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STANDARDS	PAGE REFERENCES
NUMBER AND OPERATIONS	
Understand division of whole numbers	
<p>N.MR.05.01 Understand the meaning of division of whole numbers with and without remainders; relate division to fractions and to repeated subtraction.</p> <p>G5-FP1/G5-FP7C</p>	<p>Student Edition: 149, 158-160 Big Idea 146 Explore 156-157</p> <p>Teacher Edition: ATS 163; I 158; T 158, 170</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 23, 24, 25-26, 27-28, 29-30, 31, 32, 45-46, 47-48, 51-52, 53, 54</p> <p>Teacher Guide: T23-T24, T25-T26, T27-T28, T29-T30, T31-T32, T43-T44, T45-T46, T47-T48, T51-T52, T53-T54, A10-A12, A17-A20</p>

Codes used for Teacher Edition pages are the initial caps of headings on that page.

Correlation codes beginning with "G5" refer to the Focal Point. Full descriptions of the Focal Points are located in the front matter of the *Math Connects* Teacher Edition.

STANDARDS	PAGE REFERENCES
<p>N.MR.05.02 Relate division of whole numbers with remainders to the form $a = bq + r$, e.g., $34 \div 5 = 6 \text{ r } 4$, so $5 \cdot 6 + 4 = 34$; note remainder (4) is less than divisor (5).</p> <p>G5-FP1/G5-FP7C</p>	<p>Student Edition: 156-157, 159 Remember 159, 163</p> <p>Impact Mathematics Grade 5 Student Edition: 27-28, 29-31 Teacher Guide: T25-T26, T27-T28, T29-T30</p>
<p>N.MR.05.03 Write mathematical statements involving division for given situations.</p> <p>G5-FP1/G5-FP7C</p>	<p>Student Edition: 160 #27-31, 164 #15, #16, 171, 333 Chapter Test 187 #21-25 Data File 164 Mid-Chapter Check 165 #24 Real-World Example 158, 162, 163, 170 Real-World Math 178 Real-World Problem Solving 172 Study Guide and Review 184, 185 Test Practice 173, 188 #1-6, #10, #11, #13</p> <p>Teacher Edition: A 173; AE 159, 163</p> <p>Impact Mathematics Grade 5 Student Edition: 23, 24, 25-26, 27-28, 29-30, 31, 32 Teacher Guide: T24D, T25-T26, T27-T28, T29-T30, T31-T32, A10-A12</p>

STANDARDS	PAGE REFERENCES
Multiply and divide whole numbers	
<p>N.FL.05.04 Multiply a multi-digit number by a two-digit number; recognize and be able to explain common computational errors such as not accounting for place value.</p> <p>G5-FP1/G5-FP7C</p>	<p>Student Edition: 122-123, 126-127 Chapter Test 143 #8-9, #11-15 Example 122 Extra Practice R9 Real-World Example 122 Study Guide and Review 141</p> <p>Teacher Edition: A 124; ATS 123; CE 124; T 122</p>
<p>N.FL.05.05 Solve applied problems involving multiplication and division of whole numbers.</p> <p>G5-FP1/G5-FP7C</p>	<p>Student Edition: 105 #27-30, 110 #26-29, 117 #9, #27-31, 123 #9, #27-32, 151 #24-27, 160 #9, #27-31 Chapter Test 143 #7, #10, #19, 187 #7, #21, #22 Data File 105, 164 Real-World Example 104, 116, 122, 150, 158, 162, 163 Real-World Math 131, 178 Test Practice 118 #35, #36, 124 #35, #36, 144 #5-7, #9, 188 #1-6, #10, #11, #13</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 23, 24, 25-26, 27-28, 29-30, 31, 32</p> <p>Teacher Guide: T24D, T25-T26, T27-T28, T29-T30, T31-T32, A10-A12</p>

STANDARDS	PAGE REFERENCES
<p>N.FL.05.06 Divide fluently up to a four-digit number by a two-digit number.</p> <p>G5-FP1/G5-FP7C</p>	<p>Student Edition: 158-160, 162-164 Chapter Test 187 #15-22 Data File 164 Example 159, 163 Extra Practice R11 Game Time 177 H.O.T. Problems 164 Mid-Chapter Check 165 #15-24 Real-World Example 158, 162, 163 Real-World Math 178 Study Guide and Review Test Practice 188 #1-6, #10, #11, #13</p> <p>Teacher Edition: ATS 163; I 158; IWO 158B; T 162</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 25-26, 27-28, 29-30</p> <p>Teacher Guide: T23, T25-T26, T27-T28, T29-T30</p>
<p>Find prime factorizations of whole numbers</p>	
<p>N.MR.05.07 Find the prime factorization of numbers from 2 through 50, express in exponential notation, e.g., $24 = 2^3 \times 3^1$, and understand that every whole number greater than 1 is either prime or can be expressed as a product of primes.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: 378-380 Example 379 Test Practice 416 #5, #9, #13</p> <p>Teacher Edition: A 381; ATS 379; IWO 378B; T 378</p>

STANDARDS	PAGE REFERENCES
Understand meaning of decimal fractions and percentages	
<p>N.ME.05.08 Understand the relative magnitude of ones, tenths, and hundredths and the relationship of each place value to the place to its right, e.g., one is 10 tenths, one tenth is 10 hundredths.</p> <p>G5-FP7C</p>	<p>Student Edition: 28-29, 32 Explore 26-27 Key Concept 28</p> <p>Teacher Edition: ATS 29; FD 29; T 28</p> <p>Impact Mathematics Grade 5 Student Edition: 33 Teacher Guide: T33, T45</p>
<p>N.ME.05.09 Understand percentages as parts out of 100, use % notation, and express a part of a whole as a percentage.</p>	<p>Student Edition: Concepts and Skills R56</p> <p>Impact Mathematics Grade 5 Student Edition: 76</p>
Understand fractions as division statements; find equivalent fractions	
<p>N.ME.05.10 Understand a fraction as a statement of division, e.g., $2 \div 3 = 2/3$, using simple fractions and pictures to represent.</p> <p>G5-FP7C</p>	<p>Student Edition: 333-335 Chapter Test 367 #1 Extra Practice R21 Real-World Example 333 Study Guide and Review 363</p> <p>Teacher Edition: ATS 334; CE 334</p> <p>Impact Mathematics Grade 5 Student Edition: 45-46, 51-52, 54</p>

STANDARDS	PAGE REFERENCES
<p>N.ME.05.11 Given two fractions, e.g., $\frac{1}{2}$ and $\frac{1}{4}$, express them as fractions with a common denominator, but not necessarily a <u>least</u> common denominator, e.g., $\frac{1}{2} = \frac{4}{8}$ and $\frac{3}{4} = \frac{6}{8}$; use denominators less than 12 or factors of 100.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: 382-383, 404-405 Practice Problems 384 #12-27</p> <p>Teacher Edition: FMB 404A; T 382</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 43, 45, 51-52, 54</p> <p>Teacher Guide: T43, T49, T51-T52</p>
Multiply and divide fractions	
<p>N.ME.05.12 Find the product of two unit fractions with small denominators using an area model.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: LA6-LA9 Example LA6</p> <p>Teacher Edition: ATS LA8; ELL LA6B; SGO LA6B</p> <p>Michigan Map for Success: Lesson 6 (MI 46), Lesson 7 (MI 49)</p>
<p>N.MR.05.13 Divide a fraction by a whole number and a whole number by a fraction, using simple unit fractions.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: LA6-LA8</p> <p>Michigan Map for Success: Lesson 9 (MI 60), Lesson 11 (MI 69)</p>
Add and subtract fractions using common denominators	
<p>N.FL.05.14 Add and subtract fractions with unlike denominators through 12 and/or 100, using the common denominator that is the product of the denominators of the 2 fractions, e.g., $\frac{3}{8} + \frac{7}{10}$: use 80 as the common denominator.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: 432-433, 434-436, 437-438, 439-441 Example 434 Key Concepts 434, 439 Real-World Example 435, 440</p> <p>Teacher Edition: ATS 435</p>

STANDARDS	PAGE REFERENCES
Multiply and divide by powers of ten	
<p>N.MR.05.15 Multiply a whole number by powers of 10: 0.01, 0.1, 1, 10, 100, 1,000; and identify patterns.</p> <p>G5-FP1/G5-FP7C</p>	<p>Student Edition: 103-105 Data File 105 Example 103, 104</p> <p>Teacher Edition: A 105; ATS 104; I 103</p>
<p>N.FL.05.16 Divide numbers by 10's, 100's, 1,000's using mental strategies.</p> <p>G5-FP1/G5-FP7C</p>	<p>Student Edition: 149-151 Example 149 Real-World Example 150</p> <p>Teacher Edition: A 151; ATS 150; I 149; T 149</p>
<p>N.MR.05.17 Multiply one-digit and two-digit whole numbers by decimals up to two decimal places.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: 132-133, LA2-LA5 Example LA3 H.O.T. Problems LA5 Real-World Problem Solving LA5</p> <p>Teacher Edition: AE 133, LA3; ATS LA3; FMB LA2A, T 132, A135</p>
Solve applied problems with fractions	
<p>N.FL.05.18 Use mathematical statements to represent an applied situation involving addition and subtraction of fractions.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: 424 #7, 425 #19, #20, 430 #5, #17, #18, 436 #27-30, 441 #23-27 Chapter Test 469 #5, #7 Mid-Chapter Check 447 #8 Real-World Example 424, 429, 435, 440 Test Practice 470 #1, #6-8</p> <p>Teacher Edition: AE 424, 429, 440</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 63-64</p> <p>Teacher Guide: T63-T64, A13-A14, A15</p>

STANDARDS	PAGE REFERENCES
<p>N.MR.05.19 Solve contextual problems that involve finding sums and differences of fractions with unlike denominators using knowledge of equivalent fractions.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: 436 #27-30, 441 #23-27 Explore 432-433, 437-438 Key Concept 434, 439</p> <p>Teacher Edition: ATS 435, 440</p>
<p>N.FL.05.20 Solve applied problems involving fractions and decimals; include rounding of answers and checking reasonableness.</p> <p>G5-FP2/G5-FP4C</p>	<p>Student Edition: 82 #19-22, 424 #7, 425 #19, #20, 430 #5, #17, #18, 436 #27-30, 441 #23-27, LA4 #10, #31 Example LA3 Real-World Problem Solving 82, LA5</p> <p>Teacher Edition: AE 81, LA3; S 418I</p> <p>Impact Mathematics Grade 5 Student Edition: 35-36, 37-38, 39-40 Teacher Guide: T35-T36, T37-T38, T39-T40, T42</p> <p>Michigan Map for Success: Lessons 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 (MI 22 – MI 69)</p>
<p>N.MR.05.21 Solve for the unknown in equations such as $\frac{1}{4} + x = \frac{7}{12}$.</p> <p>G5-FP4C</p>	<p>Student Edition: 237-239</p> <p>Teacher Edition: ATS 238</p> <p>Impact Mathematics Grade 5 Student Edition: 17-18 Teacher Guide: T15-T16, T17-T18</p> <p>Michigan Map for Success: Lesson 12 (MI 74)</p>
<p>Express, interpret, and use ratios; find equivalences</p>	
<p>N.MR.05.22 Express fractions and decimals as percentages and vice versa.</p> <p>G5-FP7C</p>	<p>Student Edition: Concepts and Skills R56</p> <p>Michigan Map for Success: Lesson 13 (MI 77)</p>

STANDARDS	PAGE REFERENCES
<p>N.ME.05.23 Express ratios in several ways given applied situations, e.g., 3 cups to 5 people, 3 : 5, 3/5; recognize and find equivalent ratios.</p>	<p>Student Edition: LA10-LA12 Real-World Problem Solving LA12</p> <p>Teacher Edition: A LA13; ATS LA12; FMB LA10A; IWO LA10B; SGO LA10B</p> <p>Impact Mathematics Grade 5</p> <p>Teacher Guide: A29-A30</p>
MEASUREMENT	
Know, and convert among, measurement units within a given system	
<p>M.UN.05.01 Recognize the equivalence of 1 liter, 1,000 ml and 1,000 cm³ and include conversions among liters, milliliters, and cubic centimeters.</p> <p>G5-FP5C</p>	<p>Student Edition: 527-529 Chapter Test 551 #9, #10 Extra Practice R32 Key Concept 527 Mid-Chapter Check 532 #17-19 Real-World Example 527, 528 Study Guide and Review 548</p> <p>Teacher Edition: A 530; AE 528; ATS 528; I 527; IWO 527B; SGO 527B; T 527</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 80</p> <p>Teacher Guide: T80-T81</p>
<p>M.UN.05.02 Know the units of measure of volume: cubic centimeter, cubic meter, cubic inches, cubic feet, cubic yards, and use their abbreviations (cm³, m³, in³, ft³, yd³).</p> <p>G5-FP3/G5-FP5C</p>	<p>Student Edition: 631-634 Real-World Math 637</p> <p>Teacher Edition: ATS 632; FMB 631A; T 631</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 97, 99-100, 103-104, A38</p> <p>Teacher Guide: T99-T100, T103-T104, A39-A40</p>

STANDARDS	PAGE REFERENCES
<p>M.UN.05.03 Compare the relative sizes of one cubic inch to one cubic foot, and one cubic centimeter to one cubic meter.</p> <p>G5-FP3/G5-FP5C</p>	<p>Student Edition: 631</p> <p>Teacher Edition: ATS 632; H 604J; IWO 631B</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 97, 99-100, 103-104</p> <p>Teacher Guide: T99-T100, T103-T104</p> <p>Michigan Map for Success: Lesson 14 (MI 81)</p>
<p>M.UN.05.04 Convert measurements of length, weight, area, volume, and time within a given system using easily manipulated numbers.</p> <p>G5-FP5C</p>	<p>Student Edition: 477-479, 484-486, 492-494 Chapter Test 509 #1-4, #6-8, #13-15 Data File 494 Example 478, 485, 493 Extra Practice R29, R30 Key Concepts 477, 484, 492 Mid-Chapter Check 491 #1-4, #9-12 Real-World Example 477, 478, 484, 485, 492 Study Guide and Review 505-507 Test Practice 510 #1, #7, #9</p> <p>Teacher Edition: A 480, 487, 495; ATS 478, 485, 493; FMB 484A, 492A; IWO 477B, 484B; T 484, 492</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 77, 79-80, 81-82, 86, 87, 88, 89-90, 91-92, 93-94, 97, 98, 99-100, 101-102, 103-104, 105, 106, A33-A34, A38</p> <p>Teacher Guide: T79-T80, T81-T82, T85-T86, T89-T90, T91-T92, T93-T94, T97, T99-T100, T101-T102, T103, T104, T105-T106, A35-A36, A39-A40</p>

STANDARDS	PAGE REFERENCES
Find areas of geometric shapes using formulas	
<p>M.PS.05.05 Represent relationships between areas of rectangles, triangles, and parallelograms using models.</p> <p>G5-FP3/G5-FP5C</p>	<p>Student Edition: Extend 620-621</p> <p>Teacher Edition: SGO 612B</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 89-90, 91-92, 93-94, A33-A34</p> <p>Teacher Guide: T89-T90, T91-T92, T93-T94, A35-A36</p>
<p>M.TE.05.06 Understand and know how to use the area formula of a triangle: $A = \frac{1}{2}bh$ (where b is length of the base and h is the height), and represent using models and manipulatives.</p> <p>G5-FP5C</p>	<p>Student Edition: 612-615, 620-621</p> <p>Michigan Map for Success: Lesson 15 (MI 83)</p>
<p>M.TE.05.07 Understand and know how to use the area formula for a parallelogram: $A = bh$, and represent using models and manipulatives.</p> <p>G5-FP5C</p>	<p>Student Edition: 616-619, 620-621</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 89-90, 91-92</p> <p>Teacher Guide: T89-T90, T91-T92</p>
Understand the concept of volume	
<p>M.TE.05.08 Build solids with unit cubes and state their volumes.</p> <p>G5-FP3/G5-FP5C</p>	<p>Student Edition: 631 Explore 630</p> <p>Teacher Edition: A 634; ATS 632; ELL 631B; SGO 631B</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 99-100, 103-104, 105</p> <p>Teacher Guide: T99-T100, T103-T104</p>

STANDARDS	PAGE REFERENCES
<p>M.TE.05.09 Use filling (unit cubes or liquid), and counting or measuring to find the volume of a cube and rectangular prism.</p> <p>G5-FP3/G5-FP5C</p>	<p>Student Edition: Explore 630, 631-632 H.O.T. Problems 634 Real-World Example 632</p> <p>Teacher Edition: A 634; ATS 632; SGO 631B; T 631</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 99-100, 103-104</p> <p>Teacher Guide: T99-T100, T103-T104</p>
<p>M.PS.05.10 Solve applied problems about the volumes of rectangular prisms using multiplication and division and using the appropriate units.</p> <p>G5-FP3/G5-FP5C</p>	<p>Student Edition: 633-634 Chapter Test 655 #10, #11 H.O.T. Problems 634 Real-World Example 632 Real-World Math 637 Study Guide and Review 653 Test Practice 635</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 99-100, 101-102, 103-104, 105, 106, A38</p> <p>Teacher Guide: T99-T100, T101-T102, T103-T104, T105, T106, A39-A40</p>
GEOMETRY	
Know the meaning of angles, and solve problems	
<p>G.TR.05.01 Associate an angle with a certain amount of turning; know that angles are measured in degrees; understand that 90°, 180°, 270°, and 360° are associated respectively, with $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$, and full turns.</p> <p>G5-FP3</p>	<p>Student Edition: <i>Explore</i> 564</p> <p>Teacher Edition: I 564</p>
<p>G.GS.05.02 Measure angles with a protractor and classify them as acute, right, obtuse, or straight.</p> <p>G5-FP3</p>	<p>Student Edition: <i>Activity</i> 565 <i>Explore</i> 564-565 <i>Key Concepts</i> 564</p>

STANDARDS	PAGE REFERENCES
<p>G.GS.05.03 Identify and name angles on a straight line and vertical angles.</p> <p>G5-FP5C</p>	<p>Student Edition: 557-560, R60-R61</p> <p>Michigan Map for Success: Lesson 16 (MI 85)</p>
<p>G.GS.05.04 Find unknown angles in problems involving angles on a straight line, angles surrounding a point, and vertical angles.</p> <p>G5-FP5C</p>	<p>Student Edition: 557-560, R60-R61</p> <p>Michigan Map for Success: Lesson 16 (MI 85)</p>
<p>G.GS.05.05 Know that angles on a straight line add up to 180° and angles surrounding a point add up to 360°; justify informally by “surrounding” a point with angles.</p> <p>G5-FP5C</p>	<p>Student Edition: 557-560</p>
<p>G.GS.05.06 Understand why the sum of the interior angles of a triangle is 180° and the sum of the interior angles of a quadrilateral is 360°, and use these properties to solve problems.</p> <p>G5-FP2</p>	<p>Student Edition: Concepts and Skills R60, R61</p> <p>Michigan Map for Success: Lessons 16, 17, 18 (MI 85 – MI 91)</p>
<p>Solve problems about geometric shapes</p>	
<p>G.GS.05.07 Find unknown angles and sides using the properties of: triangles, including right, isosceles, and equilateral triangles; parallelograms, including rectangles and rhombuses; and trapezoids.</p> <p>G5-FP2</p>	<p>Student Edition: Concepts and Skills R60, R61</p> <p>Michigan Map for Success: Lessons 17, 18 (MI 88 – MI 91)</p>
<p>DATA AND PROBABILITY</p>	
<p>Construct and interpret line graphs</p>	
<p>D.RE.05.01 Read and interpret line graphs, and solve problems based on line graphs, e.g., distance-time graphs, and problems with two or three line graphs on same axes, comparing different data.</p> <p>G5-FP4C/G5-FP6C</p>	<p>Student Edition: 306-307, 308 #1-4, 309 #14-17, 317 #15 Real-World Example 306, 307 Test Practice 329 #7</p> <p>Impact Mathematics Grade 5</p> <p>Student Edition: 71-72, 73-74, 76</p> <p>Teacher Guide: T71-T72, T73-T74, T76</p>

STANDARDS	PAGE REFERENCES
<p>D.RE.05.02 Construct line graphs from tables of data; include axis labels and scale.</p> <p>G5-FP4C/G5-FP6C</p>	<p>Student Edition: 306-307, 308 #5, 309 #12 Chapter Test 327 #9 Extend 319 Extra Practice R20 Game Time 311 Study Guide and Review 325 #20</p> <p>Teacher Edition: A 308; AE 307; ATS 308; CE 308; IWO 306B; SGO 306B; T 306</p> <p>Impact Mathematics Grade 5 Student Edition: 71-72, 76 Teacher Guide: T71-T72, T76</p>
<p>Find and interpret mean and mode for a given set of data</p>	
<p>D.AN.05.03 Given a set of data, find and interpret the mean (using the concept of fair share) and mode.</p> <p>G5-FP4C/G5-FP6C</p>	<p>Student Edition: 279-281 Concepts and Skills R63 Extra Practice R17 Key Concept 280 Real-World Example 280</p> <p>Teacher Edition: S 276G; SGO 279B; T 279</p>
<p>D.AN.05.04 Solve multi-step problems involving means.</p> <p>G5-FP4C/G5-FP6C</p>	<p>Student Edition: 279-281 Concepts and Skills R63</p> <p>Teacher Edition: S 276G; SGO 279B</p>