



This Teacher Resource Guide has been developed to provide supporting materials to help educators successfully implement the Indiana Academic Standards for Fourth Grade Mathematics – Adopted April 2014. These resources are provided to help you in your work to ensure all students meet the rigorous learning expectations set by the Academic Standards. Use of these resources is optional – teachers should decide which resource will work best in their school for their students.

This resource document is a living document and will be frequently updated.

Please send any suggested links and report broken links to:

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The Indiana Department of Education would like to thank Ben Kemp, Jim Mirabelli, Shannon Nees, and Chelle Thomas for their contributions to this document.

The examples in this document are for illustrative purposes only, to promote a base of clarity and common understanding. Each example illustrates a standard but please note that examples are not intended to limit interpretation or classroom applications of the standards.

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**GOOD WEBSITES FOR MATHEMATICS:**

<http://nlvm.usu.edu/en/nav/vlibrary.html>

<http://www.math.hope.edu/swanson/methods/applets.html>

<http://learnzillion.com>

<http://illuminations.nctm.org>

<https://teacher.desmos.com>

<http://illustrativemathematics.org>

<http://www.insidemathematics.org>

<https://www.khanacademy.org/>

<https://www.teachingchannel.org/>

<http://map.mathshell.org/materials/index.php>


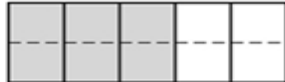
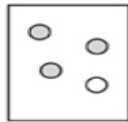
<https://www.istemnetwork.org/index.cfm>

<http://www.azed.gov/azccrs/mathstandards/>



	Indiana Academic Standard for Mathematics Fourth Grade – Adopted April 2014	Highlighted Vocabulary Words from the Standard Defined	Specific Fourth Grade Example for the Standard	Specific Fourth Grade Electronic Resource for the Standard
<b>Number Sense</b>				
MA.4.NS.1:	Read and write <b>whole numbers</b> up to 1,000,000. Use <b>words, models, standard form</b> and <b>expanded form</b> to represent and show equivalent forms of whole numbers up to 1,000,000.	<p><b>Whole numbers</b> - the set of numbers 0, 1, 2, 3, 4, 5, etc.</p> <p><b>Word form</b> - a number written in words</p> <p><b>Models</b> - a picture representation of the number</p> <p><b>Standard form</b> - a number written in a way that shows only its digits</p> <p><b>Expanded form</b> - a number written as the sum of the values of its digits</p>	<p>Write the numeral below in standard form and expanded form.</p> <p><i>three hundred six thousand, two hundred forty-five.</i></p>	<p><a href="http://www.ixl.com/math/grade-4/word-names-for-numbers">http://www.ixl.com/math/grade-4/word-names-for-numbers</a></p>
MA.4.NS.2:	Compare two whole numbers up to 1,000,000 using >, =, and < symbols.		<p>Compare: 304,625 ____ 340,652</p>	<p><a href="http://www.ixl.com/math/grade-4/compare-numbers-up-to-billions">http://www.ixl.com/math/grade-4/compare-numbers-up-to-billions</a></p>
MA.4.NS.3:	Express whole numbers as <b>fractions</b> and recognize fractions that are <b>equivalent</b> to whole numbers. Name and write mixed numbers using objects or pictures. Name and write <b>mixed numbers</b> as <b>improper fractions</b> using objects or pictures.	<p><b>Fraction</b> - a number that names part of a whole</p> <p><b>Equivalent</b>- having the same or equal value</p> <p><b>Mixed numbers</b>- a number expressed as a whole number plus a fraction.</p> <p><b>Improper fraction</b>- a fraction with a numerator greater than or equal to the denominator</p>	<p>a) Write 8 as a fraction such that the numerator is 8.</p> <p>b) Which numbers below are equivalent to 8?</p> $\frac{16}{2}, \frac{24}{8}, \frac{8}{8}, \frac{24}{3}, \frac{40}{5}$ <p>c) Draw a picture to represent <math>3\frac{3}{4}</math>. Then write <math>3\frac{3}{4}</math> as an improper fraction.</p>	<p><a href="http://www.ixl.com/math/grade-4/convert-between-improper-fractions-and-mixed-numbers">http://www.ixl.com/math/grade-4/convert-between-improper-fractions-and-mixed-numbers</a></p>



<p>MA.4.NS.4:</p>	<p>Explain why a fraction, <math>a/b</math>, is equivalent to a fraction, <math>(n \times a)/(n \times b)</math>, 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 the principle to recognize and generate equivalent fractions. [In grade 4, limit <b>denominators</b> of fractions to 2, 3, 4, 5, 6, 8, 10, 25, 100.]</p>	<p><b>Denominator</b>- the bottom number of a fraction that tells how many parts are in a whole.</p>	<p>a) Which model shows that <math>\frac{3}{4}</math> is equivalent to <math>\frac{6}{8}</math>?</p> <p>A. </p> <p>B. </p> <p>C. </p> <p>b) Name four fractions that are equivalent to <math>\frac{2}{5}</math>.</p>	<p><a href="https://www.illustrativemathematics.org/illustrations/743">https://www.illustrativemathematics.org/illustrations/743</a></p>												
<p>MA.4.NS.5:</p>	<p>Compare two fractions with different <b>numerators</b> and different <b>denominators</b> (e.g., by creating common denominators or numerators, or by comparing to a benchmark, such as 0, <math>\frac{1}{2}</math>, and 1). Recognize comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions (e.g., by using a visual fraction model).</p>	<p><b>Numerator</b>- the top number of a fraction; the number that tells how many parts of a whole are counted.</p> <p><b>Denominator</b>- the bottom number of a fraction that tells how many parts are in a whole.</p>	<p>Use <math>&lt;</math>, <math>=</math>, or <math>&gt;</math> to compare each pair of fractions. Explain how you determined your answers.</p> <ul style="list-style-type: none"> <li>• <math>\frac{3}{4}</math> — <math>\frac{5}{8}</math></li> <li>• <math>\frac{2}{5}</math> — <math>\frac{4}{10}</math></li> <li>• <math>\frac{2}{3}</math> — <math>\frac{12}{25}</math></li> </ul>	<p><a href="https://www.illustrativemathematics.org/illustrations/812">https://www.illustrativemathematics.org/illustrations/812</a></p>												
<p>MA.4.NS.6:</p>	<p>Write tenths and hundredths in decimal and fraction notations. Use words, models, standard form and expanded form to represent decimal numbers to hundredths. Know the fraction and decimal equivalents for halves and fourths (e.g., <math>\frac{1}{2} = 0.5 = 0.50</math>, <math>\frac{7}{4} = 1 \frac{3}{4} = 1.75</math>).</p>		<p>Complete the table to show each number as a fraction and decimal.</p> <table border="1" data-bbox="1098 1300 1698 1446"> <thead> <tr> <th>Number</th> <th>Fraction</th> <th>Decimal</th> </tr> </thead> <tbody> <tr> <td>Six tenths</td> <td></td> <td></td> </tr> <tr> <td>Five hundredths</td> <td></td> <td></td> </tr> <tr> <td>Thirty-two hundredths</td> <td></td> <td></td> </tr> </tbody> </table>	Number	Fraction	Decimal	Six tenths			Five hundredths			Thirty-two hundredths			<p><a href="http://www.ixl.com/math/grade-4/convert-decimals-to-fractions-and-mixed-numbers">http://www.ixl.com/math/grade-4/convert-decimals-to-fractions-and-mixed-numbers</a></p>
Number	Fraction	Decimal														
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MA.4.NS.7:	Compare two decimals to hundredths by reasoning about their size based on the same whole. Record the results of comparisons with the symbols $>$ , $=$ , or $<$ , and justify the conclusions (e.g., by using a visual model).		Use $<$ , $=$ , or $>$ to compare each pair of decimals. Explain how you determined your answers.  <ul style="list-style-type: none"><li>• 0.1 ____ 0.7</li><li>• 0.1 ____ 0.07</li><li>• 0.3 ____ 0.30</li><li>• 0.5 ____ 0.05</li><li>• 0.25 ____ 0.31</li><li>• 1.2 ____ 2.1</li><li>• 2.2 ____ 2.1</li></ul>	<a href="http://www.ixl.com/math/grade-4/compare-decimal-numbers">http://www.ixl.com/math/grade-4/compare-decimal-numbers</a>
MA.4.NS.8:	Find all factor pairs for a whole number in the range 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.		a) List all of the factor pairs of 72.  b) Is 42 a multiple of 3? Explain how you know.	<a href="http://www.ixl.com/math/grade-4/choose-the-multiples-of-a-given-number-up-to-12">http://www.ixl.com/math/grade-4/choose-the-multiples-of-a-given-number-up-to-12</a>
MA.4.NS.9:	Use place value understanding to round multi-digit whole numbers to any given place value.		Round 457,208 to each place value below.  <ul style="list-style-type: none"><li>• hundred-thousand</li><li>• ten-thousand</li><li>• thousand</li><li>• hundred</li><li>• ten</li></ul>	<a href="https://www.illustrativemathematics.org/illustrations/1806">https://www.illustrativemathematics.org/illustrations/1806</a>



Computation				
MA.4.C.1:	Add and subtract multi-digit whole numbers <b>fluently</b> using a standard <b>algorithmic approach</b> .	<b>Algorithmic approach</b> - using a list of well-defined instructions or a step-by-step procedure to solve a problem. <b>Fluently</b> - efficient and accurate	Evaluate each expression. <ul style="list-style-type: none"><li>• <math>3,685 + 45,079</math></li><li>• <math>4,006 - 1,248</math></li><li>• <math>851,37 + 9,009</math></li><li>• <math>705,492 - 36,185</math></li></ul>	<a href="http://www.ixl.com/math/grade-4/add-numbers-up-to-millions">http://www.ixl.com/math/grade-4/add-numbers-up-to-millions</a>  <a href="http://www.ixl.com/math/grade-4/subtract-numbers-up-to-millions">http://www.ixl.com/math/grade-4/subtract-numbers-up-to-millions</a>
MA.4.C.2:	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. Describe the strategy and explain the reasoning.		Evaluate each expression. <ul style="list-style-type: none"><li>• <math>2,368 \times 8</math></li><li>• <math>36 \times 24</math></li></ul>	<a href="http://www.ixl.com/math/grade-4/properties-of-multiplication">http://www.ixl.com/math/grade-4/properties-of-multiplication</a>
MA.4.C.3:	Find whole-number <b>quotients</b> and remainders with up to four-digit dividends and one-digit divisors, using strategies based on <b>place value</b> , the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning.	<b>Quotient</b> - When one number (dividend) is divided by another number (divisor), the result obtained is known as quotient <b>Place value</b> - the value of the place, or position, of a digit in a number	Evaluate each expression. <ul style="list-style-type: none"><li>• <math>4319 \div 7</math></li><li>• <math>2772 \div 8</math></li></ul>	<a href="http://www.ixl.com/math/grade-4/properties-of-division">http://www.ixl.com/math/grade-4/properties-of-division</a>
MA.4.C.4:	Multiply <b>fluently</b> within 100.	<b>Fluently</b> - efficient and accurate	Evaluate each expression. <ul style="list-style-type: none"><li>• <math>16 \times 6</math></li><li>• <math>23 \times 4</math></li><li>• <math>5 \times 13</math></li><li>• <math>39 \times 2</math></li></ul>	<a href="http://www.ixl.com/math/grade-4/multiplication-facts-to-12">http://www.ixl.com/math/grade-4/multiplication-facts-to-12</a>



MA.4.C.5:	Add and subtract fractions with common denominators. <b>Decompose a fraction</b> into a sum of fractions with common denominators. Understand addition and subtraction of fractions as combining and separating parts referring to the same whole.	<b>Decompose a fraction</b> - find two (or more) fractions that when added together give you the fraction you started with.	a) The fraction $\frac{5}{6}$ can be written as $\frac{1}{6} + \frac{4}{6}$ . Write $\frac{5}{6}$ as a sum of two or more fractions in three different ways.  b) $\frac{5}{8} + \frac{2}{8} =$  c) $\frac{4}{10} - \frac{3}{10} =$	<a href="http://www.ixl.com/math/grade-4/add-and-subtract-fractions-with-like-denominators">http://www.ixl.com/math/grade-4/add-and-subtract-fractions-with-like-denominators</a>
MA.4.C.6:	Add and subtract mixed numbers with common denominators (e.g. by replacing each mixed number with an <b>equivalent fraction</b> and/or by using properties of operations and the relationship between addition and subtraction).	<b>Equivalent fraction</b> - different fractions that name the same amount.	a) $5\frac{3}{4} + 2\frac{3}{4} =$  b) $6\frac{2}{3} - 4\frac{1}{3} =$	<a href="https://www.illustrativemathematics.org/illustrations/874">https://www.illustrativemathematics.org/illustrations/874</a>
MA.4.C.7:	Show how the order in which two numbers are multiplied (commutative property) and how numbers are grouped in multiplication (associative property) will not change the product. Use these properties to show that numbers can be multiplied in any order. Understand and use the distributive property.		a) One way to multiply $6 \times 2 \times 5$ is to first multiply 6 and 2, then multiply that value by 5. Describe another way to multiply these three numbers. What is $6 \times 2 \times 5$ ?  b) Evaluate: $7(3 + 2)$  c) Evaluate: $5(8 - 6)$	<a href="http://www.ixl.com/math/grade-3/properties-of-multiplication">http://www.ixl.com/math/grade-3/properties-of-multiplication</a>



Algebraic Thinking				
MA.4.AT.1:	Solve real-world problems involving addition and subtraction of multi-digit whole numbers (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).		<p>a) Milagro has 52,500 baseball cards. Julie has 109,078 baseball cards. Carl has 1,048 baseball cards. How many more cards does Julie have than Milagro and Carl combined?</p> <p>b) Barry and Tina participated in a reading contest last year. They read a combined total of 12,082 pages. Barry read 5,916 pages. How many pages did Tina read?</p>	<a href="https://www.illustrativemathematics.org/illustrations/1289">https://www.illustrativemathematics.org/illustrations/1289</a>
MA.4.AT.2:	Recognize and apply the relationships between addition and multiplication, between subtraction and division, and the <b>inverse relationship</b> between multiplication and division to solve real-world and other mathematical problems.	<b>Inverse operation-</b> An operation that undoes another. <i>(Ex: multiplication is the inverse operation of division.)</i>	Jasmine has 7 bags with 6 marbles in each bag. She says that the only way to determine the total number of marbles is to do $6 + 6 + 6 + 6 + 6 + 6 + 6$ . Is Jasmine correct or can you describe another way without using addition to determine the total number of marbles? What is the total number of marbles?	<a href="http://www.ixl.com/math/grade-4/properties-of-division">http://www.ixl.com/math/grade-4/properties-of-division</a>
MA.4.AT.3:	Interpret a multiplication equation as a comparison (e.g., interpret $35 = 5 \times 7$ 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.		Write an equation that describes 4 times as many as 8.	<a href="https://learnzillion.com/lessonsets/539-interpret-multiplication-as-a-comparison">https://learnzillion.com/lessonsets/539-interpret-multiplication-as-a-comparison</a>
MA.4.AT.4:	Solve real-world problems with whole numbers involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem), distinguishing multiplicative comparison from additive comparison. [In grade 4, division problems should not include a remainder.]		<p>a) Sam has \$7. Amy has 4 times as much as Sam. How much money does Amy have?</p> <p>b) Teah has \$72 and that is 8 times as much as Ray. How much money does Ray have?</p> <p>c) Madison has \$88 and Tyler has \$22. How many times more does Madison have as compared to Tyler?</p>	<a href="https://www.illustrativemathematics.org/illustrations/263">https://www.illustrativemathematics.org/illustrations/263</a>

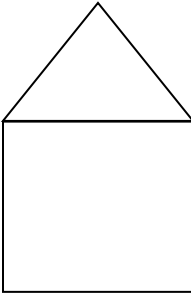
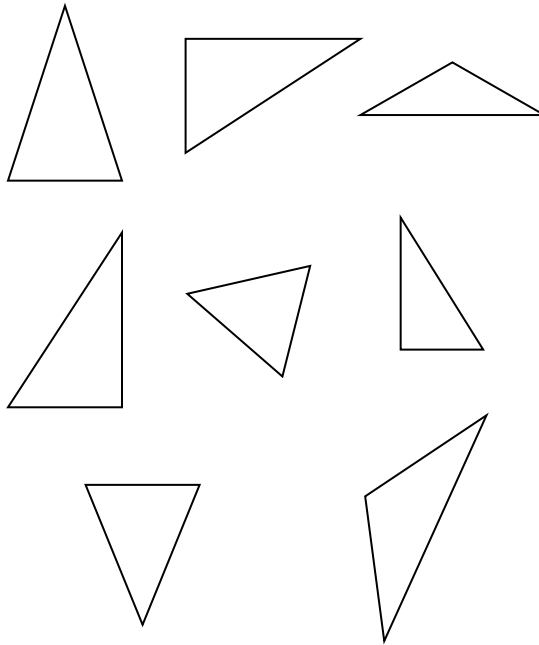


MA.4.AT.5:	Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having common denominators (e.g., by using visual fraction models and equations to represent the problem).		a) Josie and Sabrina shared a pizza. Josie ate $\frac{3}{6}$ of the pizza and Sabrina ate $\frac{2}{6}$ of the pizza. How much of the pizza did they eat altogether?  b) Kim has $3\frac{3}{8}$ pies left over from a party. After giving some to her dad, she has $1\frac{1}{8}$ pies left. How much pie did Kim give to her dad?	<a href="http://www.ixl.com/math/grade-4/add-and-subtract-fractions-with-like-denominators-word-problems">http://www.ixl.com/math/grade-4/add-and-subtract-fractions-with-like-denominators-word-problems</a>												
MA.4.AT.6:	Understand that an equation, such as $y = 3x + 5$ , is a rule to describe a relationship between two variables and can be used to find a second number when a first number is given. Generate a number pattern that follows a given rule.		a) Erin makes a picture in art class. For every square she uses in her picture, she uses 5 triangles. The equation $T = 5s$ represents this relationship where T represents the number of triangles and s represents the number of squares. How many triangles does Erin use if she uses 9 squares, 10 squares, 11 squares?  b) Use the equation $y = 3x - 2$ to determine the values of y for the given values of x.  <table border="1" data-bbox="1289 915 1514 1138"><thead><tr><th>x</th><th>y</th></tr></thead><tbody><tr><td>1</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>3</td><td></td></tr><tr><td>4</td><td></td></tr><tr><td>5</td><td></td></tr></tbody></table>	x	y	1		2		3		4		5		<a href="http://www.ixl.com/math/grade-4/function-tables">http://www.ixl.com/math/grade-4/function-tables</a>
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<b>Geometry</b>			
MA.4.G.1:	Identify, describe, and draw <b>parallelograms</b> , <b>rhombuses</b> , and <b>trapezoids</b> using appropriate tools (e.g., ruler, straightedge and technology).	<p><b>Parallelogram</b>- a quadrilateral that has two pairs of parallel sides.</p> <p><b>Rhombuses</b>- a parallelogram with all four sides of equal length</p> <p><b>Trapezoid</b>- a quadrilateral with exactly one pair of parallel sides.</p>	<p>Draw a parallelogram, rhombus, and trapezoid and describe how they are similar and different.</p> <p><a href="http://www.ixl.com/math/grade-4/identify-planar-and-solid-figures">http://www.ixl.com/math/grade-4/identify-planar-and-solid-figures</a></p>
MA.4.G.2:	Recognize and draw lines of <b>symmetry</b> in two-dimensional figures. Identify figures that have lines of symmetry.	<p><b>Symmetry</b>- correspondence in size and shape on either side of a dividing line.</p>	<p>Draw as many lines of symmetry as possible for each of the given figures.</p> <div style="text-align: center;"> </div> <p><a href="https://www.illustrativemathematics.org/illustrations/676">https://www.illustrativemathematics.org/illustrations/676</a></p>
MA.4.G.3:	Recognize angles as geometric shapes that are formed wherever two <b>rays</b> share a common endpoint.	<p><b>Ray</b> - a part of a line that begins at a point and continues without end in one direction</p>	<p>Circle each picture that represents an angle.</p> <div style="text-align: center;"> </div> <p><a href="http://www.ixl.com/math/grade-4/estimate-angle-measurements">http://www.ixl.com/math/grade-4/estimate-angle-measurements</a></p>



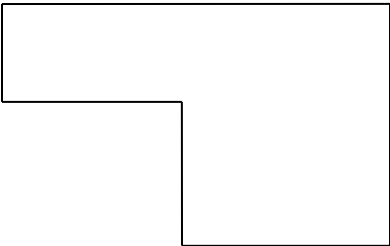
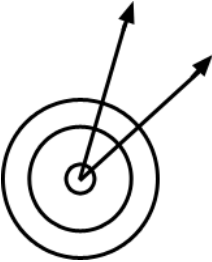
MA.4.G.4:	Identify, describe, and draw rays, angles (right, acute, obtuse), and <b>perpendicular and parallel lines</b> using appropriate tools (e.g., ruler, straightedge and technology). Identify these in two-dimensional figures.	<b>Perpendicular lines</b> - lines that intersect at right angles <b>Parallel lines</b> - lines that do not intersect	In the picture below, identify all of the pairs of parallel and perpendicular lines, and all of the right and acute angles. 	<a href="http://www.ixl.com/math/grade-4/acute-right-obtuse-and-straight-angles">http://www.ixl.com/math/grade-4/acute-right-obtuse-and-straight-angles</a>
MA.4.G.5:	Classify <b>triangles</b> and <b>quadrilaterals</b> based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse).	<b>Triangle</b> - a three-sided polygon <b>Quadrilateral</b> - a four-sided polygon	Classify the triangles into 3 groups; triangles with a right angle, triangles with an obtuse angle, and triangles with only acute angles. 	<a href="http://www.ixl.com/math/grade-4/which-2-dimensional-shape-is-being-described">http://www.ixl.com/math/grade-4/which-2-dimensional-shape-is-being-described</a>



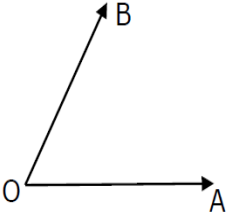
Measurement

MA.4.M.1:	Measure length to the nearest quarter-inch, eighth-inch, and millimeter.		Use a ruler to measure the line segment to the nearest quarter-inch, eighth-inch, and millimeter.  _____	<a href="http://www.ck12.org/measurement/Length-Measurements-to-a-Fraction-of-an-Inch/lesson/Length-Measurements-to-a-Fraction-of-an-Inch/r17/">http://www.ck12.org/measurement/Length-Measurements-to-a-Fraction-of-an-Inch/lesson/Length-Measurements-to-a-Fraction-of-an-Inch/r17/</a>																								
MA.4.M.2:	Know relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. Express measurements in a larger unit in terms of a smaller unit within a single system of measurement. Record measurement equivalents in a two-column table.		Complete the tables to show the relationship between the units.  <table border="1" data-bbox="1245 659 1566 883"> <thead> <tr><th>hours</th><th>minutes</th></tr> </thead> <tbody> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>5</td><td></td></tr> </tbody> </table> <table border="1" data-bbox="1245 919 1566 1143"> <thead> <tr><th>meters</th><th>centimeters</th></tr> </thead> <tbody> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>9</td><td></td></tr> </tbody> </table>	hours	minutes	1		2		3		4		5		meters	centimeters	1		2		3		4		9		<a href="http://www.ixl.com/math/grade-4/compare-and-convert-customary-units">http://www.ixl.com/math/grade-4/compare-and-convert-customary-units</a>  <a href="http://www.ixl.com/math/grade-4/compare-and-convert-metric-units">http://www.ixl.com/math/grade-4/compare-and-convert-metric-units</a>
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9																												
MA.4.M.3:	Use the four operations (addition, subtraction, multiplication and division) to solve real-world problems involving distances, intervals of time, <b>volumes</b> , <b>masses</b> of objects, and money. Include addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	<b>Mass</b> - the amount of matter an object contains. <b>Volume</b> - the amount of 3-dimensional space an object occupies; capacity	Ted played outside for $3\frac{1}{2}$ hours. Kelly played outside for $1\frac{1}{2}$ hours. <ul style="list-style-type: none"> <li>How many hours did they play outside altogether?</li> <li>How many more minutes did Ted play outside than Kelly?</li> </ul>	<a href="http://www.ixl.com/math/grade-4/price-lists-with-multiplication">http://www.ixl.com/math/grade-4/price-lists-with-multiplication</a>  <a href="http://www.ixl.com/math/grade-4/add-and-subtract-mixed-time-units">http://www.ixl.com/math/grade-4/add-and-subtract-mixed-time-units</a>																								



<p>MA.4.M.4:</p>	<p>Apply the <b>area</b> and <b>perimeter</b> formulas for rectangles to solve real-world problems and other mathematical problems. Recognize area as additive and find the area of complex shapes composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts; apply this technique to solve real-world problems and other mathematical problems involving shapes.</p>	<p><b>Area</b>- the number of square units needed to cover a surface <b>Perimeter</b>- the distance around a closed two-dimensional shape</p>	<p>What is the area and perimeter of the figure below?</p>  <p>22 ft.</p> <p>7 ft.</p> <p>16 ft.</p> <p>12 ft.</p>	<p><a href="http://www.ixl.com/math/grade-4/area-of-complex-figures-with-all-right-angles">http://www.ixl.com/math/grade-4/area-of-complex-figures-with-all-right-angles</a></p>
<p>MA.4.M.5:</p>	<p>Understand that an angle is measured with reference to a circle, with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. Understand an angle that turns through <math>\frac{1}{360}</math> of a circle is called a “one-degree angle,” and can be used to measure other angles. Understand an angle that turns through n one-degree angles is said to have an angle measure of n degrees.</p>		<p>The diagram below may help students understand that an angle measurement is not related to area since the area between the 2 rays is different for the 3 circles yet the angle measure is the same.</p> 	<p><a href="https://learnzillion.com/lessons?utf8=%E2%9C%93&amp;filters%5Bsubject%5D=math&amp;query=4.MD.5a">https://learnzillion.com/lessons?utf8=%E2%9C%93&amp;filters%5Bsubject%5D=math&amp;query=4.MD.5a</a></p>



MA.4.M.6:	Measure angles in whole-number degrees using appropriate tools. Sketch angles of specified measure.		<p>Before students begin measuring angles with protractors, they need to have some experiences with benchmark angles. They transfer their understanding that a <math>360^\circ</math> rotation about a point makes a complete circle to recognize and sketch angles that measure approximately <math>90^\circ</math> and <math>180^\circ</math>. They extend this understanding and recognize and sketch angles that measure approximately <math>45^\circ</math> and <math>30^\circ</math>. They use appropriate terminology (acute, right, and obtuse) to describe angles and rays (perpendicular).</p> <p>a) Use a protractor to determine the measure of angle AOB.</p> 	<a href="http://www.ixl.com/math/grade-4/measure-angles-with-a-protractor">http://www.ixl.com/math/grade-4/measure-angles-with-a-protractor</a>
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Data Analysis

MA.4.DA.1:	Formulate questions that can be addressed with data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, and bar graphs.		Activity: Students can formulate a statistical question of interest and conduct an observation, survey, or experiment. They can collect, organize, and display their data, and make observations based on their data display. (Examples: conduct a survey in class about favorite color, food, etc.; observe and tally the different colors of shirts classmates wear to school on a given day.)	<a href="http://www.ixl.com/math/grade-4/make-predictions">http://www.ixl.com/math/grade-4/make-predictions</a>																				
MA.4.DA.2:	Make a <b>line plot</b> to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{8}$ ). Solve problems involving addition and subtraction of fractions by using data displayed in line plots.	<b>Line Plot</b> - data represented with check marks, X's, or other symbols above a number line to show the frequency of each value	<p>a) Activity: Students can measure the length of their right hand (in a standardized manner) to the nearest quarter-inch. Then, compile the data and make a line plot to display and analyze the data.</p> <p>b) Ten students measured their pencils to the nearest eighth-inch. They recorded their results as shown in the line plot below.</p> <div style="text-align: center;"> <table style="margin: auto;"> <tr><td></td><td>X</td><td></td><td>X</td><td></td></tr> <tr><td></td><td>X</td><td></td><td>X</td><td>X</td></tr> <tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> </table> <hr style="width: 50%; margin: 0 auto;"/> <table style="margin: auto;"> <tr> <td style="text-align: center;"><math>3\frac{4}{8}</math></td> <td style="text-align: center;">4</td> <td style="text-align: center;"><math>4\frac{2}{8}</math></td> <td style="text-align: center;"><math>5\frac{1}{8}</math></td> <td style="text-align: center;"><math>5\frac{5}{8}</math></td> </tr> </table> </div> <ul style="list-style-type: none"> <li>• What is the difference in length between the longest and shortest pencil?</li> <li>• If you were to line up all 10 pencils, what would the total length be?</li> </ul>		X		X			X		X	X	X	X	X	X	X	$3\frac{4}{8}$	4	$4\frac{2}{8}$	$5\frac{1}{8}$	$5\frac{5}{8}$	<a href="http://www.ixl.com/math/grade-4/create-line-plots">http://www.ixl.com/math/grade-4/create-line-plots</a>
	X		X																					
	X		X	X																				
X	X	X	X	X																				
$3\frac{4}{8}$	4	$4\frac{2}{8}$	$5\frac{1}{8}$	$5\frac{5}{8}$																				



<p>MA.4.DA.3:</p>	<p>Interpret data displayed in a <b>circle graph</b>.</p>	<p><b>Circle graph</b>- a graph made of a circle divided into sectors; also called a pie chart or pie graph</p>	<p>Jim asked the students in his class to choose their favorite color out of blue, red, and green. He represented this data in a circle graph as shown below.</p> <div data-bbox="1108 378 1690 776" data-label="Figure"><table border="1"><caption>Favorite Color Data</caption><thead><tr><th>Color</th><th>Number of Sectors</th><th>Fraction of Class</th></tr></thead><tbody><tr><td>Blue</td><td>2</td><td><math>\frac{1}{2}</math></td></tr><tr><td>Green</td><td>1</td><td><math>\frac{1}{4}</math></td></tr><tr><td>Red</td><td>1</td><td><math>\frac{1}{4}</math></td></tr><tr><td>White</td><td>1</td><td><math>\frac{1}{4}</math></td></tr></tbody></table></div> <p>Based on the graph, which statements are true?</p> <ul style="list-style-type: none"><li>• About <math>\frac{1}{4}</math> of the class chose blue as their favorite color.</li><li>• About <math>\frac{1}{2}</math> of the class chose blue as their favorite color.</li><li>• About <math>\frac{1}{2}</math> of the class chose green or red as their favorite color.</li><li>• The color chosen most was blue.</li><li>• Red and green were chosen the same amount.</li></ul>	Color	Number of Sectors	Fraction of Class	Blue	2	$\frac{1}{2}$	Green	1	$\frac{1}{4}$	Red	1	$\frac{1}{4}$	White	1	$\frac{1}{4}$	<p><a href="http://www.ck12.org/statistics/Interpretation-of-Circle-Graphs/lesson/Interpretation-of-Circle-Graphs-Grade-7/r9/">http://www.ck12.org/statistics/Interpretation-of-Circle-Graphs/lesson/Interpretation-of-Circle-Graphs-Grade-7/r9/</a></p>
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