

Lady Liberty Academy

# Fourth Grade Curriculum

# Mathematics

# Revised 2014

# Introduction

Lady Liberty Academy designs it math curriculum around engaging and relevant math tasks. Teachers use the program *Math in Focus* as a general guide with supplemental resources to expand the math instruction as needed. Math manipulatives and technology offer students an added hands-on experience with math concepts. Ultimately, the goal is for students to mentally solve number problems (math fluency) through perseverance, logic, and reasoning.

Lady Liberty Academy recognizes that all students learn at different rates; therefore, teachers need to meet students at their current academic level, whether it's below grade level or above.  The ***Vertical Progression Guide*** document outlines each standard as it develops in complexity through the grade levels.  Teachers are expected to use the ***Vertical Progression Guide*** to fill in gaps in learning from previous grades, and to challenge advanced students who are ready for above-grade-level assignments. A vertical progression guideline is located at the end of each grade level curriculum.

All of our curriculum units may be found online through the ***Departments*** tab on our school website at [www.LLACS.org](http://www.LLACS.org).

|  |  |  |
| --- | --- | --- |
| **Unit 1:**  **Place Value** | 20 Days  9/15-10/10 | * Read, write and compare multi-digit whole numbers in numerals, expanded and word forms. * Recognize the power of ten in place value * Round and estimate whole numbers to any place * Determine when estimating and rounding is appropriate in a real world situation |
| **Unit 2:**  **Adding, Subtracting and Multiplying** | 18 Days  10/14-11/7 | * Add & Subtract whole numbers using the standard algorithm. * Multiply whole numbers of 4 digit by one digit. * Multiply whole numbers of two digit by two digit. * Interpret multiplication equations as comparisons * Find all factor pairs of a number. * Find GCF and LCM of given numbers |
| **Unit 3:**  **Division & The Unknown in the Real World** | 27 Days  11/10-12/19 | * Find and interpret whole number quotients and remainders * Use multiplication and division to solve word problems * Solve multi-step word problems with whole numbers and whole number answers * Generate number and shape patterns and identify features of those patterns |
| **Unit 4:**  **Fractions Introduction** | 29 Days  1/5-2/13 | * Determine and explain equivalent fractions * Compare fractions with different numerators and denominators using different methods. * Add and subtract fractions with like denominators * Make line plots to display data in fractions |
| **Unit 5:**  **Fractions & Decimals** | 19 Days  2/17-3/13 | * Multiply fractions by whole numbers. * Convert fractions with denominators of 10 and 100 and add them fluently. * Convert fractions with denominators 10 or 100 into decimals. * Compare decimals to the hundredths place when they have the same whole. |
| **Unit 6:**  **Points, Lines, and Angles** | 14 Days  3/16-4/2 | * Draw points, lines, lines segments, rays, angels and perpendicular and parallel lines. * Identify the above in two dimensional figures. * Recognize angles as geometric shapes. * Measure angles in whole number degrees. * Sketch angles of a specified measure. * Find the unknown in additive angles. |
| **Unit 7:**  **Classifying Figures** | 10 Days  4/13-4/24 | * Classify two dimensional figures based on the lines and angles they contain. * Recognize and identify right triangles. * Recognize, identify and draw lines of symmetry. * Use area and perimeter formulas for rectangles. |
| **Unit 8:**  **Converting Measurements** | 10 Days  4/27-5/8 | * Know relative size of common measurements * Express larger units in terms of smaller units and vice versa. * Solve word problems involving distances, time, money, volume, mass and money including simple fractions and decimal problems. |

4th Grade Math Year-At-A-Glance

Fourth Grade Math Unit 1: Place Value (20 days)

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| --- | --- | --- | --- |
| **Standards To Be Taught** | **Pacing/Duration** | **Assessment** | **Text Book Reference** |
| **4.NBT.2**  Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digit s in each place, using >, =, and < symbols to record the results of comparisons. | **4 days**  9/15-9/18 | Exit Tickets  Unit 1 Test  Test Prep  Biweekly | A: pg. 5-26; 32-34; 62; 77-99  B: 6-9; 11-23; 28-34; 54-62; 65-69 |
| **4.NBT.1**  Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. | **4 days**  9/19-9/24  9/25-Review  9/26-Biweekly | Exit Tickets  Unit 1 Test  Test Prep  Biweekly | A: 5-26; 32-34; 62; 77-99  B: 6-9; 11-23; 28-34; 54-62; 65-69 |
| **4.NBT.3**  Use place value understanding to round multi-digit whole numbers to any place. | **3 days**  9/29-10/1  10/2-10/8-Project  10/9-Review  10/10 Unit 1 Test | Exit Tickets  Unit 1 Test  Test Prep  Biweekly | A: 32-36; 43; 63-67; 93; 95; 116 |

**Essential Questions:**

* How can I use what I know about place value to read and write longer multi-digit numbers?
* What different ways can I express numbers?
* How can I use what I know to compare two numbers?
* How can I use what I know about multiplication and division to understand place value of the digits in a multi-digit number?
* How can place value help me round and estimate?
* When is estimating helpful?

**Key Vocabulary:** millions; hundred-thousands; ten thousands; greater than; less than; standard form; expanded form; word form; round; estimate

**Check for Prior Knowledge:**

Students should be familiar with place value up to the ten-thousands place. They should be able to identify the value of the digits in those places and fluently read numbers written to the ten-thousands place. Students should have a basic knowledge of rounding, when to raise and lower numbers and how to change subsequent digits to zero.

**Links:** Learnzillion:

* <https://learnzillion.com/lessons/13-write-numbers-in-expanded-form>
* <https://learnzillion.com/lessons/13-write-numbers-in-expanded-form>
* <https://learnzillion.com/lessons/15-compare-numbers-using-place-values>
* <https://learnzillion.com/lessons/16>
* <https://learnzillion.com/lessons/19-understand-place-value-dividing-by-a-power-of-10>

Mastery Connect:

* <https://www.masteryconnect.com/learn-more/>

Study Island:

* <http://www.studyisland.com/>

Measuring Up:

<http://measuringuplive.com/>

ThinkCentral

ixl.com:

<http://www.ixl.com/math/grade-4/convert-between-place-values>

<http://www.ixl.com/math/grade-4/place-values>

<http://www.ixl.com/math/grade-4/multiplication-patterns-over-increasing-place-values>

Misc.:

* <http://www.pinterest.com/pin/573716440004163047/>
* <http://www.pinterest.com/pin/573716440003903850/>

**Relevant Suggested Student Projects:**

* My Place value book ( a student written account of place value with examples and well worded answers to open ended response questions)
* Real Word Place Value (Cut out examples of real world numbers and fit them into place value charts)

# Fourth Grade Math Unit 2: Adding, Subtracting & Multiplying (19 Days)

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| **Standards To Be Taught** | **Pacing/Duration** | **Assessment** | **Text Book Reference** |
| **4.NBT.4**  Fluently add and subtract multi-digit whole numbers to any place. | **4 days**  10/14-10/17 | Exit Slips  Test Prep  Biweekly  Unit Test 2 | A: pp. 32-35; 41-43; 64-68; 88-95  B: pp. 56-71; 170-175 |
| **4.OA.1**  Interpret a multiplication equation as a comparison, e.g interpret 35=5x7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. | **4 days**  10/20-10/23  10/24-Biweekly | Exit Slips  Test Prep  Biweekly  Unit Test 2 | A: pp. 77-88; 115-117 |
| **4.NBT.5**  Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | **4 days**  10/27-10/30 | Exit Slips  Test Prep  Biweekly  Unit Test 2 | A: pp. 78-95; 109; 116-119  B: 149-150 |
| **4.OA.4**  Find all factor pairs for a whole number in the range of 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number inthe range of 1-100 is prime or composite. | **4 days**  10/31-11/5  11/6-Review  11/7-Biweekly/Unit 2 Test | Exit Slips  Test Prep  Biweekly  Unit Test 2 | A: pp.44; 50-51; 53-57; 65-68, |

**Essential Questions:**

* How can my knowledge of basic addition and subtraction facts help me fluently add and subtract multi digit whole numbers?
* What strategies can I use to help me multiply four digit numbers by one digit numbers and two digit numbers by two digit numbers?
* How can I turn verbal multiplication statements into equations and comparisons?
* What numbers can I multiply together to create common products?
* How can knowing factors help me perform my calculations?

**Key Vocabulary:** borrow; carry; trade-first; regroup; addend; sum; difference; minuend; subtrahend; factor; product; multiple; composite number; prime number; greatest common factor; least common multiple

**Check for Prior Knowledge:** Students should already be familiar with adding and subtracting. They should have been exposed to carrying and borrowing. They should know basic one by one digit multiplication facts.

**Links:** Learnzillion:

* <https://learnzillion.com/lessons/3122>
* <https://learnzillion.com/lessons/1876>
* <https://learnzillion.com/lessons/1876>
* <https://learnzillion.com/lessons/2569-comparing-numbers-using-bar-models>
* <https://learnzillion.com/lessons/782>
* <https://learnzillion.com/lessons/783-determine-multiples-of-a-number-using-number-bonds>
* <https://learnzillion.com/lessons/785-find-all-factor-pairs-of-a-number-using-a-tchart>

Mastery Connect:

* <https://www.masteryconnect.com/learn-more/>

Study Island:

* <http://www.studyisland.com/>

Measuring Up Live:

<http://measuringuplive.com/>

ThinkCentral

Misc.:

* <http://www.pinterest.com/pin/573716440003903852/>
* <http://www.pinterest.com/pin/573716440003967696/>

**Relevant Suggested Student Projects:**

* Student created text books
* Factor trees
* Area model project

# Fourth Grade Math Unit 3: Division and the Unknown in the Real World (27 Days)

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| --- | --- | --- | --- |
| **Standards To Be Taught** | **Pacing/Duration** | **Assessment** | **Text Book Reference** |
| **4.NBT.6**  Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | **5 days**  11/10-11/17 | Exit Tickets  Unit 3 Test  Test Prep  Biweekly | A: pp. 96-119 |
| **4.OA.2**  Multiply or divide to solve word problems involving multiplicative comparisons, e.g by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. | **5 days**  11/18-11/19  11/20-Review  11/21-Biweekly  11/24-11/26 | Exit Tickets  Unit 3Test  Test Prep  Biweekly | A; pp. 86; 90; 109-116; 263-267 |
| **4.OA.3**  Solve multistep problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | **5 days**  12/1-12/4  12/5-Biweekly  12/8 | Exit Tickets  Unit 3 Test  Test Prep  Biweekly | A: pp. 14-43; 62-63; 109-116; 204-214; 263-267  B: pp. 72-75; 139-143; 176-187 |
| **4.OA.5**  Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. | **3 days**  12/9-12/11  12/12-12/14-Project  12/18-Review  12/19-Biweekly/Unit 3 Test  12/22-12/23-Flex/Christmas Activities | Exit Tickets  Unit 3 Test  Test Prep  Biweekly | A: pp. 6-8; 14-17; 19; 26  B: pp. 26-30; 34; 52; 208-235 |

**Essential Questions:**

* What is division?
* How can I use multiplication and factors to help me solve division problems?
* How can I use what I know about multiplication and division to solve for different parts of the equation?
* What different strategies can I use to solve these equations?
* How can I apply what I know to solving real world problems that involve more than 1 step?
* How do I prove that my answer makes logical sense?
* What can we observe about numbers and shapes in a pattern?

**Key Vocabulary**: divisor; dividend; quotient; remainder; unknown; variable; pattern; sequence

**Check for Prior Knowledge**: Students should have been introduced to the concept of division by creating equal groups. Students should be familiar with the process to solving word problems and be familiar with key words that help identify the operation needed to correctly answer the question being asked in the problem.

**Links**:

Learnzillion:

* <https://learnzillion.com/lessons/1482-divide-twodigit-dividends-using-friendly-multiples>
* <https://learnzillion.com/lessons/2745>
* <https://learnzillion.com/lessons/58>
* <https://learnzillion.com/lessons/47-solve-multiplication-word-problems-using-algebraic-thinking>
* <https://learnzillion.com/lessons/790>
* <https://learnzillion.com/lessons/792-find-missing-elements-in-growing-patterns>

Mastery Connect; Study Island;

Measuring Up:

<http://measuringuplive.com/>

ThinkCentral

Misc.:

* <http://www.pinterest.com/pin/573716440004552610/>
* <http://www.ixl.com/math/grade-4/geometric-growth-patterns>
* <http://www.ixl.com/math/grade-4/input-output-tables-with-addition-subtraction-multiplication-and-division>

**Relevant Suggested Student Projects:**

* Planning a party (multiplication and division skills needed)
* Creating a schedule (equal time at each station)
* Holiday shopping

# Fourth Grade Math Unit 4: Fractions Introduction (29 Days)

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| --- | --- | --- | --- |
| **Standards To Be Taught** | **Pacing/Duration** | **Assessment** | **Text Book Reference** |
| **4.NF. 1**  Explain why a/b is equivalent to a fraction (n x a)/ (n x b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. | **5 days**  1/5-1/9 | Exit Tickets  Chapter quiz  Unit 4 Test  Test Prep  Biweekly | A: pp. 199-203; 210-211; 224-229; 236; 250-254; 259-262; 269-273  B: pp. 42-44; 47 |
| **4.NF.2**  Compare two fraction with different numerators and different denominators, e.g by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are only valid when the two fractions refer to the same whole. Record the results of comparisons with symbols >,=, or <, and justify conclusions. | **5 days**  1/12-1/15  1/16-Bieweekly  1/20 | Exit Tickets  Chapter quiz  Unit 4 Test  Test Prep  Biweekly | 3rd grade book B: pp. 130-146 |
| **4.NF.3**  Understand a fraction a/b with a>1 as a sum of fractions 1/b. | **6 days**  1/21-1/28  1/29-Review  1/30-Biweekly | Exit Tickets  Chapter quiz  Unit 4 Test  Test Prep  Biweekly | A: pp. 140-153; 156; 159224-232; 237-238; 243-254; 259-260; 269; 270;  B: pp. 43-45 |
| **4.MD.4**  Make a line plot to display a data set of measurements in fractions of a unit (1/4, ½. 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. | **5 days**  2/2-2/6  2/9-2/11-Project  2/12-Review  2/13-Biweekly/Unit 4 Test | Exit Tickets  Chapter quiz  Unit 4 Test  Test Prep  Biweekly | 3rd grade book B: pp. 97-111 |

**Essential Questions:**

* What makes a fraction equivalent?
* How do I create fractions?
* How do I represent fractions visually?
* How do I compare 2 fractions?
* What strategies are there to help me?
* How do I prove my comparison?
* How can I add fractions?
* How can I break fractions down into smaller parts?
* What do I do when my numerator is larger than my denominator?
* What do fractions look like on a line graph?
* How can I display data when there are mixed numbers?

**Key Vocabulary:** equivalent; fraction; numerator; denominator; common denominator; benchmark fraction; mixed number; improper fraction; decompose; line plot; data; data table

**Check for Prior Knowledge:** Students should have a basic knowledge of fractions from 3rd grade. They should be able to recognize common fractions. They should be able to compare fractions visually. They should know how to read and plot a line plot in whole numbers.

**Links:** Learnzillion:

* <https://learnzillion.com/lessons/1245>
* <https://learnzillion.com/lessons/98>
* <https://learnzillion.com/lessons/2777>
* <https://learnzillion.com/lessons/3382>

Mastery Connect:

* <https://www.masteryconnect.com/learn-more/>

Study Island:

* <http://www.studyisland.com>

Measuring Up:

* <http://measuringuplive.com/>

ThinkCentral

Misc:

* <http://www.ixl.com/math/grade-4/equivalent-fractions>
* <http://www.ixl.com/math/grade-4/equivalent-fractions>
* <http://www.pinterest.com/pin/573716440002295972/>
* <http://www.pinterest.com/pin/573716440004203500/>

**Relevant Suggested Student Projects:**

* Everyday Fractions
* Fraction Guidebook
* Comparing Real World Fractions

# Fourth Grade Math Unit 5: Fractions and Decimals (19 Days)

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| --- | --- | --- | --- |
| **Standards To Be Taught** | **Pacing/Duration** | **Assessment** | **Text Book Reference** |
| **4.NF. 4**  Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. | **5 days**  2/17-2/23 | Exit Tickets  Chapter quiz  Unit 5 Test  Test Prep  Biweekly | A: pp. 237-238; 243-248; 255-258; 263-267; 270-273 |
| **4.NF.5**  Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. | **3 days**  2/24-2/26  2/27-Biweekly | Exit Tickets  Chapter quiz  Unit 5 Test  Test Prep  Biweekly | B: pp. 13-19; 62 |
| **4.NF.6**  Use decimal notation for fractions with denominators 10 and 100. | **2 days**  3/2-3/3 | Exit Tickets  Chapter quiz  Unit 5 Test  Test Prep  Biweekly | B: pp. 4-19; 22-23; 42-47; 50-52 |
| **4.NF.7**  Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions. | **2 days**  3/4-3/6  3/9-3/11-Project  3/12-Review  3/13-Biweekly/Unit 5 Test | Exit Tickets  Chapter quiz  Unit 5 Test  Test Prep  Biweekly | B:pp. 14-19; 25-30; 32-34; 50-52 |

**Essential Questions**:

* How can I use my knowledge of multiplying whole numbers to help me multiply fractions?
* What different ways can I express fractions?
* How can what I learned about place value to create equivalent fractions with denominators of 10 and 100?
* How can I use this to help me add fractions when the denominators are different?
* What is another way of expressing parts of a whole?
* How can I change fractions with denominators of 10 or 100 to decimals?
* How do I compare decimals?
* How do I prove that my conclusion makes logical sense?

**Key Vocabulary**: decimal; tenths; hundredths;

**Check for Prior Knowledge:**  Students should have a basic knowledge of fractions and how to create equivalent fractions. Students should have also studied multiplication and money.

**Links**:

Learnzillion:

* <https://learnzillion.com/lessons/3421>
* <https://learnzillion.com/lessons/336>
* <https://learnzillion.com/lessons/335>
* <https://learnzillion.com/lessons/351-add-fractions-with-tenths-and-hundredths-denominators>
* <https://learnzillion.com/lessons/1428>
* <https://learnzillion.com/lessons/3217>
* <https://learnzillion.com/lessons/3354-compare-two-decimals-to-the-hundredths-place-using-a-number-line>

Mastery Connect:

* <https://www.masteryconnect.com/learn-more/>

Study Island:

* <http://www.studyisland.com/>

Measuring Up:

* <http://measuringuplive.com/>

ThinkCentral

Misc.:

* <http://www.pinterest.com/pin/573716440002295980/>
* <http://www.pinterest.com/pin/273804852316567334/>
* <http://www.pinterest.com/pin/107945722291968726/>
* <http://www.pinterest.com/pin/285626801340511446/>
* <http://www.ixl.com/math/grade-4/compare-decimals-and-fractions>
* <http://www.ixl.com/math/grade-4/add-3-or-more-decimals>

**Relevant Suggested Student Projects:**

* Split the Bill
* Adjusting a Recipe
* Planning a Birthday Party

# Fourth Grade Math Unit 6: Points, Lines and Angles (14 Days)

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| --- | --- | --- | --- |
| **Standards To Be Taught** | **Pacing/Duration** | **Assessment** | **Text Book Reference** |
| **4.G.1**  Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. | **2 days**  3/16-3/17 | Exit Tickets  Unit 6 Test  Test Prep  Biweekly | B: pp. 87-100; 104; 111-118; 121-124 |
| **4.MD.5**  Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. | **3 days**  3/18-3/20 | Exit Tickets  Unit 6 Test  Test Prep  Biweekly | B:pp. 88-93; 98-104 |
| **4.MD.6**  Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. | **3 days**  3/23-3/25  3/26-Review  3/27-Biweekly | Exit Tickets  Unit 6 Test  Test Prep  Biweekly | B:pp. 88-99; 102-104 |
| **4.MD.7**  Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems. | **2 days**  3/30-3/31  4/1-Review  4/2-Unit 6 Test  Project: Over Spring Break | Exit Tickets  Unit 6 Test  Test Prep  Biweekly | B:pp. 97-98; 139-140; 147 |

**Essential Questions:**

* What are the building blocks of shapes? How can we use these to classify shapes?
* What happens when 2 rays share a common endpoint?
* How do we measure angles?
* How do we measure angles?
* How can we make sure that an angle we draw is a specific number of degrees?
* Can we divide angles into different parts?
* How do we find the missing pieces of angles?

**Key Vocabulary**: point; line segment; line; angle; ray; endpoint; acute angle; obtuse angle; right angle; perpendicular; parallel; two dimensional; degree; protractor

**Check for Prior Knowledge:** Student should be aware of some basic concepts of geometry. They should be able to identify lines in shape.

**Links:**

Learnzillion:

* <https://learnzillion.com/lessons/2346>
* <https://learnzillion.com/lessons/2395-classify-and-draw-various-types-of-angles>
* <https://learnzillion.com/lessons/2313-draw-parallel-and-perpendicular-lines>
* <https://learnzillion.com/lessons/2416-label-and-name-points-lines-rays-and-angles-using-math-notation>
* <https://learnzillion.com/lessons/2907>
* <https://learnzillion.com/lessons/3010-measure-angles-to-the-nearest-10-by-reading-a-protractor>
* <https://learnzillion.com/lessons/2913-sketch-angles-that-are-multiples-of-10-degrees-using-a-protractor>
* <https://learnzillion.com/lessons/3270>
* <https://learnzillion.com/lessons/3253-understand-that-angle-measure-is-additive-by-decomposing>
* <https://learnzillion.com/lessons/3254-find-unknown-angles-using-angle-properties>

Mastery Connect:

* <https://www.masteryconnect.com/learn-more/>

Study Island:

* <http://www.studyisland.com/>

Measuring Up:

* <http://measuringuplive.com/>

ThinkCentral

Misc:

* <http://www.pinterest.com/pin/573716440004203431/>
* <http://www.pinterest.com/pin/573716440004195191/>
* <http://www.pinterest.com/pin/573716440003978037/>
* <http://www.ixl.com/math/grade-4/acute-right-obtuse-and-straight-angles>
* <http://www.ixl.com/math/grade-4/classify-triangles-by-angles>
* <http://www.ixl.com/math/grade-5/measure-angles-with-a-protractor>

**Relevant Suggested Student Projects:**

* Town Map Project
* Everyday Angles
* Student Made Anchor Charts

# Fourth Grade Math Unit 7: Classifying Figures (10 Days)

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| **Standards To Be Taught** | **Pacing/Duration** | **Assessment** | **Text Book Reference** |
| **4.G.2**  Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. | **3 days**  4/13-4/15 | Exit Tickets  Unit 7 Test  Test Prep  Biweekly | B: pp. 114-116; 129-132; 137-138; 145-147 |
| **4.G.3**  Recognize a line of symmetry for a who-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. | **2 days**  4/16-4/17 | Exit Tickets  Unit 7 Test  Test Prep  Biweekly | B: pp. 197-202; 209; 212-216 |
| **4.MD.3**  Apply the area and perimeter formulas for rectangles in real world and mathematical problems. | **3 days**  4/20-4/22  4/23-Review  4/24-Test | Exit Tickets  Unit 7 Test  Test Prep  Biweekly | B: pp. 152-193 |

**Essential Questions:**

* How can we classify two dimensional figures?
* What are lines of symmetry?
* Can we create figures that have more than one line of symmetry?
* How can we measure two dimensional figures?
* Can we use what we know about unknowns to solve for different pieces of those measurements?

**Key Vocabulary**: symmetry; line of symmetry; length; width; perimeter; area; square unit

**Check for Prior Knowledge:**  Students should be familiar with solving for an unknown from previous units. Students should also have a basic knowledge of using basic methods for finding area and perimeter.

**Links**: Learnzillion:

* <https://learnzillion.com/lessons/2879>
* <https://learnzillion.com/lessons/3040-classify-triangles-by-examining-their-properties>
* <https://learnzillion.com/lessons/3069-classify-right-triangles>
* <https://learnzillion.com/lessons/3096>
* <https://learnzillion.com/lessons/3214-identify-line-symmetry-in-irregular-polygons>
* <https://learnzillion.com/lessons/3215-identify-line-symmetry-in-a-geometric-figure>
* <https://learnzillion.com/lessons/3742>
* <https://learnzillion.com/lessons/3743-find-the-area-of-a-rectangle>
* <https://learnzillion.com/lessons/3744-apply-area-and-perimeter-formulas>
* <https://learnzillion.com/lessons/3745-find-a-missing-rectangle-side-length-using-formulas>
* <https://learnzillion.com/lessons/3746-find-the-area-of-a-figure-by-decomposing-it>

Youtube:

* <https://www.youtube.com/watch?v=z3p86kI7N0c>
* <https://www.youtube.com/watch?v=xl7cfrme44Q>

Mastery Connect:

* <https://www.masteryconnect.com/learn-more/>

Study Island:

* <http://www.studyisland.com/>

Measuring Up:

* <http://measuringuplive.com/>

Think Central

Misc:

* <http://www.ixl.com/math/grade-4/lines-of-symmetry>
* <http://www.ixl.com/math/grade-4/identify-2-dimensional-and-3-dimensional-shapes>
* <http://www.ixl.com/math/grade-4/area-of-squares-and-rectangles>
* <http://www.pinterest.com/pin/573716440003885622/>
* <http://www.pinterest.com/pin/573716440003903848/>

**Relevant Suggested Student Projects:**

* Painting your bedroom
* Build Your Dream Home
* Creating a Farm

# Fourth Grade Math Unit 7: Classifying Figures (10 Days)

|  |  |  |  |
| --- | --- | --- | --- |
| **Standards To Be Taught** | **Pacing/Duration** | **Assessment** | **Text Book Reference** |
| **4.G.2**  Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. | **3 days**  4/13-4/15 | Exit Tickets  Unit 7 Test  Test Prep  Biweekly | B: pp. 114-116; 129-132; 137-138; 145-147 |
| **4.G.3**  Recognize a line of symmetry for a who-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. | **2 days**  4/16-4/17 | Exit Tickets  Unit 7 Test  Test Prep  Biweekly | B: pp. 197-202; 209; 212-216 |
| **4.MD.3**  Apply the area and perimeter formulas for rectangles in real world and mathematical problems. | **3 days**  4/20-4/22  4/23-Review  4/24-Test | Exit Tickets  Unit 7 Test  Test Prep  Biweekly | B: pp. 152-193 |

**Essential Questions:**

* How can we classify two dimensional figures?
* What are lines of symmetry?
* Can we create figures that have more than one line of symmetry?
* How can we measure two dimensional figures?
* Can we use what we know about unknowns to solve for different pieces of those measurements?

**Key Vocabulary**: symmetry; line of symmetry; length; width; perimeter; area; square unit

**Check for Prior Knowledge:**  Students should be familiar with solving for an unknown from previous units. Students should also have a basic knowledge of using basic methods for finding area and perimeter.

**Links**: Learnzillion:

* <https://learnzillion.com/lessons/2879>
* <https://learnzillion.com/lessons/3040-classify-triangles-by-examining-their-properties>
* <https://learnzillion.com/lessons/3069-classify-right-triangles>
* <https://learnzillion.com/lessons/3096>
* <https://learnzillion.com/lessons/3214-identify-line-symmetry-in-irregular-polygons>
* <https://learnzillion.com/lessons/3215-identify-line-symmetry-in-a-geometric-figure>
* <https://learnzillion.com/lessons/3742>
* <https://learnzillion.com/lessons/3743-find-the-area-of-a-rectangle>
* <https://learnzillion.com/lessons/3744-apply-area-and-perimeter-formulas>
* <https://learnzillion.com/lessons/3745-find-a-missing-rectangle-side-length-using-formulas>
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Vertical Progression of K-8 Operations Common Core State Standards for Mathematics

**IMPORTANT Note: The operations included below are culminating operations. The CCSS require important prerequisite work at levels of cognitive demand not noted below. The purpose of this overview is a general, at-a-glance document that can be used as comparison when making judgments about content shifts for operations among grade levels in the CCSS versus the SC 2007 Academic Standards for Mathematics.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Addition** | **Subtraction** | **Multiplication** | **Division** |
| **Kindergarten**   * Solve word problems requiring addition within 10 using objects, drawings and acting out * Fluently add within 5 | **Kindergarten**  • Subtract within 10 using objects, drawings and acting out |  |  |
| **First Grade**   * Add within 100 using a two-digit number and a one-digit number, and add a two-digit number and a multiple of 10 * Solve word problems requiring three whole numbers whose sum is not greater than 20. * Use symbols for the unknown number when making 10 * Fluently add within 10 | **First Grade**   * Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 * Solve word problems within 20 * Fluently subtract within 10 |  |  |
| **Second Grade**   * Use addition within 100 to solve one- and two- step word problems * Add within 1000, using concrete models or drawings * Add up to 4 two-digit numbers * Know from memory all sums of two one-digit numbers. * Fluently add within 100 | **Second Grade**   * Use subtraction within 100 to solve one- and two-step word problems * Subtract within 1000, using concrete models or drawings * Fluently subtract within 100 |  |  |
| **Third Grade**  • Fluently add within 1000 | **Third Grade**  • Fluently subtract within 1000 | **Third Grade**   * Know from memory all products of two one- digit numbers * Use multiplication within 100 to solve word problems * Fluently multiply and divide within 100 | **Third Grade**   * Use division within 100 to solve word problems * Fluently divide within 100 |
| **Fourth Grade**   * Solve multi-step word problems posed with whole numbers and having whole-number answers * Fluently add multi-digit whole numbers   **Fractions**  • Add mixed numbers with like denominators | **Fourth Grade**   * Solve multi-step word problems posed with whole numbers and having whole-number answers * Fluently subtract multi- digit whole numbers   **Fractions**  Subtract mixed numbers with like denominators | **Fourth Grade**   * Solve multi-step word problems posed with whole numbers and having whole-number answers * Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two- digit numbers   **Fractions**  • Multiply a fraction by a whole number | **Fourth Grade**   * Solve multi-step word problems posed with whole numbers and having whole-number answers * Find whole-number quotients and   remainders with up to four-digit dividends and one-digit divisors |
| **Addition** | **Subtraction** | **Multiplication** | **Division pg 2** |
| **Fifth Grade**  **Fractions**  • Add fractions with unlike denominators (including mixed numbers)  **Decimals**  • Add decimals to hundredths | **Fifth Grade**  **Fractions**  • Subtract fractions with unlike denominators (including mixed numbers)  **Decimals**  • Subtract decimals to hundredths | **Fifth Grade**  • Fluently multiply multi- digit whole numbers  **Fractions**  • Solve real world problems involving multiplication of fractions and mixed numbers  **Decimals**   * Explain patterns in the placement of the decimal point when a decimal is multiplied by a power of 10 * Multiply decimals to hundredths | **Fifth Grade**  • Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors  **Fractions**  • Divide unit fractions by whole numbers and whole numbers by unit fractions  **Decimals**   * Explain patterns in the placement of the decimal point when a decimal is divided by a power of 10 * Divide decimals to hundredths |
| **Sixth Grade**  **Decimals**  • Fluently add multi-digit decimals  **Expressions, Equations & Inequalities**   * Reason about and solve   one-variable equations  and inequalities.   * Represent and analyze   quantitative relationships between dependent and independent variables.   * Solve real-world and mathematical problems by writing and solving equations of the form *x + p = q* and *px = q* for cases in which *p, q* and *x* are all nonnegative rational numbers * Write an inequality of the form *x > c or x < c* to represent a constraint or condition in a real- world or mathematical problem * Represent solutions of inequalities on number line diagrams | **Sixth Grade**  **Decimals**  • Fluently subtract multi- digit decimals  **Expressions, Equations & Inequalities**  • Same as “Addition” Column | **Sixth Grade**  **Decimals**  • Fluently multiply multi- digit decimals  **Expressions, Equations & Inequalities**  • Same as “Addition” Column | **Sixth Grade**  • Fluently divide multi- digit numbers  **Fractions**  • Divide fractions by fractions  **Decimals**  • Fluently divide multi- digit decimals  **Expressions, Equations & Inequalities**  • Same as “Addition” Column |
| **Addition** | **Subtraction** | **Multiplication** | **Division pg 3** |
| **Seventh Grade** | **Seventh Grade** | **Seventh Grade** | **Seventh Grade** |

|  |  |  |  |
| --- | --- | --- | --- |
| * Add rational numbers * Add and expand linear   expressions with rational coefficients   * Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units * Use proportional relationships to solve multi-step ratio and percent problems * Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals) * Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities | * Subtract rational numbers * Subtract and expand linear expressions with rational coefficients | * Multiply rational numbers * Factor and expand linear expressions with rational coefficients | • Divide rational numbers  • Convert a rational number to a decimal using long division |
| **Eighth Grade** | **Eighth Grade** | **Eighth Grade** | **Eighth Grade** |
| * Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used * Evaluate square roots of small perfect squares and cube roots of small perfect cubes * Solve linear equations in one variable * Analyze and solve pairs of simultaneous linear equations * Use functions to model relationships between quantities Not an “Operation” in the strictest sense but worthy of inclusion | • Same as “Addition” Column | • Same as “Addition” Column | • Same as “Addition” Column |