern.</p> <p>4.6b. Use patterns to multiply by 10 and 100.</p> <p><i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i></p>	<p>From worded problems, use concrete items to look for a pattern and describe the pattern and extend the pattern.</p> <p>Intervention, p. 115B</p>	<p>From worded problems, use pictures to look for a pattern and describe the pattern and extend the pattern.</p>	<p>From worded problems, students should look for the pattern, describe the pattern and extend.</p> <p>Using worded problems to describe the pattern in the table, students should generalize a “rule” for multiplying by 10 or 100.</p> <p>Lesson 7-1 Enrichment Master 7-1</p>	<p>Skip counting orally will help students use multiplication facts and recognize patterns until the facts are memorized.</p>	<p>Avoid using the multiplication algorithm when multiplying by 10 or 100.</p> <p>See strategy.</p> 



Fourth Grade July 2009

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Emphasize a few minutes each day.	Multiplication Facts	4.4c. Recall and apply multiplication facts (4's, 5's, 6's, 7's, 8, 9's).			Use multiplication "Wrap-Ups", Foot Facts, or other kinesthetic ways for a few minutes each day to help students learn facts. Giving 10 – 15 facts is an excellent warm-up or take-home practice.		Practice orally a few minutes each day. Practice once per week with paper and pencil. Graph student progress.
Sept, 21 - Oct. 2	Relationships in Tables See Teacher Notes Assessment Examples .	4.14c. Select or develop an appropriate problem-solving strategy including acting it out and making a table. 4.7a. Describe the relationship between two sets of related data such as ordered pairs in the table. 4.16a. Make generalizations from patterns. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>		From worded problems, use pictures to solve "make a table" problems. See Teacher Notes. Students should describe patterns in the table.	From worded problems, students should use expressions to describe the relationship in the table.	Use language to describe the patterns in the tables. Vocabulary includes expression, number sentence or equation.	Emphasis should be on pictorial and abstract experiences.
Oct. 5-6	Review for Benchmark						
Oct. 7	Benchmark (Expanded Time Window)*						
Oct. 8	Payback subjects missed because of change in Oct. 7 schedule						


Reflections on Student Difficulties:

*Re-teaching of benchmark completed through warm-ups.


Fourth Grade July 2009

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Emphasize a few minutes each day.	Multiplication Facts	4.4c. Recall and apply multiplication facts (1's to 9's).			Use multiplication "Wrap-Ups", Foot Facts, or other kinesthetic ways for a few minutes each day to help students learn facts.		Practice orally a few minutes each day. Practice once per week with paper and pencil. Graph progress.
Oct. 9 – Oct. 20	(7 Hours) Measurement (Time) See Teacher Notes Assessment Examples	4.12b. Use tools such as a clock with gears or a stopwatch to solve problems involving elapsed time. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>	Use geared clocks to describe a specific time. See Teacher Notes.  Connect time on a line to the geared clock. Connect direction on timeline to addition and subtraction.	Use time on a line to solve elapsed time problems. See Teacher Notes.	Make a list of activities and record the time of day when they are done. Using a calendar, make a list of activities that are done at different times of the year.	Students should be able to read and write time in 4 ways. Vocabulary: minute, hour, after, before, past, until, start time, end time. Vocabulary: year, month, week, day	See strategy. 
Oct. 21	Quiz: Patterns (all), Time						






Fourth Grade July 2009

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Oct. 22 – Nov. 13 (See next table)	<p>(17 Hours) Multiplication and Division</p> <p>Algorithms Process</p> <p>Assessment Examples</p> <p>See Teacher Notes</p>	<p>4.4b. Represent multiplication and division in picture, word and number form.</p> <p>4.4d. Use multiplication to solve problems (no more than 2 digits x 2 digits without technology.) <i>Process TEKS: 4.14b, 4.14d, 4.15a., 4.15b, 4.16a.</i></p> <p>4.4e. Use division to solve problems (no more than 1 digit divisors and 3-digit dividends). <i>Process TEKS: 4.14b, 4.14d, 4.15a., 4.15b, 4.16a.</i></p>	<p>From worded problems, use base-10 blocks or virtual manipulatives to help students understand the multiplication algorithm.</p> <div data-bbox="779 753 947 808" style="text-align: center;">  </div> <p>From worded problems, use base-10 blocks or virtual manipulatives to help students understand the division algorithm.</p> <p style="text-align: center;">Lesson 9-1</p>	<p>From worded problems, use grid paper to show partial products to help students understand the multiplication algorithm.</p> <p>Lesson 6-2 (Partial Products) Lesson 7-3</p> <p>From worded problems, students should use model drawing to determine the action, and the division algorithms to solve problems.</p>	<p>From worded problems, students should use model drawing to determine the action, and the multiplication and division algorithms to solve problems.</p> <p>Enrichment Master 6-2</p> <p>From worded problems, students should use model drawing to determine the action, and the division algorithm to solve problems.</p>	<p>WTE p. 200, #31, 32, p. 204, #33 DYU p. 206, #3 Enrichment Master 9-6</p>	<p>NOTE: Students should estimate answers prior to solving for the exact using patterns of 10 and 100.</p> <p>For 2 x 2, sayings like “scratch, scratch, lay an egg” can be used to help students remember the algorithm. If students use sayings, they should be able to verbalize why the saying works.</p> <p>This is about learning the algorithms. Sayings like “Does McDonalds Sell Cheese Burgers” or “Dad, Mother, Sister, Cousin, Brother” can be used to help students remember the algorithm. If students are using sayings, they should be able to verbalize why the algorithm works.</p>




Fourth Grade July 2009

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Oct. 22 – Nov. 13	Compatible Numbers in Multiplication and Division	4.5a. Round numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations. 4.5b. Use strategies including rounding and compatible numbers to estimate solutions to multiplication and division problems <i>Process TEKS: 4.14b, 4.14d, 4.15a., 4.15b, 4.16a.</i>			Students should estimate answers prior to solving for the exact answer. Given worded problems, students should be able to make compatible numbers to estimate solutions.	Vocabulary: Compatible Numbers Students should be able to explain why 2 numbers are compatible.	Students should estimate answers prior to solving for the exact answer. Emphasis is on 2 digit dividend and 1 digit divisor.
	Multiplication, and Division	4.4b. Represent multiplication and division situations in picture, word, and number form. 4.4d. Use multiplication to solve problems involving 2-digit factors (2 x 2) 4.4e. Use division to solve problems (no more than 1 digit divisors and 3-digit dividends). <i>Process TEKS: 4.14b, 4.14d, 4.15a., 4.15b, 4.16a.</i>		Use model drawing to represent the details in the story, number sentences to solve, and step4 includes describing in words how the problem was solved.	Use model drawing to represent the details in the story, number sentences to solve, and step4 includes describing in words how the problem was solved.		Students should estimate answers prior to solving for the exact answer. See Strategy. 
Nov. 16-17	Review for Benchmark						
Nov. 18	Math Benchmark (Extended Time Window)						
Nov. 19	Payback Subjects Missed						
Reflections on Student Difficulties:							
Re-teaching of benchmarks should be done through warm-ups.							

Fourth Grade July 2009

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Nov. 20	Examples and Non-Examples Assessment Examples	4.16a. Make generalizations from patterns or sets of examples and non-examples.	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.		Students should be able to describe in words the pattern or attribute identified.	The problems include “made-up” words; i.e., these are bames...these are not bames.
Nov. 23– Nov. 24	(2 Hours) Graphs See Teacher Notes. Assessment Examples	4.13b. Interpret bar graphs <i>Process TEKS: 4.14b, 4.14d, 4.15a, 4.15b, 4.16a.</i>				Label all parts of the graph.	See strategy.  Once the bars are interpreted, the story problem usually involves one or more operations.
Note: CBA Reading is Dec. 8							
Nov. 30 – Dec. 11 (See next table)	(9 Hours) Fractions See Teacher Notes	3.2c. Use fraction names and symbols to describe fractional parts of whole objects or sets of objects with denominators less than 12.	Use fraction squares or circles to build fractions and write fraction names. Use students in class and write fraction names for girls and for boys.	Use pictures of fraction and write fraction names. Given pictures of objects, write fraction names.		Vocabulary: equal parts of whole, numerator, denominator Parts of a set, numerator, denominator	See strategy. 
	Writing Fractions						
	Equivalent Fractions Assessment Examples	4.2a. Use concrete objects and pictorial models to generate equivalent fractions.	Use fraction squares or other fraction manipulative to build equivalent fractions for worded problems.	Using the models given, show students how to “cut apart” and “group together” to show equivalent fractions.		Vocabulary: equivalent	See strategy. 
	Compare and Order Fractions Assessment Examples	4.2c. Compare and order fractions using concrete objects and pictorial models. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>	Use fraction squares or other fraction manipulative to build fraction for worded problems.			Greater than, less than, <, > or =	In 4 th grade, models must be given to compare fractions. Avoid using cross products to compare fractions. See strategy. 

Fourth Grade July 2009

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Nov. 30 – Dec. 11	Fractions Greater than One	4.2b. Model fraction quantities greater than one using concrete objects and pictorial models.	Use fraction manipulative to build quantities.	Given a picture model, write the improper and mixed number. See Teacher Notes.		Improper fraction, Mixed number Numerator, denominator	See strategy.  The TEKS is clearly concrete or pictorial so please avoid teaching multiply denominator by whole number and add numerator OR divide the numerator by denominator.
	Fractions on number line Assessment Examples	4.10a. Locate and name points on a number line using fractions such as halves, fourths and tenths. <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>	Use strips of paper and fold to create models of number lines.	Given a number line, label the points.		point, before, after	See strategy. 
Dec. 14– Dec. 17	(3 Hours) Measurement (Length, Capacity & Weight) See Teacher Notes Assessment Examples	4.11a. Estimate and use measurement tools to determine length (measure to nearest centimeter), capacity, and weight/mass (metric) <i>Process TEKS: 4.14a, 4.14b, 4.14d, 4.15a, 4.15b, 4.16a</i>	Provide students concrete experiences in develop “sense” of metric benchmarks. See Teacher Notes for some benchmarks.	Using pictures of objects, ask students to sort on basis of length, capacity or weight.	Make a list of objects that are 1mm, 1 cm, 1m, 1km , 1 ml, 1l, 1 kg, 1 g, 1 mg. in measure. From worded problems, students should recognize measurement benchmarks.	See mathematics chart.	See strategy. 
Dec. 18	Quiz: Fraction and Metric Measurement Benchmarks						
End of Semester							
Reflections on student difficulties:							

