

Emphasis on mastery of computation skills

in 3rd Grade Math Student and Teacher's Editions submitted for 2007 Texas SBOE approval

	<i>SRA Real Math</i> (SRA/McGraw, 2009)	<i>Saxon Math</i> (Harcourt Achieve, 2008)	<i>enVisionMATH</i> (Scott-Addison, 2009)	<i>Texas Math</i> (Houghton, 2009)	<i>Texas HSP Math</i> (Harcourt, 2009)	<i>Think Math!</i> (Harcourt, 2009)	<i>Texas Math</i> (Macmillan, 2009)	<i>Everyday Math</i> (Wright/McGraw, 2008)
How often is ADDITION with regrouping tested after the initial test on it?	77 times	44 times	8 times	12 times	10 times	21 times	1 time	Not taught
How often is SUBTRACTION with regrouping tested after the initial test on it?	49 times	57 times	5 times	50 times	7 times	24 times	2 times	3 times
How many times are MULTIPLICATION facts practiced ?	1,063 times	1,928 times	1,986 times	971 times	3,655 times	1,662 times	1,295 times	393 times plus 13 game sessions and 11 Fact Triangle practice drills
When is MULTIPLICATION of 2 (or more) digits by 1 digit introduced ?	Chapter 7 out of 12 (58% through book)	Section 9 out of 11 (82% through book)	Topic 9 out of 20 (45% through program)	Chapter 20 out of 25 (80% through book)	Chapter 23 out of 24 (96% through book)	Not taught	Chapter 14 (last chapter)	Not taught
How often is MULTIPLYING 2 (or more) digits by 1 digit with regrouping tested ?	37 times	11 times	14 times	28 times	26 times	Not taught	8 times	Not taught
Does this program avoid premature MULTIPLICATION of 2 or 3 digits by 1 or 2 digits?	USUALLY 6 problems require this skill using decimals before Chapter 10 teaches it.	YES	YES	NO 47 problems require this skill before Chapter 20 teaches it.	USUALLY 9 problems require this skill before Chapter 23 teaches it.	NO 20 problems require this skill before Chapter 9 teaches a "partial products" method.	NO 39 problems require this skill before Chapter 14 teaches it.	NO Students first invent "strategies." Non-standard "algorithms" are introduced later.
How many times are DIVISION facts practiced ?	372 times	918 times	860 times	958 times	1,678 times	222 times	745 times	133 times plus 2 game sessions and 11 Fact Triangle practice drills
How many problems (other than basic division facts) use the standard algorithm to DIVIDE 2 (or more) digits by 1 digit? * without calculator	123 problems	20 problems	26 problems	Teaches only basic division facts but at least 19 problems divide 2 digits by 1 digit	None	None	None	None
Does the total 3 rd grade program AVOID calculator dependence?	Almost entirely	Almost entirely	Almost entirely	Almost entirely	Partially	Almost entirely	Yes	Partially
OVERALL rating:	Better	Better	Better	Fair	Fair	Fair	Poor	Worst

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— Addition Skills —

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When is addition with regrouping introduced?	Chapter 2 SE 42-44, 64 plus SE 533 in Student Handbook	Section 2 Lessons 13 & 16 SE 71-73, 86-89	Topic 3 SE 54-55	Chapter 6 SE 122-123	Unit 2, Chapter 3 SE 62	Chapter 5 TE 399 but not stressed until Chapter 14	Chapter 2 SE 74-76	Never
How many problems practice* addition with regrouping in the introductory chapter?	192 problems plus 63 in supplements	36 problems SE 73-74, 78, 83, 89-91, 96, 100, 111; TE 112B, 112-113	112 problems plus 73 in supplements	65 problems plus 64 in supplements	100 problems plus 143 in supplements	27 problems plus 17 in supplements (Students choose either standard algorithm or "expanded" method.)	134 problems plus 23 in Student Handbook for Chapter 2, and 97 in supplements	Instead of addition with regrouping, <i>Everyday Math's</i> "focus algorithm" for addition is "partial sums," a cumbersome, time-consuming, less efficient, more laborious, non-standard method. (TE 137-138; <i>Teacher's Reference Manual</i> , pp. 102-103)
How many problems review* addition with regrouping after the initial test on it?	113 problems plus 36 in supplements	253 problems	99 problems plus 32 in supplements	114 problems plus 44 in supplements	72 problems plus 6 in Student Handbook, and 33 in supplements	120 problems plus 58 in supplements (Students choose either standard algorithm or "expanded" method.)	66 problems plus 6 in Student Handbook after Chapter 2, and 57 in supplements	
How often is addition with regrouping tested after the initial test on it?	77 times on Practice Tests and Chapter Tests for Chapters 3, 6-8, & 10; Mastery Checkpoints 4-6, 8, 9, & 21; Mid-Year and End-of-Year Tests	44 times on 19 tests: Cumulative Tests 4-15, 17-19; Benchmark Tests 1-3; and End-of-Course Exam	8 times 2 problems on Topic 7 test; 1 problem each on Topics 5, 8, 13, 16, & 20 tests; 1 problem on Mid-Year Test	12 times on two Chapter 8 tests, two Unit 3 tests, one Chapter 19 test	10 times 3 problems each on tests for Chapter 4 and Unit 1; 1 problem each on tests for Chapters 5, 14, & 21, and Unit 7	21 times on tests for Chapters 8, 12, & 14, and on Benchmarks 2 & 4 (Students choose either standard algorithm or "expanded" method.)	1 time on Chapter 3 test	
Where are crutches* dropped in addition with regrouping?	SE 64 Lesson on adding 3-digit numbers	Cumulative Test 3A, <i>Assessment Guide</i> pp. 50-51 (after Section 2)	SE 60-61 Lesson on adding 3-digit numbers	SE & TE 136-137 Chapter 6 tests	SE 104 Chapter 4 Review/Test	<i>Lesson Activity Book</i> p. 270, TE 1069 & 1071 (Students choose either standard algorithm or "expanded" method.)	SE 96 Chapter 2 Study Guide and Review	
How many problems practice* addition of 3 or more addends with regrouping?	25 problems TE 72B, SE 72-75, TE 74B, SE 312-313, TE 327A, SE 330 plus 21 on tests	63 problems SE 132-133, 145, 155, 159, 164, 172, 179, 184, 189, 195, 215, 227, 232, 253, 258, 264, 269, 274, 281, 286, 296, 301, 322, 324, 338, 344, 353, 366, 372, 389, 393, 408, 414, 430, 444, 454, 459, 464, 479, 485, 511, 516, 523, 528, 532, 537 plus 5 on tests	40 problems SE 62-63, 66, 68, 235, 376-379, 391; TE 62B, 63A, 67A, 74A, 84A, 153A, 161B, 169B, 175A, 178, 196A, 276A, 294A, 334A, 377A, 392A, 447 plus 24 in supplements	17 problems SE 132, SE 174, TE 198A, TE 213, SE 218, TE 240A, SE 245, SE 324, SE 330-331, SE 335, SE 446-447, SE 452 plus 4 in supplements	30 problems SE 63, SE 67, TE 72A, SE 76, TE 79, TE 296A, SE 311, SE 334, SE 461, TE 484, TE 488A plus 1 in Student Handbook, and 31 in supplements	27 problems TE 673A, 1096, 1105, 1113-1114; <i>Lesson Activity Book</i> pp. 243, 275, 277-279; plus 3 in Student Handbook, and 6 in supplements	26 problems SE 76, SE 80, TE 81-82, SE 83, SE 96, SE 131, SE 135, SE 137, TE 145A, SE 215, SE 285, TE 300A, SE 307, SE 320, SE 369, SE 385, TE 458A, TE 467, TE 468A, TE 548B, TE 579A, SE 586 plus 4 in Student Handbook, and 25 in supplements	
How many problems practice* addition of 2 addends of 4 (or more) digits each?	11 problems TE 74B, SE 74, SE 76, SE 87 plus 16 in supplements, and 9 on tests	1 problem Early Finishers problem on SE 190	None	None	5 problems TE 72A but calculator an option for one	1 problem Extension Activity on TE 1073	None	Advises calculator use for adding larger numbers (TE 56; TE 109, "Calculating Complements;" <i>Math Journal</i> , p. 32)
Does the 3 rd grade program avoid calculator dependence for addition?	Yes	—Almost entirely— Calculators used for 10 problems on p. 4 of <i>Calculator Activities</i> booklet. SE 85 marginal note refers to an online calculator activity.	— Usually — One problem on SE 229 and 5 on SE 365 advise calculators for addition. Also 3 pp use a computer program for adding.	— Usually — 23 problems in technology activities on SE 129 & 239 use calculators to add.	— Partially — 74 problems specify or allow calculators for addition. After teaching addition with regrouping by paper-and-pencil, the text suggests a calculator is easier. TE 72, "Example 2"	—Almost entirely— Calculators allowed only for checking mental or paper-and-pencil addition, in one Challenge Activity and one Extension Activity. TE 345F, 423	Yes	— Partially — 57 problems specify calculators for addition. 22 problems allow calculator use but do not specify it. 33 problems appear not to expect it. 71 problems have a "no calculator" icon.
OVERALL rating:	Better	Better	Better	Fair	Fair	Fair	Poor	Worst

* Without calculator

‡ "Crutches" means manipulatives, drawings or calculators.

— Subtraction Skills —

DRAFT

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When is subtraction with regrouping introduced ?	Chapter 2 SE 52-53 (2-digit) SE 66-67 (3-digit) SE 535 in Student Handbook	Section 2 Lessons 14 & 19 SE 76-77, 104-105	Topic 5 SE 94-95 TE 92E-F	Chapter 7 SE 146-148	Unit 2, Chapter 4 SE 88-89	Chapter 5 TE 421 but not stressed until Chapter 14	Chapter 3 SE 103-104	Unit 2 TE 143-144; TRM, p. 105 (Its "Trade First" subtraction algorithm includes regrouping.)
How many problems practice * subtraction with regrouping in the introductory chapter?	125 problems plus 49 in supplements	35 problems SE 77-78, 83, 91, 96, 101, 105-107, 110-111; TE 77, 105, 112B, 112-113	158 problems plus 112 in supplements	70 problems plus 95 in supplements	125 problems plus 6 in Student Handbook, and 179 in supplements	24 problems plus 15 in supplements (Use of standard algorithm optional.)	166 problems plus 37 in Student Handbook for Chapter 3, and 195 in supplements	17 problems Math Journal, pp. 50, 53; Math Masters, pp. 54, 58; Assessment Handbook, pp. 153-155
How many problems review subtraction with regrouping after the initial test on it?	100 problems plus 21 in supplements	318 problems	79 problems plus 13 in supplements	186 problems plus 105 in supplements	67 problems plus 1 in Student Handbook, and 32 in supplements	66 problems plus 8 in Student Handbook, and 48 in supplements (Use of standard algorithm optional.)	65 problems plus 12 in Student Handbook for later chapters, and 38 in supplements	73 problems (includes Math Journal and Math Masters pages)
How often is subtraction with regrouping tested after the initial test on it?	49 times on Practice Tests and Chapter Tests for Chapters 6-8, & 10; Mastery Checkpoints 4, 6, 9, 16, & 21; Mid-Year and End-of-Year Tests	57 times on 22 tests: Cumulative Tests 5-21; Benchmark Tests 2-5; and End-of-Course Exam	5 times 1 problem each on Topic 7, 8, & 19 tests and Mid-Year and End-of-Year Tests	50 times 21 problems on two Chapter 7 tests; 16 problems on two Chapter 8 tests; 9 problems on two Unit 3 tests; 1 problem on one Chapter 18 test; 3 problems on one Chapter 20 test	7 times 1 problem on Chapter 5 test; 4 problems on Unit 2 test; 2 problems on Chapter 15 test	24 times 3 problems each on Benchmarks 2 & 4; 1 problem each on Chapter 12 test and Benchmark 3; 4 problems total on two Chapter 13 tests; 12 problems total on three Chapter 14 tests (Use of standard algorithm optional.)	2 times on "Texas Test Practice," but not on any chapter tests	3 times 1 problem each on Unit 3, 5, & 7 tests
Where are crutches ‡ dropped in subtraction with regrouping?	SE 66 Lesson 8 of Chapter 2	Cumulative Test 4 mid-Section 3 SE 139	SE 96 for 2-digit subtraction SE 101 for 3-digit subtraction	SE 147 Lesson 3 of Chapter 7	SE 104 Chapter 4 Review/Test	Lesson Activity Book, p. 272 TE 1078-1079	SE 113 for 2-digit subtraction SE 121 for 3-digit subtraction	TE 216 Lesson 8 of Unit 3
Does the 3 rd grade program avoid calculator dependence for subtraction?	—Almost entirely— 3 problems on SE 406-407 call for calculators to subtract decimal amounts.	—Almost entirely— Calculators used for 13 problems on p. 7 of <i>Calculator Activities</i> booklet. SE 102 marginal note refers to an online calculator activity.	—Almost entirely— 1 problem on SE 229 suggests calculators for subtraction.	—Almost entirely— 6 problems on SE 443 call for calculators to subtract 12 from a product.	— Partially — 71 problems specify or allow calculators for subtraction. After teaching subtraction with regrouping by paper-and-pencil, the text suggests a calculator is easier. TE 96, "Reteach"	—Almost entirely— Calculators specified for checking subtraction on one Extension Activity. TE 423	Yes	— Partially — 32 problems specify calculators to subtract. 30 problems allow calculators but do not specify them. 12 problems appear not to expect them. 84 problems have a "no calculator" icon.
OVERALL rating:	Better	Better	Better	Fair	Fair	Fair	Poor	Worst

* Without calculator

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— Multiplication Skills —

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When are the basic multiplication facts introduced?	Chapters 4-5 SE 140-193	Sections 6-8 Lessons 54-76 SE 292-413	Topics 6-8 SE 116-167	Chapters 13-15 SE 282-322	Chapters 9-11 SE 202-260	Chapter 2 TE 124-166	Chapters 4-5 SE 143-217	Unit 4 TE 267-275 (31 problems involve basic multiplication facts before Unit 4 introduces them.)
When is multiplication of 2 (or more) digits by 1 digit introduced?	Chapter 7 SE 252-253 introduces "partial products" method. TE 256B introduces standard multiplication algorithm. SE 538-539 in Student Handbook covers both.	Section 9 Lesson 81 SE 441-442	Topic 9 SE 182-183 SE 188-189 introduces "partial products" method. SE 192-193 introduces standard multiplication algorithm.	Chapter 20 SE 438-440 (out of 25 chapters)	Chapter 23 SE 546-547 introduces both "partial products" method and standard multiplication algorithm. (Students choose which to use.)	Chapters 9, 12, & 15 teach a variety of "partial products" approaches – base-10 blocks, arrays, intersecting lines, coins, and multiplication "machines." The standard multiplication algorithm, with or without regrouping, is never introduced.	Chapter 14 SE 579-585 (Chapter 14 is last one in text.)	Unit 7 Cumbersome, time-consuming, less efficient, more laborious, unduly complicated "extended facts," "partial products," and "lattice" methods (TE 608-611, 732-733, 761-763) replace the standard simple multiplication algorithm.
How many problems practice* multiplying 2 (or more) digits by 1 digit with regrouping?	65 problems in Chapter 7 plus 27 in Chapter 7 supplements, 46 in later chapters, and 33 in later supplements	39 problems in Section 9 plus 101 in Sections 10-11	67 problems in Topic 9 plus 31 in later topics, 38 in supplements, and 17 in Step-Up lessons	66 problems in Chapter 20 plus 50 in later chapters, 55 in Chapter 20 supplements, and 7 in later supplements	152 problems in Chapter 23 plus 6 in Chapter 24, 8 in Student Handbook, and 99 in supplements		71 problems in Chapter 14 plus 20 in Student Handbook for Chapter 14, and 98 in supplements	Student Reference Book (pp. 74E-F) explains the standard algorithm, but the program ignores it.
How often is multiplying 2 (or more) digits by 1 digit tested?	37 times on Practice Tests and/or Chapter Tests for Chapters 7, & 10-11; Mastery Checkpoint 15, and End-of-Year Test	11 times 6 problems total on Cumulative Tests 7A, 19A, 20A, 21A; 2 on Benchmark Test 5; and 3 on End-of-Course Exam	14 times 12 problems on Topic 9 tests; 1 problem on Mid-Year test; 1 problem on Topic 16 test	28 times 14 problems on two Chapter 20 tests; 14 problems on two Unit 8 tests	26 times 23 problems on Chapter 23 tests; 3 problems on Unit 8 test		8 times on Chapter 14 test SE 609 (Chapter 14 is last one in text.)	
Where are crutches‡ dropped in multiplying 2 digits by 1 digit?	SE 258 Chapter 7, lesson 4	Lesson 81 SE 442	Topic 9 tests SE 200-201, TE 201A	SE & TE 450-453 Chapter 20 tests and Unit 8 tests	Chapter 23 tests SE 560, TE 561	<i>Learning Activity Book</i> pp. 287-288 TE 1140, 1143 "vertical record" of "partial products" (non-standard algorithm)	SE 589 Mid-Chapter Check SE 609 Chapter 14 test	TE 864 Unit 10 Assessment
Does the 3 rd grade program avoid calculator dependence for multiplication?	— Usually — 40 problems involve calculators. TE 180B suggests calculators to find patterns for 9x multiplication facts. SE 383, 403, & 406 suggest calculators to multiply decimal numbers.	— Usually — Calculators used for 18 problems on pp. 16-17, & 36 of <i>Calculator Activities</i> booklet. SE 322 & 394 marginal notes refer to online calculator activities.	— Usually — 5 problems on SE 365 specify calculators to multiply when changing units of measurement. 4 SE pages use computer programs to multiply.	— Usually — 28 problems on SE 307, 325, 360, 377, & 443 involve multiplication with calculators. One online activity on SE 423 uses a computer to multiply money amounts.	— Partially — 56 problems in isolated technology activities specify calculators to multiply.	— Usually — Calculators are specified only to check multiplication in games, or to identify multiplication patterns. TE 712, 903E, 1057, 1065, 1075, 1123E	— Almost entirely — TE 161, 165, & 579B suggest calculators to find multiplication patterns. TE 216B suggests calculators to check answers on one activity. SE 151 presents an online computer activity to model multiplication.	— Partially — 80 problems specify calculators to multiply. 21 problems allow calculators but do not specify them. 36 problems appear not to expect them. 88 problems have a "no calculator" icon.
OVERALL rating:	Better	Better	Better	Fair	Fair	Fair	Poor	Worst

* Without calculator

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— Division Skills —

DRAFT

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When are the basic division facts introduced?	Chapter 5 SE 194-198	Section 9 Lesson 82 SE 445-447	Topic 10 SE 206-225	Chapters 16-18 SE 352-398	Chapters 13-15 SE 296-350	Chapter 2 TE 140-160 Addressed as finding missing factors	Chapters 6-7 SE 233-297	Unit 4 TE 256-257
When is division with remainders introduced?	Chapter 7 SE 264	Never	After Topic 20, in Step-Up to 4 th Grade Lesson 12, SE 476-477	Never	SE 355 Called working with "near facts" to find amount "left over"	Chapter 15 TE 1174-1180	Never	Unit 4 TE 256-263
How many problems practice* division with remainders?	45 problems TE 264B, SE 264-265, TE 265A, SE 282-287, SE 313, SE 414-417, SE 540, plus 6 more on tests for Chapters 7, & 9-10	None	26 problems SE 476-477 Step-Up to 4 th Grade Lesson 12	None	4 problems TE 301, TE 343, SE 355 suggest concept of remainders by working with "near facts."	19 problems TE 1176, 1181, 1189-1191; <i>Lesson Activity Book</i> pp. 297-298, 300; plus 2 in Student Handbook and 6 in supplements, but no standard algorithm	None	35 problems These are simple basic-fact problems, with remainders.
When is division of 2 or 3 digits by 1 digit using the standard division algorithm introduced?	Chapter 7 Lesson 7 TE 270B, SE 271; also in Student Handbook SE 540	Section 11 Lesson 101 SE 541-543	Step-Up to 4 th Grade Lesson 12 SE 476-477	Not explained, but used 2 digits divided by 1 digit sometimes use standard format, but students never show intermediate steps.	Not explained, but used 2 digits divided by 1 digit sometimes use standard format, but students never show intermediate steps.	— Never — "At this stage, we do not want students to follow an algorithm, but to view the format as a whole" (TE 1160)	Never	— Never — Admits that "a formal introduction to division algorithms is not included" (<i>Teacher's Reference Manual</i> , p. 112, par. 3, line 1)
How many problems (other than basic division facts) use the standard algorithm to divide 2 (or more) digits by 1 digit?*	59 problems plus 11 on Chapter Tests and 53 in supplements	20 problems SE 543, 548, 551, 562, 567, 571, 575, 580, 585; TE 543	26 problems SE 476-477	Teaches only basic division facts but at least 19 problems divide 2 digits by 1 digit	None	None	None	None
Is there division of 3 or more digits by 1 digit?	Yes Introduced on SE 274-5; 24 problems in SE/TE; 29 in supplements	No	No	No	No	Yes but not with standard algorithm	No	No
Where are crutches [‡] dropped in division?	SE 283 Chapter 7 Review	SE 543-544 Lesson 101	Topic 10 test and Mid-Year Test SE 230, TE 235A	SE 405 Extra Practice for Chapter 18	Chapter 19 TE 438A, Spiral Review	— Never — Uses coins, line arrays, division puzzles	SE 312 Quick Check before Chapter 8	— Never — Promotes counters, arrays, drawings, etc. throughout
Does the 3 rd grade program avoid calculator dependence for division?	— Almost entirely — 7 problems on SE 405 call for calculators to divide decimals, but never suggest them for division without decimals.	— Almost entirely — Calculators used for 8 problems on p. 20 of <i>Calculator Activities</i> booklet. SE 541 marginal note refers to an online calculator activity.	Yes	Yes	— Almost entirely — 8 problems on SE 357 specify calculators for division in an isolated technology activity.	— Almost entirely — Calculators specified only for checking division by 9 on one Extension Activity. TE 1081	Yes No calculator use, but SE 247 instructs students to use an online computer program to model division.	— Partially — 39 problems specify calculators to divide. 8 problems allow calculators but do not specify. 11 problems appear not to expect them. 16 problems have a "no calculator" icon.
OVERALL rating:	Better	Better	Better	Fair	Fair	Fair	Poor	Worst

* Without calculator

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Emphasis on mastery of basic addition, subtraction, multiplication and division facts DRAFT

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Do student activities stress automatic number-fact recall, not reinvention strategies?	Yes "Even after students have learned all the basic facts with understanding, they need practice to retain their fluency." Practice includes: games, flash cards, frequent "quizzing," mental math and speed tests. <i>(TE A13, col. 2, par. 2)</i>	Yes "It is very important for you to memorize the multiplication facts. We will practice the multiplication facts so that you learn them well." <i>(SE 299, lines 2-4)</i>	Yes Much practice provided in text; limited instruction for reinforcing drill activities	Yes much practice given for multiplication and division facts; little instruction in reinforcing drill activities	Yes Much practice with visuals, plus activities to build automaticity	Yes Primarily through much repetition in daily work and several games	Yes primarily with multiplication facts	Yes Numerous practice strategies include: games, Fact Triangle drill (form of flash card), shortcuts, fact families, and using number fact tables. TE 573
Addition/subtraction facts practiced	504 times	1,963 times	240 times plus 6 speed tests including 300 facts	91 times	419 times plus 165 times in Student Handbook and 402 times in "Daily Fact Practice"	981 times	284 times	258 times plus 7 game sessions and 2 Fact Triangle practice drills
Multiplication facts practiced	1,063 times	1,928 times	1,811 times plus 4 speed tests including 175 facts	971 times	3,283 times plus 94 times in Student Handbook and 278 times in "Daily Fact Practice"	1,662 times	1,295 times	393 times plus 13 game sessions and 11 Fact Triangle practice drills
Division facts practiced	372 times	918 times	735 times plus 3 speed tests including 125 facts	958 times	1,433 times plus 94 times in Student Handbook and 151 times in "Daily Fact Practice"	222 times	745 times	133 times plus 2 game sessions and 11 Fact Triangle practice drills
Are timed number-fact tests or quizzes provided with instructions for use?	Yes TE 8B, 194B, 216B, 217A, 270B, & 273B refer to speed tests in Texas Assessment book (instructions on p. 102).	Yes Daily timed fact practice, plus timed fact tests every 5 lessons	Yes TE 22B-C includes 12 "Basic Facts Timed Tests," each with 50 facts, but fewer instructions for administration.	No	No but Student Handbook pp. H40-43 include 80 fact questions each.	No	No but Student Handbook pp. R38-44 provide extra facts practice with 40 facts each.	No but one game, "Beat the Calculator," involves speed.
Does the Teacher's Edition (TE) stress importance of automatic recall of number facts?	Yes Lesson 1.2 is "... a quick review of the basic addition and subtraction facts students were expected to have mastered in second grade." <i>(TE 6A)</i> Lesson 5.7 begins "a series of multiplication fact speed tests designed to develop automaticity and quick recall." <i>(TE 194A)</i> "The goal ... is to achieve automatic recall of the multiplication facts" <i>(TE 174B, "Learning Fact Strategies")</i>	Yes "... it is much faster to memorize the [addition] facts." <i>(TE 34, left col., "Observation")</i> "The fastest way to subtract is to remember the subtraction facts." <i>(TE 40, left col., "Observation," lines 3-4)</i> "... encourage students as quickly as possible to rely ... more on memorization." <i>TE 298, "Math Background," par. 2, lines 3-5</i>	Yes "It is appropriate to expect students to memorize multiplication facts, but not all students will memorize at the same rate." <i>(TE 136D, col. 2, par. 5)</i> "As students move into writing expanded algorithms for multiplication, it is important they know the basic multiplication facts" <i>(TE 180H, col. 1, "Below Level," par. 1)</i>	Somewhat Some independent activities practice basic multiplication facts <i>(TE 298 C-D & 316 C-D)</i> . TE 339E states, "In this unit, students ... develop fluency in basic division facts." TE in several places (e.g. <i>TE 113C & 227C</i>) refers to an "Achieving Facts Fluency" component which "contains a systematic plan for increasing facility with basic facts and computational skills," but does not tell where to find it.	Yes "The goal for mastery of the basic facts is automaticity. A student is considered to have achieved automaticity when he or she can give an answer to a basic fact in less than 3 seconds without using finger counting." <i>(TE PD1, col. 2, par. 4, lines 1-4)</i>	Yes "... work with students ... to assess their knowledge of multiplication facts. Use ... Flash Cards to determine the ease and accuracy with which students can remember the products You might want to record information about students' skills, so you can track their progress. You may also want to set goals with students to encourage them to learn facts they do not yet know." <i>(TE 686, left margin)</i>	Yes "Students should have the basic addition / subtraction facts memorized by this grade level." <i>(TE 74A, col. 1, last 2 lines)</i> TE 153, 203, & 220 encourage multiplication flashcards to help students "memorize to automaticity." TE 286A states, "Working with the division facts is just another opportunity to continue work on automaticity of multiplication facts...."	Partially "... knowing the basic facts as reflexes without having to figure them out, is an essential prerequisite for mental math, estimation, the use of calculators, and paper-and-pencil computation." <i>(TE 573, par. 1)</i> Grade-Level Goals include: "automaticity with all addition and subtraction facts through 10 + 10" <i>(TE A27)</i> ; "automaticity with x0, x1, x2, x5 and x10 multiplication facts; [students] use strategies to compute remaining facts." <i>(TE A28)</i>
OVERALL rating:	Better	Better	Better	Fair	Fair	Fair	Poor	Worst

Avoidance of Premature Skill Practice

DRAFT

in 3rd Grade Math Student and Teacher's Editions submitted for 2007 Texas SBOE approval

Does this program ... ↓	<i>SRA Real Math</i> (SRA/McGraw, 2009)	<i>Saxon Math</i> (Harcourt Achieve, 2008)	<i>enVisionMATH</i> (Scott-Addison, 2009)	<i>Texas Math</i> (Houghton, 2009)	<i>Texas HSP Math</i> (Harcourt, 2009)	<i>Think Math!</i> (Harcourt, 2009)	<i>Texas Math</i> (Macmillan, 2009)	<i>Everyday Math</i> (Wright/McGraw, 2008)
avoid premature exercises involving addition with regrouping?	YES Not required before review on SE 42	YES Not required before review on SE 71-73	YES Taught in 2 nd grade; before 3 rd grade review, paper-and-pencil regrouping is avoided through mental math and manipulatives.	NO Taught in 2 nd grade, but 13 problems require this skill in SE and supplements <i>before</i> 3 rd grade review in Chapter 6.	NO Taught in 2 nd grade, but 5 problems and a game require this skill <i>before</i> 3 rd grade review in Chapter 3.	YES Before Chapter 5, paper-and-pencil regrouping is avoided through counting on a number line, using mental math, coins, base-10 blocks, number puzzles, or partial sums.	NO Taught in 2 nd grade, but 17 problems require this skill in SE and supplements <i>before</i> 3 rd grade review in Chapter 2.	Never teaches addition with regrouping
avoid premature exercises involving subtraction with regrouping?	YES Not required before review on SE 52	YES Not required before review on SE 76-77	YES Taught in 2 nd grade; before 3 rd grade review, paper-and-pencil regrouping is avoided through use of a 100-chart and mental math.	NO Taught in 2 nd grade, but 17 problems require this skill in SE and supplements <i>before</i> 3 rd grade review in Chapter 7.	NO Taught in 2 nd grade, but 11 problems require this skill <i>before</i> 3 rd grade review in Chapter 4.	YES Avoided through similar means as addition with regrouping	NO Taught in 2 nd grade, but 15 problems require this skill in SE and supplements <i>before</i> 3 rd grade review in Chapter 3.	NO 30 problems appear to require this skill <i>before</i> it is taught, but instead ask students to invent "strategies" to solve them.
avoid premature exercises involving multiplication of 2 or 3 digits by 1 or 2 digits?	USUALLY 6 problems require this skill using decimals <i>before</i> it is taught. TE 383A, SE 385, TE 359, SE 389	YES Not required before intro on SE 441-442	YES Not required before intro in Topic 9 SE 192-193	NO 47 problems require this skill <i>before</i> Chapter 20 teaches it. Some are basic facts (e.g. 4 x 12), but are assigned <i>before</i> they are taught.	USUALLY 9 problems require this skill <i>before</i> Chapter 23 teaches it.	NO 20 problems require this skill before Chapter 9 teaches a non-standard "partial products" method.	NO 39 problems on SE/TE 182-484 require this skill <i>before</i> Chapter 14 teaches it.	NO First asks students to invent own "strategies" for these operations; says "algorithms" are introduced later (<i>Teacher's Reference Manual</i> , p. 32, par. 2-3) but those "algorithms" are non-standard
avoid premature exercises involving division of 2 or 3 digits by 1 or more digits?	NO 18 problems appear to require this skill <i>before</i> it is taught. TE 351A, SE 356-357, SE 368, TE 383A, SE 387, SE 385	YES Not required before intro on SE 541-543	YES Not required before intro in Step-Up to 4 th Grade lessons SE 476-477	NO Never taught, but 20 problems appear to require this skill. "Facts Practice," TE 510A, 542A, 562A, also TE 188A, 238, 349, 400, SE 174, 362	NO Never taught, but 8 problems appear to require this skill. TE 178A, TE 186, TE 281, TE 397, TE 436, TE 484, TE 554	NO 7 problems require this skill before Chapter 12 teaches a "missing products" method.	NO Never taught, but 9 problems on SE 410-555 appear to require this skill.	
avoid premature exercises involving decimal forms of money amounts?	YES TE 58A states that the standard notation for dollars and cents (with decimal points) was introduced in 2 nd grade. Chapter 2 of the 3 rd grade book reviews decimal notation for money amounts. TE 58B	YES Not required until SE 115 explains how to write money amounts with decimals	YES Not required before review on SE 17	NO Prior to introducing decimal money amounts on SE 416, students solve 2 SE problems dealing with them, plus 29 more in supplements.	PARTIALLY SE 109 teaches the role of the decimal point in writing money amounts, but does not emphasize aligning decimals when adding or subtracting.	NO Most money amounts use either ¢ or \$, without decimals, but 39 problems involve decimal money amounts, often on tests or test prep questions. Text never explains role of decimal in writing money amounts.	NO TE 78A & 110A say 3 rd graders will not work with decimal money amounts, but Scope and Sequence chart (<i>Teacher Reference Handbook</i> R80) says this text includes adding and subtracting decimal money amounts, and 208 problems in SE and supplements involve this.	YES Unit 1 reviews writing money amounts with decimal notation, a skill introduced in 2 nd grade.
OVERALL rating:	Better	Better	Better	Fair	Fair	Fair	Poor	Worst

3rd grade
Everyday Math

(Wright/McGraw, 2008)

CRIPPLES COMPUTATION SKILLS

When learning a new skill, students first "invent their own algorithms"

"During the early phases of learning an operation, *Everyday Mathematics* encourages children to invent their own algorithms ... before they develop or learn systematic procedures for solving problems." (*Teacher's Reference Manual*, p. 32)



even though

... it is unlikely that children will invent a multiplication algorithm of their own." (*Teacher's Edition*, p. 709)



heavy calculator-dependence results

"Across Kindergarten through Grade 6, the authors of *Everyday Mathematics* do not believe it is worth students' time and effort to fully develop highly efficient paper-and-pencil algorithms for all possible whole-number, fraction, and decimal division problems. ... The mathematical payoff is not worth the cost, particularly because quotients can be found quickly and accurately with a calculator." (*Teacher's Reference Manual*, p. 111)



coupled with much peer-dependence.

Every lesson calls for small-group and partner activities.



With the most calculator-dependence, with much peer-dependence, and usually the fewest practice problems of all eight 3rd grade Math Student and Teacher's Editions submitted by major publishers for 2008 local Texas adoption, *Everyday Math* RETARDS SKILL-BUILDING.

**Consistent with this defective pedagogy,
3rd grade *Everyday Math*:**

<p>DOES NOT TEACH ADDITION WITH REGROUPING</p>	<p>Uses cumbersome, time-consuming, less efficient, more laborious, non-standard "partial sums" method instead (<i>Teacher's Edition</i> pp. 137-138; <i>Teacher's Reference Manual</i>, pp. 102-103)</p>
<p>UNDERDEVELOPS MULTIPLICATION NUMBER-FACT AUTOMATICITY</p>	<ul style="list-style-type: none"> Admits that 3rd graders will not develop automaticity in mastering x3, x4, x6, x7, x8 and x9 multiplication number facts; says they will build multiplication number-fact automaticity involving "x0, x1, x2, x5 and x10" but that they will "use strategies" to multiply "remaining facts," i.e., x3, x4, x6, x7, x8 and x9 (<i>Teacher's Edition</i>, p. A28)
<p>DISCOURAGES PRACTICE OF STANDARD ALGORITHMS FOR MULTIPLICATION AND DIVISION</p>	<ul style="list-style-type: none"> Briefly mentions but in practice ignores the standard algorithm for multiplying 2 or more digits by 1 digit, with or without regrouping; uses cumbersome, time-consuming, less efficient, more laborious, unduly complicated "extended facts," "partial products," and "lattice" methods (<i>Teacher's Edition</i>, pp. 608-611, 732-733, 761-763; <i>Student Reference Book</i>, pp. 74E-F) Confesses that "a formal introduction to division algorithms is not included" (<i>Teacher's Reference Manual</i>, p. 112) Never drops crutches (e.g., counters, arrays, drawings) in division

**BIG FLAW
IN A 3RD
GRADE
MATH
PROGRAM**