

## Common Core State Standards for Mathematics

### Grade 4: The Big Picture

Domains	Operations and Algebraic Thinking	Number & Operations in Base Ten	Number & Operations: <i>Fractions</i>	Measurement and Data	Geometry
Clusters	<ul style="list-style-type: none"> <li>Use the four operations with whole numbers to solve problems</li> <li>Gain familiarity with factors and multiples</li> <li>Generate and analyze patterns</li> </ul>	<ul style="list-style-type: none"> <li>Generalize place value understanding for multi-digit whole numbers</li> <li>Use place value understanding and properties of operations to perform multi-digit arithmetic</li> </ul>	<ul style="list-style-type: none"> <li>Extend understanding of fraction equivalence and ordering</li> <li>Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers</li> <li>Understand decimal notation for fractions, and compare decimal fractions</li> </ul>	<ul style="list-style-type: none"> <li>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit</li> <li>Represent and interpret data</li> <li>Geometric measurement: understand concepts of angle and measure angles</li> </ul>	<ul style="list-style-type: none"> <li>Draw and identify lines and angles, and classify shapes by properties of their lines and angles</li> </ul>
Mathematical Practices	1. Make sense of problems and persevere in solving them.	3. Construct viable arguments and critique the reasoning of others.	5. Use appropriate tools strategically.	7. Look for and make use of structure.	
	2. Reason abstractly and quantitatively.	4. Model with mathematics.	6. Attend to precision.	8. Look for and express regularity in repeated reasoning.	

In Grade 4, instructional time should focus on three critical areas:

**1. Developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends**

- Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

**2. Developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, multiplication of fractions by whole numbers**

- Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g.,  $15/9 = 5/3$ ), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

**3. Understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry**

- Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

**GRADE 4 MATHEMATICS: Crosswalk between the Common Core State Standards (CCSS) and the Hawaii Content and Performance Standards (HCPS) III**

Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
4.OA.1	Interpret a multiplication equation as a comparison; for example, 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.	No HCPS3 benchmark at this grade level.  <i>Related benchmark at another grade level: 3.2.2: Select and apply various meanings and representations of multiplication and division.</i>	N/A	This Common Core Standard is a new learning expectation for this grade level.  A variety of experiences with concrete and semi-concrete representations would assist students to develop the conceptual understanding for both learning expectations being targeted in this CC standard.
4.OA.2	Multiply or divide to solve word problems involving multiplicative comparison, for example, by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	4.10.1: Use symbols to represent unknown quantities in open sentences and determine the unknown quantities.  <i>Related benchmark at another grade level: 3.2.1: Recognize situations involving multiplication and division of whole numbers and represent the situation with number sentence.</i>	2	Building on 4.OA.1, this CC standard focuses upon word problems involving multiplicative comparisons, whereas the HCPS III benchmark 4.10.1 does not limit the focus to specific operations.  For information regarding what is meant by common multiplication and division situations, refer to Table 2 of the Glossary (page 89) in the official CCSS for Mathematics document (a PDF of the document may be downloaded at <a href="http://www.corestandards.org/the-standards">www.corestandards.org/the-standards</a> ).
4.OA.3	Solve multistep word 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.	4.10.1: Use symbols to represent unknown quantities in open sentences and determine the unknown quantities.  4.3.5: Determine the reasonableness of numerical solutions.	2	
4.OA.4	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. Determine whether a given whole number in the range 1-100 is prime or composite.	4.1.2: Identify and list factors, multiples, prime numbers and composite numbers.	3	

\* Degree of Match: 1 = WEAK (major aspect of the CC not addressed in HCPS III); 2 = GOOD (minor aspect of the CC not addressed in HCPS III); 3 = EXCELLENT

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
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. For example: Given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.	4.9.1: Extend, create, and generalize growing and shrinking numeric and geometric patterns (including multiplication patterns).  <i>Related benchmarks at another grade level: 3.9.1: Create and describe growing numerical and spatial patterns and generalize a rule for the pattern; and, 2.9.1: Describe and create addition and subtraction number patterns (e.g., [20, 17, 14, ...]).</i>	2	The main difference between the CC standard and the HCPS III benchmark is the expectation to " <i>identify apparent features of the pattern that were not explicit in the rule itself.</i> "
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. For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)	4.1.1: Identify place value from ten-thousandths to millions.	1	The CC standard emphasizes an understanding the value of each digit in relation to the digit to its right. For example, in the number 444, the "middle 4" really represents the number 40, while the 4 that is furthest to the left really represents the number 400.
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 digits in each place, using $>$ , $=$ , and $<$ symbols to record the results of comparisons.	4.1.1: Identify place value from ten-thousandths to millions.	1	The taxonomic level of the CC standard is considerably different than that of the HCPS III benchmarks. In addition, the CC standard builds upon 4.NBT.1 by applying those skills to reading, writing, and comparing multi-digit whole numbers.  <b><i>Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.</i></b>
4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.	4.1.1: Identify place value from ten-thousandths to millions.	1	Builds upon 4.NBT.1 & 4.NBT.2 placing greater attention on rounding and estimating.  <b><i>Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.</i></b>

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## GRADE 4 MATHEMATICS: Crosswalk between the Common Core State Standards (CCSS) and the Hawaii Content and Performance Standards (HCPS) III

Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
4.NBT.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm.	4.3.2: Select and use appropriate strategies and/or tools (e.g., mental math, calculators, paper/pencil, standard algorithms) for computing whole numbers.  <i>Related benchmark at another grade level: 3.3.2: Use a variety of strategies to solve problems involving addition and subtraction of two- and three-digit numbers.</i>	3	In the CCSS, the strategy of composing and decomposing numbers is a critical area of emphasis for early elementary grades (written on paper and mentally). This strategy represents the algebra that students need to have experience with as they begin to learn computation algorithms. Thus, this 4th grade learning expectation should build upon those strategies learned in previous grades to develop mastery of a standard algorithm. The computation algorithms should generalize the strategies learned and thus, should be introduced later in the learning progression rather than at the beginning.  <b><i>Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.</i></b>
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.	4.3.2: Select and use appropriate strategies and/or tools (e.g., mental math, calculators, paper/pencil, standard algorithms) for computing whole numbers. 4.2.2: Use associative, commutative, and distributive properties as they apply to operations involving whole numbers. 4.2.3: Apply the properties of zero and one as they relate to addition, subtraction, multiplication, and division. 4.3.1: Recall all multiplication facts and the corresponding division facts up to 12 x 12.	3	
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.	4.3.2: Select and use appropriate strategies and/or tools (e.g., mental math, calculators, paper/pencil, standard algorithms) for computing whole numbers. 4.2.2: Use associative, commutative, and distributive properties as they apply to operations involving whole numbers. 4.2.3: Apply the properties of zero and one as they relate to addition, subtraction, multiplication, and division. 4.3.1: Recall all multiplication facts and the corresponding division facts up to 12 x 12.	3	

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
4.NF.1	Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{(n \times a)}{(n \times b)}$ 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. <b>Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 100.</b>	4.1.3: Identify equivalent forms of commonly used fractions and decimals.	1	The taxonomic level of the CC standard is considerably different than that of the HCPS III benchmark. A variety of experiences with concrete and semi-concrete representations would assist students to develop the conceptual understanding for both learning expectations being targeted in this CC standard.
4.NF.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$ . Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$ , $=$ , or $<$ , and justify the conclusions, e.g., by using a visual fraction model. <b>Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 100.</b>	No HCPS3 benchmark at this grade level.  <i>Related benchmark at another grade level: 5.1.3: Use models, benchmarks, and equivalent forms to judge the size of fractions and order them.</i>	N/A	This Common Core Standard is a new learning expectation for this grade level.  A variety of experiences with concrete and semi-concrete representations would assist students to develop the conceptual understanding for the learning expectations being targeted in this CC standard.
4.NF.3	Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$ . a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ ; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$ ; $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$ . c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	4.3.3: Use a variety of strategies to add and subtract fractions with like and unlike denominators.  4.2.1: Describe situations involving addition and subtraction of fractions and decimals.  <i>Related benchmarks at another grade level: 3.1.4: Use fractions with denominators up to 12 to solve problems; and, 2.1.3: Represent fractions with denominators no larger than ten using pictures, numbers, words, or models.</i>	1	The taxonomic level of the CC standard is considerably different from that of the HCPS III benchmarks. This standard builds on CC standard 4.NF.1 and 4.NF.2. Due to the numerous components of the CC standard, instructional planning should consider how to support students through a progression learning opportunities over time in order to develop mastery.  <b>Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 100.</b>

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
4.NF.4	<p>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>a. Understand a fraction <math>\frac{a}{b}</math> as a multiple of <math>\frac{1}{b}</math>. For example, use a visual fraction model to represent <math>\frac{5}{4}</math> as the product <math>5 \times (\frac{1}{4})</math>, recording the conclusion by the equation <math>\frac{5}{4} = 5 \times (\frac{1}{4})</math>.</p> <p>b. Understand a multiple of <math>\frac{a}{b}</math> as a multiple of <math>\frac{1}{b}</math>, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express <math>3 \times (\frac{2}{5})</math> as <math>6 \times (\frac{1}{5})</math>, recognizing this product as <math>\frac{6}{5}</math>. (In general, <math>n \times (\frac{a}{b}) = (\frac{n \times a}{b})</math>.)</p> <p>c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat <math>\frac{3}{8}</math> of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</p>	<p>No HCPS3 benchmark at this grade level.</p> <p><i>Related benchmarks at another grade level: 5.3.2: Use a variety of strategies to multiply and divide fractions; and, 5.2.2: Describe situations involving multiplication and division of fractions and decimals.</i></p>	N/A	<p>This Common Core Standard is a new learning expectation for this grade level. This standard builds on students' prior learning experiences related to the concept of multiplication. Due to the numerous components of the CC standard, instructional planning should consider how to support students through a progression learning opportunities over time in order to develop mastery. <b>Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 100.</b></p>
4.NF.5	<p>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. For example, express <math>\frac{3}{10}</math> as <math>\frac{30}{100}</math> and add <math>\frac{3}{10} + \frac{4}{100} = \frac{34}{100}</math>.</p> <p>(Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.)</p>	<p>4.1.3: Identify equivalent forms of commonly used fractions and decimals.</p> <p>4.3.3: Use a variety of strategies to add and subtract fractions with like and unlike denominators.</p>	1	<p>The focus of the CC standard is on generating equivalent fractions for fractions with denominators of 10 and 100. This standard provides a foundation for 5th grade learning expectations regarding addition and subtraction of fractions with unlike denominators.</p>

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
4.NF.6	Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$ ; describe a length as 0.62 meters; locate 0.62 on a number line diagram.	4.1.3: Identify equivalent forms of commonly used fractions and decimals.  <i>Related benchmarks at another grade level: 5.1.2: Use equivalent forms of whole numbers, fractions, ratios, decimals, and percents to solve problems.</i>	2	The taxonomic level of the CC standard is quite different from that of the HCPS III benchmark. The CC standard expects that students will use their understanding of fractions (beginning specifically with denominators of 10 and 100) to build a foundation for the use of decimal notation. A variety of experiences with concrete and semi-concrete representations would assist students to develop the conceptual understanding for the learning expectations being targeted in this CC standard. Reference the 3rd grade CC standards in the domain on fractions to identify the prior background knowledge to build upon.
4.NF.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when two decimals refer to the same whole. Record the results of comparisons with the symbols $>$ , $=$ , or $<$ , and justify the conclusions, e.g., by using a visual model.	4.1.1: Identify place value from ten-thousandths to millions.  4.1.3: Identify equivalent forms of commonly used fractions and decimals.	2	This CC standard builds upon the learning expectation of 4.NF.6.  <b><i>Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 100.</i></b>
4.MD.1	Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of smaller unit. Record measurement equivalents in a two-column table. For example: Know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ....	No HCPS3 benchmark at this grade level. <i>Related benchmark at another grade level: 5.4.1: Convert simple units within a system of measurement (e.g., millimeters to centimeters, feet to yard, quarts to gallons, gram to kilogram, minutes to hours, days to weeks).</i>	N/A	This Common Core Standard is a new learning expectation for this grade level.
4.MD.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	No HCPS3 benchmark at this grade level.  <i>Related benchmark at another grade level: 5.4.1: Convert simple units within a system of measurement (e.g., millimeters to centimeters, feet to yard, quarts to gallons, gram to kilogram, minutes to hours, days to weeks).</i>	N/A	This Common Core Standard is a new learning expectation for this grade level.

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
4.MD.3	Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.	4.4.5: Use known measurements to calculate desired measurements of squares and rectangles (e.g., use the length of the square to calculate its area and perimeter).	3	
4.MD.4	Make a line plot 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 information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.	No HCPS3 benchmark at this grade level.	N/A	This Common Core Standard is a new learning expectation for this grade level.
4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:  a. 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. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles.  b. An angle that turns through $n$ one-degree angles is said to have an angle measure of $n$ degrees.	4.4.3: Classify right angles, acute angles, obtuse angles, and straight angles.  <i>Related benchmarks at another grade level: 5.4.2: Select and apply units and tools to measure angles; and, 5.4.4: Estimate and measure the size of an angle.</i>	1	Developing the concept of angle measurement, as specified in this CC standard, builds upon students' prior learning experiences with measuring length and area. Learning opportunities should build upon students' prior knowledge and understanding that measuring length and area is fundamentally about iterating a standard unit and counting up the number units used. This CC standard provides a great opportunity to develop connections between important mathematical ideas.
4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	No HCPS3 benchmark at this grade level. <i>Related benchmarks at another grade level: 5.4.2: Select and apply units and tools to measure angles; 5.4.4: Estimate and measure the size of an angle; and, 6.4.2: Construct angles with a given degree measure.</i>	N/A	This Common Core Standard is a new learning expectation for this grade level. This CC standard is a learning target that was previously expected in grades 4 and 5 (in HCPS III).

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
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, for example, by using an equation with a symbol for the unknown angle measure.	4.10.1: Use symbols to represent unknown quantities in open sentences and determine the unknown quantities.	1	This Common Core Standard is essentially a new learning expectation for this grade level (with respect to composing and decomposing angles).
4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel line. Identify these in two-dimensional figures.	4.4.3: Classify right angles, acute angles, obtuse angles, and straight angles.  4.5.2: Describe lines in the plane (i.e., parallel, perpendicular, intersecting).  4.5.3: Compare points, lines, line segments, and rays.	2	
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 specified size. Recognize right triangles as a category, and identify right triangles.	4.5.1: Classify different types of triangles and quadrilaterals according to their properties and identify the properties that define the classifications.	2	
4.G.3	Recognize a line of symmetry for a two-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.	No HCPS3 benchmark at this grade level.  <i>Related benchmark at another grade level: 2.6.2: Recognize line symmetry in plane figures and create pictures with line symmetry.</i>	N/A	This Common Core Standard is a new learning expectation for this grade level.

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## MATHEMATICS: HCPS III Benchmarks Mapped to the Common Core State Standards

## GRADE 4

HCPS III Code	HCPS III Benchmark	Related Common Core Standard
4.1.1	Identify place value from ten-thousandths to millions	4.NBT.1, 4.NBT.2, 4.NBT.3, 4.NF.7
4.1.2	Identify and list factors, multiples, prime numbers, and composite numbers	4.OA.4
4.1.3	Identify equivalent forms of commonly used fractions and decimals	4.NF.1, 4.NF.5, 4.NF.6, 4.NF.7
4.2.1	Describe situations involving addition and subtraction of fractions and decimals	4.NF.3
4.2.2	Use associative, commutative, and distributive properties as they apply to operations involving whole numbers	4.NBT.5, 4.NBT.6
4.2.3	Apply the properties of zero and one as they relate to addition, subtraction, multiplication, and division	4.NBT.5, 4.NBT.6
4.3.1	Recall all multiplication facts and the corresponding division facts up to 12 x 12	4.NBT.5, 4.NBT.6
4.3.2	Select and use appropriate strategies and/or tools (e.g., mental math, calculators, paper/pencil, standard algorithms) for computing whole numbers	4.NBT.4, 4.NBT.5, 4.NBT.6
4.3.3	Use a variety of strategies to add and subtract fractions with like and unlike denominators	4.NF.3, 4.NF.5
4.3.4	Add and subtract decimals to 3 places	None
4.3.5	Determine the reasonableness of numerical solutions	4.OA.3
4.4.1	Explain the need to use standard units for measuring	None
4.4.2	Select and apply appropriate units and tools to measure length, perimeter, and area for the degree of accuracy needed	None
4.4.3	Classify right angles, acute angles, obtuse angles, and straight angles	4.MD.5, 4.MD.6, 4.G.1
4.4.4	Estimate and measure surface area and volume using U.S. customary units and metric units	None
4.4.5	Use known measurements to calculate desired measurements of squares and rectangles (e.g., use the length of the square to calculate area and perimeter)	4.MD.3
4.5.1	Classify different types of triangles and quadrilaterals according to their properties and identify the properties that define the classifications	4.G.2
4.5.2	Describe lines in the plane (i.e., parallel, perpendicular, intersecting)	4.G.1
4.5.3	Compare points, lines, line segments, and rays	4.G.1
4.5.4	Predict and confirm the results of putting together and taking apart two- and three-dimensional shapes	None
4.6.1	Use flips, slides, and turns to determine if two figures are congruent	None
4.6.2	Locate the plane of symmetry in three-dimensional objects	None
4.7.1	Predict the three-dimensional object that will result from folding a two-dimensional net of the object and justify the prediction	None
4.8.1	Use ordered pairs to plot points on a coordinate grid	None
4.9.1	Extend, create, and generalize growing and shrinking numeric and geometric patterns (including multiplication patterns)	4.OA.5
4.9.2	Represent the relationship between quantities in a variety of forms (e.g., manipulatives, tables, pictures, symbols)	4.OA.5
4.10.1	Use symbols to represent unknown quantities in open sentences and determine the unknown quantities	4.OA.2, 4.OA.3, 4.MD.7
4.10.2	Represent the commutative, associative, and distributive properties symbolically	None
4.10.3	Describe the rate of change numerically and verbally based on data recorded in a table or graph	None
4.11.1	Pose questions, collect data using observations and experiments, and organize the data into tables or graphs	None
4.11.2	Label the parts of a graph (e.g., axes, scale, legend, title)	None
4.12.1	Compare related data sets (e.g., height of 4 <sup>th</sup> grade boys vs. height of 4 <sup>th</sup> grade girls) with an emphasis on how the data are distributed	None
4.12.2	Analyze important features in the shape of the graph of a data set	None
4.13.1	Propose and justify conclusions/predictions based on data	None
4.14.1	Predict the probability of outcomes of simple experiments (e.g., coin toss, 4-colored spinner) and test the predictions	None