


Math Connects

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STANDARDS	PAGE REFERENCES
<p>Standard 1: Number and Computation</p>	
<p>Standard 1: Number and Computation – The student uses numerical and computational concepts and procedures in a variety of situations.</p>	
<p>Benchmark 1: Number Sense – The student demonstrates number sense for whole numbers, fractions, decimals, and money using concrete objects in a variety of situations.</p>	
<p>1. knows, explains, and represents (\$):</p> <ul style="list-style-type: none"> a. whole numbers from 0 through 10,000 (2.4.K1a-b) b. fractions greater than or equal to zero (halves, fourths, thirds, eighths, tenths, sixteenths) (2.4.K1c) (\$); c. decimals greater than or equal to zero through tenths place (2.4.K1c). 	<p>Student Edition: 24, 603 <i>Are You Ready</i> 558 #6-#9 <i>Check What You Know</i> 604 #1-#3 <i>Explore</i> 559-560 <i>Practice and Problem Solving</i> 605 #12-#14</p> <p>Teacher Edition: ATS 26, 562; I 28; IWO 24B; SGO 603B; T 603</p>

STANDARDS	PAGE REFERENCES												
<p>2. compares and orders:</p> <p>a. ▲ ■ whole numbers from 0 through 10,000 with and without the use of concrete objects (2.4.K1a-b) (\$);</p> <p>b. fractions greater than or equal to zero with like denominators (halves, fourths, thirds, eighths, tenths, sixteenths) using concrete objects (2.4.K1a,c);</p> <p>c. decimals greater than or equal to zero through tenths place using concrete objects (2.4.K1a-c).</p>	<p>Student Edition:</p> <p><i>Chapter Test</i> 63 #12-#15</p> <p><i>Check What You Know</i> 36 #1-#6, 39 #1-#6, 582 #1-#5</p> <p><i>Extra Practice</i> R3, R36</p> <p><i>Practice and Problem Solving</i> 36 #9-#20, 40 #9-#20, 582 #8-#17</p> <p><i>Real-World Example</i> 34, 35, 38, 39, 580, 581</p> <p><i>Start Smart</i> 5</p> <p><i>Study Guide and Review</i> 60, 593 #28, #29</p> <p><i>Test Practice</i> 597 #14</p> <p>Teacher Edition:</p> <p>A 37, 41, 583; AE 35, 39; ATS 36, 39, 581; I 580; IWO 580B; SGO 34B; T 34, 38</p>												
<p>3. ▲ knows, explains, and uses equivalent representations including the use of mathematical models for:</p> <p>a. addition and subtraction of whole numbers from 0 through 1,000 (2.4.K1a-b) (\$), e.g.,</p> <p>144 + 236</p>  <p>.....</p> <p>= 300 + 80</p> <table data-bbox="235 1260 519 1417"> <tr> <td>\$100</td> <td>\$10</td> <td>\$10</td> </tr> <tr> <td>\$100</td> <td>\$10</td> <td>\$10</td> </tr> <tr> <td>\$100</td> <td>\$10</td> <td>\$10</td> </tr> <tr> <td></td> <td>\$10</td> <td>\$10</td> </tr> </table> <p>b. multiplication using the basic facts through the 5s and the multiplication facts of the 10s (2.4.K1a), e.g., 3 x 2 can be represented as 4 + 2 or as an array, X X X</p> <p style="text-align: center;">X X X;</p> <p>c. addition and subtraction of money (2.4.K1d) (\$), e.g., three half dollars equals 50¢ + 50¢ + 50¢ or 50¢ + 100¢.</p>	\$100	\$10	\$10	\$100	\$10	\$10	\$100	\$10	\$10		\$10	\$10	<p>Student Edition:</p> <p><i>Explore</i> 90-91, 126-127, 157-158</p> <p><i>Extend</i> 165-166</p> <p><i>Get Ready for the Lesson</i> 79</p> <p><i>H.O.T. Problems</i> 80 #26, 131 #31, 170 #23</p> <p>Teacher Edition:</p> <p>ATS 79, 98, 112, 163; I 69, 78, 92, 96, 111, 128, 138, 162; IWO 78B, 138B, 174B; SGO 69B, 78B, 128B, 138B; T 78, 92, 111, 138, 162</p>
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<p>4. ▲N determines the value of mixed coins and bills with a total value of \$50 or less (2.1.K1d) (\$).</p>	<p>Student Edition: 53 <i>Are You Ready</i> 600 #9-#11 <i>Chapter Test</i> 63 #11 <i>Check What You Know</i> 54 <i>Extra Practice</i> R5 <i>Key Concept</i> 53 <i>Practice and Problem Solving</i> 54 <i>Real-World Example</i> 53 <i>Study Guide and Review</i> 62 #58, #59 <i>Test Practice</i> 65 #6</p> <p>Teacher Edition: A 55; AE 53; ATS 54; IWO 34B, 52B; SGO 53B; T 52</p>
<p>Benchmark 2: Number Systems and Their Properties – The student demonstrates an understanding of whole numbers with a special emphasis on place value and recognizes, uses, and explains the concepts of properties as they relate to whole numbers, fractions, decimals, and money in a variety of situations.</p>	
<p>1. identifies, reads, and writes numbers using numerals and words from tenths place through ten thousands place (2.4.K1a-b) (\$), e.g., sixty four thousand, three hundred eighty and five tenths is written in numerical form as 64,380.5.</p>	<p>Student Edition: 25 <i>Chapter Test</i> 63 #8-#10 <i>Check What You Know</i> 26 #4-#8, 29 #5-#10 <i>Extra Practice</i> R2, R3 <i>H.O.T. Problems</i> 27 #30 <i>Mid-Chapter Check</i> 31 #6, #7, #10-#13 <i>Practice and Problem Solving</i> 26 #17-#26, 30 #21-#32 <i>Real-World Example</i> 25, 29 <i>Study Guide and Review</i> 58 #14-#19, #22-#25 <i>Test Practice</i> 64 #2, #4, #7</p> <p>Teacher Edition: AE 25, 29; ATS 29; IWO 28B</p>

STANDARDS	PAGE REFERENCES
<p>2. identifies, models, reads, and writes numbers using expanded form from tenths place through ten thousands place (2.4.K1b), e.g., $56,277.3 = (5 \times 10,000) + (6 \times 1,000) + (2 \times 100) + (7 \times 10) + (7 \times 1) + (3 \times .1) = 50,000 + 6,000 + 200 + 70 + 7 + .3$.</p>	<p>Student Edition: 25 <i>Chapter Test</i> 63 #8, #9 <i>Check What You Know</i> 26 #4, #6-#8 <i>Extra Practice</i> 26 <i>Practice and Problem Solving</i> 26 #17, #18, #21-#26 <i>Real-World Example</i> 25 <i>Study Guide and Review</i> 58 #14-#17</p> <p>Teacher Edition: AE 25</p>
<p>3. classifies various subsets of numbers as whole numbers, fractions (including mixed numbers), or decimals (2.4.K1a-c, 2.4.K1i)</p>	<p>Student Edition: 561, 603, LA10 <i>Big Idea</i> 556 <i>Explore</i> 559, 601</p>
<p>4. identifies the place value of various digits from tenths to one hundred thousands place (2.4.K1b) (\$).</p>	<p>Student Edition: 24 <i>Big Idea</i> 14 <i>Chapter Test</i> 63 #5, #6, #18 <i>Check What You Know</i> 26 #1-#3, 29 #1-#4 <i>Example</i> 28 <i>Extra Practice</i> R2, R3 <i>Mid-Chapter Check</i> 31 #4, #5, #8, #9 <i>Practice and Problem Solving</i> 26 #11-#16, 30 #13-#20 <i>Real-World Example</i> 24, 25 <i>Start Smart</i> 4 <i>Study Guide and Review</i> 58 #20, #21</p> <p>Teacher Edition: AE 25, 29; T 24</p>
<p>5. identifies any whole number through 1,000 as even or odd (2.4.K1a).</p>	<p>Student Edition: <i>Concepts and Skills Bank</i> R64 Also see <i>Math Connects 4</i> © 2009</p> <p>Student Edition: R58</p>

STANDARDS	PAGE REFERENCES
<p>6. uses the concepts of these properties with whole numbers from 0 through 100 and demonstrates their meaning including the use of concrete objects (2.4.K1a) (\$):</p> <p>a. commutative properties of addition and multiplication, e.g., $7 + 8 = 8 + 7$ or $3 \times 6 = 6 \times 3$;</p> <p>b. zero property of addition (additive identity), e.g., $4 + 0 = 4$;</p> <p>c. property of one for multiplication (multiplicative identity), $1 \times 3 = 3$;</p> <p>d. associative property of addition, e.g., $(3 + 2) + 4 = 3 + (2 + 4)$;</p> <p>e. symmetric property of equality applied to addition and multiplication, e.g., $100 = 20 + 80$ is the same as $20 + 80 = 100$ and $3 \times 4 = 12$ is the same as $12 = 3 \times 4$;</p> <p>f. zero property of multiplication, e.g., $9 \times 0 = 0$ or $0 \times 32 = 0$.</p>	<p>Student Edition: 186 <i>Chapter Test</i> 105 #1-#3 <i>Check What You Know</i> 70 #1-#3, 187 <i>Example</i> 70, 186 <i>Extra Practice</i> R5 <i>Key Concept</i> 69, 160 <i>Practice and Problem Solving</i> 71 #6-#19, 161 #8-#10, 187 <i>Real-World Example</i> 70, 160, 186 <i>Study Guide and Review</i> 101 #6-#10 <i>Test Practice</i> 106 #3</p> <p>Teacher Edition: A 161, 188; AE 70; ATS 70, 187; IWO 186B; T 69</p>
<p>7. divides whole numbers from 0 through 99,999 into groups of 10,000s; 1,000s; 100s; 10s, and 1s using base ten models (2.4.K1b).</p>	<p>Student Edition: 24 <i>Get Ready to Learn</i> 635</p> <p>Teacher Edition: ATS 25; I 28; IWO 24B, 635B</p>
<p>Benchmark 3: Estimation – The student uses computational estimation with whole numbers, fractions, and money in a variety of situations.</p>	
<p>1. estimates whole numbers quantities from 0 through 1,000; fractions (halves, fourths); and monetary amounts through \$500 using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology (2.4.K1a-d) (\$).</p>	<p>The concepts on the following page references can be expanded to meet this standard.</p> <p>Student Edition: <i>Check What You Know</i> 45, 59 <i>Practice and Problem Solving</i> 46, 54 <i>Real-World Example</i> 44, 45</p> <p>Teacher Edition: AE 45; IWO 44B</p>

STANDARDS	PAGE REFERENCES
<p>2. uses various estimation strategies to estimate using whole number quantities from 0 through 1,000 and explains the process used (2.4.K1a) (\$) e.g., 362 rounded to the nearest ten is 360 and 362 rounded to the nearest hundred is 400. Using front-end estimation, 362 is about 300 or 400 depending on the context of the problem. Using a “nice” number, 362 is about 350 because of the benchmark number – 350, since 350 is the halfway point between 300 and 400.</p>	<p>Student Edition: <i>Chapter Test</i> 63 #16, #17, 105 #4, #5, 151 #5, #6 <i>Check What You Know</i> 45 #1-#8, 50 #1-#6, 75 #1-#6, 115 <i>Example</i> 75 <i>Key Concept</i> 49 <i>Practice and Problem Solving</i> 46, 50, 76, 116 <i>Real-World Example</i> 44, 45, 48, 49, 74, 75, 114, 115 <i>Study Guide and Review</i> 61, 62 #53-#57, 102 #13-#19, 145 #13-#17 <i>Test Practice</i> 65 #3, #8, 106 #6, 152 #4, #11</p> <p>Teacher Edition: A 51, 77, 117; AE 45, 49, 115; ATS 45, 75, 115; I 44, 48, 74, 114; IWO 44B, 74B; SGO 74B; T 44, 48, 74, 114</p>
<p>3. recognizes and explains the difference between an exact and an approximate answer (2.4.K1a), e.g., when asked how many students are in a classroom, an exact answer could be 24. Whereas, an approximate answer could be 20 since 24 could be rounded down to the nearest ten (underestimated) or rounded up to 30 (overestimated).</p>	<p>Student Edition: <i>Analyze the Skill</i> 73 <i>Chapter Test</i> 63 #19, 105 #12, #13 <i>Extra Practice</i> R5 <i>Practice the Skill</i> 73 <i>Study Guide and Review</i> 101 #11, #12</p> <p>Teacher Edition: A 73; IWO 72B; T 72</p>
<p>Benchmark 4: Computation – The student models, performs, and explains computation with whole numbers and money including the use of concrete objects in a variety of situations.</p>	
<p>1. computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology (2.4.K1a) (\$).</p>	<p>Student Edition: <i>Check What You Know</i> 79, 83, 112, 119 <i>Extend</i> 165-166, 267-268 <i>Facts Practice</i> 177, 189, 210, 225 <i>Get Ready to Learn</i> 78 <i>Practice and Problem Solving</i> 80, 84, 113, 120 <i>Real-World Example</i> 78, 79, 82, 83, 111, 112, 118, 119</p> <p>Teacher Edition: ATS 79, 83, 112, 119; IWO 78B, 118B; SGO 78B, 82B</p>

STANDARDS	PAGE REFERENCES
<p>2. N states and uses with efficiency and accuracy the multiplication facts through the 5s and the multiplication facts of the 10s and corresponding division facts (2.4.K1a) (\$).</p>	<p>Student Edition: <i>Check What You Know</i> 163 #4-#7, 169 #1-#6, 175 #1-#6, 179 #1-#6, 187 #1-#4, 204 #1-#4, 265 #1-#5, 271 #1-#4, 279 #1-#4, 298 #1-#4, 301 #1-#6 <i>Facts Practice</i> 177, 189 <i>Key Concept</i> 204, 301 <i>Practice and Problem Solving</i> 164 #16-#27, 169 #9-#17, 176 #9-#17, 180 #9-#17, 187 #7-#22, 205 #7-#22, 265 #8-#15, 272 #7-#14, 279 #7-#14</p> <p>Teacher Edition: ATS 163, 169, 175, 179, 265, 271, 279, 298, 301</p>
<p>3. skip counts (multiples) by 2s, 3s, 4s, 5s, and 10s (2.4.K1a).</p>	<p>Student Edition: <i>Real-World Example</i> 163, 175, 178, 179</p> <p>Teacher Edition: T 17</p> <p>Also see <i>Math Connects 2</i> © 2009</p> <p>Student Edition: 43-44</p>
<p>4. N performs and explains these computational procedures:</p> <p>a. adds and subtracts whole numbers from 0 through 10,000 (2.4.K1a-b);</p> <p>b. multiplies whole numbers when one factor is 5 or less and the other factor is a multiple of 10 through 1,000 with or without the use of concrete objects (2.4.K1a-b), e.g., $400 \times 3 = 120$ or $70 \times 5 = 350$;</p> <p>c. adds and subtracts monetary amounts using dollar and cents notation through \$500.00 (2.4.K1d) (\$), e.g., $\\$47.07 + \\$356.96 = \\$404.03$.</p>	<p>Student Edition: <i>Check What You Know</i> 79, 93, 98, 112, 129, 135, 179, 637 <i>Explore</i> 90-91, 126-127 <i>H.O.T. Problems</i> 80 #25, 99 #26, 113 #27, 131 #30, #31 <i>Practice and Problem Solving</i> 80, 94, 98, 113, 130, 136, 180, 637 <i>Real-World Example</i> 78, 79, 92, 93, 96, 97, 111, 112, 128, 129, 134, 135, 178, 179, 635, 636</p> <p>Teacher Edition: A 80, 94, 99, 113, 131, 136, 637; AE 79, 93, 97, 112, 129, 135, 179, 636; ATS 79, 93, 98, 112, 129, 135, 179, 636</p>
<p>5. fair shares/measures out (divides) a total amount through 100 concrete objects into equal groups (2.4.K1a-b), e.g., fair sharing 52 pieces of candy with 8 friends resulting in eight groups of 6 with four pieces left over or measuring out into groups of eight 52 pieces of candy with four pieces left over.</p>	<p>Student Edition: <i>Check What You Know</i> 317 #7 <i>Explore</i> 251-252 <i>Practice and Problem Solving</i> 255 #13, #26, #27, 265 #17, #18, 314 #17 <i>Real-World Example</i> 264, 297, 313</p> <p>Teacher Edition: I 253; SGO 316B; T 253</p>

STANDARDS	PAGE REFERENCES
<p>6. explains the relationship between addition and subtraction (2.4.K1ab) (\$).</p>	<p>The following references can be used during teacher/class discussion to meet this standard. Student Edition: <i>Real-World Example</i> 111, 112, 119, 135, 139</p>
<p>7. ▲■ N identifies multiplication and division fact families through the 5s and the multiplication and division fact families of the 10s (2.4.K1a), e.g., when given $6 \times \square = 18$, the student recognizes the remaining members of the fact family.</p>	<p>Student Edition: 259 <i>Check What You Know</i> 259 #3-#5 <i>Example</i> 259 <i>Practice and Problem Solving</i> 260 #12-#20 <i>Remember</i> 259 Teacher Edition: AE 259; ATS 259; IWO 258B; SGO 258B; T 258</p>
<p>8. reads and writes horizontally, vertically, and with different operational symbols the same addition, subtraction, multiplication, or division expression, e.g., $4 \cdot 6$ is the same as 4×6 or $4(6)$ or 6 $\underline{x} 4$ and 10 divided by 2 is the same as</p> <p>$10 \div 2$ or $\frac{10}{2}$.</p>	<p>See <i>Math Connects: Concepts, Skills, and Problem Solving Course 1</i> © 2009 Student Edition: 42, 210</p>
<p>Standard 2: Algebra</p>	
<p>Standard 2: Algebra – The student uses algebraic concepts and procedures in a variety of situations.</p>	
<p>Benchmark 1: Patterns – The student recognizes, describes, extends, develops, and explains relationships in patterns using concrete objects in a variety of situations.</p>	
<p>1. uses concrete objects, drawings, and other representations to work with types of patterns (2.4.K1a): a. repeating patterns, e.g., an AB pattern is like 1-2, 1-2, ...; an ABC pattern is like dog-horse-pig, dog-horse-pig, ...; an AAB pattern is like $\uparrow\uparrow\rightarrow$, $\uparrow\uparrow\rightarrow$, ...; b. growing patterns, e.g., 1, 4, 7, 10, ...</p>	<p>Student Edition: 17 <i>Are You Ready</i> 16 #13-#16 <i>Example</i> 17 <i>Real-World Example</i> 18, 478, 479 Teacher Edition: ATS 18, 479; I 17, 478; IWO 17B, 478B; SGO 478B; T 17, 478</p>

STANDARDS	PAGE REFERENCES
<p>2. uses these attributes to generate patterns:</p> <p>a. counting numbers related to number theory (2.4.K1a), e.g., evens, odds, or multiples through the 5s;</p> <p>b. whole numbers that increase or decrease (2.4.K1a) (\$), e.g., 3, 6, 9, ...; 20, 15, 10, ...;</p> <p>c. geometric shapes including one attribute change (2.4.K1f), e.g., ■-□-△-▲, ■-□-△-▲, ■-□-△-▲, ... where the pattern is filled-in square, square, triangle, filled-in triangle, ...; or when using attribute blocks the change is size only, then shape only, ... such as small circle, large circle, large triangle, small triangle, small square, large square...;</p> <p>d. measurements (2.4.K1a), e.g., 1 ft, 2 ft, 3 ft, ...; 3 lbs, 6 lbs, 9 lbs; or 2 cups, 4 cups, 6 cups, ...;</p> <p>e. money and time (2.4.K1a,d) (\$), e.g., \$.25, \$.50, \$.75, ... or 1:05 p.m., 1:10 p.m., 1:15 p.m., ...;</p> <p>f. things related to daily life (2.4.K1a), e.g., water cycle, food cycle, or life cycle;</p> <p>g. things related to size, shape, color, texture, or movement (2.4.K1a), e.g., red-green, red-green, red-green, ...; snapping fingers; clapping hands; stomping feet; or tossing a bean bag over the head, under the leg, and behind the back (kinesthetic patterns).</p>	<p>Student Edition: <i>Analyze the Strategy</i> 213 <i>Check What You Know</i> 18 #5, 479 <i>Practice and Problem Solving</i> 19 #15-#18, 480 <i>Practice the Strategy</i> 213 <i>Real-World Example</i> 478, 479</p> <p>Teacher Edition: AE 18, 479; IWO 478B; SGO 17B; T 17, 478</p>
<p>3. identifies, states, and continues a pattern presented in various formats including numeric (list or table), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written (2.4.K1a) (\$).</p>	<p>Student Edition: <i>Analyze the Strategy</i> 213 <i>Are You Ready</i> 16 #13-#16, 200 #11-#14 <i>Check What You Know</i> 18 #1-#4, 479 #1, #2 <i>Practice and Problem Solving</i> 19 #7-#14, 480 #6-#11 <i>Practice the Strategy</i> 213 <i>Study Guide and Review</i> 57 #7-#10</p> <p>Teacher Edition: AE 18; ATS 18, 213; I 17; T 17</p>
<p>4. generates:</p> <p>a. repeating patterns (2.4.K1a),</p> <p>b. growing (extending) patterns (2.4.K1a),</p> <p>c. patterns using function tables (input/output machines, T-tables) (2.4.K1e).</p>	<p>Student Edition: <i>H.O.T. Problems</i> 19 #19, 481 #18</p> <p>Teacher Edition: ATS 479; IWO 478B; SGO 478B</p>

STANDARDS	PAGE REFERENCES
Benchmark 2: Variables, Equations, and Inequalities – The student uses symbols and whole numbers to solve equations including the use of concrete objects in a variety of situations.	
1. explains and uses symbols to represent unknown whole number quantities from 0 through 1,000 (2.4.K1a)	The following page references can be used during teacher/class discussion to meet this standard. Student Edition: <i>Check What You Know</i> 207 #5-#8, 215 #5-#7 <i>Practice and Problem Solving</i> 208 #23-#26, 216 #26-#31 <i>Real-World Example</i> 207, 215
2. finds the sum or difference in one-step equations with (\$): a. whole numbers from 0 through 99 (2.4.K1a) e.g., $89 = 76 + y$ or $y - 23 = 32$; b. monetary values through a dollar (2.4.K1d), e.g., $25¢ + 10¢ + 5¢ = n$.	See <i>Math Connects 4</i> © 2009 Student Edition: 196-200
3. finds the unknown in the multiplication and division fact families through the 5s and the 10s (2.4.K1a), e.g., $3 \cdot \square = 4 \cdot 6$.	The following references can be extended to meet this standard. Student Edition: <i>Check What You Know</i> 259 #1, #2 <i>Practice and Problem Solving</i> 260 #8-#11
4. compares two whole numbers from 0 through 1,000 using the equality and inequality symbols ($=$, $<$, $>$) and their corresponding meanings (is equal to, is less than, is greater than) (2.4.K1a-b) (\$).	Student Edition: <i>Chapter Test</i> 63 #12, #13 <i>Check What You Know</i> 36 <i>Extra Practice</i> R3 <i>Practice and Problem Solving</i> 36 <i>Real-World Example</i> 34, 35 <i>Study Guide and Review</i> 60 #31-#34 Teacher Edition: AE 35; ATS 36; SGO 34B
Benchmark 3: Functions – The student recognizes and describes whole number relationships using concrete objects in a variety of situations.	
1. states mathematical relationships between whole numbers from 0 through 200 using various methods including mental math, paper and pencil, concrete objects, and appropriate technology (2.4.K1a) (\$), e.g., every time a quarter is added to the amount; 25¢ is added to the total.	Student Edition: <i>Big Idea</i> 330 <i>Check What You Know</i> 350 #1, #2, 358 #1, #2 <i>Practice and Problem Solving</i> 350 #5, #8-#12, 358 #4-#9 <i>Real-World Example</i> 349, 356, 357 Teacher Edition: AE 349, 357; IWO 356B

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<p>2. finds the values and determines the rule with one operation (addition, subtraction) of whole numbers from 0 through 200 using a horizontal or vertical function table (input/output machine, T-table) (2.4.K1e), e.g., using this input/output machine, different student responses might be that the rule is Input minus 10 equals Output, the rule is $N - 10$, or the rule is subtract 10.</p> <table border="1" data-bbox="284 562 472 898"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>92</td> <td>82</td> </tr> <tr> <td>156</td> <td>146</td> </tr> <tr> <td>13</td> <td>3</td> </tr> <tr> <td>113</td> <td>103</td> </tr> <tr> <td>?</td> <td>59</td> </tr> <tr> <td>106</td> <td>?</td> </tr> <tr> <td>?</td> <td>?</td> </tr> <tr> <td>N</td> <td>?</td> </tr> </tbody> </table>	Input	Output	92	82	156	146	13	3	113	103	?	59	106	?	?	?	N	?	<p>Student Edition: <i>Chapter Test</i> 367 #5 <i>Check What You Know</i> 350 <i>Extra Practice</i> R23 <i>Mid-Chapter Check</i> 353 #11, #13 <i>Practice and Problem Solving</i> 350-351 <i>Real-World Example</i> 348, 349 <i>Study Guide and Review</i> 365 #15-#17 <i>Test Practice</i> 368 #1</p> <p>Teacher Edition: A 350; AE 349; ATS 350; IWO 348B; T 348</p>
Input	Output																		
92	82																		
156	146																		
13	3																		
113	103																		
?	59																		
106	?																		
?	?																		
N	?																		
<p>3. ▲ generalizes numerical patterns using whole numbers from 0 through 200 with one operation (addition, subtraction) by stating the rule using words, e.g., if the sequence is 30, 50, 70, 90, ...; in words, the rule is add twenty to the number before.</p>	<p>Student Edition: <i>Check What You Know</i> 18 #1-#4, 345 #1, #2 <i>Example</i> 17 <i>Practice and Problem Solving</i> 19 #7-#14, 346 #4-#7 <i>Real-World Example</i> 18, 344, 345</p> <p>Teacher Edition: A 347; ATS 18, 345; TOD 347</p>																		
<p>4. uses a function table (input/output machine, T-table) to identify and plot ordered pairs in the first quadrant of a coordinate plane (2.4.K1a,e).</p>	<p>The concepts included in the following page references can be extended to meet this standard.</p> <p>Student Edition: 348-351, 356-359, 494-497</p>																		

STANDARDS	PAGE REFERENCES
Benchmark 4: Models – The student develops and uses mathematical models including the use of concrete objects to represent and show mathematical relationships in a variety of situations.	
<p>1. knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include:</p> <p>a. process models (concrete objects, pictures, number lines, coordinate planes/grids, hundred charts, measurement tools, multiplication arrays, or division sets) to model computational procedures and mathematical relationships (1.2.K1, 1.2.K.1a, 1.2.K2 1.2.K3, 1.2.K5-6, 1.3.K1-3, 1.4.K1-3, 1.4.K1a-b, 1.4.K5-7, 2.1.K1, 2.1.K2a, 2.1.K2d-g, 2.1.K3, 2.1.K4a-b, 2.2.K1, 2.2.K2, 2.2.K3-4, 2.3.K1, 2.3.K4, 3.2.K1-4, 3.3.K1, 3.4.K1-3, K.2.K3) (\$);</p> <p>b. place value models (place value mats, hundred charts, base ten blocks or unifix cubes) to compare, order, and represent numerical quantities and to model computational procedures (1.1.K1c, 1.1.K2a, 1.1.K2c, 1.1.K3a, 1.2.K1-4, 1.2.K7, 1.3.K1, 1.4.K4a-b, 1.4.K5-6, 2.2.K4) (\$);</p> <p>c. fraction models (fraction strips or pattern blocks) and decimal models (base ten blocks or coins) to compare, order, and represent numerical quantities (1.1.K1b, 1.1.K2b-c, 1.2.K3, 1.3.K1) (\$);</p> <p>d. money models (base ten blocks or coins) to compare, order, and represent numerical quantities (1.1.K3c, 1.1.K4, 1.3.K1, 1.4.K4c, 2.1.K2e, 2.2.K2b) (\$);</p> <p>e. function tables (input/output machines, T-tables) to find numerical relationships (2.1.K4c, 2.3.K2, 2.3.K4) (\$);</p>	<p>Student Edition: <i>Explore</i> 22-23, 90-91, 126-127, 157-158, 201-202, 251-252, 256-257, 295-296, 559-560 <i>Extend</i> 165-166, 267-268, 575</p> <p>Teacher Edition: <i>ATS</i> 18, 26, 29, 36, 54, 75, 79, 98, 112, 179, 204, 207, 215, 223, 254, 265, 279, 298, 313, 350, 562, 573; <i>I</i> 17, 28, 52, 69, 78, 96, 111, 114, 128, 134, 138, 159, 162, 168, 178, 206, 253, 264, 278, 300, 306, 316, 572, 580; <i>IWO</i> 24B, 52B, 78B, 138B, 159B, 580B; <i>SGO</i> 17B, 52B, 78B, 96B, 128B, 138B, 168B, 348B; <i>T</i> 34, 38, 52, 78, 92, 111, 138, 230, 253, 264, 278, 297, 581</p>

STANDARDS	PAGE REFERENCES
<p>Continued from cell above...</p> <p>1. knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include:</p> <p>f. two-dimensional geometric models (geoboards, dot paper, pattern blocks, or tangrams) to model perimeter, area, and properties of geometric shapes and three-dimensional geometric models (solids) and real-world objects to compare size and to model attributes of geometric shapes (2.1.K2c, 3.1.K1-6, 3.2.K5, 3.3.K2);</p> <p>g. two-dimensional geometric models (spinners), three dimensional models (number cubes), and process models (concrete objects) to model probability (4.1.K1-2) (\$);</p> <p>h. graphs using concrete objects, representational objects, or abstract representations, pictographs, frequency tables, horizontal and vertical bar graphs, Venn diagrams or other pictorial displays, line plots, charts, and tables to organize and display data (2.3.K4, 4.1.K2, 4.2.K1a-d, 4.2.K1f-g, 4.2.K2) (\$);</p> <p>i. Venn diagrams to sort data and show relationships (1.2.K3).</p>	<p>Student Edition: <i>Explore</i> 396-397 <i>Game Time</i> 482 <i>Get Ready to Learn</i> 392</p> <p>Teacher Edition: ATS 393, 399, 469, 473, 485, 533, 537, 543; I 392, 398, 467, 472; IWO 398B, 472B, 484B, 515B, 542B; SGO 472B, 515B, 518B, 536B, 542B; T 467, 472, 484, 542</p>
<p>2. creates a mathematical model to show the relationship between two or more things, e.g., using pattern blocks, a whole (1) can be represented as</p> <p>a hexagon (1/1) or two quadrilaterals (2/2) or three quadrilaterals (3/3) or six triangles (6/6)</p>	<p>The following references can be expanded through teacher/class discussion to meet this standard.</p> <p>Student Edition: 472</p> <p>Teacher Edition: IWO 472B; T 472</p>

STANDARDS	PAGE REFERENCES
Standard 3: Geometry	
Standard 3: Geometry – The student uses geometric concepts and procedures in a variety of situations.	
Benchmark 1: Geometric Figures and Their Properties – The student recognizes geometric shapes and investigates their properties using concrete objects in a variety of situations.	
1. recognizes and investigates properties of plane figures (circles, squares, rectangles, triangles, ellipses, rhombi, octagons) using concrete objects, drawings, and appropriate technology (2.4.K1f).	Student Edition: 472 Teacher Edition: ATS 473; I 472; SGO 472B; T 472
2. recognizes, draws, and describes plane figures (circles, squares, rectangles, triangles, ellipses, rhombi, octagons) (2.4.K1f).	Student Edition: 472 <i>Check What You Know</i> 473 <i>Extra Practice</i> R29 <i>Practice and Problem Solving</i> 474 Teacher Edition: ATS 473; IWO 472B; SGO 472B; T 475
3. ■ recognizes the solids (cubes, rectangular prisms, cylinders, cones, spheres) (2.4.K1f).	Student Edition: <i>Check What You Know</i> 469 #1-#5 <i>Example</i> 467, 468 <i>Extra Practice</i> R29 <i>Key Concept</i> 467 <i>Practice and Problem Solving</i> 469, 470 #16-#19 Teacher Edition: AE 468; ATS 469; IWO 467B; T 467
4. ▲ recognizes and describes the square, triangle, rhombus, hexagon, parallelogram, and trapezoid from a pattern block set (2.4.K1f).	The following references can be expanded through class activities to meet this standard. Student Edition: 472 Teacher Edition: IWO 472B; T 472
5. recognizes and describes a quadrilateral as any four-sided figure (2.4.K1f).	Student Edition: 472 <i>Check What You Know</i> 473 #2 <i>Practice and Problem Solving</i> 474 #8, #12, #14, #17, #21 Teacher Edition: Also see <i>Math Connects 4</i> © 2009 Student Edition: 376-378

STANDARDS	PAGE REFERENCES
<p>6. determines if geometric shapes and real-world objects contain line(s) of symmetry and draws the line(s) of symmetry if the line(s) exist(s) (2.4.K1f).</p>	<p>Student Edition: 488 <i>Check What You Know</i> 489 <i>Example</i> 488 <i>Extend</i> 491 <i>Extra Practice</i> R31 <i>Hands-On Mini Activity</i> 488 <i>H.O.T. Problems</i> 490 #19, #20 <i>Practice and Problem Solving</i> 490 <i>Real-World Exercises</i> 489 <i>Study Guide and Review</i> 505 #36-#41</p> <p>Teacher Edition: AE 489; ATS 489; SGO 488B: T 488</p>
<p>Benchmark 2: Measurement and Estimation – The student estimates and measures using standard and nonstandard units of measure with concrete objects in a variety of situations.</p>	
<p>1. uses whole number approximations (estimations) for length, width, weight, volume, temperature, time, and perimeter using standard and nonstandard units of measure (2.4.K1a) (\$).</p>	<p>Student Edition: 375, 378 <i>Check What You Know</i> 376 #1, #2, 380, 388, 426 #4, #5, 433 #4-#6, 439 #4, #5 <i>Explore</i> 373-374, 384-385, 423-424 <i>Game Time</i> 429 <i>Hands-On Mini Activity</i> 392 <i>Practice and Problem Solving</i> 377 #5-#9, 380, 427 #12-#14, 434 #15-#20, 440 #14-#16 <i>Real-World Example</i> 375, 376, 378, 379, 387, 426, 433, 439</p> <p>Teacher Edition: ATS 380</p>
<p>2. ▲ reads and tells time to the minute using analog and digital clocks (2.4.K1a).</p>	<p>Student Edition: <i>Are You Ready</i> 422 #7, #8 <i>Check What You Know</i> 455 <i>Example</i> 454 <i>Extra Practice</i> R29 <i>Practice and Problem Solving</i> 455 <i>Real-World Example</i> 454 <i>Study Guide and Review</i> 460 #30-#34</p> <p>Teacher Edition: A 455; ATS 455; IWO 454B; SGO 454B; T 454</p>

STANDARDS	PAGE REFERENCES
<p>3. selects, explains the selection of, and uses measurement tools, units of measure, and degree of accuracy appropriate for a given situation to measure (2.4.K1a) (\$):</p> <p>a. length width, and height to the nearest half inch, inch, foot, and yard; and to the nearest whole unit of nonstandard unit;</p> <p>b. length, width, and height to the nearest centimeter and meter;</p> <p>c. weight to the nearest whole unit of a nonstandard unit;</p> <p>d. volume to the nearest cup, pint, quart, and gallon;</p> <p>e. volume to the nearest liter;</p> <p>f. temperature to the nearest degree.</p>	<p>Student Edition: 375, 378, 386, 408, 425, 432 <i>Check What You Know</i> 376, 380, 388 #5, #6, 409 #1-#3 <i>Explore</i> 373-374, 384-385, 406-407, 423-424 <i>Game Time</i> 429 <i>Hands-On Mini Activity</i> 438 <i>Practice and Problem Solving</i> 377, 380, 388 #15, #16, 410 #9-#14 <i>Real-World Example</i> 375, 376, 379, 408</p> <p>Teacher Edition: ATS 376, 426; I 408; IWO 375B; SGO 408B; T 375</p>
<p>4. states (2.4.K1a):</p> <p>a. the number of hours in a day and days in a year;</p> <p>b. the number of inches in a foot, inches in a yard, and feet in a yard;</p> <p>c. the number of centimeters in a meter;</p> <p>d. the number of cups in a pint, pints in a quart, and quarts in a gallon.</p>	<p>Student Edition: <i>Activity</i> 423</p> <p>Teacher Edition: I 425; T 378</p> <p>Also see <i>Math Connects 4</i> © 2009</p> <p>Student Edition: 444-445, 490-491</p>
<p>5. finds the perimeter of squares, rectangles, and triangles given the measures of all the sides (2.4.K1f).</p>	<p>Student Edition: <i>Check What You Know</i> 393 #1 <i>Data File</i> 394 <i>Example</i> 393 <i>Hands-On Mini Activity</i> 392 <i>Key Concept</i> 392 <i>Practice and Problem Solving</i> 394 #9 <i>Study Guide and Review</i> 415 #18, #20, #21 <i>Test Practice</i> 419 #11, #13</p> <p>Teacher Edition: AE 393; ATS 393; NM 395</p>

STANDARDS	PAGE REFERENCES
Benchmark 3: Transformational Geometry – The student recognizes and performs one transformation on simple shapes or concrete objects in a variety of situations.	
1. knows and uses cardinal points (north, south, east, west) and intermediate points (northeast, southeast, northwest, southwest) (2.4.K1a).	The following coordinate grid references can be expanded during class activities to include cardinal points. Student Edition: 494-497
2. recognizes and performs one transformation (reflection/flip, rotation/turn, and translation/slide) on a two-dimensional figure (2.4.K1f).	See <i>Math Connects 4</i> © 2009 Student Edition: 410-415
Benchmark 4: Geometry From An Algebraic Perspective – The student relates geometric concepts to a number line and the first quadrant of a coordinate plane in a variety of situations.	
1. uses a number line (horizontal/vertical) to model the basic multiplication facts through the 5s and the multiplication facts of the 10s (2.4.K1a).	Student Edition: <i>Example</i> 191, 193 <i>Real-World Example</i> 163, 178
2. identifies points on a coordinate plane (coordinate grid) using (2.4.K1a): a. two positive whole numbers, b. a letter and a positive whole number.	Student Edition: <i>Check What You Know</i> 495 #1-#4 <i>Extra Practice</i> R32 <i>Practice and Problem Solving</i> 496 #12-#15 <i>Real-World Example</i> 495 <i>Study Guide and Review</i> 506 Teacher Edition: ATS 495; IWO 494B; NM 497; T 494
3. identifies points as ordered pairs in the first quadrant of a coordinate plane (coordinate grid) (2.4.K1a).	Student Edition: <i>Check What You Know</i> 495 #5-#8 <i>Extra Practice</i> R32 <i>Practice and Problem Solving</i> 496 #16-#21 <i>Real-World Example</i> 494 Teacher Edition: ATS 495; IWO 494B

STANDARDS	PAGE REFERENCES
Standard 4: Data	
Standard 4: Data – The student uses concepts and procedures of data analysis in a variety of situations.	
Benchmark 1: Probability – The student applies the concepts of probability to draw conclusions and to make predictions and decisions including the use of concrete objects in a variety of situations.	
<p>1. recognizes any outcome of a simple event in an experiment or simulation as impossible, possible, certain, likely, unlikely, or equally likely (2.4.K1g) (\$).</p>	<p>Student Edition: <i>Check What You Know</i> 543 <i>Key Concept</i> 542 <i>Practice and Problem Solving</i> 544 Teacher Edition: A 545; ATS 543; I 542; SGO 542B; T 542</p>
<p>2. ▲ ■ lists some of the possible outcomes of a simple event in an experiment or simulation including the use of concrete objects (2.4.K1g-h).</p>	<p>See <i>Math Connects 4</i> © 2009 Student Edition: 122-123</p>
Benchmark 2: Statistics – The student collects, organizes, displays, explains, and interprets numerical (whole numbers) and non-numerical data sets including the use of concrete objects in a variety of situations.	
<p>1. organizes, displays, and reads numerical (quantitative) and nonnumerical (qualitative) data in a clear, organized, and accurate manner including a title, labels, categories, and whole number intervals using these data displays (2.4.K1h) (\$):</p> <ul style="list-style-type: none"> a. graphs using concrete objects; b. pictographs with a whole symbol or picture representing one, two, five, ten, twenty-five, or one-hundred (no partial symbols or pictures); c. frequency tables (tally marks); d. horizontal and vertical bar graphs; e. Venn diagrams or other pictorial displays, e.g., glyphs; f. line plots; g. charts and tables. 	<p>Student Edition: <i>Are You Ready</i> 512 #1-#4 <i>Check What You Know</i> 516, 529, 537 <i>Explore</i> 513-514, 526-527 <i>Practice and Problem Solving</i> 140 #23-#25, 180 #22-#24, 516-517, 530, 538 <i>Real-World Example</i> 515, 528, 529, 536, 537 <i>Real-World Math</i> 541 <i>Real-World Problem Solving</i> 130 <i>Start Smart</i> 12-13 Teacher Edition: ATS 529, 537; IWO 515B, 528B; SGO 515B, 528B</p>
<p>2. collects data using different techniques (observations, polls, surveys, or interviews) and explains the results (2.4.K1h) (\$).</p>	<p>Student Edition: <i>Activity</i> 513 <i>H.O.T. Problems</i> 530 #16, 535 #15 Teacher Edition: I 528, 532, 536; IC 510; IWO 515B, 528B, 536B</p>

STANDARDS	PAGE REFERENCES
<p>3. ▲ finds these statistical measures of a data set with less than ten data points using whole numbers from 0 through 1,000 (2.4.K1a) (\$):</p> <ul style="list-style-type: none"> a. minimum and maximum data values, b. range, c. mode (uni-modal only), d. median when data set has an odd number of data points. 	<p>See <i>Math Connects 4</i> © 2009</p> <p>Student Edition: 98-100, R74</p>